

# STORMWATER MANAGEMENT REPORT

*for*

**Fueling Station and Convenience Store  
Block 44, Lot 6**

**Township of Elk  
Gloucester County, New Jersey**

Prepared by:



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A handwritten signature in blue ink, appearing to read 'Michael Textores', positioned above a horizontal line.

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## I. INTRODUCTION

This project was designed to accommodate the stormwater runoff conditions that occur as a result of development of Block 44, Lot 6 in Elk Township, New Jersey. The development will consist of the construction of a fueling station and convenience store with all associated site improvements. The subject site is located at the intersection of Elk Road and Buck Road in Elk Township, Gloucester County, New Jersey. The subject site is currently orchid farmland.

The scope of this study focuses on the overall drainage conditions resulting from the proposed site improvements. The proposed development will disturb over an acre of land and result in an increase of 5.95 acres of impervious surface.

The primary design constraints for this project are based on requirements established in the Elk Township Design Standards, County Design Standards, New Jersey Soil Erosion and Sediment Control Standards, and N.J.A.C 7:8. More specifically, the stormwater management design will serve to maintain existing drainage patterns to the maximum extent practical and reduce proposed runoff rates when compared to pre-development runoff rates. The proposed project will disturb over 1 acre and proposed impervious coverage will be increased by more than ¼ acre; therefore, the project meets the definition of a “major development” under N.J.A.C. 7:8.

## II. EXISTING SITE CONDITIONS

The subject site consists of approximately 65.81 acres. The site is mainly orchid farmland with its associated features, and woods. The proposed improvements will be limited to an area of 15.13 acres, which is the area of study this report will focus on.

Based on the Web Soil Survey, the soil types native to the site include:

| SOIL TYPE | SOIL TYPE NAME                                                   | HYDRAULIC SOIL GROUP |
|-----------|------------------------------------------------------------------|----------------------|
| AugB      | Aura sandy loam, 2 to 5 percent slopes, Northern Tidewater Area  | B                    |
| AvtB      | Aura-Sassafras sandy loams, 2 to 5 percent slopes                | B                    |
| DeoA      | Downer sandy loam, 0 to 2 percent slopes, Northern Coastal Plain | A                    |
| HbmB      | Hammonton loamy sand, 0 to 5 percent slopes                      | B                    |
| WokA      | Woodstown-Glassboro complex, 0 to 2 percent slopes               | B                    |

The site has been evaluated using the TR-55 'Urban Hydrology for Small Watersheds' standards. Below is a description of the drainage sub-watershed area as depicted on the Existing Drainage Area Map:

Existing Drainage Area to Point of Interest 1: This study point represents the location where all runoff from the drainage area exits the site into the adjoining property. It represents the point where the peak flow generated will occur in the existing condition. The land cover is mainly orchard farmland and woods. This study point has been analyzed to show compliance with the applicable NJDEP, Gloucester County and Elk Township regulations.

Existing Drainage Area to Point of Interest 2: This study point represents the location the isolated wetland where all runoff from the drainage area is captured. It represents the point where the runoff volume generated will flow in the existing condition. The land cover is mainly orchard farmland and woods. This study point has been analyzed to show compliance with the applicable NJDEP, Gloucester County and Elk Township regulations.

Existing Drainage Area to Point of Interest 3: This study point represents the location of the isolated pond where all runoff from the drainage area is captured. It represents the point where the runoff volume generated will flow in the existing condition. The land cover is mainly wooded with the pond water surface. Land cover of the pond water surface is considered impervious. This study point has been analyzed to show compliance with the applicable NJDEP, Gloucester County and Elk Township regulations.

### **III. PROPOSED SITE CONDITIONS**

The proposed site improvements will result in an overall increase in impervious coverage of 10.07 acres. The proposed design serves to match the existing drainage patterns to the maximum extent practical. The site has been evaluated using the TR-55 'Urban Hydrology for Small Watersheds' standards and with the following proposed drainage sub-watershed areas as depicted on the Proposed Drainage Area Map.



Proposed Drainage Area to Point of Interest 1: This study point represents the location where all runoff from the drainage area exits the site into the adjoining property. It represents the point where the runoff volume generated by the development will flow in the proposed condition. The land cover is impervious parking, lawn, woods, and orchard farmland. This study point has been analyzed to show compliance with the applicable NJDEP, Gloucester County and Elk Township regulations.

Proposed Drainage Area to Point of Interest 2: This study point represents the location the isolated wetland where all runoff from the drainage area is captured. It represents the point where the runoff volume generated by the development will flow in the proposed condition. The land cover is mainly impervious structures and their associated improvements. This study point has been analyzed to show compliance with the applicable NJDEP, Gloucester County and Elk Township regulations.

Proposed Drainage Area to Point of Interest 3: This study point represents the location of the isolated pond where all runoff from the drainage area is captured. It represents the point where the runoff volume generated by the development will flow in the proposed condition. The land cover is lawn, woods, and the pond water surface. Land cover of the pond water surface is considered impervious. This study point has been analyzed to show compliance with the applicable NJDEP, Gloucester County and Elk Township regulations.

#### **IV. DESIGN METHODOLOGY**

The design intention of the proposed stormwater management facilities for this project is to provide measures as required to address applicable aspects of the Elk Township Design Standards, Gloucester County Design Standards, New Jersey Soil Erosion and Sediment Control Standards, and N.J.A.C 7:8.

Based upon our review of the existing site conditions and the Boundary & Topographic Survey prepared by Van Cleef Engineering Associate, the Drainage Area Maps for the existing and proposed site conditions as defined within this report were established. A Grading Plan was

developed for the proposed site improvements with consideration to the existing drainage patterns to the maximum extent practicable. The project was designed to ensure runoff from the proposed development would meet the required peak flow rate reductions of 50%, 75% and 80% for the current and projected 2-year, 10-year, and 100-year storm events respectively.

Stormwater runoff generated by the proposed improvements will be collected by grading site features, berms and swales to direct runoff to the proposed bioretention basins that discharge to the Study Points discussed above. The storm sewer design accommodates the 100-yr design storm utilizing the Rational Method under free-flowing conditions. Associated calculations are included in the Appendix of this report.

Based upon the scope of the project, the development is classified as a major development; and therefore, the project has been designed to meet the stormwater runoff quantity set forth by the Elk Township Design Standards, Gloucester County Design Standards, and NJAC 7:8. The following items are addressed within this report:

- Erosion control and runoff quantity standards
- Stormwater runoff quality standards
- Calculation of stormwater runoff
- Standards for structural stormwater management measures
- Green Infrastructure Techniques

Runoff volumes for the site were modeled utilizing HydroCAD computer software using the Urban Hydrology for Small Watershed TR55 method for the applicable design storms. The 2-, 10- and 100-year quantity design storms are based upon the current and projected New Jersey 24-Hour Rainfall Frequency Data for Gloucester County utilizing a NOAA region C rainfall distribution. Pervious and impervious areas were modeled separately as suggested in the NJDEP Stormwater Management Best Management Practices Manual.

## V. STORMWATER MANAGEMENT

### Point of Interest 1:

Stormwater Quality and Groundwater recharge standards were met with the use of ten (10) small-scale bioretention basins with 80% TSS removal. The NJDEP BMP manual lists small-scale bioretention basins as an acceptable Green Infrastructure BMP for water quality, quantity, and recharge purposes. Stormwater Quantity standards were met with the use of two (2) large-scale infiltration basins. The NJDEP BMP manual lists small-scale infiltration basins as an acceptable Green Infrastructure BMP for water quantity purposes.

The required peak reduction rates for POI-1 were calculated using 100% of the undisturbed area added to the required reductions for the improved areas (50%, 75% and 80% of the 2yr, 10yr and 100 yr storms, respectively). The following is a comparison of overall pre- and post-development runoff rates for the proposed project disturbance area as required by N.J.A.C. 7:8:

| <b>POI-1<br/>Current</b>   | <b>Existing<br/>(Disturbed<br/>Area)<br/>Runoff (cfs)</b> | <b>Allowable<br/>(Disturbed<br/>Area)<br/>Runoff (cfs)</b> | <b>Existing<br/>(Undisturbed<br/>area) Runoff<br/>(cfs)</b> | <b>Total<br/>Allowable<br/>Runoff (cfs)</b> | <b>Total Proposed Runoff<br/>(cfs)</b> |
|----------------------------|-----------------------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------|----------------------------------------|
| <b>2 Year</b>              | 2.56                                                      | 1.28 (50%)                                                 | 2.63                                                        | 3.91                                        | 3.65                                   |
| <b>10 Year</b>             | 7.14                                                      | 5.36 (75%)                                                 | 6.25                                                        | 11.61                                       | 10.08                                  |
| <b>100 Year</b>            | 18.09                                                     | 14.47 (80%)                                                | 15.85                                                       | 30.32                                       | 29.77                                  |
| <b>POI-1<br/>Projected</b> | <b>Existing<br/>(Disturbed<br/>Area)<br/>Runoff (cfs)</b> | <b>Allowable<br/>(Disturbed<br/>Area)<br/>Runoff (cfs)</b> | <b>Existing<br/>(Undisturbed<br/>area) Runoff<br/>(cfs)</b> | <b>Total<br/>Allowable<br/>Runoff (cfs)</b> | <b>Total Proposed Runoff<br/>(cfs)</b> |
| <b>2 Year</b>              | 3.56                                                      | 1.78 (50%)                                                 | 3.41                                                        | 5.19                                        | 4.90                                   |
| <b>10 Year</b>             | 9.5                                                       | 7.13 (75%)                                                 | 8.38                                                        | 15.51                                       | 15.50                                  |
| <b>100 Year</b>            | 27.76                                                     | 22.21 (80%)                                                | 24.94                                                       | 47.15                                       | 45.30                                  |

#### Point of Interest 2:

Stormwater Quality and Groundwater recharge standards were met with the use of three (3) small-scale bioretention basins with 80% TSS removal. The NJDEP BMP manual lists small-scale bioretention basins as an acceptable Green Infrastructure BMP for water quality, quantity, and recharge purposes. All runoff flows to an isolated wetland with zero discharge; therefore, stormwater quantity standards were met by ensuring the proposed runoff volume did not exceed the available volume in the wetland.

| <b>Projected<br/>100 yr Storm</b> | <b>Storage Volume<br/>(cf)</b> | <b>Runoff Volume<br/>(cf)</b> | <b>Discharge (cfs)</b> | <b>Peak Elevation<br/>(ft)</b> |
|-----------------------------------|--------------------------------|-------------------------------|------------------------|--------------------------------|
| <b>Existing</b>                   | 97,696                         | 64,842                        | 0.0                    | 126.23                         |
| <b>Proposed</b>                   | 54,210                         | 52,375                        | 0.0                    | 125.96                         |

#### Point of Interest 3:

No new regulated impervious surfaces are proposed within this drainage area therefore stormwater Quality and Groundwater recharge standards are not required. All runoff flows to a pond with zero discharge; therefore, stormwater quantity standards were met by ensuring the proposed runoff volume did not exceed the available volume in the pond.

| <b>Projected<br/>100 yr Storm</b> | <b>Storage Volume<br/>(cf)</b> | <b>Runoff Volume<br/>(cf)</b> | <b>Discharge (cfs)</b> | <b>Peak Elevation<br/>(ft)</b> |
|-----------------------------------|--------------------------------|-------------------------------|------------------------|--------------------------------|
| <b>Existing</b>                   | 65,239                         | 25,973                        | 0.0                    | 121.31                         |
| <b>Proposed</b>                   | 65,239                         | 24,492                        | 0.0                    | 121.23                         |

## **VII. CONCLUSION**

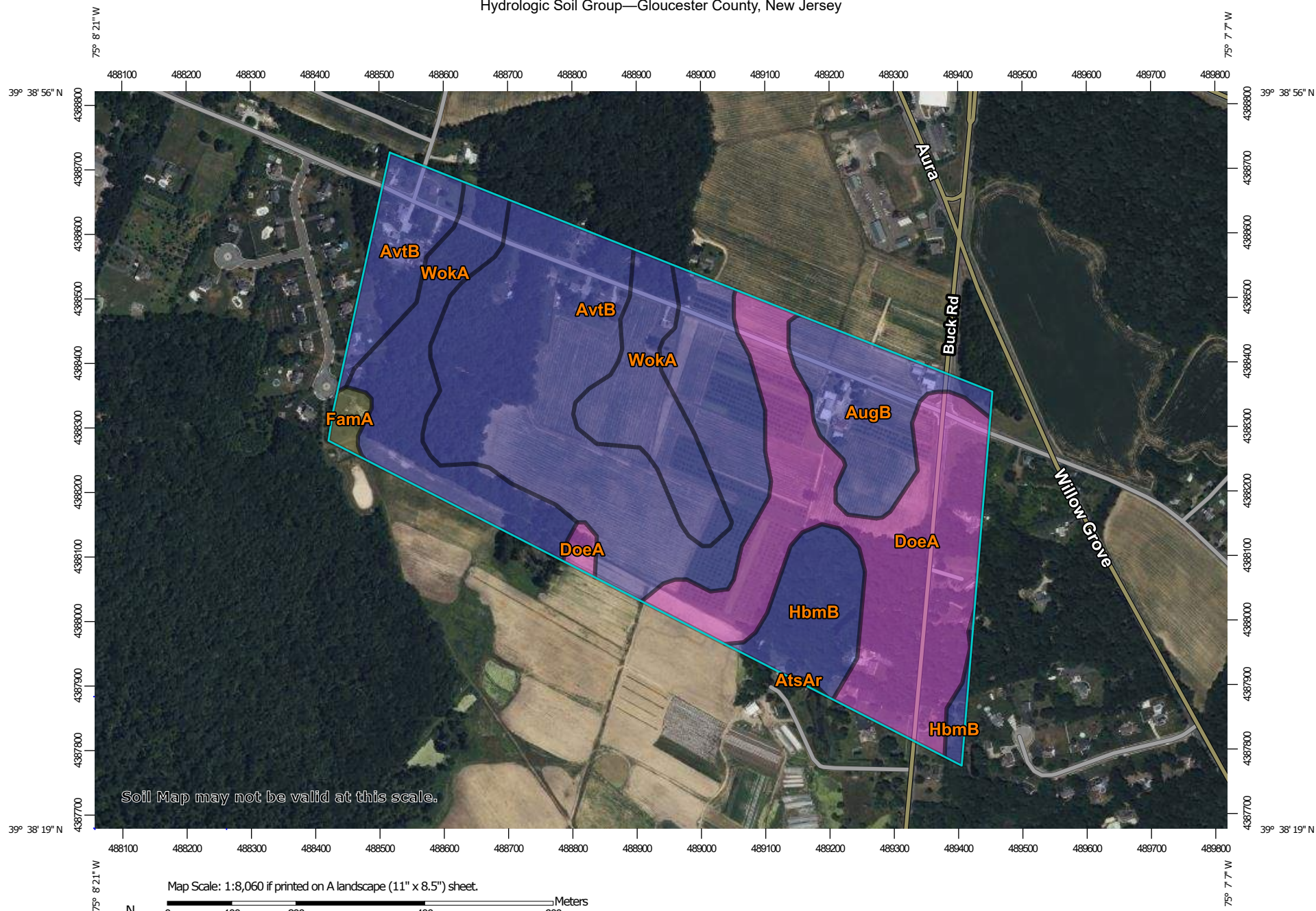
The proposed project has been designed in a manner that will not adversely impact the existing drainage patterns, adjacent roadways or adjacent parcels. The stormwater runoff rates for the 2, 10, and 100-year design storms have been designed to meet the required reductions rates. The stormwater runoff rates for the project disturbance area for the 2, 10, and 100-year design storms meet or exceed the reduction criteria set forth by N.J.A.C. 7:8 under free flow conditions. With that stated, it is evident that the proposed development meets all regulatory

requirements and will not have a negative impact on any existing stormwater management systems within the vicinity of the subject parcel.

## **APPENDIX**

## **Soil Survey**

# Hydrologic Soil Group—Gloucester County, New Jersey



Map Scale: 1:8,060 if printed on A landscape (11" x 8.5") sheet.

0 100 200 400 600 Meters

0 350 700 1400 2100 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84



**Natural Resources  
Conservation Service**

Web Soil Survey  
National Cooperative Soil Survey

11/8/2023  
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## MAP LEGEND

### Area of Interest (AOI)

 Area of Interest (AOI)

### Soils

#### Soil Rating Polygons

 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Lines

 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Points

 A  
 A/D  
 B  
 B/D

 C  
 C/D  
 D  
 Not rated or not available

### Water Features

 Streams and Canals

### Transportation

 Rails  
 Interstate Highways  
 US Routes  
 Major Roads  
 Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Gloucester County, New Jersey  
 Survey Area Data: Version 21, Aug 29, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 5, 2022—Jul 4, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Hydrologic Soil Group

| Map unit symbol                    | Map unit name                                                          | Rating | Acres in AOI | Percent of AOI |
|------------------------------------|------------------------------------------------------------------------|--------|--------------|----------------|
| AtsAr                              | Atsion sand, 0 to 2 percent slopes, rarely flooded                     | A/D    | 0.1          | 0.1%           |
| AugB                               | Aura sandy loam, 2 to 5 percent slopes, Northern Tidewater Area        | B      | 11.1         | 8.5%           |
| AvtB                               | Aura-Sassafras sandy loams, 2 to 5 percent slopes                      | B      | 51.1         | 39.2%          |
| DoeA                               | Downer sandy loam, 0 to 2 percent slopes, Northern Coastal Plain       | A      | 33.7         | 25.9%          |
| FamA                               | Fallsington sandy loams, 0 to 2 percent slopes, northern coastal plain | C/D    | 1.2          | 0.9%           |
| HbmB                               | Hammonton loamy sand, 0 to 5 percent slopes                            | B      | 9.0          | 6.9%           |
| WokA                               | Woodstown-Glassboro complex, 0 to 2 percent slopes                     | B      | 24.2         | 18.5%          |
| <b>Totals for Area of Interest</b> |                                                                        |        | <b>130.3</b> | <b>100.0%</b>  |

## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

## **Calculation References**

**Table 5-1: County-Specific, New Jersey 24-Hour Rainfall Frequency Data**

| <b>NEW JERSEY 24 HOUR RAINFALL FREQUENCY DATA</b> |        |        |        |         |         |         |          |
|---------------------------------------------------|--------|--------|--------|---------|---------|---------|----------|
| Rainfall amounts in Inches                        |        |        |        |         |         |         |          |
| County                                            | 1 year | 2 year | 5 year | 10 year | 25 year | 50 year | 100 year |
| Atlantic                                          | 2.72   | 3.31   | 4.30   | 5.16    | 6.46    | 7.61    | 8.90     |
| Bergen                                            | 2.75   | 3.34   | 4.27   | 5.07    | 6.28    | 7.32    | 8.47     |
| Burlington                                        | 2.77   | 3.36   | 4.34   | 5.18    | 6.45    | 7.56    | 8.81     |
| Camden                                            | 2.73   | 3.31   | 4.25   | 5.06    | 6.28    | 7.34    | 8.52     |
| Cape May                                          | 2.67   | 3.25   | 4.22   | 5.07    | 6.34    | 7.47    | 8.73     |
| Cumberland                                        | 2.69   | 3.27   | 4.25   | 5.09    | 6.37    | 7.49    | 8.76     |
| Essex                                             | 2.85   | 3.44   | 4.40   | 5.22    | 6.44    | 7.49    | 8.66     |
| Gloucester                                        | 2.71   | 3.29   | 4.24   | 5.05    | 6.29    | 7.36    | 8.55     |
| Hudson                                            | 2.73   | 3.31   | 4.23   | 5.02    | 6.19    | 7.20    | 8.31     |
| Hunterdon                                         | 2.80   | 3.38   | 4.26   | 5.00    | 6.09    | 7.02    | 8.03     |
| Mercer                                            | 2.74   | 3.31   | 4.23   | 5.01    | 6.19    | 7.20    | 8.33     |
| Middlesex                                         | 2.76   | 3.35   | 4.30   | 5.12    | 6.36    | 7.43    | 8.63     |
| Monmouth                                          | 2.79   | 3.38   | 4.38   | 5.23    | 6.53    | 7.66    | 8.94     |
| Morris                                            | 2.94   | 3.54   | 4.47   | 5.24    | 6.37    | 7.32    | 8.35     |
| Ocean                                             | 2.81   | 3.42   | 4.45   | 5.33    | 6.68    | 7.87    | 9.20     |
| Passaic                                           | 2.87   | 3.47   | 4.42   | 5.23    | 6.43    | 7.47    | 8.62     |
| Salem                                             | 2.69   | 3.26   | 4.20   | 5.00    | 6.22    | 7.28    | 8.45     |
| Somerset                                          | 2.76   | 3.34   | 4.25   | 5.01    | 6.15    | 7.13    | 8.21     |
| Sussex                                            | 2.68   | 3.22   | 4.02   | 4.70    | 5.72    | 6.60    | 7.58     |
| Union                                             | 2.80   | 3.39   | 4.35   | 5.17    | 6.42    | 7.49    | 8.69     |
| Warren                                            | 2.78   | 3.34   | 4.18   | 4.89    | 5.93    | 6.83    | 7.82     |

Notes: The average point rainfall amounts listed above were developed from data contained in NOAA Atlas 14 Volume 2.

Point rainfall estimates for specific locations may be obtained from the Precipitation Frequency Data Server located at <http://www.nws.noaa.gov/ohd/hdsc/>

For most hydrologic design procedures, the rainfall amounts listed above may be rounded to the nearest tenth of an inch.

**Table 9-5** Runoff curve numbers for urban areas <sup>1/</sup>

| Cover description<br>cover type and hydrologic condition                                                                             | Average percent<br>impervious area <sup>2/</sup> | -- CN for hydrologic soil group -- |    |    |    |
|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|------------------------------------|----|----|----|
|                                                                                                                                      |                                                  | A                                  | B  | C  | D  |
| Fully developed urban areas (vegetation established)                                                                                 |                                                  |                                    |    |    |    |
| Open space (lawns, parks, golf courses, cemeteries, etc.) <sup>3/</sup>                                                              |                                                  |                                    |    |    |    |
| Poor condition (grass cover < 50%)                                                                                                   |                                                  | 68                                 | 79 | 86 | 89 |
| Fair condition (grass cover 50% to 75%)                                                                                              |                                                  | 49                                 | 69 | 79 | 84 |
| Good condition (grass cover > 75%)                                                                                                   |                                                  | 39                                 | 61 | 74 | 80 |
| Impervious areas:                                                                                                                    |                                                  |                                    |    |    |    |
| Paved parking lots, roofs, driveways, etc.<br>(excluding right-of-way)                                                               |                                                  | 98                                 | 98 | 98 | 98 |
| Streets and roads:                                                                                                                   |                                                  |                                    |    |    |    |
| Paved; curbs and storm sewers (excluding right-of-way)                                                                               |                                                  | 98                                 | 98 | 98 | 98 |
| Paved; open ditches (including right-of-way)                                                                                         |                                                  | 83                                 | 89 | 92 | 93 |
| Gravel (including right-of-way)                                                                                                      |                                                  | 76                                 | 85 | 89 | 91 |
| Dirt (including right-of-way)                                                                                                        |                                                  | 72                                 | 82 | 87 | 89 |
| Western desert urban areas:                                                                                                          |                                                  |                                    |    |    |    |
| Natural desert landscaping (pervious areas only) <sup>4/</sup>                                                                       |                                                  | 63                                 | 77 | 85 | 88 |
| Artificial desert landscaping (impervious weed barrier,<br>desert shrub with 1- to 2-inch sand or gravel mulch<br>and basin borders) |                                                  | 96                                 | 96 | 96 | 96 |
| Urban districts:                                                                                                                     |                                                  |                                    |    |    |    |
| Commercial and business                                                                                                              | 85                                               | 89                                 | 92 | 94 | 95 |
| Industrial                                                                                                                           | 72                                               | 81                                 | 88 | 91 | 93 |
| Residential districts by average lot size:                                                                                           |                                                  |                                    |    |    |    |
| 1/8 acre or less (town houses)                                                                                                       | 65                                               | 77                                 | 85 | 90 | 92 |
| 1/4 acre                                                                                                                             | 38                                               | 61                                 | 75 | 83 | 87 |
| 1/3 acre                                                                                                                             | 30                                               | 57                                 | 72 | 81 | 86 |
| 1/2 acre                                                                                                                             | 25                                               | 54                                 | 70 | 80 | 85 |
| 1 acre                                                                                                                               | 20                                               | 51                                 | 68 | 79 | 84 |
| 2 acres                                                                                                                              | 12                                               | 46                                 | 65 | 77 | 82 |
| Developing urban areas                                                                                                               |                                                  |                                    |    |    |    |
| Newly graded areas (pervious areas only, no vegetation)                                                                              |                                                  | 77                                 | 86 | 91 | 94 |

1/ Average runoff condition, and  $I_a = 0.2S$ .

2/ The average percent impervious area shown was used to develop the composite CNs. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition.

3/ CNs shown are equivalent to those of pasture. Composite CNs may be computed for other combinations of open space type.

4/ Composite CNs for natural desert landscaping should be computed using figures 9-3 or 9-4 based on the impervious area percentage (CN=98) and the pervious area CN. The pervious area CNs are assumed equivalent to desert shrub in poor hydrologic condition.

**(2) Use of table 9-1**

Chapters 7 and 8 of NEH 630 describe how soils and covers of watersheds or other land areas are classified in the field. After the classification is completed, CNs are read from table 9-1 and applied as described

in chapter 10. Because the principal use of CNs is for estimating runoff from rainfall, the examples of applications are given in chapter 10.

**Table 9-1** Runoff curve numbers for agricultural lands <sup>1/</sup>

| covertime                                                  | Cover description<br>treatment <sup>2/</sup> | hydrologic condition <sup>3/</sup> | -- CN for hydrologic soil group -- |    |    |    |
|------------------------------------------------------------|----------------------------------------------|------------------------------------|------------------------------------|----|----|----|
|                                                            |                                              |                                    | A                                  | B  | C  | D  |
| Fallow                                                     | Bare Soil                                    | ---                                | 77                                 | 86 | 91 | 94 |
|                                                            | Crop residue cover (CR)                      | Poor                               | 76                                 | 85 | 90 | 93 |
|                                                            |                                              | Good                               | 74                                 | 83 | 88 | 90 |
| Row crops                                                  | Straight row (SR)                            | Poor                               | 72                                 | 81 | 88 | 91 |
|                                                            |                                              | Good                               | 67                                 | 78 | 85 | 89 |
|                                                            | SR + CR                                      | Poor                               | 71                                 | 80 | 87 | 90 |
|                                                            |                                              | Good                               | 64                                 | 75 | 82 | 85 |
|                                                            | Contoured (C)                                | Poor                               | 70                                 | 79 | 84 | 88 |
|                                                            |                                              | Good                               | 65                                 | 75 | 82 | 86 |
|                                                            | C + CR                                       | Poor                               | 69                                 | 78 | 83 | 87 |
|                                                            |                                              | Good                               | 64                                 | 74 | 81 | 85 |
|                                                            | Contoured & terraced (C & T)                 | Poor                               | 66                                 | 74 | 80 | 82 |
|                                                            |                                              | Good                               | 62                                 | 71 | 78 | 81 |
|                                                            | C & T + CR                                   | Poor                               | 65                                 | 73 | 79 | 81 |
|                                                            |                                              | Good                               | 61                                 | 70 | 77 | 80 |
| Small grain                                                | SR                                           | Poor                               | 65                                 | 76 | 84 | 88 |
|                                                            |                                              | Good                               | 63                                 | 75 | 83 | 87 |
|                                                            | SR + CR                                      | Poor                               | 64                                 | 75 | 83 | 86 |
|                                                            |                                              | Good                               | 60                                 | 72 | 80 | 84 |
|                                                            | C                                            | Poor                               | 63                                 | 74 | 82 | 85 |
|                                                            |                                              | Good                               | 61                                 | 73 | 81 | 84 |
|                                                            | C + CR                                       | Poor                               | 62                                 | 73 | 81 | 84 |
|                                                            |                                              | Good                               | 60                                 | 72 | 80 | 83 |
|                                                            | C & T                                        | Poor                               | 61                                 | 72 | 79 | 82 |
|                                                            |                                              | Good                               | 59                                 | 70 | 78 | 81 |
|                                                            | C & T + CR                                   | Poor                               | 60                                 | 71 | 78 | 81 |
|                                                            |                                              | Good                               | 58                                 | 69 | 77 | 80 |
| Close-seeded or broadcast<br>legumes or rotation<br>meadow | SR                                           | Poor                               | 66                                 | 77 | 85 | 89 |
|                                                            |                                              | Good                               | 58                                 | 72 | 81 | 85 |
|                                                            | C                                            | Poor                               | 64                                 | 75 | 83 | 85 |
|                                                            |                                              | Good                               | 55                                 | 69 | 78 | 83 |
|                                                            | C & T                                        | Poor                               | 63                                 | 73 | 80 | 83 |
|                                                            |                                              | Good                               | 51                                 | 67 | 76 | 80 |

See footnotes at end of table.

**Table 9-1** Runoff curve numbers for agricultural lands <sup>1/</sup> — Continued

| covert type                                                                       | Cover description<br>treatment <sup>2/</sup> | hydrologic condition <sup>3/</sup> | -- CN for hydrologic soil group -- |    |    |    |
|-----------------------------------------------------------------------------------|----------------------------------------------|------------------------------------|------------------------------------|----|----|----|
|                                                                                   |                                              |                                    | A                                  | B  | C  | D  |
| Pasture, grassland, or range-<br>continuous forage for<br>grazing <sup>4/</sup>   |                                              | Poor                               | 68                                 | 79 | 86 | 89 |
|                                                                                   |                                              | Fair                               | 49                                 | 69 | 79 | 84 |
|                                                                                   |                                              | Good                               | 39                                 | 61 | 74 | 80 |
| Meadow-continuous grass,<br>protected from grazing and<br>generally mowed for hay |                                              | Good                               | 30                                 | 58 | 71 | 78 |
| Brush-brush-forbs-grass<br>mixture with brush the<br>major element <sup>5/</sup>  |                                              | Poor                               | 48                                 | 67 | 77 | 83 |
|                                                                                   |                                              | Fair                               | 35                                 | 56 | 70 | 77 |
|                                                                                   |                                              | Good                               | 30 <sup>6/</sup>                   | 48 | 65 | 73 |
| Woods-grass combination<br>(orchard or tree farm) <sup>7/</sup>                   |                                              | Poor                               | 57                                 | 73 | 82 | 86 |
|                                                                                   |                                              | Fair                               | 43                                 | 65 | 76 | 82 |
|                                                                                   |                                              | Good                               | 32                                 | 58 | 72 | 79 |
| Woods <sup>8/</sup>                                                               |                                              | Poor                               | 45                                 | 66 | 77 | 83 |
|                                                                                   |                                              | Fair                               | 36                                 | 60 | 73 | 79 |
|                                                                                   |                                              | Good                               | 30                                 | 55 | 70 | 77 |
| Farmstead—buildings, lanes,<br>driveways, and surrounding lots                    |                                              | ---                                | 59                                 | 74 | 82 | 86 |
| Roads (including right-of-way):                                                   |                                              |                                    |                                    |    |    |    |
| Dirt                                                                              |                                              | ---                                | 72                                 | 82 | 87 | 89 |
| Gravel                                                                            |                                              | ---                                | 76                                 | 85 | 89 | 91 |

1/ Average runoff condition, and  $I_a = 0.2s$ .

2/ Crop residue cover applies only if residue is on at least 5 percent of the surface throughout the year.

3/ Hydrologic condition is based on combinations of factors that affect infiltration and runoff, including (a) density and canopy of vegetative areas, (b) amount of year-round cover, (c) amount of grass or close-seeded legumes, (d) percent of residue cover on the land surface (good  $\geq 20\%$ ), and (e) degree of surface toughness.

Poor: Factors impair infiltration and tend to increase runoff.

Good: Factors encourage average and better than average infiltration and tend to decrease runoff.

For conservation tillage poor hydrologic condition, 5 to 20 percent of the surface is covered with residue (less than 750 pounds per acre for row crops or 300 pounds per acre for small grain).

For conservation tillage good hydrologic condition, more than 20 percent of the surface is covered with residue (greater than 750 pounds per acre for row crops or 300 pounds per acre for small grain).

4/ Poor: < 50% ground cover or heavily grazed with no mulch.

Fair: 50 to 75% ground cover and not heavily grazed.

Good: > 75% ground cover and lightly or only occasionally grazed.

5/ Poor: < 50% ground cover.

Fair: 50 to 75% ground cover.

Good: > 75% ground cover.

6/ If actual curve number is less than 30, use CN = 30 for runoff computation.

7/ CNs shown were computed for areas with 50 percent woods and 50 percent grass (pasture) cover. Other combinations of conditions may be computed from the CNs for woods and pasture.

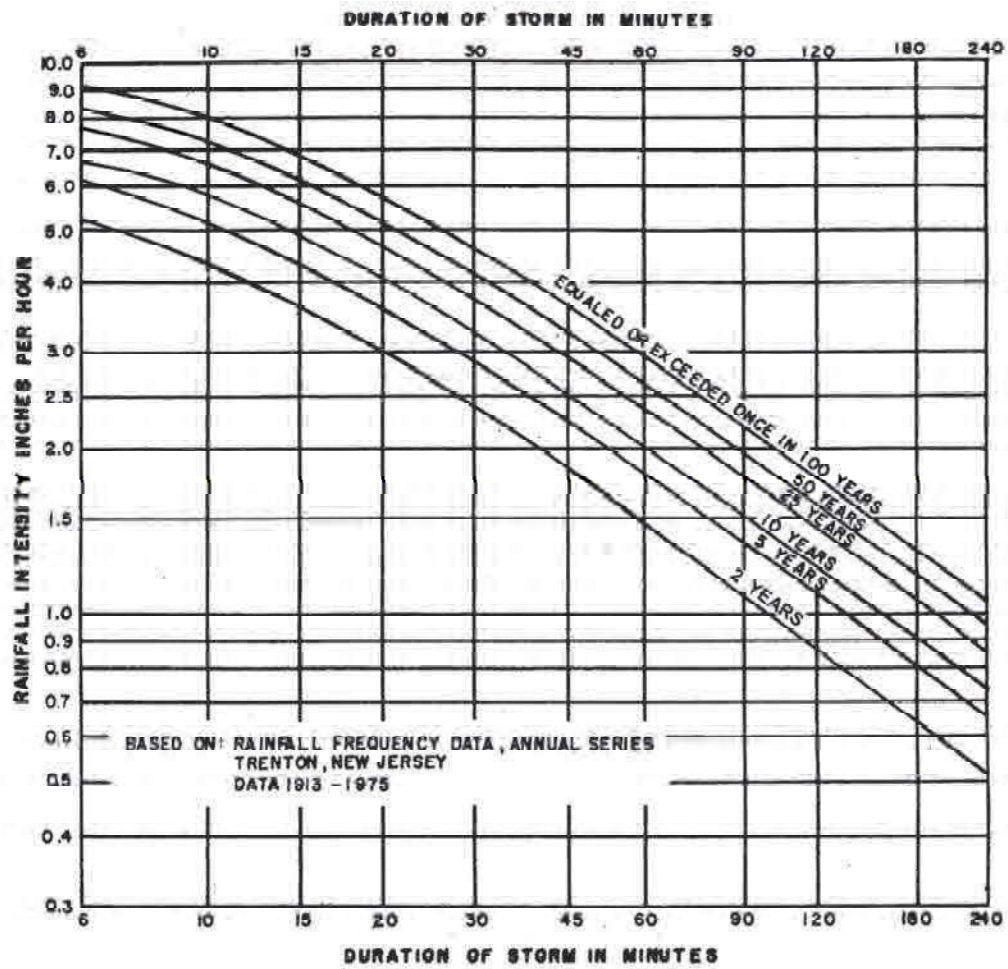
8/ Poor: Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.

Fair: Woods are grazed, but not burned, and some forest litter covers the soil.

Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

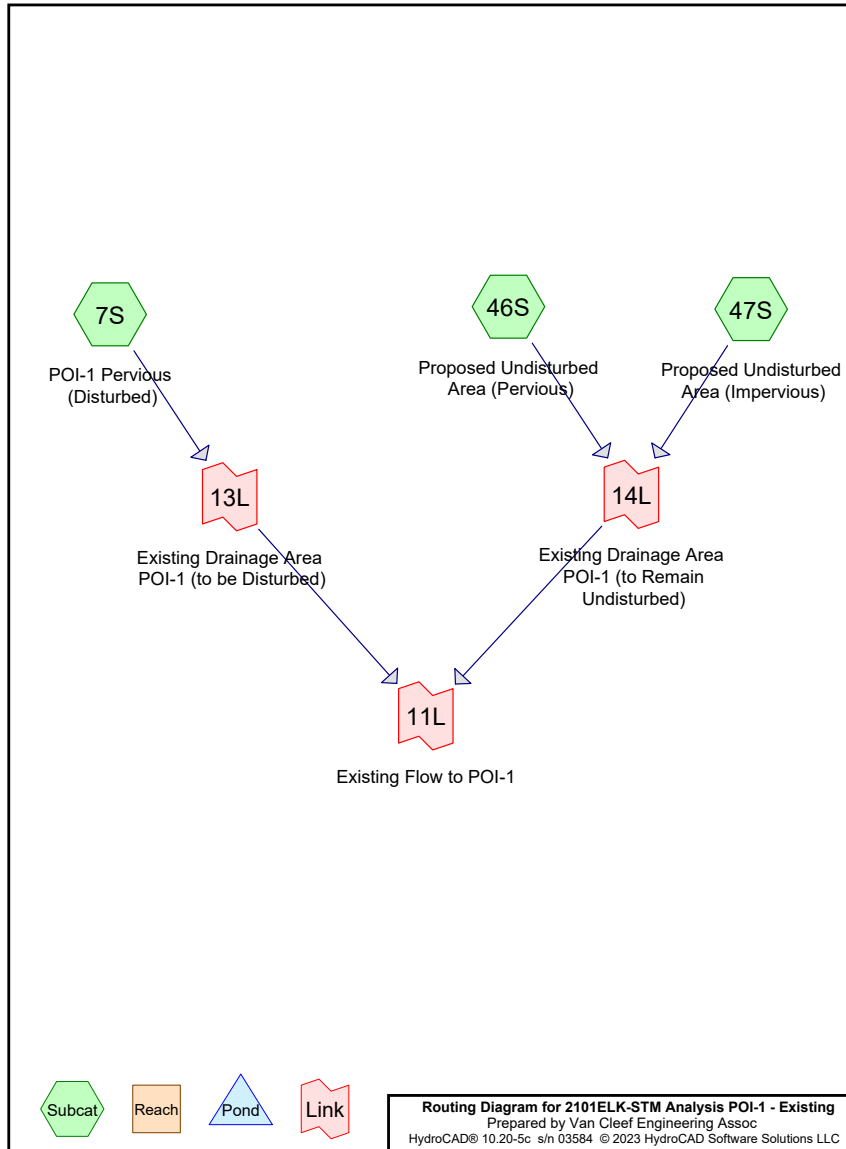


Figure 5-4: Rainfall Intensity-Duration-Frequency Curves



Note: Adapted from Figure 2.1-2 in the NJDEP *Technical Manual for Stream Encroachment Permits*.

**Existing Condition Hydrograph Summary Reports  
2, 10 & 100 Year Storm Events**



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Page 2

### Rainfall Events Listing

| Event# | Event Name    | Storm Type | Curve | Mode    | Duration (hours) | B/B | Depth (inches) | AMC | P2 (inches) |
|--------|---------------|------------|-------|---------|------------------|-----|----------------|-----|-------------|
| 1      | 2-Year-2020   | NOAA 24-hr | C     | Default | 24.00            | 1   | 3.45           | 2   | 3.45        |
| 2      | 10-Year-2020  | NOAA 24-hr | C     | Default | 24.00            | 1   | 5.35           | 2   | 3.45        |
| 3      | 100-Year-2020 | NOAA 24-hr | C     | Default | 24.00            | 1   | 9.06           | 2   | 3.45        |
| 4      | 2-Year-2050   | NOAA 24-hr | C     | Default | 24.00            | 1   | 3.92           | 2   | 3.92        |
| 5      | 10-Year-2050  | NOAA 24-hr | C     | Default | 24.00            | 1   | 6.21           | 2   | 3.92        |
| 6      | 100-Year-2050 | NOAA 24-hr | C     | Default | 24.00            | 1   | 12.06          | 2   | 3.92        |

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| Area Listing (all nodes) |    |                                           |
|--------------------------|----|-------------------------------------------|
| Area<br>(acres)          | CN | Description<br>(subcatchment-numbers)     |
| 0.363                    | 39 | >75% Grass cover, Good, HSG A (46S)       |
| 1.856                    | 61 | >75% Grass cover, Good, HSG B (46S)       |
| 0.081                    | 77 | Fallow, bare soil, HSG A (7S)             |
| 0.191                    | 86 | Fallow, bare soil, HSG B (7S, 46S)        |
| 3.936                    | 67 | Row crops, straight row, Good, HSG A (7S) |
| 3.514                    | 78 | Row crops, straight row, Good, HSG B (7S) |
| 1.050                    | 98 | Unconnected pavement, HSG A (47S)         |
| 0.434                    | 30 | Woods, Good, HSG A (7S)                   |
| 1.681                    | 55 | Woods, Good, HSG B (7S)                   |
| 0.690                    | 32 | Woods/grass comb., Good, HSG A (46S)      |
| 0.510                    | 58 | Woods/grass comb., Good, HSG B (46S)      |
| 14.306                   | 66 | TOTAL AREA                                |

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| Soil Listing (all nodes) |               |                         |
|--------------------------|---------------|-------------------------|
| Area<br>(acres)          | Soil<br>Group | Subcatchment<br>Numbers |
| 6.554                    | HSG A         | 7S, 46S, 47S            |
| 7.752                    | HSG B         | 7S, 46S                 |
| 0.000                    | HSG C         |                         |
| 0.000                    | HSG D         |                         |
| 0.000                    | Other         |                         |
| 14.306                   |               | TOTAL AREA              |

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| Ground Covers (all nodes) |                  |                  |                  |                  |                  |                               |                         |
|---------------------------|------------------|------------------|------------------|------------------|------------------|-------------------------------|-------------------------|
| HSG-A<br>(acres)          | HSG-B<br>(acres) | HSG-C<br>(acres) | HSG-D<br>(acres) | Other<br>(acres) | Total<br>(acres) | Ground<br>Cover               | Subcatchment<br>Numbers |
| 0.363                     | 1.856            | 0.000            | 0.000            | 0.000            | 2.219            | >75% Grass cover, Good        | 46S                     |
| 0.081                     | 0.191            | 0.000            | 0.000            | 0.000            | 0.271            | Fallow, bare soil             | 7S,<br>46S              |
| 3.936                     | 3.514            | 0.000            | 0.000            | 0.000            | 7.450            | Row crops, straight row, Good | 7S                      |
| 1.050                     | 0.000            | 0.000            | 0.000            | 0.000            | 1.050            | Unconnected pavement          | 47S                     |
| 0.434                     | 1.681            | 0.000            | 0.000            | 0.000            | 2.115            | Woods, Good                   | 7S                      |
| 0.690                     | 0.510            | 0.000            | 0.000            | 0.000            | 1.200            | Woods/grass comb., Good       | 46S                     |
| 6.554                     | 7.752            | 0.000            | 0.000            | 0.000            | 14.306           | TOTAL AREA                    |                         |

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| Pipe Listing (all nodes) |                |                     |                      |                  |                  |       |                   |                         |                         |              |
|--------------------------|----------------|---------------------|----------------------|------------------|------------------|-------|-------------------|-------------------------|-------------------------|--------------|
| Line#                    | Node<br>Number | In-Invert<br>(feet) | Out-Invert<br>(feet) | Length<br>(feet) | Slope<br>(ft/ft) | n     | Width<br>(inches) | Diam/Height<br>(inches) | Inside-Fill<br>(inches) | Node<br>Name |
| 1                        | 46S            | 0.00                | 0.00                 | 228.0            | 0.0050           | 0.013 | 0.0               | 24.0                    | 0.0                     |              |
| 2                        | 47S            | 0.00                | 0.00                 | 228.0            | 0.0050           | 0.013 | 0.0               | 24.0                    | 0.0                     |              |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment7S: POI-1 Pervious Runoff Area=420,357 sf 0.00% Impervious Runoff Depth=0.82"  
Flow Length=1,917' Tc=86.8 min CN=67 Runoff=2.56 cfs 0.661 af

Subcatchment46S: Proposed Undisturbed Runoff Area=157,085 sf 0.00% Impervious Runoff Depth=0.30"  
Flow Length=690' Tc=22.7 min CN=54 Runoff=0.37 cfs 0.089 af

Subcatchment47S: Proposed Runoff Area=45,722 sf 100.00% Impervious Runoff Depth=3.22"  
Flow Length=725' Tc=23.2 min CN=98 Runoff=2.38 cfs 0.281 af

Link 11L: Existing Flow to POI-1 Inflow=3.14 cfs 1.032 af  
Primary=3.14 cfs 1.032 af

Link 13L: Existing Drainage Area POI-1 (to be Disturbed) Inflow=2.56 cfs 0.661 af  
Primary=2.56 cfs 0.661 af

Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed) Inflow=2.63 cfs 0.371 af  
Primary=2.63 cfs 0.371 af

Total Runoff Area = 14.306 ac Runoff Volume = 1.032 af Average Runoff Depth = 0.87"  
92.66% Pervious = 13.256 ac 7.34% Impervious = 1.050 ac

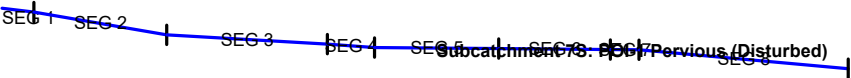
Summary for Subcatchment 7S: POI-1 Pervious (Disturbed)

Runoff = 2.56 cfs @ 13.31 hrs, Volume= 0.661 af, Depth= 0.82"  
Routed to Link 13L : Existing Drainage Area POI-1 (to be Disturbed)

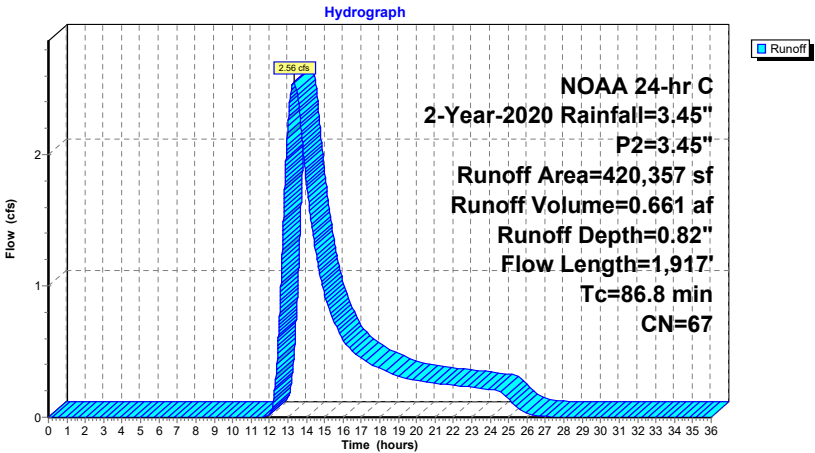
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description                          |
|-----------|----|--------------------------------------|
| 18,906    | 30 | Woods, Good, HSG A                   |
| 73,236    | 55 | Woods, Good, HSG B                   |
| 171,452   | 67 | Row crops, straight row, Good, HSG A |
| 153,091   | 78 | Row crops, straight row, Good, HSG B |
| 3,514     | 77 | Fallow, bare soil, HSG A             |
| 158       | 86 | Fallow, bare soil, HSG B             |
| 420,357   | 67 | Weighted Average                     |
| 420,357   |    | 100.00% Pervious Area                |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                               |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------------------------------------|
| 9.0      | 72            | 0.0150        | 0.13              |                | <b>Sheet Flow, SEG 1</b><br>Cultivated: Residue>20% n= 0.170 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 3.8      | 301           | 0.0210        | 1.30              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 8.1      | 364           | 0.0070        | 0.75              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 3.8      | 107           | 0.0090        | 0.47              |                | <b>Shallow Concentrated Flow, SEG 4</b><br>Woodland Kv= 5.0 fps                                           |
| 16.5     | 281           | 0.0010        | 0.28              |                | <b>Shallow Concentrated Flow, SEG 5</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 26.7     | 253           | 0.0010        | 0.16              |                | <b>Shallow Concentrated Flow, SEG 6</b><br>Woodland Kv= 5.0 fps                                           |
| 3.8      | 65            | 0.0010        | 0.28              |                | <b>Shallow Concentrated Flow, SEG 7</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 15.1     | 474           | 0.0110        | 0.52              |                | <b>Shallow Concentrated Flow, SEG 8</b><br>Woodland Kv= 5.0 fps                                           |
| 86.8     | 1,917         | Total         |                   |                |                                                                                                           |



Subcatchment 7S: POI-1 Pervious (Disturbed)



Hydrograph for Subcatchment 7S: POI-1 Pervious (Disturbed)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 0.82               | 0.03            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 0.82               | 0.01            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 0.82               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 0.82               | 0.00            |
| 2.00            | 0.08                | 0.00               | 0.00            | 28.00           | 3.45                | 0.82               | 0.00            |
| 2.50            | 0.10                | 0.00               | 0.00            | 28.50           | 3.45                | 0.82               | 0.00            |
| 3.00            | 0.12                | 0.00               | 0.00            | 29.00           | 3.45                | 0.82               | 0.00            |
| 3.50            | 0.14                | 0.00               | 0.00            | 29.50           | 3.45                | 0.82               | 0.00            |
| 4.00            | 0.17                | 0.00               | 0.00            | 30.00           | 3.45                | 0.82               | 0.00            |
| 4.50            | 0.19                | 0.00               | 0.00            | 30.50           | 3.45                | 0.82               | 0.00            |
| 5.00            | 0.22                | 0.00               | 0.00            | 31.00           | 3.45                | 0.82               | 0.00            |
| 5.50            | 0.25                | 0.00               | 0.00            | 31.50           | 3.45                | 0.82               | 0.00            |
| 6.00            | 0.27                | 0.00               | 0.00            | 32.00           | 3.45                | 0.82               | 0.00            |
| 6.50            | 0.30                | 0.00               | 0.00            | 32.50           | 3.45                | 0.82               | 0.00            |
| 7.00            | 0.34                | 0.00               | 0.00            | 33.00           | 3.45                | 0.82               | 0.00            |
| 7.50            | 0.37                | 0.00               | 0.00            | 33.50           | 3.45                | 0.82               | 0.00            |
| 8.00            | 0.41                | 0.00               | 0.00            | 34.00           | 3.45                | 0.82               | 0.00            |
| 8.50            | 0.46                | 0.00               | 0.00            | 34.50           | 3.45                | 0.82               | 0.00            |
| 9.00            | 0.50                | 0.00               | 0.00            | 35.00           | 3.45                | 0.82               | 0.00            |
| 9.50            | 0.56                | 0.00               | 0.00            | 35.50           | 3.45                | 0.82               | 0.00            |
| 10.00           | 0.63                | 0.00               | 0.00            | 36.00           | 3.45                | 0.82               | 0.00            |
| 10.50           | 0.71                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.64                | 0.08               | 0.02            |                 |                     |                    |                 |
| 12.50           | 2.43                | 0.33               | 0.63            |                 |                     |                    |                 |
| 13.00           | 2.62                | 0.41               | 2.21            |                 |                     |                    |                 |
| 13.50           | 2.74                | 0.46               | 2.49            |                 |                     |                    |                 |
| 14.00           | 2.82                | 0.50               | 1.81            |                 |                     |                    |                 |
| 14.50           | 2.89                | 0.53               | 1.28            |                 |                     |                    |                 |
| 15.00           | 2.95                | 0.56               | 0.94            |                 |                     |                    |                 |
| 15.50           | 2.99                | 0.58               | 0.73            |                 |                     |                    |                 |
| 16.00           | 3.04                | 0.60               | 0.59            |                 |                     |                    |                 |
| 16.50           | 3.08                | 0.62               | 0.50            |                 |                     |                    |                 |
| 17.00           | 3.11                | 0.64               | 0.44            |                 |                     |                    |                 |
| 17.50           | 3.15                | 0.66               | 0.40            |                 |                     |                    |                 |
| 18.00           | 3.18                | 0.67               | 0.37            |                 |                     |                    |                 |
| 18.50           | 3.20                | 0.69               | 0.34            |                 |                     |                    |                 |
| 19.00           | 3.23                | 0.70               | 0.31            |                 |                     |                    |                 |
| 19.50           | 3.26                | 0.72               | 0.29            |                 |                     |                    |                 |
| 20.00           | 3.28                | 0.73               | 0.28            |                 |                     |                    |                 |
| 20.50           | 3.31                | 0.74               | 0.27            |                 |                     |                    |                 |
| 21.00           | 3.33                | 0.76               | 0.26            |                 |                     |                    |                 |
| 21.50           | 3.35                | 0.77               | 0.25            |                 |                     |                    |                 |
| 22.00           | 3.37                | 0.78               | 0.24            |                 |                     |                    |                 |
| 22.50           | 3.39                | 0.79               | 0.24            |                 |                     |                    |                 |
| 23.00           | 3.41                | 0.80               | 0.23            |                 |                     |                    |                 |
| 23.50           | 3.43                | 0.81               | 0.22            |                 |                     |                    |                 |
| 24.00           | 3.45                | 0.82               | 0.21            |                 |                     |                    |                 |
| 24.50           | 3.45                | 0.82               | 0.20            |                 |                     |                    |                 |
| 25.00           | 3.45                | 0.82               | 0.14            |                 |                     |                    |                 |
| 25.50           | 3.45                | 0.82               | 0.07            |                 |                     |                    |                 |

Summary for Subcatchment 46S: Proposed Undisturbed Area (Pervious)

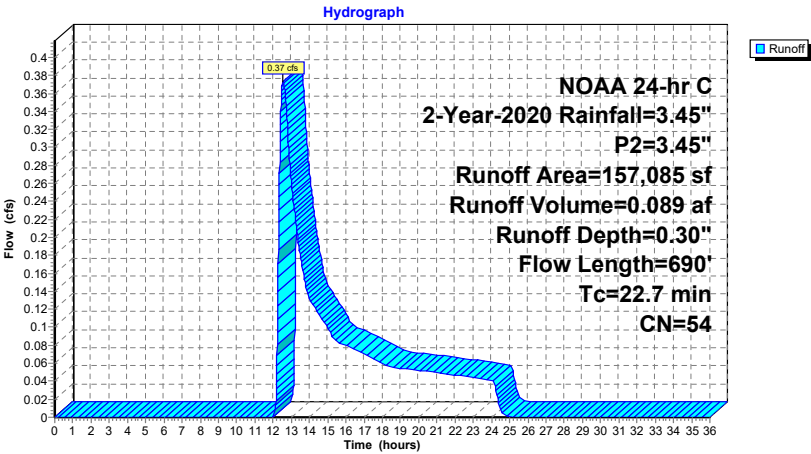
Runoff = 0.37 cfs @ 12.54 hrs, Volume= 0.089 af, Depth= 0.30"  
Routed to Link 14L : Existing Drainage Area POI-1 (to Remain Undisturbed)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN            | Description                    |                   |                |                                                                                                               |
|-----------|---------------|--------------------------------|-------------------|----------------|---------------------------------------------------------------------------------------------------------------|
| 15,827    | 39            | >75% Grass cover, Good, HSG A  |                   |                |                                                                                                               |
| 80,837    | 61            | >75% Grass cover, Good, HSG B  |                   |                |                                                                                                               |
| 30,052    | 32            | Woods/grass comb., Good, HSG A |                   |                |                                                                                                               |
| 22,227    | 58            | Woods/grass comb., Good, HSG B |                   |                |                                                                                                               |
| 8,142     | 86            | Fallow, bare soil, HSG B       |                   |                |                                                                                                               |
| 157,085   | 54            | Weighted Average               |                   |                |                                                                                                               |
| 157,085   |               | 100.00% Pervious Area          |                   |                |                                                                                                               |
| Tc (min)  | Length (feet) | Slope (ft/ft)                  | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                   |
| 9.1       | 27            | 0.0120                         | 0.05              |                | Sheet Flow,<br>Grass: Bermuda n= 0.410 P2= 3.45"<br>Using McCuen-Spiess flow length                           |
| 1.5       | 67            | 0.0120                         | 0.77              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6      | 319           | 0.0100                         | 0.50              |                | Shallow Concentrated Flow,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8       | 49            | 0.0200                         | 0.99              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7       | 228           | 0.0050                         | 5.09              | 16.00          | Pipe Channel,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.7      | 690           | Total                          |                   |                |                                                                                                               |



Subcatchment 46S: Proposed Undisturbed Area (Pervious)





**2101ELK-STM Analysis POI-1 - Existing**NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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**Hydrograph for Subcatchment 46S: Proposed Undisturbed Area (Pervious)**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 0.30               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 0.30               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 0.30               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 0.30               | 0.00            |
| 2.00            | 0.08                | 0.00               | 0.00            | 28.00           | 3.45                | 0.30               | 0.00            |
| 2.50            | 0.10                | 0.00               | 0.00            | 28.50           | 3.45                | 0.30               | 0.00            |
| 3.00            | 0.12                | 0.00               | 0.00            | 29.00           | 3.45                | 0.30               | 0.00            |
| 3.50            | 0.14                | 0.00               | 0.00            | 29.50           | 3.45                | 0.30               | 0.00            |
| 4.00            | 0.17                | 0.00               | 0.00            | 30.00           | 3.45                | 0.30               | 0.00            |
| 4.50            | 0.19                | 0.00               | 0.00            | 30.50           | 3.45                | 0.30               | 0.00            |
| 5.00            | 0.22                | 0.00               | 0.00            | 31.00           | 3.45                | 0.30               | 0.00            |
| 5.50            | 0.25                | 0.00               | 0.00            | 31.50           | 3.45                | 0.30               | 0.00            |
| 6.00            | 0.27                | 0.00               | 0.00            | 32.00           | 3.45                | 0.30               | 0.00            |
| 6.50            | 0.30                | 0.00               | 0.00            | 32.50           | 3.45                | 0.30               | 0.00            |
| 7.00            | 0.34                | 0.00               | 0.00            | 33.00           | 3.45                | 0.30               | 0.00            |
| 7.50            | 0.37                | 0.00               | 0.00            | 33.50           | 3.45                | 0.30               | 0.00            |
| 8.00            | 0.41                | 0.00               | 0.00            | 34.00           | 3.45                | 0.30               | 0.00            |
| 8.50            | 0.46                | 0.00               | 0.00            | 34.50           | 3.45                | 0.30               | 0.00            |
| 9.00            | 0.50                | 0.00               | 0.00            | 35.00           | 3.45                | 0.30               | 0.00            |
| 9.50            | 0.56                | 0.00               | 0.00            | 35.50           | 3.45                | 0.30               | 0.00            |
| 10.00           | 0.63                | 0.00               | 0.00            | 36.00           | 3.45                | 0.30               | 0.00            |
| 10.50           | 0.71                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.64                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.43                | 0.06               | 0.37            |                 |                     |                    |                 |
| 13.00           | 2.62                | 0.09               | 0.26            |                 |                     |                    |                 |
| 13.50           | 2.74                | 0.11               | 0.18            |                 |                     |                    |                 |
| 14.00           | 2.82                | 0.13               | 0.13            |                 |                     |                    |                 |
| 14.50           | 2.89                | 0.15               | 0.12            |                 |                     |                    |                 |
| 15.00           | 2.95                | 0.16               | 0.10            |                 |                     |                    |                 |
| 15.50           | 2.99                | 0.17               | 0.08            |                 |                     |                    |                 |
| 16.00           | 3.04                | 0.18               | 0.08            |                 |                     |                    |                 |
| 16.50           | 3.08                | 0.19               | 0.08            |                 |                     |                    |                 |
| 17.00           | 3.11                | 0.20               | 0.07            |                 |                     |                    |                 |
| 17.50           | 3.15                | 0.21               | 0.07            |                 |                     |                    |                 |
| 18.00           | 3.18                | 0.22               | 0.06            |                 |                     |                    |                 |
| 18.50           | 3.20                | 0.22               | 0.06            |                 |                     |                    |                 |
| 19.00           | 3.23                | 0.23               | 0.05            |                 |                     |                    |                 |
| 19.50           | 3.26                | 0.24               | 0.05            |                 |                     |                    |                 |
| 20.00           | 3.28                | 0.25               | 0.05            |                 |                     |                    |                 |
| 20.50           | 3.31                | 0.25               | 0.05            |                 |                     |                    |                 |
| 21.00           | 3.33                | 0.26               | 0.05            |                 |                     |                    |                 |
| 21.50           | 3.35                | 0.27               | 0.05            |                 |                     |                    |                 |
| 22.00           | 3.37                | 0.27               | 0.05            |                 |                     |                    |                 |
| 22.50           | 3.39                | 0.28               | 0.05            |                 |                     |                    |                 |
| 23.00           | 3.41                | 0.29               | 0.04            |                 |                     |                    |                 |
| 23.50           | 3.43                | 0.29               | 0.04            |                 |                     |                    |                 |
| 24.00           | 3.45                | 0.30               | 0.04            |                 |                     |                    |                 |
| 24.50           | 3.45                | 0.30               | 0.01            |                 |                     |                    |                 |
| 25.00           | 3.45                | 0.30               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 0.30               | 0.00            |                 |                     |                    |                 |

**2101ELK-STM Analysis POI-1 - Existing**NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Summary for Subcatchment 47S: Proposed Undisturbed Area (Impervious)**

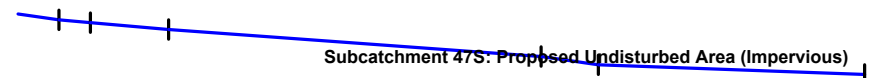
Runoff = 2.38 cfs @ 12.32 hrs, Volume= 0.281 af, Depth= 3.22"  
Routed to Link 14L : Existing Drainage Area POI-1 (to Remain Undisturbed)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

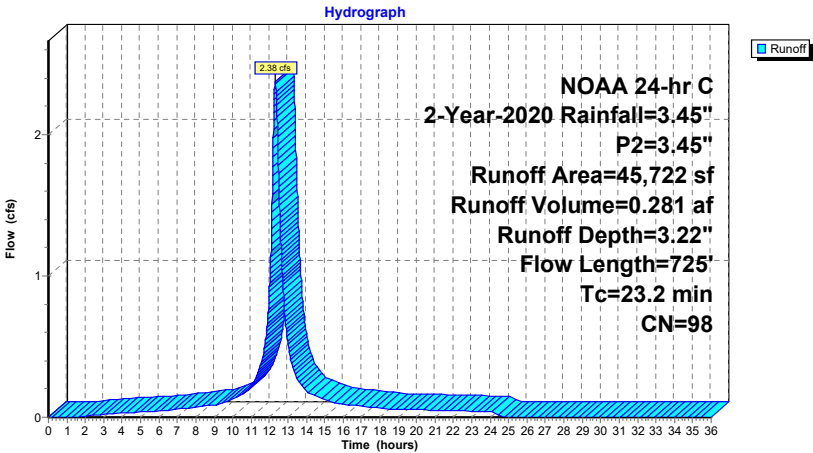
| Area (sf) | CN | Description                 |
|-----------|----|-----------------------------|
| 45,722    | 98 | Unconnected pavement, HSG A |
| 45,722    |    | 100.00% Impervious Area     |
| 45,722    |    | 100.00% Unconnected         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                           |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------|
| 0.5         | 35               | 0.0200           | 1.16                 |                   | <b>Sheet Flow</b> ,<br>Smooth surfaces n= 0.011 P2= 3.45"                                                             |
| 9.1         | 27               | 0.0120           | 0.05                 |                   | <b>Sheet Flow</b> ,<br>Grass: Bermuda n= 0.410 P2= 3.45"<br>Using McCuen-Spiess flow length                           |
| 1.5         | 67               | 0.0120           | 0.77                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6        | 319              | 0.0100           | 0.50                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8         | 49               | 0.0200           | 0.99                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7         | 228              | 0.0050           | 5.09                 | 16.00             | <b>Pipe Channel</b> ,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 23.2        | 725              | Total            |                      |                   |                                                                                                                       |



Subcatchment 47S: Proposed Undisturbed Area (Impervious)



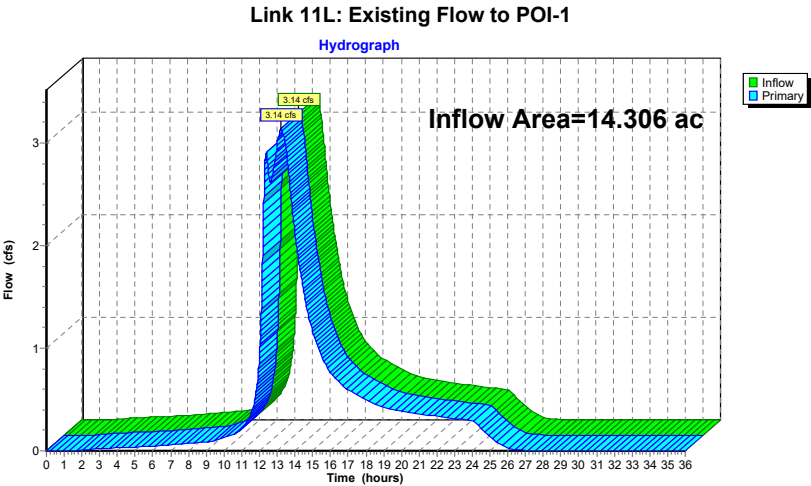
Hydrograph for Subcatchment 47S: Proposed Undisturbed Area (Impervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 3.22               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 3.22               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 3.22               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 3.22               | 0.00            |
| 2.00            | 0.08                | 0.01               | 0.01            | 28.00           | 3.45                | 3.22               | 0.00            |
| 2.50            | 0.10                | 0.01               | 0.01            | 28.50           | 3.45                | 3.22               | 0.00            |
| 3.00            | 0.12                | 0.02               | 0.02            | 29.00           | 3.45                | 3.22               | 0.00            |
| 3.50            | 0.14                | 0.04               | 0.02            | 29.50           | 3.45                | 3.22               | 0.00            |
| 4.00            | 0.17                | 0.05               | 0.03            | 30.00           | 3.45                | 3.22               | 0.00            |
| 4.50            | 0.19                | 0.07               | 0.03            | 30.50           | 3.45                | 3.22               | 0.00            |
| 5.00            | 0.22                | 0.08               | 0.04            | 31.00           | 3.45                | 3.22               | 0.00            |
| 5.50            | 0.25                | 0.10               | 0.04            | 31.50           | 3.45                | 3.22               | 0.00            |
| 6.00            | 0.27                | 0.12               | 0.04            | 32.00           | 3.45                | 3.22               | 0.00            |
| 6.50            | 0.30                | 0.15               | 0.05            | 32.50           | 3.45                | 3.22               | 0.00            |
| 7.00            | 0.34                | 0.17               | 0.06            | 33.00           | 3.45                | 3.22               | 0.00            |
| 7.50            | 0.37                | 0.21               | 0.06            | 33.50           | 3.45                | 3.22               | 0.00            |
| 8.00            | 0.41                | 0.24               | 0.07            | 34.00           | 3.45                | 3.22               | 0.00            |
| 8.50            | 0.46                | 0.28               | 0.08            | 34.50           | 3.45                | 3.22               | 0.00            |
| 9.00            | 0.50                | 0.32               | 0.09            | 35.00           | 3.45                | 3.22               | 0.00            |
| 9.50            | 0.56                | 0.37               | 0.10            | 35.50           | 3.45                | 3.22               | 0.00            |
| 10.00           | 0.63                | 0.44               | 0.13            | 36.00           | 3.45                | 3.22               | 0.00            |
| 10.50           | 0.71                | 0.51               | 0.16            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.63               | 0.22            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.81               | 0.35            |                 |                     |                    |                 |
| 12.00           | 1.64                | 1.42               | 0.89            |                 |                     |                    |                 |
| 12.50           | 2.43                | 2.20               | 1.73            |                 |                     |                    |                 |
| 13.00           | 2.62                | 2.39               | 0.52            |                 |                     |                    |                 |
| 13.50           | 2.74                | 2.51               | 0.28            |                 |                     |                    |                 |
| 14.00           | 2.82                | 2.59               | 0.18            |                 |                     |                    |                 |
| 14.50           | 2.89                | 2.66               | 0.15            |                 |                     |                    |                 |
| 15.00           | 2.95                | 2.71               | 0.12            |                 |                     |                    |                 |
| 15.50           | 2.99                | 2.76               | 0.10            |                 |                     |                    |                 |
| 16.00           | 3.04                | 2.80               | 0.09            |                 |                     |                    |                 |
| 16.50           | 3.08                | 2.84               | 0.09            |                 |                     |                    |                 |
| 17.00           | 3.11                | 2.88               | 0.08            |                 |                     |                    |                 |
| 17.50           | 3.15                | 2.91               | 0.07            |                 |                     |                    |                 |
| 18.00           | 3.18                | 2.94               | 0.06            |                 |                     |                    |                 |
| 18.50           | 3.20                | 2.97               | 0.06            |                 |                     |                    |                 |
| 19.00           | 3.23                | 3.00               | 0.06            |                 |                     |                    |                 |
| 19.50           | 3.26                | 3.02               | 0.05            |                 |                     |                    |                 |
| 20.00           | 3.28                | 3.05               | 0.05            |                 |                     |                    |                 |
| 20.50           | 3.31                | 3.07               | 0.05            |                 |                     |                    |                 |
| 21.00           | 3.33                | 3.10               | 0.05            |                 |                     |                    |                 |
| 21.50           | 3.35                | 3.12               | 0.05            |                 |                     |                    |                 |
| 22.00           | 3.37                | 3.14               | 0.05            |                 |                     |                    |                 |
| 22.50           | 3.39                | 3.16               | 0.04            |                 |                     |                    |                 |
| 23.00           | 3.41                | 3.18               | 0.04            |                 |                     |                    |                 |
| 23.50           | 3.43                | 3.20               | 0.04            |                 |                     |                    |                 |
| 24.00           | 3.45                | 3.22               | 0.04            |                 |                     |                    |                 |
| 24.50           | 3.45                | 3.22               | 0.01            |                 |                     |                    |                 |
| 25.00           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |

Summary for Link 11L: Existing Flow to POI-1

Inflow Area = 14.306 ac, 7.34% Impervious, Inflow Depth = 0.87" for 2-Year-2020 event  
Inflow = 3.14 cfs @ 13.21 hrs, Volume= 1.032 af  
Primary = 3.14 cfs @ 13.21 hrs, Volume= 1.032 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



Hydrograph for Link 11L: Existing Flow to POI-1

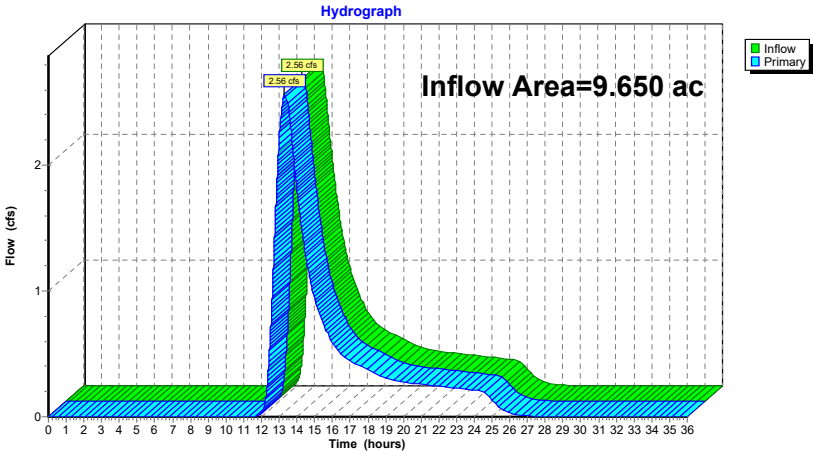
| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.03         | 0.00             | 0.03          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.01         | 0.00             | 0.01          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.00         | 0.00             | 0.00          |
| 1.50         | 0.00         | 0.00             | 0.00          | 27.50        | 0.00         | 0.00             | 0.00          |
| 2.00         | 0.01         | 0.00             | 0.01          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.01         | 0.00             | 0.01          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.02         | 0.00             | 0.02          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.02         | 0.00             | 0.02          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.03         | 0.00             | 0.03          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.03         | 0.00             | 0.03          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.04         | 0.00             | 0.04          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.04         | 0.00             | 0.04          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.04         | 0.00             | 0.04          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.05         | 0.00             | 0.05          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.06         | 0.00             | 0.06          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.06         | 0.00             | 0.06          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.07         | 0.00             | 0.07          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.08         | 0.00             | 0.08          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.09         | 0.00             | 0.09          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.10         | 0.00             | 0.10          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.13         | 0.00             | 0.13          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.16         | 0.00             | 0.16          |              |              |                  |               |
| 11.00        | 0.22         | 0.00             | 0.22          |              |              |                  |               |
| 11.50        | 0.35         | 0.00             | 0.35          |              |              |                  |               |
| 12.00        | 0.91         | 0.00             | 0.91          |              |              |                  |               |
| 12.50        | 2.73         | 0.00             | 2.73          |              |              |                  |               |
| 13.00        | 2.99         | 0.00             | 2.99          |              |              |                  |               |
| 13.50        | 2.94         | 0.00             | 2.94          |              |              |                  |               |
| 14.00        | 2.13         | 0.00             | 2.13          |              |              |                  |               |
| 14.50        | 1.54         | 0.00             | 1.54          |              |              |                  |               |
| 15.00        | 1.16         | 0.00             | 1.16          |              |              |                  |               |
| 15.50        | 0.92         | 0.00             | 0.92          |              |              |                  |               |
| 16.00        | 0.77         | 0.00             | 0.77          |              |              |                  |               |
| 16.50        | 0.67         | 0.00             | 0.67          |              |              |                  |               |
| 17.00        | 0.59         | 0.00             | 0.59          |              |              |                  |               |
| 17.50        | 0.54         | 0.00             | 0.54          |              |              |                  |               |
| 18.00        | 0.50         | 0.00             | 0.50          |              |              |                  |               |
| 18.50        | 0.45         | 0.00             | 0.45          |              |              |                  |               |
| 19.00        | 0.42         | 0.00             | 0.42          |              |              |                  |               |
| 19.50        | 0.40         | 0.00             | 0.40          |              |              |                  |               |
| 20.00        | 0.38         | 0.00             | 0.38          |              |              |                  |               |
| 20.50        | 0.37         | 0.00             | 0.37          |              |              |                  |               |
| 21.00        | 0.36         | 0.00             | 0.36          |              |              |                  |               |
| 21.50        | 0.35         | 0.00             | 0.35          |              |              |                  |               |
| 22.00        | 0.34         | 0.00             | 0.34          |              |              |                  |               |
| 22.50        | 0.33         | 0.00             | 0.33          |              |              |                  |               |
| 23.00        | 0.31         | 0.00             | 0.31          |              |              |                  |               |
| 23.50        | 0.30         | 0.00             | 0.30          |              |              |                  |               |
| 24.00        | 0.29         | 0.00             | 0.29          |              |              |                  |               |
| 24.50        | 0.21         | 0.00             | 0.21          |              |              |                  |               |
| 25.00        | 0.14         | 0.00             | 0.14          |              |              |                  |               |
| 25.50        | 0.07         | 0.00             | 0.07          |              |              |                  |               |

Summary for Link 13L: Existing Drainage Area POI-1 (to be Disturbed)

Inflow Area = 9.650 ac, 0.00% Impervious, Inflow Depth = 0.82" for 2-Year-2020 event  
Inflow = 2.56 cfs @ 13.31 hrs, Volume= 0.661 af  
Primary = 2.56 cfs @ 13.31 hrs, Volume= 0.661 af, Atten= 0%, Lag= 0.0 min  
Routed to Link 11L : Existing Flow to POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Link 13L: Existing Drainage Area POI-1 (to be Disturbed)



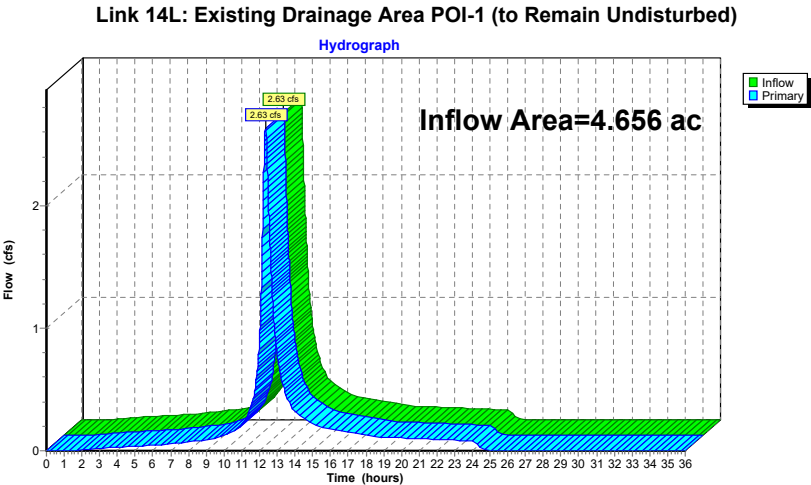
Hydrograph for Link 13L: Existing Drainage Area POI-1 (to be Disturbed)

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.03         | 0.00             | 0.03          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.01         | 0.00             | 0.01          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.00         | 0.00             | 0.00          |
| 1.50         | 0.00         | 0.00             | 0.00          | 27.50        | 0.00         | 0.00             | 0.00          |
| 2.00         | 0.00         | 0.00             | 0.00          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.00         | 0.00             | 0.00          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.00         | 0.00             | 0.00          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.00         | 0.00             | 0.00          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.00         | 0.00             | 0.00          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.00         | 0.00             | 0.00          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.00         | 0.00             | 0.00          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.00         | 0.00             | 0.00          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.00         | 0.00             | 0.00          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.00         | 0.00             | 0.00          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.00         | 0.00             | 0.00          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.00         | 0.00             | 0.00          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.00         | 0.00             | 0.00          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.00         | 0.00             | 0.00          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.00         | 0.00             | 0.00          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.00         | 0.00             | 0.00          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.00         | 0.00             | 0.00          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 11.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 11.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 12.00        | 0.02         | 0.00             | 0.02          |              |              |                  |               |
| 12.50        | 0.63         | 0.00             | 0.63          |              |              |                  |               |
| 13.00        | 2.21         | 0.00             | 2.21          |              |              |                  |               |
| 13.50        | 2.49         | 0.00             | 2.49          |              |              |                  |               |
| 14.00        | 1.81         | 0.00             | 1.81          |              |              |                  |               |
| 14.50        | 1.28         | 0.00             | 1.28          |              |              |                  |               |
| 15.00        | 0.94         | 0.00             | 0.94          |              |              |                  |               |
| 15.50        | 0.73         | 0.00             | 0.73          |              |              |                  |               |
| 16.00        | 0.59         | 0.00             | 0.59          |              |              |                  |               |
| 16.50        | 0.50         | 0.00             | 0.50          |              |              |                  |               |
| 17.00        | 0.44         | 0.00             | 0.44          |              |              |                  |               |
| 17.50        | 0.40         | 0.00             | 0.40          |              |              |                  |               |
| 18.00        | 0.37         | 0.00             | 0.37          |              |              |                  |               |
| 18.50        | 0.34         | 0.00             | 0.34          |              |              |                  |               |
| 19.00        | 0.31         | 0.00             | 0.31          |              |              |                  |               |
| 19.50        | 0.29         | 0.00             | 0.29          |              |              |                  |               |
| 20.00        | 0.28         | 0.00             | 0.28          |              |              |                  |               |
| 20.50        | 0.27         | 0.00             | 0.27          |              |              |                  |               |
| 21.00        | 0.26         | 0.00             | 0.26          |              |              |                  |               |
| 21.50        | 0.25         | 0.00             | 0.25          |              |              |                  |               |
| 22.00        | 0.24         | 0.00             | 0.24          |              |              |                  |               |
| 22.50        | 0.24         | 0.00             | 0.24          |              |              |                  |               |
| 23.00        | 0.23         | 0.00             | 0.23          |              |              |                  |               |
| 23.50        | 0.22         | 0.00             | 0.22          |              |              |                  |               |
| 24.00        | 0.21         | 0.00             | 0.21          |              |              |                  |               |
| 24.50        | 0.20         | 0.00             | 0.20          |              |              |                  |               |
| 25.00        | 0.14         | 0.00             | 0.14          |              |              |                  |               |
| 25.50        | 0.07         | 0.00             | 0.07          |              |              |                  |               |

Summary for Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed)

Inflow Area = 4.656 ac, 22.54% Impervious, Inflow Depth = 0.96" for 2-Year-2020 event  
Inflow = 2.63 cfs @ 12.35 hrs, Volume= 0.371 af  
Primary = 2.63 cfs @ 12.35 hrs, Volume= 0.371 af, Atten= 0%, Lag= 0.0 min  
Routed to Link 11L : Existing Flow to POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



Hydrograph for Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed)

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.00         | 0.00             | 0.00          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.00         | 0.00             | 0.00          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.00         | 0.00             | 0.00          |
| 1.50         | 0.00         | 0.00             | 0.00          | 27.50        | 0.00         | 0.00             | 0.00          |
| 2.00         | 0.01         | 0.00             | 0.01          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.01         | 0.00             | 0.01          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.02         | 0.00             | 0.02          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.02         | 0.00             | 0.02          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.03         | 0.00             | 0.03          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.03         | 0.00             | 0.03          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.04         | 0.00             | 0.04          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.04         | 0.00             | 0.04          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.04         | 0.00             | 0.04          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.05         | 0.00             | 0.05          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.06         | 0.00             | 0.06          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.06         | 0.00             | 0.06          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.07         | 0.00             | 0.07          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.08         | 0.00             | 0.08          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.09         | 0.00             | 0.09          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.10         | 0.00             | 0.10          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.13         | 0.00             | 0.13          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.16         | 0.00             | 0.16          |              |              |                  |               |
| 11.00        | 0.22         | 0.00             | 0.22          |              |              |                  |               |
| 11.50        | 0.35         | 0.00             | 0.35          |              |              |                  |               |
| 12.00        | 0.89         | 0.00             | 0.89          |              |              |                  |               |
| 12.50        | 2.10         | 0.00             | 2.10          |              |              |                  |               |
| 13.00        | 0.78         | 0.00             | 0.78          |              |              |                  |               |
| 13.50        | 0.46         | 0.00             | 0.46          |              |              |                  |               |
| 14.00        | 0.32         | 0.00             | 0.32          |              |              |                  |               |
| 14.50        | 0.27         | 0.00             | 0.27          |              |              |                  |               |
| 15.00        | 0.22         | 0.00             | 0.22          |              |              |                  |               |
| 15.50        | 0.19         | 0.00             | 0.19          |              |              |                  |               |
| 16.00        | 0.17         | 0.00             | 0.17          |              |              |                  |               |
| 16.50        | 0.16         | 0.00             | 0.16          |              |              |                  |               |
| 17.00        | 0.15         | 0.00             | 0.15          |              |              |                  |               |
| 17.50        | 0.14         | 0.00             | 0.14          |              |              |                  |               |
| 18.00        | 0.12         | 0.00             | 0.12          |              |              |                  |               |
| 18.50        | 0.11         | 0.00             | 0.11          |              |              |                  |               |
| 19.00        | 0.11         | 0.00             | 0.11          |              |              |                  |               |
| 19.50        | 0.11         | 0.00             | 0.11          |              |              |                  |               |
| 20.00        | 0.10         | 0.00             | 0.10          |              |              |                  |               |
| 20.50        | 0.10         | 0.00             | 0.10          |              |              |                  |               |
| 21.00        | 0.10         | 0.00             | 0.10          |              |              |                  |               |
| 21.50        | 0.10         | 0.00             | 0.10          |              |              |                  |               |
| 22.00        | 0.09         | 0.00             | 0.09          |              |              |                  |               |
| 22.50        | 0.09         | 0.00             | 0.09          |              |              |                  |               |
| 23.00        | 0.09         | 0.00             | 0.09          |              |              |                  |               |
| 23.50        | 0.08         | 0.00             | 0.08          |              |              |                  |               |
| 24.00        | 0.08         | 0.00             | 0.08          |              |              |                  |               |
| 24.50        | 0.01         | 0.00             | 0.01          |              |              |                  |               |
| 25.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 25.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment7S: POI-1 Pervious Runoff Area=420,357 sf 0.00% Impervious Runoff Depth=2.05"  
Flow Length=1,917' Tc=86.8 min CN=67 Runoff=7.14 cfs 1.649 af

Subcatchment46S: Proposed Undisturbed Runoff Area=157,085 sf 0.00% Impervious Runoff Depth=1.09"  
Flow Length=690' Tc=22.7 min CN=54 Runoff=2.59 cfs 0.328 af

Subcatchment47S: Proposed Runoff Area=45,722 sf 100.00% Impervious Runoff Depth=5.11"  
Flow Length=725' Tc=23.2 min CN=98 Runoff=3.72 cfs 0.447 af

Link 11L: Existing Flow to POI-1 Inflow=8.51 cfs 2.425 af  
Primary=8.51 cfs 2.425 af

Link 13L: Existing Drainage Area POI-1 (to be Disturbed) Inflow=7.14 cfs 1.649 af  
Primary=7.14 cfs 1.649 af

Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed) Inflow=6.25 cfs 0.776 af  
Primary=6.25 cfs 0.776 af

Total Runoff Area = 14.306 ac Runoff Volume = 2.425 af Average Runoff Depth = 2.03"  
92.66% Pervious = 13.256 ac 7.34% Impervious = 1.050 ac

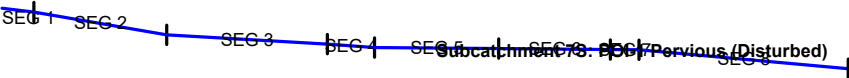
Summary for Subcatchment 7S: POI-1 Pervious (Disturbed)

Runoff = 7.14 cfs @ 13.21 hrs, Volume= 1.649 af, Depth= 2.05"  
Routed to Link 13L : Existing Drainage Area POI-1 (to be Disturbed)

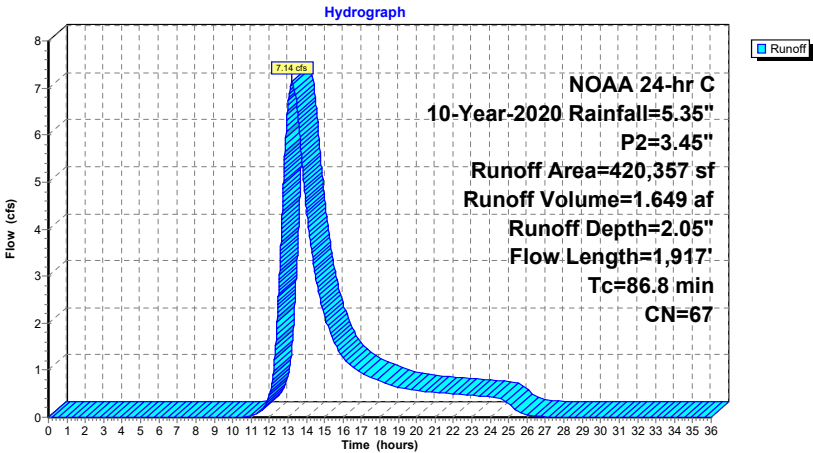
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description                          |
|-----------|----|--------------------------------------|
| 18,906    | 30 | Woods, Good, HSG A                   |
| 73,236    | 55 | Woods, Good, HSG B                   |
| 171,452   | 67 | Row crops, straight row, Good, HSG A |
| 153,091   | 78 | Row crops, straight row, Good, HSG B |
| 3,514     | 77 | Fallow, bare soil, HSG A             |
| 158       | 86 | Fallow, bare soil, HSG B             |
| 420,357   | 67 | Weighted Average                     |
| 420,357   |    | 100.00% Pervious Area                |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                               |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------------------------------------|
| 9.0      | 72            | 0.0150        | 0.13              |                | <b>Sheet Flow, SEG 1</b><br>Cultivated: Residue>20% n= 0.170 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 3.8      | 301           | 0.0210        | 1.30              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 8.1      | 364           | 0.0070        | 0.75              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 3.8      | 107           | 0.0090        | 0.47              |                | <b>Shallow Concentrated Flow, SEG 4</b><br>Woodland Kv= 5.0 fps                                           |
| 16.5     | 281           | 0.0010        | 0.28              |                | <b>Shallow Concentrated Flow, SEG 5</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 26.7     | 253           | 0.0010        | 0.16              |                | <b>Shallow Concentrated Flow, SEG 6</b><br>Woodland Kv= 5.0 fps                                           |
| 3.8      | 65            | 0.0010        | 0.28              |                | <b>Shallow Concentrated Flow, SEG 7</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 15.1     | 474           | 0.0110        | 0.52              |                | <b>Shallow Concentrated Flow, SEG 8</b><br>Woodland Kv= 5.0 fps                                           |
| 86.8     | 1,917         | Total         |                   |                |                                                                                                           |



Subcatchment 7S: POI-1 Pervious (Disturbed)



Hydrograph for Subcatchment 7S: POI-1 Pervious (Disturbed)

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 5.35             | 2.05            | 0.06         |
| 0.50         | 0.03             | 0.00            | 0.00         | 26.50        | 5.35             | 2.05            | 0.02         |
| 1.00         | 0.06             | 0.00            | 0.00         | 27.00        | 5.35             | 2.05            | 0.01         |
| 1.50         | 0.09             | 0.00            | 0.00         | 27.50        | 5.35             | 2.05            | 0.00         |
| 2.00         | 0.12             | 0.00            | 0.00         | 28.00        | 5.35             | 2.05            | 0.00         |
| 2.50         | 0.15             | 0.00            | 0.00         | 28.50        | 5.35             | 2.05            | 0.00         |
| 3.00         | 0.19             | 0.00            | 0.00         | 29.00        | 5.35             | 2.05            | 0.00         |
| 3.50         | 0.22             | 0.00            | 0.00         | 29.50        | 5.35             | 2.05            | 0.00         |
| 4.00         | 0.26             | 0.00            | 0.00         | 30.00        | 5.35             | 2.05            | 0.00         |
| 4.50         | 0.30             | 0.00            | 0.00         | 30.50        | 5.35             | 2.05            | 0.00         |
| 5.00         | 0.34             | 0.00            | 0.00         | 31.00        | 5.35             | 2.05            | 0.00         |
| 5.50         | 0.38             | 0.00            | 0.00         | 31.50        | 5.35             | 2.05            | 0.00         |
| 6.00         | 0.42             | 0.00            | 0.00         | 32.00        | 5.35             | 2.05            | 0.00         |
| 6.50         | 0.47             | 0.00            | 0.00         | 32.50        | 5.35             | 2.05            | 0.00         |
| 7.00         | 0.52             | 0.00            | 0.00         | 33.00        | 5.35             | 2.05            | 0.00         |
| 7.50         | 0.58             | 0.00            | 0.00         | 33.50        | 5.35             | 2.05            | 0.00         |
| 8.00         | 0.64             | 0.00            | 0.00         | 34.00        | 5.35             | 2.05            | 0.00         |
| 8.50         | 0.71             | 0.00            | 0.00         | 34.50        | 5.35             | 2.05            | 0.00         |
| 9.00         | 0.78             | 0.00            | 0.00         | 35.00        | 5.35             | 2.05            | 0.00         |
| 9.50         | 0.87             | 0.00            | 0.00         | 35.50        | 5.35             | 2.05            | 0.00         |
| 10.00        | 0.98             | 0.00            | 0.00         | 36.00        | 5.35             | 2.05            | 0.00         |
| 10.50        | 1.10             | 0.00            | 0.00         |              |                  |                 |              |
| 11.00        | 1.28             | 0.02            | 0.02         |              |                  |                 |              |
| 11.50        | 1.58             | 0.06            | 0.12         |              |                  |                 |              |
| 12.00        | 2.55             | 0.38            | 0.48         |              |                  |                 |              |
| 12.50        | 3.77             | 1.01            | 2.63         |              |                  |                 |              |
| 13.00        | 4.07             | 1.19            | 6.60         |              |                  |                 |              |
| 13.50        | 4.25             | 1.30            | 6.61         |              |                  |                 |              |
| 14.00        | 4.37             | 1.38            | 4.49         |              |                  |                 |              |
| 14.50        | 4.48             | 1.45            | 3.01         |              |                  |                 |              |
| 15.00        | 4.57             | 1.51            | 2.13         |              |                  |                 |              |
| 15.50        | 4.64             | 1.56            | 1.62         |              |                  |                 |              |
| 16.00        | 4.71             | 1.60            | 1.28         |              |                  |                 |              |
| 16.50        | 4.77             | 1.65            | 1.07         |              |                  |                 |              |
| 17.00        | 4.83             | 1.68            | 0.93         |              |                  |                 |              |
| 17.50        | 4.88             | 1.72            | 0.85         |              |                  |                 |              |
| 18.00        | 4.93             | 1.75            | 0.77         |              |                  |                 |              |
| 18.50        | 4.97             | 1.78            | 0.70         |              |                  |                 |              |
| 19.00        | 5.01             | 1.81            | 0.64         |              |                  |                 |              |
| 19.50        | 5.05             | 1.84            | 0.60         |              |                  |                 |              |
| 20.00        | 5.09             | 1.86            | 0.57         |              |                  |                 |              |
| 20.50        | 5.13             | 1.89            | 0.55         |              |                  |                 |              |
| 21.00        | 5.16             | 1.92            | 0.53         |              |                  |                 |              |
| 21.50        | 5.20             | 1.94            | 0.51         |              |                  |                 |              |
| 22.00        | 5.23             | 1.96            | 0.50         |              |                  |                 |              |
| 22.50        | 5.26             | 1.99            | 0.48         |              |                  |                 |              |
| 23.00        | 5.29             | 2.01            | 0.46         |              |                  |                 |              |
| 23.50        | 5.32             | 2.03            | 0.45         |              |                  |                 |              |
| 24.00        | 5.35             | 2.05            | 0.43         |              |                  |                 |              |
| 24.50        | 5.35             | 2.05            | 0.40         |              |                  |                 |              |
| 25.00        | 5.35             | 2.05            | 0.28         |              |                  |                 |              |
| 25.50        | 5.35             | 2.05            | 0.13         |              |                  |                 |              |

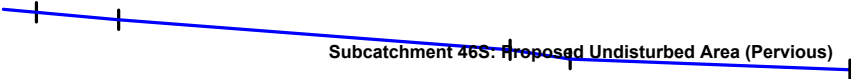
Summary for Subcatchment 46S: Proposed Undisturbed Area (Pervious)

Runoff = 2.59 cfs @ 12.38 hrs, Volume= 0.328 af, Depth= 1.09"  
Routed to Link 14L : Existing Drainage Area POI-1 (to Remain Undisturbed)

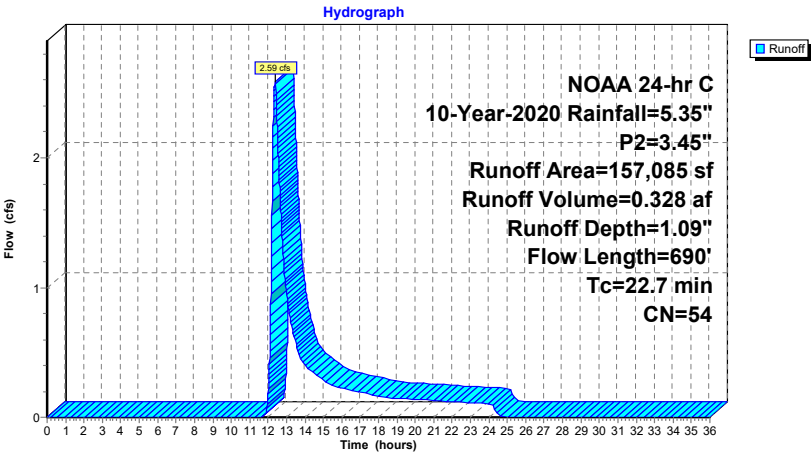
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description                    |
|-----------|----|--------------------------------|
| 15,827    | 39 | >75% Grass cover, Good, HSG A  |
| 80,837    | 61 | >75% Grass cover, Good, HSG B  |
| 30,052    | 32 | Woods/grass comb., Good, HSG A |
| 22,227    | 58 | Woods/grass comb., Good, HSG B |
| 8,142     | 86 | Fallow, bare soil, HSG B       |
| 157,085   | 54 | Weighted Average               |
| 157,085   |    | 100.00% Pervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                   |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------------------------------------------------|
| 9.1      | 27            | 0.0120        | 0.05              |                | Sheet Flow,<br>Grass: Bermuda n= 0.410 P2= 3.45"<br>Using McCuen-Spiess flow length                           |
| 1.5      | 67            | 0.0120        | 0.77              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6     | 319           | 0.0100        | 0.50              |                | Shallow Concentrated Flow,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8      | 49            | 0.0200        | 0.99              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7      | 228           | 0.0050        | 5.09              | 16.00          | Pipe Channel,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.7     | 690           | Total         |                   |                |                                                                                                               |



Subcatchment 46S: Proposed Undisturbed Area (Pervious)





**2101ELK-STM Analysis POI-1 - Existin**NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Hydrograph for Subcatchment 46S: Proposed Undisturbed Area (Pervious)**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 1.09               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 1.09               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 1.09               | 0.00            |
| 1.50            | 0.09                | 0.00               | 0.00            | 27.50           | 5.35                | 1.09               | 0.00            |
| 2.00            | 0.12                | 0.00               | 0.00            | 28.00           | 5.35                | 1.09               | 0.00            |
| 2.50            | 0.15                | 0.00               | 0.00            | 28.50           | 5.35                | 1.09               | 0.00            |
| 3.00            | 0.19                | 0.00               | 0.00            | 29.00           | 5.35                | 1.09               | 0.00            |
| 3.50            | 0.22                | 0.00               | 0.00            | 29.50           | 5.35                | 1.09               | 0.00            |
| 4.00            | 0.26                | 0.00               | 0.00            | 30.00           | 5.35                | 1.09               | 0.00            |
| 4.50            | 0.30                | 0.00               | 0.00            | 30.50           | 5.35                | 1.09               | 0.00            |
| 5.00            | 0.34                | 0.00               | 0.00            | 31.00           | 5.35                | 1.09               | 0.00            |
| 5.50            | 0.38                | 0.00               | 0.00            | 31.50           | 5.35                | 1.09               | 0.00            |
| 6.00            | 0.42                | 0.00               | 0.00            | 32.00           | 5.35                | 1.09               | 0.00            |
| 6.50            | 0.47                | 0.00               | 0.00            | 32.50           | 5.35                | 1.09               | 0.00            |
| 7.00            | 0.52                | 0.00               | 0.00            | 33.00           | 5.35                | 1.09               | 0.00            |
| 7.50            | 0.58                | 0.00               | 0.00            | 33.50           | 5.35                | 1.09               | 0.00            |
| 8.00            | 0.64                | 0.00               | 0.00            | 34.00           | 5.35                | 1.09               | 0.00            |
| 8.50            | 0.71                | 0.00               | 0.00            | 34.50           | 5.35                | 1.09               | 0.00            |
| 9.00            | 0.78                | 0.00               | 0.00            | 35.00           | 5.35                | 1.09               | 0.00            |
| 9.50            | 0.87                | 0.00               | 0.00            | 35.50           | 5.35                | 1.09               | 0.00            |
| 10.00           | 0.98                | 0.00               | 0.00            | 36.00           | 5.35                | 1.09               | 0.00            |
| 10.50           | 1.10                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.58                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.55                | 0.08               | 0.19            |                 |                     |                    |                 |
| 12.50           | 3.77                | 0.40               | 2.24            |                 |                     |                    |                 |
| 13.00           | 4.07                | 0.51               | 0.95            |                 |                     |                    |                 |
| 13.50           | 4.25                | 0.58               | 0.58            |                 |                     |                    |                 |
| 14.00           | 4.37                | 0.64               | 0.40            |                 |                     |                    |                 |
| 14.50           | 4.48                | 0.68               | 0.34            |                 |                     |                    |                 |
| 15.00           | 4.57                | 0.72               | 0.29            |                 |                     |                    |                 |
| 15.50           | 4.64                | 0.75               | 0.24            |                 |                     |                    |                 |
| 16.00           | 4.71                | 0.78               | 0.22            |                 |                     |                    |                 |
| 16.50           | 4.77                | 0.81               | 0.21            |                 |                     |                    |                 |
| 17.00           | 4.83                | 0.84               | 0.19            |                 |                     |                    |                 |
| 17.50           | 4.88                | 0.86               | 0.18            |                 |                     |                    |                 |
| 18.00           | 4.93                | 0.88               | 0.16            |                 |                     |                    |                 |
| 18.50           | 4.97                | 0.90               | 0.15            |                 |                     |                    |                 |
| 19.00           | 5.01                | 0.92               | 0.14            |                 |                     |                    |                 |
| 19.50           | 5.05                | 0.94               | 0.14            |                 |                     |                    |                 |
| 20.00           | 5.09                | 0.96               | 0.14            |                 |                     |                    |                 |
| 20.50           | 5.13                | 0.98               | 0.13            |                 |                     |                    |                 |
| 21.00           | 5.16                | 1.00               | 0.13            |                 |                     |                    |                 |
| 21.50           | 5.20                | 1.02               | 0.13            |                 |                     |                    |                 |
| 22.00           | 5.23                | 1.03               | 0.12            |                 |                     |                    |                 |
| 22.50           | 5.26                | 1.05               | 0.12            |                 |                     |                    |                 |
| 23.00           | 5.29                | 1.06               | 0.11            |                 |                     |                    |                 |
| 23.50           | 5.32                | 1.08               | 0.11            |                 |                     |                    |                 |
| 24.00           | 5.35                | 1.09               | 0.10            |                 |                     |                    |                 |
| 24.50           | 5.35                | 1.09               | 0.02            |                 |                     |                    |                 |
| 25.00           | 5.35                | 1.09               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 1.09               | 0.00            |                 |                     |                    |                 |

**2101ELK-STM Analysis POI-1 - Existin**NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Summary for Subcatchment 47S: Proposed Undisturbed Area (Impervious)**

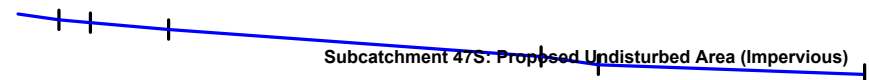
Runoff = 3.72 cfs @ 12.32 hrs, Volume= 0.447 af, Depth= 5.11"  
Routed to Link 14L : Existing Drainage Area POI-1 (to Remain Undisturbed)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

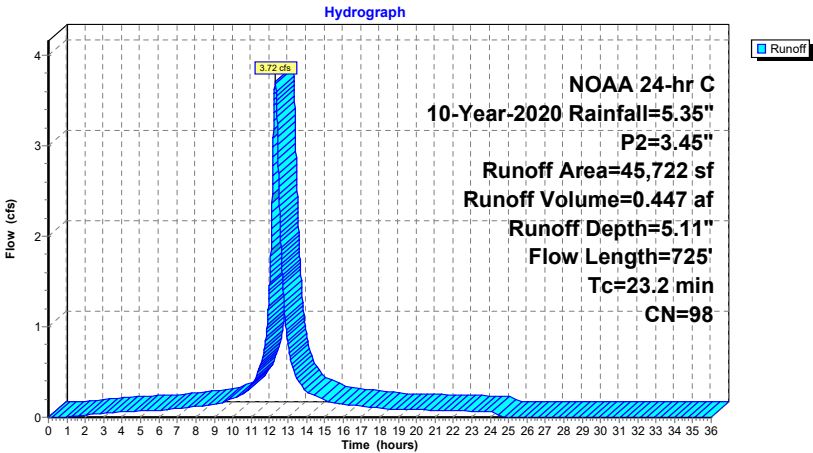
| Area (sf) | CN | Description                 |
|-----------|----|-----------------------------|
| 45,722    | 98 | Unconnected pavement, HSG A |
| 45,722    |    | 100.00% Impervious Area     |
| 45,722    |    | 100.00% Unconnected         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                           |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------|
| 0.5         | 35               | 0.0200           | 1.16                 |                   | <b>Sheet Flow</b> ,<br>Smooth surfaces n= 0.011 P2= 3.45"                                                             |
| 9.1         | 27               | 0.0120           | 0.05                 |                   | <b>Sheet Flow</b> ,<br>Grass: Bermuda n= 0.410 P2= 3.45"<br>Using McCuen-Spiess flow length                           |
| 1.5         | 67               | 0.0120           | 0.77                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6        | 319              | 0.0100           | 0.50                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8         | 49               | 0.0200           | 0.99                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7         | 228              | 0.0050           | 5.09                 | 16.00             | <b>Pipe Channel</b> ,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 23.2        | 725              | Total            |                      |                   |                                                                                                                       |



Subcatchment 47S: Proposed Undisturbed Area (Impervious)



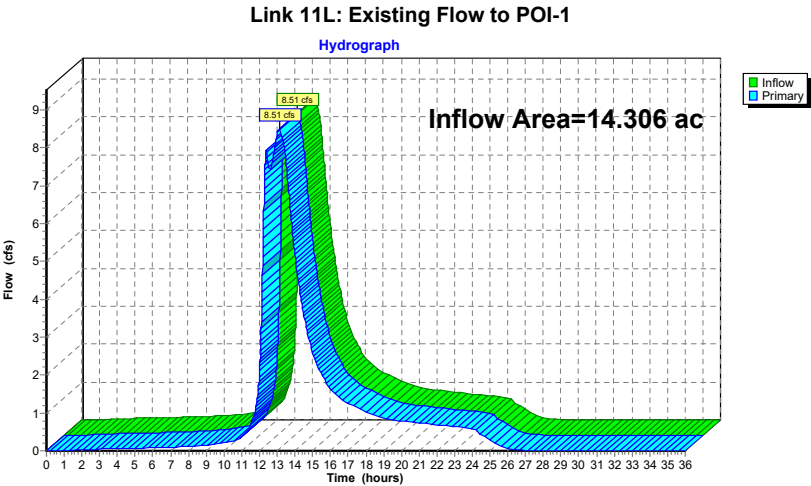
Hydrograph for Subcatchment 47S: Proposed Undisturbed Area (Impervious)

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 5.35             | 5.11            | 0.00         |
| 0.50         | 0.03             | 0.00            | 0.00         | 26.50        | 5.35             | 5.11            | 0.00         |
| 1.00         | 0.06             | 0.00            | 0.00         | 27.00        | 5.35             | 5.11            | 0.00         |
| 1.50         | 0.09             | 0.01            | 0.01         | 27.50        | 5.35             | 5.11            | 0.00         |
| 2.00         | 0.12             | 0.02            | 0.03         | 28.00        | 5.35             | 5.11            | 0.00         |
| 2.50         | 0.15             | 0.04            | 0.04         | 28.50        | 5.35             | 5.11            | 0.00         |
| 3.00         | 0.19             | 0.06            | 0.04         | 29.00        | 5.35             | 5.11            | 0.00         |
| 3.50         | 0.22             | 0.09            | 0.05         | 29.50        | 5.35             | 5.11            | 0.00         |
| 4.00         | 0.26             | 0.11            | 0.06         | 30.00        | 5.35             | 5.11            | 0.00         |
| 4.50         | 0.30             | 0.15            | 0.06         | 30.50        | 5.35             | 5.11            | 0.00         |
| 5.00         | 0.34             | 0.18            | 0.07         | 31.00        | 5.35             | 5.11            | 0.00         |
| 5.50         | 0.38             | 0.21            | 0.07         | 31.50        | 5.35             | 5.11            | 0.00         |
| 6.00         | 0.42             | 0.25            | 0.08         | 32.00        | 5.35             | 5.11            | 0.00         |
| 6.50         | 0.47             | 0.29            | 0.08         | 32.50        | 5.35             | 5.11            | 0.00         |
| 7.00         | 0.52             | 0.34            | 0.10         | 33.00        | 5.35             | 5.11            | 0.00         |
| 7.50         | 0.58             | 0.39            | 0.11         | 33.50        | 5.35             | 5.11            | 0.00         |
| 8.00         | 0.64             | 0.45            | 0.12         | 34.00        | 5.35             | 5.11            | 0.00         |
| 8.50         | 0.71             | 0.51            | 0.13         | 34.50        | 5.35             | 5.11            | 0.00         |
| 9.00         | 0.78             | 0.58            | 0.14         | 35.00        | 5.35             | 5.11            | 0.00         |
| 9.50         | 0.87             | 0.66            | 0.17         | 35.50        | 5.35             | 5.11            | 0.00         |
| 10.00        | 0.98             | 0.77            | 0.21         | 36.00        | 5.35             | 5.11            | 0.00         |
| 10.50        | 1.10             | 0.89            | 0.25         |              |                  |                 |              |
| 11.00        | 1.28             | 1.07            | 0.34         |              |                  |                 |              |
| 11.50        | 1.58             | 1.36            | 0.56         |              |                  |                 |              |
| 12.00        | 2.55             | 2.32            | 1.40         |              |                  |                 |              |
| 12.50        | 3.77             | 3.53            | 2.70         |              |                  |                 |              |
| 13.00        | 4.07             | 3.83            | 0.81         |              |                  |                 |              |
| 13.50        | 4.25             | 4.01            | 0.43         |              |                  |                 |              |
| 14.00        | 4.37             | 4.14            | 0.29         |              |                  |                 |              |
| 14.50        | 4.48             | 4.25            | 0.24         |              |                  |                 |              |
| 15.00        | 4.57             | 4.33            | 0.19         |              |                  |                 |              |
| 15.50        | 4.64             | 4.41            | 0.16         |              |                  |                 |              |
| 16.00        | 4.71             | 4.47            | 0.15         |              |                  |                 |              |
| 16.50        | 4.77             | 4.53            | 0.13         |              |                  |                 |              |
| 17.00        | 4.83             | 4.59            | 0.12         |              |                  |                 |              |
| 17.50        | 4.88             | 4.64            | 0.11         |              |                  |                 |              |
| 18.00        | 4.93             | 4.69            | 0.10         |              |                  |                 |              |
| 18.50        | 4.97             | 4.73            | 0.09         |              |                  |                 |              |
| 19.00        | 5.01             | 4.77            | 0.09         |              |                  |                 |              |
| 19.50        | 5.05             | 4.81            | 0.08         |              |                  |                 |              |
| 20.00        | 5.09             | 4.85            | 0.08         |              |                  |                 |              |
| 20.50        | 5.13             | 4.89            | 0.08         |              |                  |                 |              |
| 21.00        | 5.16             | 4.92            | 0.08         |              |                  |                 |              |
| 21.50        | 5.20             | 4.96            | 0.07         |              |                  |                 |              |
| 22.00        | 5.23             | 4.99            | 0.07         |              |                  |                 |              |
| 22.50        | 5.26             | 5.02            | 0.07         |              |                  |                 |              |
| 23.00        | 5.29             | 5.05            | 0.07         |              |                  |                 |              |
| 23.50        | 5.32             | 5.08            | 0.06         |              |                  |                 |              |
| 24.00        | 5.35             | 5.11            | 0.06         |              |                  |                 |              |
| 24.50        | 5.35             | 5.11            | 0.01         |              |                  |                 |              |
| 25.00        | 5.35             | 5.11            | 0.00         |              |                  |                 |              |
| 25.50        | 5.35             | 5.11            | 0.00         |              |                  |                 |              |

Summary for Link 11L: Existing Flow to POI-1

Inflow Area = 14.306 ac, 7.34% Impervious, Inflow Depth = 2.03" for 10-Year-2020 event  
Inflow = 8.51 cfs @ 13.12 hrs, Volume= 2.425 af  
Primary = 8.51 cfs @ 13.12 hrs, Volume= 2.425 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



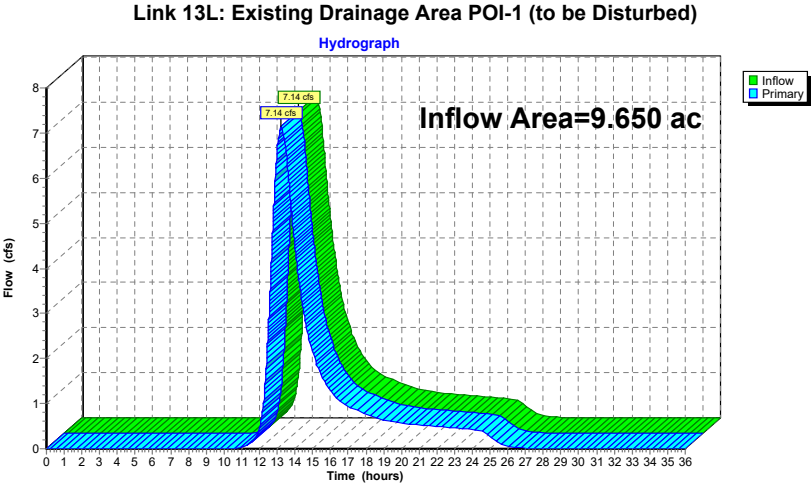
Hydrograph for Link 11L: Existing Flow to POI-1

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.06         | 0.00             | 0.06          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.02         | 0.00             | 0.02          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.01         | 0.00             | 0.01          |
| 1.50         | 0.01         | 0.00             | 0.01          | 27.50        | 0.00         | 0.00             | 0.00          |
| 2.00         | 0.03         | 0.00             | 0.03          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.04         | 0.00             | 0.04          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.04         | 0.00             | 0.04          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.05         | 0.00             | 0.05          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.06         | 0.00             | 0.06          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.06         | 0.00             | 0.06          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.07         | 0.00             | 0.07          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.07         | 0.00             | 0.07          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.08         | 0.00             | 0.08          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.08         | 0.00             | 0.08          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.10         | 0.00             | 0.10          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.11         | 0.00             | 0.11          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.12         | 0.00             | 0.12          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.13         | 0.00             | 0.13          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.14         | 0.00             | 0.14          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.17         | 0.00             | 0.17          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.21         | 0.00             | 0.21          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.25         | 0.00             | 0.25          |              |              |                  |               |
| 11.00        | 0.36         | 0.00             | 0.36          |              |              |                  |               |
| 11.50        | 0.68         | 0.00             | 0.68          |              |              |                  |               |
| 12.00        | 2.07         | 0.00             | 2.07          |              |              |                  |               |
| 12.50        | 7.56         | 0.00             | 7.56          |              |              |                  |               |
| 13.00        | 8.37         | 0.00             | 8.37          |              |              |                  |               |
| 13.50        | 7.62         | 0.00             | 7.62          |              |              |                  |               |
| 14.00        | 5.18         | 0.00             | 5.18          |              |              |                  |               |
| 14.50        | 3.59         | 0.00             | 3.59          |              |              |                  |               |
| 15.00        | 2.61         | 0.00             | 2.61          |              |              |                  |               |
| 15.50        | 2.02         | 0.00             | 2.02          |              |              |                  |               |
| 16.00        | 1.65         | 0.00             | 1.65          |              |              |                  |               |
| 16.50        | 1.42         | 0.00             | 1.42          |              |              |                  |               |
| 17.00        | 1.25         | 0.00             | 1.25          |              |              |                  |               |
| 17.50        | 1.14         | 0.00             | 1.14          |              |              |                  |               |
| 18.00        | 1.03         | 0.00             | 1.03          |              |              |                  |               |
| 18.50        | 0.94         | 0.00             | 0.94          |              |              |                  |               |
| 19.00        | 0.87         | 0.00             | 0.87          |              |              |                  |               |
| 19.50        | 0.82         | 0.00             | 0.82          |              |              |                  |               |
| 20.00        | 0.79         | 0.00             | 0.79          |              |              |                  |               |
| 20.50        | 0.76         | 0.00             | 0.76          |              |              |                  |               |
| 21.00        | 0.74         | 0.00             | 0.74          |              |              |                  |               |
| 21.50        | 0.71         | 0.00             | 0.71          |              |              |                  |               |
| 22.00        | 0.69         | 0.00             | 0.69          |              |              |                  |               |
| 22.50        | 0.66         | 0.00             | 0.66          |              |              |                  |               |
| 23.00        | 0.64         | 0.00             | 0.64          |              |              |                  |               |
| 23.50        | 0.62         | 0.00             | 0.62          |              |              |                  |               |
| 24.00        | 0.59         | 0.00             | 0.59          |              |              |                  |               |
| 24.50        | 0.43         | 0.00             | 0.43          |              |              |                  |               |
| 25.00        | 0.28         | 0.00             | 0.28          |              |              |                  |               |
| 25.50        | 0.13         | 0.00             | 0.13          |              |              |                  |               |

Summary for Link 13L: Existing Drainage Area POI-1 (to be Disturbed)

Inflow Area = 9.650 ac, 0.00% Impervious, Inflow Depth = 2.05" for 10-Year-2020 event  
Inflow = 7.14 cfs @ 13.21 hrs, Volume= 1.649 af  
Primary = 7.14 cfs @ 13.21 hrs, Volume= 1.649 af, Atten= 0%, Lag= 0.0 min  
Routed to Link 11L : Existing Flow to POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



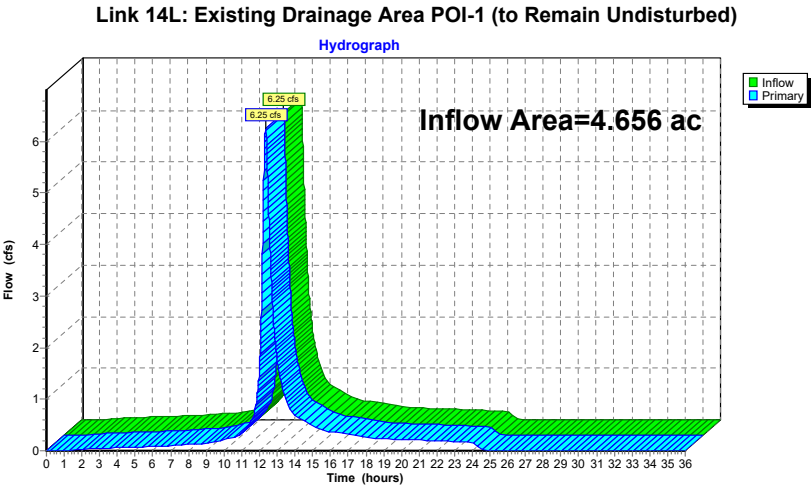
Hydrograph for Link 13L: Existing Drainage Area POI-1 (to be Disturbed)

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.06         | 0.00             | 0.06          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.02         | 0.00             | 0.02          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.01         | 0.00             | 0.01          |
| 1.50         | 0.00         | 0.00             | 0.00          | 27.50        | 0.00         | 0.00             | 0.00          |
| 2.00         | 0.00         | 0.00             | 0.00          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.00         | 0.00             | 0.00          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.00         | 0.00             | 0.00          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.00         | 0.00             | 0.00          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.00         | 0.00             | 0.00          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.00         | 0.00             | 0.00          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.00         | 0.00             | 0.00          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.00         | 0.00             | 0.00          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.00         | 0.00             | 0.00          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.00         | 0.00             | 0.00          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.00         | 0.00             | 0.00          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.00         | 0.00             | 0.00          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.00         | 0.00             | 0.00          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.00         | 0.00             | 0.00          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.00         | 0.00             | 0.00          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.00         | 0.00             | 0.00          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.00         | 0.00             | 0.00          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 11.00        | 0.02         | 0.00             | 0.02          |              |              |                  |               |
| 11.50        | 0.12         | 0.00             | 0.12          |              |              |                  |               |
| 12.00        | 0.48         | 0.00             | 0.48          |              |              |                  |               |
| 12.50        | 2.63         | 0.00             | 2.63          |              |              |                  |               |
| 13.00        | 6.60         | 0.00             | 6.60          |              |              |                  |               |
| 13.50        | 6.61         | 0.00             | 6.61          |              |              |                  |               |
| 14.00        | 4.49         | 0.00             | 4.49          |              |              |                  |               |
| 14.50        | 3.01         | 0.00             | 3.01          |              |              |                  |               |
| 15.00        | 2.13         | 0.00             | 2.13          |              |              |                  |               |
| 15.50        | 1.62         | 0.00             | 1.62          |              |              |                  |               |
| 16.00        | 1.28         | 0.00             | 1.28          |              |              |                  |               |
| 16.50        | 1.07         | 0.00             | 1.07          |              |              |                  |               |
| 17.00        | 0.93         | 0.00             | 0.93          |              |              |                  |               |
| 17.50        | 0.85         | 0.00             | 0.85          |              |              |                  |               |
| 18.00        | 0.77         | 0.00             | 0.77          |              |              |                  |               |
| 18.50        | 0.70         | 0.00             | 0.70          |              |              |                  |               |
| 19.00        | 0.64         | 0.00             | 0.64          |              |              |                  |               |
| 19.50        | 0.60         | 0.00             | 0.60          |              |              |                  |               |
| 20.00        | 0.57         | 0.00             | 0.57          |              |              |                  |               |
| 20.50        | 0.55         | 0.00             | 0.55          |              |              |                  |               |
| 21.00        | 0.53         | 0.00             | 0.53          |              |              |                  |               |
| 21.50        | 0.51         | 0.00             | 0.51          |              |              |                  |               |
| 22.00        | 0.50         | 0.00             | 0.50          |              |              |                  |               |
| 22.50        | 0.48         | 0.00             | 0.48          |              |              |                  |               |
| 23.00        | 0.46         | 0.00             | 0.46          |              |              |                  |               |
| 23.50        | 0.45         | 0.00             | 0.45          |              |              |                  |               |
| 24.00        | 0.43         | 0.00             | 0.43          |              |              |                  |               |
| 24.50        | 0.40         | 0.00             | 0.40          |              |              |                  |               |
| 25.00        | 0.28         | 0.00             | 0.28          |              |              |                  |               |
| 25.50        | 0.13         | 0.00             | 0.13          |              |              |                  |               |

Summary for Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed)

Inflow Area = 4.656 ac, 22.54% Impervious, Inflow Depth = 2.00" for 10-Year-2020 event  
Inflow = 6.25 cfs @ 12.34 hrs, Volume= 0.776 af  
Primary = 6.25 cfs @ 12.34 hrs, Volume= 0.776 af, Atten= 0%, Lag= 0.0 min  
Routed to Link 11L : Existing Flow to POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



Hydrograph for Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed)

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.00         | 0.00             | 0.00          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.00         | 0.00             | 0.00          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.00         | 0.00             | 0.00          |
| 1.50         | 0.01         | 0.00             | 0.01          | 27.50        | 0.00         | 0.00             | 0.00          |
| 2.00         | 0.03         | 0.00             | 0.03          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.04         | 0.00             | 0.04          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.04         | 0.00             | 0.04          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.05         | 0.00             | 0.05          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.06         | 0.00             | 0.06          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.06         | 0.00             | 0.06          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.07         | 0.00             | 0.07          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.07         | 0.00             | 0.07          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.08         | 0.00             | 0.08          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.08         | 0.00             | 0.08          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.10         | 0.00             | 0.10          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.11         | 0.00             | 0.11          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.12         | 0.00             | 0.12          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.13         | 0.00             | 0.13          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.14         | 0.00             | 0.14          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.17         | 0.00             | 0.17          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.21         | 0.00             | 0.21          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.25         | 0.00             | 0.25          |              |              |                  |               |
| 11.00        | 0.34         | 0.00             | 0.34          |              |              |                  |               |
| 11.50        | 0.56         | 0.00             | 0.56          |              |              |                  |               |
| 12.00        | 1.59         | 0.00             | 1.59          |              |              |                  |               |
| 12.50        | 4.94         | 0.00             | 4.94          |              |              |                  |               |
| 13.00        | 1.77         | 0.00             | 1.77          |              |              |                  |               |
| 13.50        | 1.01         | 0.00             | 1.01          |              |              |                  |               |
| 14.00        | 0.69         | 0.00             | 0.69          |              |              |                  |               |
| 14.50        | 0.58         | 0.00             | 0.58          |              |              |                  |               |
| 15.00        | 0.48         | 0.00             | 0.48          |              |              |                  |               |
| 15.50        | 0.40         | 0.00             | 0.40          |              |              |                  |               |
| 16.00        | 0.37         | 0.00             | 0.37          |              |              |                  |               |
| 16.50        | 0.34         | 0.00             | 0.34          |              |              |                  |               |
| 17.00        | 0.32         | 0.00             | 0.32          |              |              |                  |               |
| 17.50        | 0.29         | 0.00             | 0.29          |              |              |                  |               |
| 18.00        | 0.26         | 0.00             | 0.26          |              |              |                  |               |
| 18.50        | 0.24         | 0.00             | 0.24          |              |              |                  |               |
| 19.00        | 0.23         | 0.00             | 0.23          |              |              |                  |               |
| 19.50        | 0.23         | 0.00             | 0.23          |              |              |                  |               |
| 20.00        | 0.22         | 0.00             | 0.22          |              |              |                  |               |
| 20.50        | 0.21         | 0.00             | 0.21          |              |              |                  |               |
| 21.00        | 0.21         | 0.00             | 0.21          |              |              |                  |               |
| 21.50        | 0.20         | 0.00             | 0.20          |              |              |                  |               |
| 22.00        | 0.19         | 0.00             | 0.19          |              |              |                  |               |
| 22.50        | 0.19         | 0.00             | 0.19          |              |              |                  |               |
| 23.00        | 0.18         | 0.00             | 0.18          |              |              |                  |               |
| 23.50        | 0.17         | 0.00             | 0.17          |              |              |                  |               |
| 24.00        | 0.16         | 0.00             | 0.16          |              |              |                  |               |
| 24.50        | 0.03         | 0.00             | 0.03          |              |              |                  |               |
| 25.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 25.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment7S: POI-1 Pervious Runoff Area=420,357 sf 0.00% Impervious Runoff Depth=5.02"  
Flow Length=1,917' Tc=86.8 min CN=67 Runoff=18.09 cfs 4.033 af

Subcatchment46S: Proposed Undisturbed Runoff Area=157,085 sf 0.00% Impervious Runoff Depth=3.41"  
Flow Length=690' Tc=22.7 min CN=54 Runoff=9.55 cfs 1.024 af

Subcatchment47S: Proposed Runoff Area=45,722 sf 100.00% Impervious Runoff Depth=8.82"  
Flow Length=725' Tc=23.2 min CN=98 Runoff=6.31 cfs 0.771 af

Link 11L: Existing Flow to POI-1 Inflow=21.44 cfs 5.829 af  
Primary=21.44 cfs 5.829 af

Link 13L: Existing Drainage Area POI-1 (to be Disturbed) Inflow=18.09 cfs 4.033 af  
Primary=18.09 cfs 4.033 af

Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed) Inflow=15.85 cfs 1.796 af  
Primary=15.85 cfs 1.796 af

Total Runoff Area = 14.306 ac Runoff Volume = 5.829 af Average Runoff Depth = 4.89"  
92.66% Pervious = 13.256 ac 7.34% Impervious = 1.050 ac

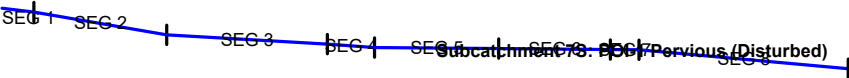
Summary for Subcatchment 7S: POI-1 Pervious (Disturbed)

Runoff = 18.09 cfs @ 13.21 hrs, Volume= 4.033 af, Depth= 5.02"  
Routed to Link 13L : Existing Drainage Area POI-1 (to be Disturbed)

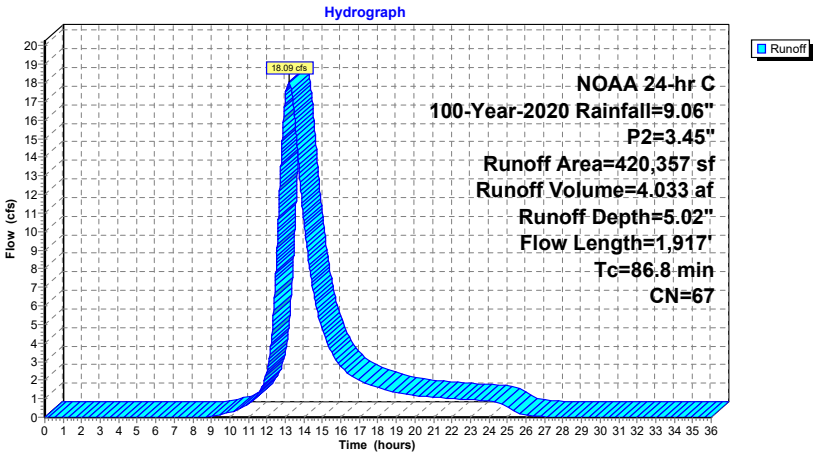
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description                          |
|-----------|----|--------------------------------------|
| 18,906    | 30 | Woods, Good, HSG A                   |
| 73,236    | 55 | Woods, Good, HSG B                   |
| 171,452   | 67 | Row crops, straight row, Good, HSG A |
| 153,091   | 78 | Row crops, straight row, Good, HSG B |
| 3,514     | 77 | Fallow, bare soil, HSG A             |
| 158       | 86 | Fallow, bare soil, HSG B             |
| 420,357   | 67 | Weighted Average                     |
| 420,357   |    | 100.00% Pervious Area                |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                               |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------------------------------------|
| 9.0      | 72            | 0.0150        | 0.13              |                | <b>Sheet Flow, SEG 1</b><br>Cultivated: Residue>20% n= 0.170 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 3.8      | 301           | 0.0210        | 1.30              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 8.1      | 364           | 0.0070        | 0.75              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 3.8      | 107           | 0.0090        | 0.47              |                | <b>Shallow Concentrated Flow, SEG 4</b><br>Woodland Kv= 5.0 fps                                           |
| 16.5     | 281           | 0.0010        | 0.28              |                | <b>Shallow Concentrated Flow, SEG 5</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 26.7     | 253           | 0.0010        | 0.16              |                | <b>Shallow Concentrated Flow, SEG 6</b><br>Woodland Kv= 5.0 fps                                           |
| 3.8      | 65            | 0.0010        | 0.28              |                | <b>Shallow Concentrated Flow, SEG 7</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 15.1     | 474           | 0.0110        | 0.52              |                | <b>Shallow Concentrated Flow, SEG 8</b><br>Woodland Kv= 5.0 fps                                           |
| 86.8     | 1,917         | Total         |                   |                |                                                                                                           |



Subcatchment 7S: POI-1 Pervious (Disturbed)



Hydrograph for Subcatchment 7S: POI-1 Pervious (Disturbed)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 5.02               | 0.11            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 5.02               | 0.05            |
| 1.00            | 0.10                | 0.00               | 0.00            | 27.00           | 9.06                | 5.02               | 0.02            |
| 1.50            | 0.15                | 0.00               | 0.00            | 27.50           | 9.06                | 5.02               | 0.01            |
| 2.00            | 0.20                | 0.00               | 0.00            | 28.00           | 9.06                | 5.02               | 0.00            |
| 2.50            | 0.26                | 0.00               | 0.00            | 28.50           | 9.06                | 5.02               | 0.00            |
| 3.00            | 0.32                | 0.00               | 0.00            | 29.00           | 9.06                | 5.02               | 0.00            |
| 3.50            | 0.38                | 0.00               | 0.00            | 29.50           | 9.06                | 5.02               | 0.00            |
| 4.00            | 0.44                | 0.00               | 0.00            | 30.00           | 9.06                | 5.02               | 0.00            |
| 4.50            | 0.51                | 0.00               | 0.00            | 30.50           | 9.06                | 5.02               | 0.00            |
| 5.00            | 0.58                | 0.00               | 0.00            | 31.00           | 9.06                | 5.02               | 0.00            |
| 5.50            | 0.65                | 0.00               | 0.00            | 31.50           | 9.06                | 5.02               | 0.00            |
| 6.00            | 0.72                | 0.00               | 0.00            | 32.00           | 9.06                | 5.02               | 0.00            |
| 6.50            | 0.80                | 0.00               | 0.00            | 32.50           | 9.06                | 5.02               | 0.00            |
| 7.00            | 0.88                | 0.00               | 0.00            | 33.00           | 9.06                | 5.02               | 0.00            |
| 7.50            | 0.98                | 0.00               | 0.00            | 33.50           | 9.06                | 5.02               | 0.00            |
| 8.00            | 1.09                | 0.00               | 0.00            | 34.00           | 9.06                | 5.02               | 0.00            |
| 8.50            | 1.20                | 0.01               | 0.01            | 34.50           | 9.06                | 5.02               | 0.00            |
| 9.00            | 1.32                | 0.02               | 0.06            | 35.00           | 9.06                | 5.02               | 0.00            |
| 9.50            | 1.47                | 0.04               | 0.14            | 35.50           | 9.06                | 5.02               | 0.00            |
| 10.00           | 1.65                | 0.08               | 0.26            | 36.00           | 9.06                | 5.02               | 0.00            |
| 10.50           | 1.87                | 0.13               | 0.44            |                 |                     |                    |                 |
| 11.00           | 2.17                | 0.23               | 0.72            |                 |                     |                    |                 |
| 11.50           | 2.68                | 0.43               | 1.20            |                 |                     |                    |                 |
| 12.00           | 4.32                | 1.35               | 2.44            |                 |                     |                    |                 |
| 12.50           | 6.38                | 2.82               | 8.12            |                 |                     |                    |                 |
| 13.00           | 6.89                | 3.22               | 17.28           |                 |                     |                    |                 |
| 13.50           | 7.19                | 3.46               | 16.18           |                 |                     |                    |                 |
| 14.00           | 7.41                | 3.64               | 10.52           |                 |                     |                    |                 |
| 14.50           | 7.59                | 3.78               | 6.83            |                 |                     |                    |                 |
| 15.00           | 7.74                | 3.90               | 4.72            |                 |                     |                    |                 |
| 15.50           | 7.86                | 4.01               | 3.51            |                 |                     |                    |                 |
| 16.00           | 7.97                | 4.10               | 2.73            |                 |                     |                    |                 |
| 16.50           | 8.08                | 4.19               | 2.26            |                 |                     |                    |                 |
| 17.00           | 8.18                | 4.27               | 1.95            |                 |                     |                    |                 |
| 17.50           | 8.26                | 4.34               | 1.76            |                 |                     |                    |                 |
| 18.00           | 8.34                | 4.41               | 1.60            |                 |                     |                    |                 |
| 18.50           | 8.41                | 4.47               | 1.45            |                 |                     |                    |                 |
| 19.00           | 8.48                | 4.53               | 1.32            |                 |                     |                    |                 |
| 19.50           | 8.55                | 4.58               | 1.23            |                 |                     |                    |                 |
| 20.00           | 8.62                | 4.64               | 1.17            |                 |                     |                    |                 |
| 20.50           | 8.68                | 4.69               | 1.12            |                 |                     |                    |                 |
| 21.00           | 8.74                | 4.74               | 1.08            |                 |                     |                    |                 |
| 21.50           | 8.80                | 4.79               | 1.05            |                 |                     |                    |                 |
| 22.00           | 8.86                | 4.84               | 1.01            |                 |                     |                    |                 |
| 22.50           | 8.91                | 4.89               | 0.97            |                 |                     |                    |                 |
| 23.00           | 8.96                | 4.93               | 0.94            |                 |                     |                    |                 |
| 23.50           | 9.01                | 4.97               | 0.90            |                 |                     |                    |                 |
| 24.00           | 9.06                | 5.02               | 0.87            |                 |                     |                    |                 |
| 24.50           | 9.06                | 5.02               | 0.80            |                 |                     |                    |                 |
| 25.00           | 9.06                | 5.02               | 0.56            |                 |                     |                    |                 |
| 25.50           | 9.06                | 5.02               | 0.27            |                 |                     |                    |                 |

Summary for Subcatchment 46S: Proposed Undisturbed Area (Pervious)

Runoff = 9.55 cfs @ 12.34 hrs, Volume= 1.024 af, Depth= 3.41"  
Routed to Link 14L : Existing Drainage Area POI-1 (to Remain Undisturbed)

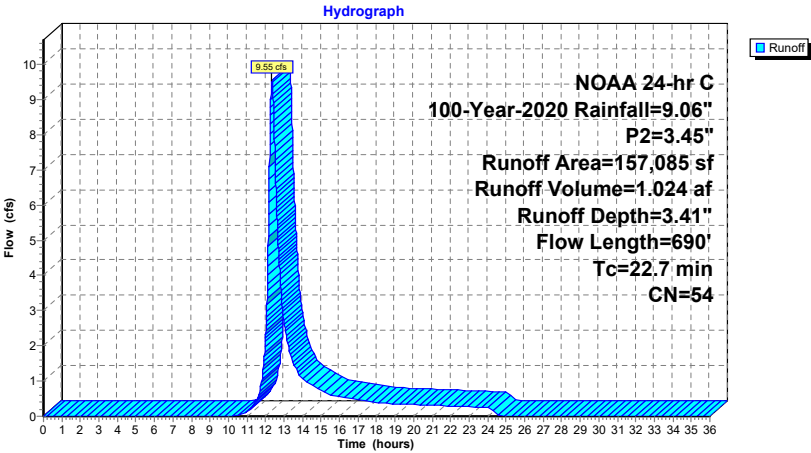
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description                    |
|-----------|----|--------------------------------|
| 15,827    | 39 | >75% Grass cover, Good, HSG A  |
| 80,837    | 61 | >75% Grass cover, Good, HSG B  |
| 30,052    | 32 | Woods/grass comb., Good, HSG A |
| 22,227    | 58 | Woods/grass comb., Good, HSG B |
| 8,142     | 86 | Fallow, bare soil, HSG B       |
| 157,085   | 54 | Weighted Average               |
| 157,085   |    | 100.00% Pervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                   |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------------------------------------------------|
| 9.1      | 27            | 0.0120        | 0.05              |                | Sheet Flow,<br>Grass: Bermuda n= 0.410 P2= 3.45"<br>Using McCuen-Spiess flow length                           |
| 1.5      | 67            | 0.0120        | 0.77              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6     | 319           | 0.0100        | 0.50              |                | Shallow Concentrated Flow,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8      | 49            | 0.0200        | 0.99              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7      | 228           | 0.0050        | 5.09              | 16.00          | Pipe Channel,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.7     | 690           | Total         |                   |                |                                                                                                               |



Subcatchment 46S: Proposed Undisturbed Area (Pervious)





**2101ELK-STM Analysis POI-1 - Existi** NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Hydrograph for Subcatchment 46S: Proposed Undisturbed Area (Pervious)**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 3.41               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 3.41               | 0.00            |
| 1.00            | 0.10                | 0.00               | 0.00            | 27.00           | 9.06                | 3.41               | 0.00            |
| 1.50            | 0.15                | 0.00               | 0.00            | 27.50           | 9.06                | 3.41               | 0.00            |
| 2.00            | 0.20                | 0.00               | 0.00            | 28.00           | 9.06                | 3.41               | 0.00            |
| 2.50            | 0.26                | 0.00               | 0.00            | 28.50           | 9.06                | 3.41               | 0.00            |
| 3.00            | 0.32                | 0.00               | 0.00            | 29.00           | 9.06                | 3.41               | 0.00            |
| 3.50            | 0.38                | 0.00               | 0.00            | 29.50           | 9.06                | 3.41               | 0.00            |
| 4.00            | 0.44                | 0.00               | 0.00            | 30.00           | 9.06                | 3.41               | 0.00            |
| 4.50            | 0.51                | 0.00               | 0.00            | 30.50           | 9.06                | 3.41               | 0.00            |
| 5.00            | 0.58                | 0.00               | 0.00            | 31.00           | 9.06                | 3.41               | 0.00            |
| 5.50            | 0.65                | 0.00               | 0.00            | 31.50           | 9.06                | 3.41               | 0.00            |
| 6.00            | 0.72                | 0.00               | 0.00            | 32.00           | 9.06                | 3.41               | 0.00            |
| 6.50            | 0.80                | 0.00               | 0.00            | 32.50           | 9.06                | 3.41               | 0.00            |
| 7.00            | 0.88                | 0.00               | 0.00            | 33.00           | 9.06                | 3.41               | 0.00            |
| 7.50            | 0.98                | 0.00               | 0.00            | 33.50           | 9.06                | 3.41               | 0.00            |
| 8.00            | 1.09                | 0.00               | 0.00            | 34.00           | 9.06                | 3.41               | 0.00            |
| 8.50            | 1.20                | 0.00               | 0.00            | 34.50           | 9.06                | 3.41               | 0.00            |
| 9.00            | 1.32                | 0.00               | 0.00            | 35.00           | 9.06                | 3.41               | 0.00            |
| 9.50            | 1.47                | 0.00               | 0.00            | 35.50           | 9.06                | 3.41               | 0.00            |
| 10.00           | 1.65                | 0.00               | 0.00            | 36.00           | 9.06                | 3.41               | 0.00            |
| 10.50           | 1.87                | 0.00               | 0.01            |                 |                     |                    |                 |
| 11.00           | 2.17                | 0.02               | 0.12            |                 |                     |                    |                 |
| 11.50           | 2.68                | 0.10               | 0.44            |                 |                     |                    |                 |
| 12.00           | 4.32                | 0.61               | 2.22            |                 |                     |                    |                 |
| 12.50           | 6.38                | 1.66               | 7.48            |                 |                     |                    |                 |
| 13.00           | 6.89                | 1.96               | 2.69            |                 |                     |                    |                 |
| 13.50           | 7.19                | 2.15               | 1.54            |                 |                     |                    |                 |
| 14.00           | 7.41                | 2.29               | 1.05            |                 |                     |                    |                 |
| 14.50           | 7.59                | 2.40               | 0.88            |                 |                     |                    |                 |
| 15.00           | 7.74                | 2.50               | 0.73            |                 |                     |                    |                 |
| 15.50           | 7.86                | 2.58               | 0.61            |                 |                     |                    |                 |
| 16.00           | 7.97                | 2.66               | 0.56            |                 |                     |                    |                 |
| 16.50           | 8.08                | 2.73               | 0.52            |                 |                     |                    |                 |
| 17.00           | 8.18                | 2.79               | 0.48            |                 |                     |                    |                 |
| 17.50           | 8.26                | 2.85               | 0.44            |                 |                     |                    |                 |
| 18.00           | 8.34                | 2.91               | 0.40            |                 |                     |                    |                 |
| 18.50           | 8.41                | 2.96               | 0.36            |                 |                     |                    |                 |
| 19.00           | 8.48                | 3.00               | 0.35            |                 |                     |                    |                 |
| 19.50           | 8.55                | 3.05               | 0.34            |                 |                     |                    |                 |
| 20.00           | 8.62                | 3.10               | 0.33            |                 |                     |                    |                 |
| 20.50           | 8.68                | 3.14               | 0.32            |                 |                     |                    |                 |
| 21.00           | 8.74                | 3.18               | 0.31            |                 |                     |                    |                 |
| 21.50           | 8.80                | 3.22               | 0.30            |                 |                     |                    |                 |
| 22.00           | 8.86                | 3.26               | 0.29            |                 |                     |                    |                 |
| 22.50           | 8.91                | 3.30               | 0.28            |                 |                     |                    |                 |
| 23.00           | 8.96                | 3.34               | 0.27            |                 |                     |                    |                 |
| 23.50           | 9.01                | 3.37               | 0.26            |                 |                     |                    |                 |
| 24.00           | 9.06                | 3.41               | 0.25            |                 |                     |                    |                 |
| 24.50           | 9.06                | 3.41               | 0.04            |                 |                     |                    |                 |
| 25.00           | 9.06                | 3.41               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 3.41               | 0.00            |                 |                     |                    |                 |

**2101ELK-STM Analysis POI-1 - Existi** NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Summary for Subcatchment 47S: Proposed Undisturbed Area (Impervious)**

Runoff = 6.31 cfs @ 12.32 hrs, Volume= 0.771 af, Depth= 8.82"

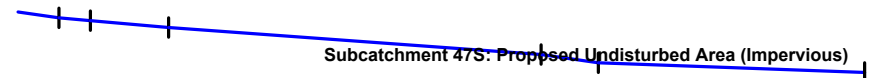
Routed to Link 14L : Existing Drainage Area POI-1 (to Remain Undisturbed)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

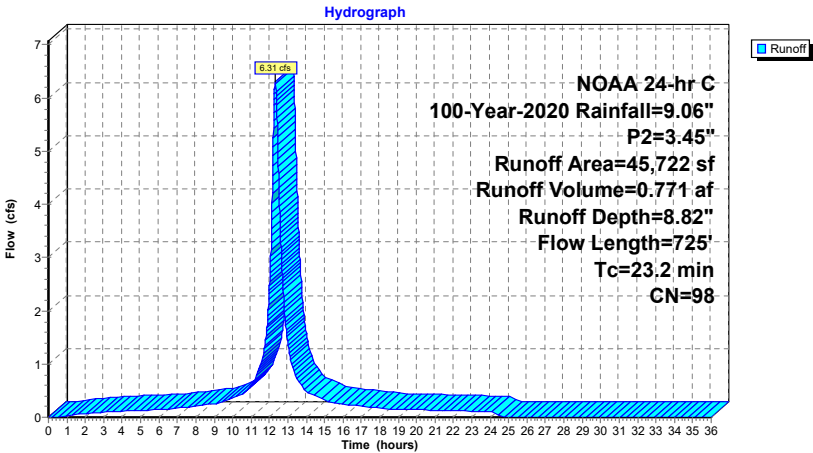
| Area (sf) | CN | Description                 |
|-----------|----|-----------------------------|
| 45,722    | 98 | Unconnected pavement, HSG A |
| 45,722    |    | 100.00% Impervious Area     |
| 45,722    |    | 100.00% Unconnected         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                           |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------|
| 0.5         | 35               | 0.0200           | 1.16                 |                   | <b>Sheet Flow</b> ,<br>Smooth surfaces n= 0.011 P2= 3.45"                                                             |
| 9.1         | 27               | 0.0120           | 0.05                 |                   | <b>Sheet Flow</b> ,<br>Grass: Bermuda n= 0.410 P2= 3.45"<br>Using McCuen-Spiess flow length                           |
| 1.5         | 67               | 0.0120           | 0.77                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6        | 319              | 0.0100           | 0.50                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8         | 49               | 0.0200           | 0.99                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7         | 228              | 0.0050           | 5.09                 | 16.00             | <b>Pipe Channel</b> ,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 23.2        | 725              | Total            |                      |                   |                                                                                                                       |



Subcatchment 47S: Proposed Undisturbed Area (Impervious)



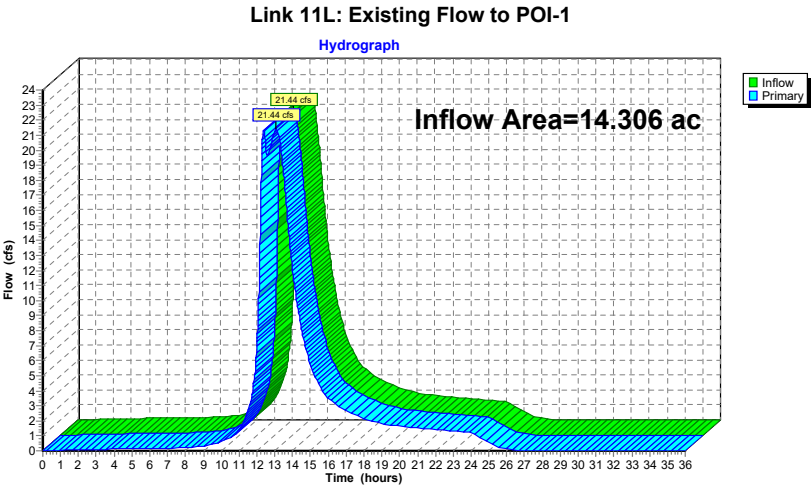
Hydrograph for Subcatchment 47S: Proposed Undisturbed Area (Impervious)

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 9.06             | 8.82            | 0.00         |
| 0.50         | 0.05             | 0.00            | 0.00         | 26.50        | 9.06             | 8.82            | 0.00         |
| 1.00         | 0.10             | 0.01            | 0.02         | 27.00        | 9.06             | 8.82            | 0.00         |
| 1.50         | 0.15             | 0.04            | 0.05         | 27.50        | 9.06             | 8.82            | 0.00         |
| 2.00         | 0.20             | 0.07            | 0.07         | 28.00        | 9.06             | 8.82            | 0.00         |
| 2.50         | 0.26             | 0.11            | 0.08         | 28.50        | 9.06             | 8.82            | 0.00         |
| 3.00         | 0.32             | 0.16            | 0.10         | 29.00        | 9.06             | 8.82            | 0.00         |
| 3.50         | 0.38             | 0.21            | 0.11         | 29.50        | 9.06             | 8.82            | 0.00         |
| 4.00         | 0.44             | 0.27            | 0.11         | 30.00        | 9.06             | 8.82            | 0.00         |
| 4.50         | 0.51             | 0.33            | 0.12         | 30.50        | 9.06             | 8.82            | 0.00         |
| 5.00         | 0.58             | 0.39            | 0.13         | 31.00        | 9.06             | 8.82            | 0.00         |
| 5.50         | 0.65             | 0.45            | 0.14         | 31.50        | 9.06             | 8.82            | 0.00         |
| 6.00         | 0.72             | 0.52            | 0.14         | 32.00        | 9.06             | 8.82            | 0.00         |
| 6.50         | 0.80             | 0.59            | 0.15         | 32.50        | 9.06             | 8.82            | 0.00         |
| 7.00         | 0.88             | 0.68            | 0.17         | 33.00        | 9.06             | 8.82            | 0.00         |
| 7.50         | 0.98             | 0.77            | 0.19         | 33.50        | 9.06             | 8.82            | 0.00         |
| 8.00         | 1.09             | 0.87            | 0.21         | 34.00        | 9.06             | 8.82            | 0.00         |
| 8.50         | 1.20             | 0.99            | 0.23         | 34.50        | 9.06             | 8.82            | 0.00         |
| 9.00         | 1.32             | 1.11            | 0.25         | 35.00        | 9.06             | 8.82            | 0.00         |
| 9.50         | 1.47             | 1.25            | 0.29         | 35.50        | 9.06             | 8.82            | 0.00         |
| 10.00        | 1.65             | 1.43            | 0.36         | 36.00        | 9.06             | 8.82            | 0.00         |
| 10.50        | 1.87             | 1.64            | 0.44         |              |                  |                 |              |
| 11.00        | 2.17             | 1.95            | 0.59         |              |                  |                 |              |
| 11.50        | 2.68             | 2.45            | 0.96         |              |                  |                 |              |
| 12.00        | 4.32             | 4.08            | 2.39         |              |                  |                 |              |
| 12.50        | 6.38             | 6.14            | 4.58         |              |                  |                 |              |
| 13.00        | 6.89             | 6.65            | 1.38         |              |                  |                 |              |
| 13.50        | 7.19             | 6.95            | 0.73         |              |                  |                 |              |
| 14.00        | 7.41             | 7.17            | 0.49         |              |                  |                 |              |
| 14.50        | 7.59             | 7.35            | 0.40         |              |                  |                 |              |
| 15.00        | 7.74             | 7.50            | 0.33         |              |                  |                 |              |
| 15.50        | 7.86             | 7.62            | 0.27         |              |                  |                 |              |
| 16.00        | 7.97             | 7.73            | 0.25         |              |                  |                 |              |
| 16.50        | 8.08             | 7.84            | 0.23         |              |                  |                 |              |
| 17.00        | 8.18             | 7.94            | 0.21         |              |                  |                 |              |
| 17.50        | 8.26             | 8.02            | 0.19         |              |                  |                 |              |
| 18.00        | 8.34             | 8.10            | 0.17         |              |                  |                 |              |
| 18.50        | 8.41             | 8.17            | 0.15         |              |                  |                 |              |
| 19.00        | 8.48             | 8.24            | 0.15         |              |                  |                 |              |
| 19.50        | 8.55             | 8.31            | 0.14         |              |                  |                 |              |
| 20.00        | 8.62             | 8.38            | 0.14         |              |                  |                 |              |
| 20.50        | 8.68             | 8.44            | 0.13         |              |                  |                 |              |
| 21.00        | 8.74             | 8.50            | 0.13         |              |                  |                 |              |
| 21.50        | 8.80             | 8.56            | 0.12         |              |                  |                 |              |
| 22.00        | 8.86             | 8.61            | 0.12         |              |                  |                 |              |
| 22.50        | 8.91             | 8.67            | 0.12         |              |                  |                 |              |
| 23.00        | 8.96             | 8.72            | 0.11         |              |                  |                 |              |
| 23.50        | 9.01             | 8.77            | 0.11         |              |                  |                 |              |
| 24.00        | 9.06             | 8.82            | 0.10         |              |                  |                 |              |
| 24.50        | 9.06             | 8.82            | 0.02         |              |                  |                 |              |
| 25.00        | 9.06             | 8.82            | 0.00         |              |                  |                 |              |
| 25.50        | 9.06             | 8.82            | 0.00         |              |                  |                 |              |

Summary for Link 11L: Existing Flow to POI-1

Inflow Area = 14.306 ac, 7.34% Impervious, Inflow Depth = 4.89" for 100-Year-2020 event  
Inflow = 21.44 cfs @ 13.02 hrs, Volume= 5.829 af  
Primary = 21.44 cfs @ 13.02 hrs, Volume= 5.829 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



Hydrograph for Link 11L: Existing Flow to POI-1

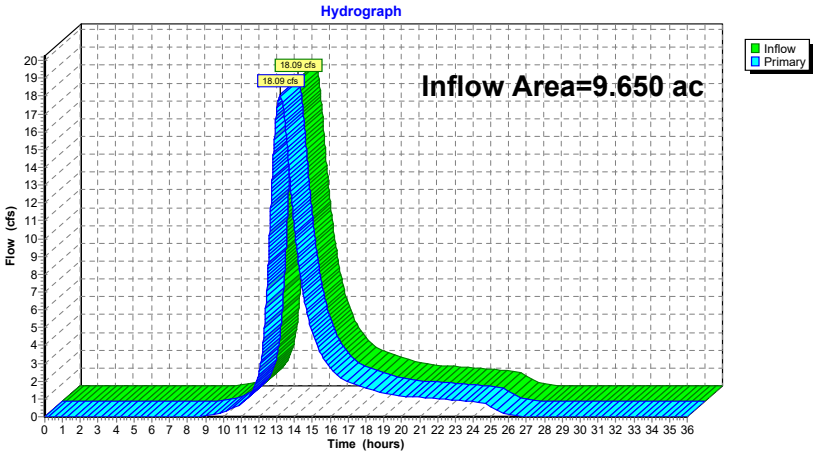
| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.11         | 0.00             | 0.11          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.05         | 0.00             | 0.05          |
| 1.00         | 0.02         | 0.00             | 0.02          | 27.00        | 0.02         | 0.00             | 0.02          |
| 1.50         | 0.05         | 0.00             | 0.05          | 27.50        | 0.01         | 0.00             | 0.01          |
| 2.00         | 0.07         | 0.00             | 0.07          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.08         | 0.00             | 0.08          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.10         | 0.00             | 0.10          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.11         | 0.00             | 0.11          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.11         | 0.00             | 0.11          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.12         | 0.00             | 0.12          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.13         | 0.00             | 0.13          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.14         | 0.00             | 0.14          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.14         | 0.00             | 0.14          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.15         | 0.00             | 0.15          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.17         | 0.00             | 0.17          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.19         | 0.00             | 0.19          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.21         | 0.00             | 0.21          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.25         | 0.00             | 0.25          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.31         | 0.00             | 0.31          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.43         | 0.00             | 0.43          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.62         | 0.00             | 0.62          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.89         | 0.00             | 0.89          |              |              |                  |               |
| 11.00        | 1.43         | 0.00             | 1.43          |              |              |                  |               |
| 11.50        | 2.61         | 0.00             | 2.61          |              |              |                  |               |
| 12.00        | 7.05         | 0.00             | 7.05          |              |              |                  |               |
| 12.50        | 20.18        | 0.00             | 20.18         |              |              |                  |               |
| 13.00        | 21.35        | 0.00             | 21.35         |              |              |                  |               |
| 13.50        | 18.45        | 0.00             | 18.45         |              |              |                  |               |
| 14.00        | 12.05        | 0.00             | 12.05         |              |              |                  |               |
| 14.50        | 8.11         | 0.00             | 8.11          |              |              |                  |               |
| 15.00        | 5.78         | 0.00             | 5.78          |              |              |                  |               |
| 15.50        | 4.38         | 0.00             | 4.38          |              |              |                  |               |
| 16.00        | 3.54         | 0.00             | 3.54          |              |              |                  |               |
| 16.50        | 3.01         | 0.00             | 3.01          |              |              |                  |               |
| 17.00        | 2.64         | 0.00             | 2.64          |              |              |                  |               |
| 17.50        | 2.39         | 0.00             | 2.39          |              |              |                  |               |
| 18.00        | 2.17         | 0.00             | 2.17          |              |              |                  |               |
| 18.50        | 1.97         | 0.00             | 1.97          |              |              |                  |               |
| 19.00        | 1.82         | 0.00             | 1.82          |              |              |                  |               |
| 19.50        | 1.71         | 0.00             | 1.71          |              |              |                  |               |
| 20.00        | 1.64         | 0.00             | 1.64          |              |              |                  |               |
| 20.50        | 1.58         | 0.00             | 1.58          |              |              |                  |               |
| 21.00        | 1.52         | 0.00             | 1.52          |              |              |                  |               |
| 21.50        | 1.47         | 0.00             | 1.47          |              |              |                  |               |
| 22.00        | 1.42         | 0.00             | 1.42          |              |              |                  |               |
| 22.50        | 1.37         | 0.00             | 1.37          |              |              |                  |               |
| 23.00        | 1.32         | 0.00             | 1.32          |              |              |                  |               |
| 23.50        | 1.27         | 0.00             | 1.27          |              |              |                  |               |
| 24.00        | 1.22         | 0.00             | 1.22          |              |              |                  |               |
| 24.50        | 0.86         | 0.00             | 0.86          |              |              |                  |               |
| 25.00        | 0.57         | 0.00             | 0.57          |              |              |                  |               |
| 25.50        | 0.27         | 0.00             | 0.27          |              |              |                  |               |

Summary for Link 13L: Existing Drainage Area POI-1 (to be Disturbed)

Inflow Area = 9.650 ac, 0.00% Impervious, Inflow Depth = 5.02" for 100-Year-2020 event  
Inflow = 18.09 cfs @ 13.21 hrs, Volume= 4.033 af  
Primary = 18.09 cfs @ 13.21 hrs, Volume= 4.033 af, Atten= 0%, Lag= 0.0 min  
Routed to Link 11L : Existing Flow to POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Link 13L: Existing Drainage Area POI-1 (to be Disturbed)



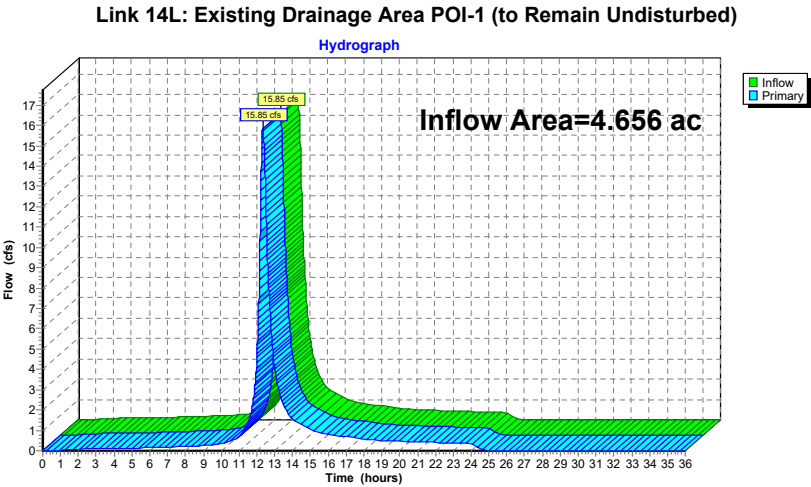
Hydrograph for Link 13L: Existing Drainage Area POI-1 (to be Disturbed)

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.11         | 0.00             | 0.11          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.05         | 0.00             | 0.05          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.02         | 0.00             | 0.02          |
| 1.50         | 0.00         | 0.00             | 0.00          | 27.50        | 0.01         | 0.00             | 0.01          |
| 2.00         | 0.00         | 0.00             | 0.00          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.00         | 0.00             | 0.00          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.00         | 0.00             | 0.00          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.00         | 0.00             | 0.00          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.00         | 0.00             | 0.00          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.00         | 0.00             | 0.00          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.00         | 0.00             | 0.00          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.00         | 0.00             | 0.00          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.00         | 0.00             | 0.00          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.00         | 0.00             | 0.00          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.00         | 0.00             | 0.00          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.00         | 0.00             | 0.00          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.00         | 0.00             | 0.00          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.01         | 0.00             | 0.01          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.06         | 0.00             | 0.06          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.14         | 0.00             | 0.14          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.26         | 0.00             | 0.26          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.44         | 0.00             | 0.44          |              |              |                  |               |
| 11.00        | 0.72         | 0.00             | 0.72          |              |              |                  |               |
| 11.50        | 1.20         | 0.00             | 1.20          |              |              |                  |               |
| 12.00        | 2.44         | 0.00             | 2.44          |              |              |                  |               |
| 12.50        | 8.12         | 0.00             | 8.12          |              |              |                  |               |
| 13.00        | 17.28        | 0.00             | 17.28         |              |              |                  |               |
| 13.50        | 16.18        | 0.00             | 16.18         |              |              |                  |               |
| 14.00        | 10.52        | 0.00             | 10.52         |              |              |                  |               |
| 14.50        | 6.83         | 0.00             | 6.83          |              |              |                  |               |
| 15.00        | 4.72         | 0.00             | 4.72          |              |              |                  |               |
| 15.50        | 3.51         | 0.00             | 3.51          |              |              |                  |               |
| 16.00        | 2.73         | 0.00             | 2.73          |              |              |                  |               |
| 16.50        | 2.26         | 0.00             | 2.26          |              |              |                  |               |
| 17.00        | 1.95         | 0.00             | 1.95          |              |              |                  |               |
| 17.50        | 1.76         | 0.00             | 1.76          |              |              |                  |               |
| 18.00        | 1.60         | 0.00             | 1.60          |              |              |                  |               |
| 18.50        | 1.45         | 0.00             | 1.45          |              |              |                  |               |
| 19.00        | 1.32         | 0.00             | 1.32          |              |              |                  |               |
| 19.50        | 1.23         | 0.00             | 1.23          |              |              |                  |               |
| 20.00        | 1.17         | 0.00             | 1.17          |              |              |                  |               |
| 20.50        | 1.12         | 0.00             | 1.12          |              |              |                  |               |
| 21.00        | 1.08         | 0.00             | 1.08          |              |              |                  |               |
| 21.50        | 1.05         | 0.00             | 1.05          |              |              |                  |               |
| 22.00        | 1.01         | 0.00             | 1.01          |              |              |                  |               |
| 22.50        | 0.97         | 0.00             | 0.97          |              |              |                  |               |
| 23.00        | 0.94         | 0.00             | 0.94          |              |              |                  |               |
| 23.50        | 0.90         | 0.00             | 0.90          |              |              |                  |               |
| 24.00        | 0.87         | 0.00             | 0.87          |              |              |                  |               |
| 24.50        | 0.80         | 0.00             | 0.80          |              |              |                  |               |
| 25.00        | 0.56         | 0.00             | 0.56          |              |              |                  |               |
| 25.50        | 0.27         | 0.00             | 0.27          |              |              |                  |               |

Summary for Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed)

Inflow Area = 4.656 ac, 22.54% Impervious, Inflow Depth = 4.63" for 100-Year-2020 event  
Inflow = 15.85 cfs @ 12.33 hrs, Volume= 1.796 af  
Primary = 15.85 cfs @ 12.33 hrs, Volume= 1.796 af, Atten= 0%, Lag= 0.0 min  
Routed to Link 11L : Existing Flow to POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



Hydrograph for Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed)

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.00         | 0.00             | 0.00          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.00         | 0.00             | 0.00          |
| 1.00         | 0.02         | 0.00             | 0.02          | 27.00        | 0.00         | 0.00             | 0.00          |
| 1.50         | 0.05         | 0.00             | 0.05          | 27.50        | 0.00         | 0.00             | 0.00          |
| 2.00         | 0.07         | 0.00             | 0.07          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.08         | 0.00             | 0.08          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.10         | 0.00             | 0.10          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.11         | 0.00             | 0.11          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.11         | 0.00             | 0.11          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.12         | 0.00             | 0.12          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.13         | 0.00             | 0.13          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.14         | 0.00             | 0.14          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.14         | 0.00             | 0.14          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.15         | 0.00             | 0.15          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.17         | 0.00             | 0.17          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.19         | 0.00             | 0.19          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.21         | 0.00             | 0.21          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.23         | 0.00             | 0.23          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.25         | 0.00             | 0.25          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.29         | 0.00             | 0.29          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.36         | 0.00             | 0.36          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.45         | 0.00             | 0.45          |              |              |                  |               |
| 11.00        | 0.71         | 0.00             | 0.71          |              |              |                  |               |
| 11.50        | 1.40         | 0.00             | 1.40          |              |              |                  |               |
| 12.00        | 4.61         | 0.00             | 4.61          |              |              |                  |               |
| 12.50        | 12.06        | 0.00             | 12.06         |              |              |                  |               |
| 13.00        | 4.07         | 0.00             | 4.07          |              |              |                  |               |
| 13.50        | 2.27         | 0.00             | 2.27          |              |              |                  |               |
| 14.00        | 1.54         | 0.00             | 1.54          |              |              |                  |               |
| 14.50        | 1.28         | 0.00             | 1.28          |              |              |                  |               |
| 15.00        | 1.06         | 0.00             | 1.06          |              |              |                  |               |
| 15.50        | 0.88         | 0.00             | 0.88          |              |              |                  |               |
| 16.00        | 0.81         | 0.00             | 0.81          |              |              |                  |               |
| 16.50        | 0.75         | 0.00             | 0.75          |              |              |                  |               |
| 17.00        | 0.69         | 0.00             | 0.69          |              |              |                  |               |
| 17.50        | 0.63         | 0.00             | 0.63          |              |              |                  |               |
| 18.00        | 0.57         | 0.00             | 0.57          |              |              |                  |               |
| 18.50        | 0.52         | 0.00             | 0.52          |              |              |                  |               |
| 19.00        | 0.50         | 0.00             | 0.50          |              |              |                  |               |
| 19.50        | 0.49         | 0.00             | 0.49          |              |              |                  |               |
| 20.00        | 0.47         | 0.00             | 0.47          |              |              |                  |               |
| 20.50        | 0.46         | 0.00             | 0.46          |              |              |                  |               |
| 21.00        | 0.44         | 0.00             | 0.44          |              |              |                  |               |
| 21.50        | 0.43         | 0.00             | 0.43          |              |              |                  |               |
| 22.00        | 0.41         | 0.00             | 0.41          |              |              |                  |               |
| 22.50        | 0.39         | 0.00             | 0.39          |              |              |                  |               |
| 23.00        | 0.38         | 0.00             | 0.38          |              |              |                  |               |
| 23.50        | 0.36         | 0.00             | 0.36          |              |              |                  |               |
| 24.00        | 0.35         | 0.00             | 0.35          |              |              |                  |               |
| 24.50        | 0.06         | 0.00             | 0.06          |              |              |                  |               |
| 25.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 25.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment7S: POI-1 Pervious Runoff Area=420,357 sf 0.00% Impervious Runoff Depth=1.10"  
Flow Length=1,917' Tc=86.2 min CN=67 Runoff=3.58 cfs 0.881 af

Subcatchment46S: Proposed UndisturbedRunoff Area=157,085 sf 0.00% Impervious Runoff Depth=0.46"  
Flow Length=690' Tc=22.1 min CN=54 Runoff=0.77 cfs 0.138 af

Subcatchment47S: Proposed Runoff Area=45,722 sf 100.00% Impervious Runoff Depth=3.69"  
Flow Length=725' Tc=22.6 min CN=98 Runoff=2.76 cfs 0.322 af

Link 11L: Existing Flow to POI-1 Inflow=4.32 cfs 1.341 af  
Primary=4.32 cfs 1.341 af

Link 13L: Existing Drainage Area POI-1 (to be Disturbed) Inflow=3.58 cfs 0.881 af  
Primary=3.58 cfs 0.881 af

Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed) Inflow=3.41 cfs 0.460 af  
Primary=3.41 cfs 0.460 af

Total Runoff Area = 14.306 ac Runoff Volume = 1.341 af Average Runoff Depth = 1.12"  
92.66% Pervious = 13.256 ac 7.34% Impervious = 1.050 ac

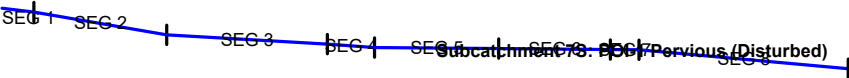
Summary for Subcatchment 7S: POI-1 Pervious (Disturbed)

Runoff = 3.58 cfs @ 13.31 hrs, Volume= 0.881 af, Depth= 1.10"  
Routed to Link 13L : Existing Drainage Area POI-1 (to be Disturbed)

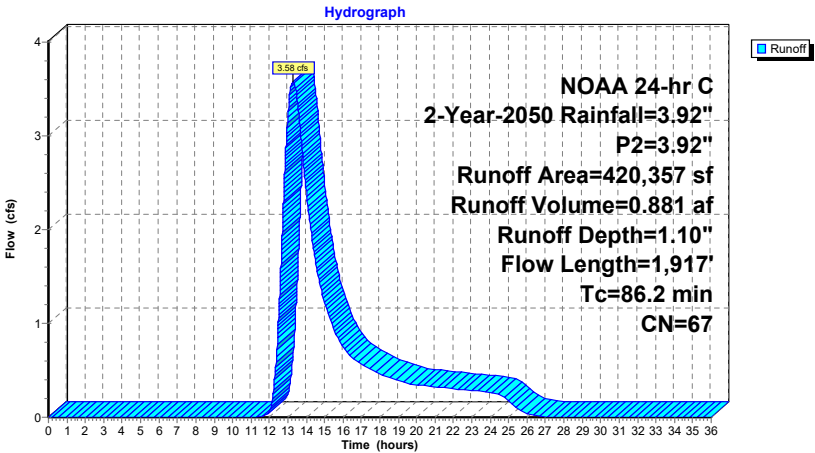
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description                          |
|-----------|----|--------------------------------------|
| 18,906    | 30 | Woods, Good, HSG A                   |
| 73,236    | 55 | Woods, Good, HSG B                   |
| 171,452   | 67 | Row crops, straight row, Good, HSG A |
| 153,091   | 78 | Row crops, straight row, Good, HSG B |
| 3,514     | 77 | Fallow, bare soil, HSG A             |
| 158       | 86 | Fallow, bare soil, HSG B             |
| 420,357   | 67 | Weighted Average                     |
| 420,357   |    | 100.00% Pervious Area                |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                               |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------------------------------------|
| 8.4      | 72            | 0.0150        | 0.14              |                | <b>Sheet Flow, SEG 1</b><br>Cultivated: Residue>20% n= 0.170 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 3.8      | 301           | 0.0210        | 1.30              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 8.1      | 364           | 0.0070        | 0.75              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 3.8      | 107           | 0.0090        | 0.47              |                | <b>Shallow Concentrated Flow, SEG 4</b><br>Woodland Kv= 5.0 fps                                           |
| 16.5     | 281           | 0.0010        | 0.28              |                | <b>Shallow Concentrated Flow, SEG 5</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 26.7     | 253           | 0.0010        | 0.16              |                | <b>Shallow Concentrated Flow, SEG 6</b><br>Woodland Kv= 5.0 fps                                           |
| 3.8      | 65            | 0.0010        | 0.28              |                | <b>Shallow Concentrated Flow, SEG 7</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 15.1     | 474           | 0.0110        | 0.52              |                | <b>Shallow Concentrated Flow, SEG 8</b><br>Woodland Kv= 5.0 fps                                           |
| 86.2     | 1,917         | Total         |                   |                |                                                                                                           |



Subcatchment 7S: POI-1 Pervious (Disturbed)



Hydrograph for Subcatchment 7S: POI-1 Pervious (Disturbed)

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 3.92             | 1.10            | 0.03         |
| 0.50         | 0.02             | 0.00            | 0.00         | 26.50        | 3.92             | 1.10            | 0.01         |
| 1.00         | 0.04             | 0.00            | 0.00         | 27.00        | 3.92             | 1.10            | 0.01         |
| 1.50         | 0.07             | 0.00            | 0.00         | 27.50        | 3.92             | 1.10            | 0.00         |
| 2.00         | 0.09             | 0.00            | 0.00         | 28.00        | 3.92             | 1.10            | 0.00         |
| 2.50         | 0.11             | 0.00            | 0.00         | 28.50        | 3.92             | 1.10            | 0.00         |
| 3.00         | 0.14             | 0.00            | 0.00         | 29.00        | 3.92             | 1.10            | 0.00         |
| 3.50         | 0.16             | 0.00            | 0.00         | 29.50        | 3.92             | 1.10            | 0.00         |
| 4.00         | 0.19             | 0.00            | 0.00         | 30.00        | 3.92             | 1.10            | 0.00         |
| 4.50         | 0.22             | 0.00            | 0.00         | 30.50        | 3.92             | 1.10            | 0.00         |
| 5.00         | 0.25             | 0.00            | 0.00         | 31.00        | 3.92             | 1.10            | 0.00         |
| 5.50         | 0.28             | 0.00            | 0.00         | 31.50        | 3.92             | 1.10            | 0.00         |
| 6.00         | 0.31             | 0.00            | 0.00         | 32.00        | 3.92             | 1.10            | 0.00         |
| 6.50         | 0.34             | 0.00            | 0.00         | 32.50        | 3.92             | 1.10            | 0.00         |
| 7.00         | 0.38             | 0.00            | 0.00         | 33.00        | 3.92             | 1.10            | 0.00         |
| 7.50         | 0.42             | 0.00            | 0.00         | 33.50        | 3.92             | 1.10            | 0.00         |
| 8.00         | 0.47             | 0.00            | 0.00         | 34.00        | 3.92             | 1.10            | 0.00         |
| 8.50         | 0.52             | 0.00            | 0.00         | 34.50        | 3.92             | 1.10            | 0.00         |
| 9.00         | 0.57             | 0.00            | 0.00         | 35.00        | 3.92             | 1.10            | 0.00         |
| 9.50         | 0.64             | 0.00            | 0.00         | 35.50        | 3.92             | 1.10            | 0.00         |
| 10.00        | 0.71             | 0.00            | 0.00         | 36.00        | 3.92             | 1.10            | 0.00         |
| 10.50        | 0.81             | 0.00            | 0.00         |              |                  |                 |              |
| 11.00        | 0.94             | 0.00            | 0.00         |              |                  |                 |              |
| 11.50        | 1.16             | 0.01            | 0.00         |              |                  |                 |              |
| 12.00        | 1.87             | 0.13            | 0.06         |              |                  |                 |              |
| 12.50        | 2.76             | 0.47            | 1.06         |              |                  |                 |              |
| 13.00        | 2.98             | 0.57            | 3.19         |              |                  |                 |              |
| 13.50        | 3.11             | 0.64            | 3.41         |              |                  |                 |              |
| 14.00        | 3.21             | 0.69            | 2.41         |              |                  |                 |              |
| 14.50        | 3.28             | 0.73            | 1.67         |              |                  |                 |              |
| 15.00        | 3.35             | 0.77            | 1.21         |              |                  |                 |              |
| 15.50        | 3.40             | 0.79            | 0.94         |              |                  |                 |              |
| 16.00        | 3.45             | 0.82            | 0.75         |              |                  |                 |              |
| 16.50        | 3.50             | 0.85            | 0.64         |              |                  |                 |              |
| 17.00        | 3.54             | 0.87            | 0.56         |              |                  |                 |              |
| 17.50        | 3.58             | 0.89            | 0.51         |              |                  |                 |              |
| 18.00        | 3.61             | 0.91            | 0.47         |              |                  |                 |              |
| 18.50        | 3.64             | 0.93            | 0.43         |              |                  |                 |              |
| 19.00        | 3.67             | 0.95            | 0.39         |              |                  |                 |              |
| 19.50        | 3.70             | 0.96            | 0.36         |              |                  |                 |              |
| 20.00        | 3.73             | 0.98            | 0.35         |              |                  |                 |              |
| 20.50        | 3.76             | 1.00            | 0.33         |              |                  |                 |              |
| 21.00        | 3.78             | 1.01            | 0.32         |              |                  |                 |              |
| 21.50        | 3.81             | 1.03            | 0.31         |              |                  |                 |              |
| 22.00        | 3.83             | 1.04            | 0.30         |              |                  |                 |              |
| 22.50        | 3.85             | 1.06            | 0.29         |              |                  |                 |              |
| 23.00        | 3.88             | 1.07            | 0.28         |              |                  |                 |              |
| 23.50        | 3.90             | 1.08            | 0.27         |              |                  |                 |              |
| 24.00        | 3.92             | 1.10            | 0.26         |              |                  |                 |              |
| 24.50        | 3.92             | 1.10            | 0.25         |              |                  |                 |              |
| 25.00        | 3.92             | 1.10            | 0.17         |              |                  |                 |              |
| 25.50        | 3.92             | 1.10            | 0.08         |              |                  |                 |              |

Summary for Subcatchment 46S: Proposed Undisturbed Area (Pervious)

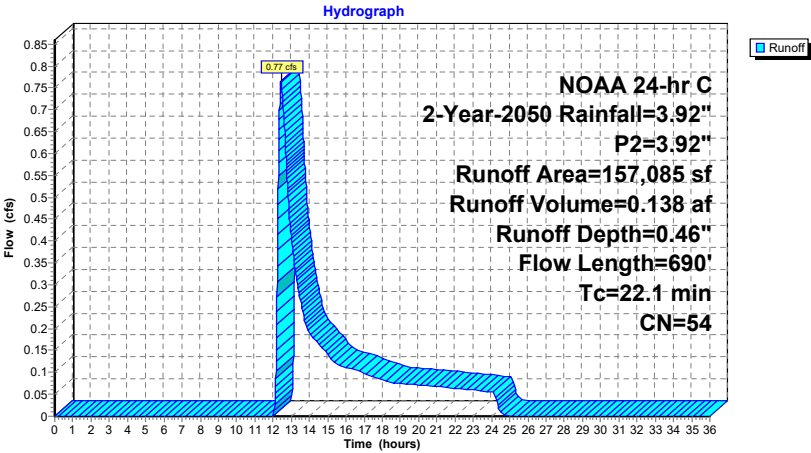
Runoff = 0.77 cfs @ 12.44 hrs, Volume= 0.138 af, Depth= 0.46"  
Routed to Link 14L : Existing Drainage Area POI-1 (to Remain Undisturbed)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN            | Description                    |                   |                |                                                                                                                      |
|-----------|---------------|--------------------------------|-------------------|----------------|----------------------------------------------------------------------------------------------------------------------|
| 15,827    | 39            | >75% Grass cover, Good, HSG A  |                   |                |                                                                                                                      |
| 80,837    | 61            | >75% Grass cover, Good, HSG B  |                   |                |                                                                                                                      |
| 30,052    | 32            | Woods/grass comb., Good, HSG A |                   |                |                                                                                                                      |
| 22,227    | 58            | Woods/grass comb., Good, HSG B |                   |                |                                                                                                                      |
| 8,142     | 86            | Fallow, bare soil, HSG B       |                   |                |                                                                                                                      |
| 157,085   | 54            | Weighted Average               |                   |                |                                                                                                                      |
| 157,085   |               | 100.00% Pervious Area          |                   |                |                                                                                                                      |
| Tc (min)  | Length (feet) | Slope (ft/ft)                  | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                          |
| 8.5       | 27            | 0.0120                         | 0.05              |                | <b>Sheet Flow,</b><br>Grass: Bermuda n= 0.410 P2= 3.92"<br>Using McCuen-Spiess flow length                           |
| 1.5       | 67            | 0.0120                         | 0.77              |                | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6      | 319           | 0.0100                         | 0.50              |                | <b>Shallow Concentrated Flow,</b><br>Woodland Kv= 5.0 fps                                                            |
| 0.8       | 49            | 0.0200                         | 0.99              |                | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7       | 228           | 0.0050                         | 5.09              | 16.00          | <b>Pipe Channel,</b><br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.1      | 690           | Total                          |                   |                |                                                                                                                      |



Subcatchment 46S: Proposed Undisturbed Area (Pervious)





Hydrograph for Subcatchment 46S: Proposed Undisturbed Area (Pervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 0.46               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 0.46               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 0.46               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 0.46               | 0.00            |
| 2.00            | 0.09                | 0.00               | 0.00            | 28.00           | 3.92                | 0.46               | 0.00            |
| 2.50            | 0.11                | 0.00               | 0.00            | 28.50           | 3.92                | 0.46               | 0.00            |
| 3.00            | 0.14                | 0.00               | 0.00            | 29.00           | 3.92                | 0.46               | 0.00            |
| 3.50            | 0.16                | 0.00               | 0.00            | 29.50           | 3.92                | 0.46               | 0.00            |
| 4.00            | 0.19                | 0.00               | 0.00            | 30.00           | 3.92                | 0.46               | 0.00            |
| 4.50            | 0.22                | 0.00               | 0.00            | 30.50           | 3.92                | 0.46               | 0.00            |
| 5.00            | 0.25                | 0.00               | 0.00            | 31.00           | 3.92                | 0.46               | 0.00            |
| 5.50            | 0.28                | 0.00               | 0.00            | 31.50           | 3.92                | 0.46               | 0.00            |
| 6.00            | 0.31                | 0.00               | 0.00            | 32.00           | 3.92                | 0.46               | 0.00            |
| 6.50            | 0.34                | 0.00               | 0.00            | 32.50           | 3.92                | 0.46               | 0.00            |
| 7.00            | 0.38                | 0.00               | 0.00            | 33.00           | 3.92                | 0.46               | 0.00            |
| 7.50            | 0.42                | 0.00               | 0.00            | 33.50           | 3.92                | 0.46               | 0.00            |
| 8.00            | 0.47                | 0.00               | 0.00            | 34.00           | 3.92                | 0.46               | 0.00            |
| 8.50            | 0.52                | 0.00               | 0.00            | 34.50           | 3.92                | 0.46               | 0.00            |
| 9.00            | 0.57                | 0.00               | 0.00            | 35.00           | 3.92                | 0.46               | 0.00            |
| 9.50            | 0.64                | 0.00               | 0.00            | 35.50           | 3.92                | 0.46               | 0.00            |
| 10.00           | 0.71                | 0.00               | 0.00            | 36.00           | 3.92                | 0.46               | 0.00            |
| 10.50           | 0.81                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.76                | 0.12               | 0.74            |                 |                     |                    |                 |
| 13.00           | 2.98                | 0.17               | 0.41            |                 |                     |                    |                 |
| 13.50           | 3.11                | 0.20               | 0.26            |                 |                     |                    |                 |
| 14.00           | 3.21                | 0.23               | 0.19            |                 |                     |                    |                 |
| 14.50           | 3.28                | 0.25               | 0.17            |                 |                     |                    |                 |
| 15.00           | 3.35                | 0.27               | 0.14            |                 |                     |                    |                 |
| 15.50           | 3.40                | 0.28               | 0.12            |                 |                     |                    |                 |
| 16.00           | 3.45                | 0.30               | 0.11            |                 |                     |                    |                 |
| 16.50           | 3.50                | 0.31               | 0.11            |                 |                     |                    |                 |
| 17.00           | 3.54                | 0.32               | 0.10            |                 |                     |                    |                 |
| 17.50           | 3.58                | 0.34               | 0.09            |                 |                     |                    |                 |
| 18.00           | 3.61                | 0.35               | 0.08            |                 |                     |                    |                 |
| 18.50           | 3.64                | 0.36               | 0.08            |                 |                     |                    |                 |
| 19.00           | 3.67                | 0.37               | 0.07            |                 |                     |                    |                 |
| 19.50           | 3.70                | 0.38               | 0.07            |                 |                     |                    |                 |
| 20.00           | 3.73                | 0.39               | 0.07            |                 |                     |                    |                 |
| 20.50           | 3.76                | 0.40               | 0.07            |                 |                     |                    |                 |
| 21.00           | 3.78                | 0.41               | 0.07            |                 |                     |                    |                 |
| 21.50           | 3.81                | 0.42               | 0.07            |                 |                     |                    |                 |
| 22.00           | 3.83                | 0.43               | 0.06            |                 |                     |                    |                 |
| 22.50           | 3.85                | 0.43               | 0.06            |                 |                     |                    |                 |
| 23.00           | 3.88                | 0.44               | 0.06            |                 |                     |                    |                 |
| 23.50           | 3.90                | 0.45               | 0.06            |                 |                     |                    |                 |
| 24.00           | 3.92                | 0.46               | 0.06            |                 |                     |                    |                 |
| 24.50           | 3.92                | 0.46               | 0.01            |                 |                     |                    |                 |
| 25.00           | 3.92                | 0.46               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 0.46               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 47S: Proposed Undisturbed Area (Impervious)

Runoff = 2.76 cfs @ 12.31 hrs, Volume= 0.322 af, Depth= 3.69"  
Routed to Link 14L : Existing Drainage Area POI-1 (to Remain Undisturbed)

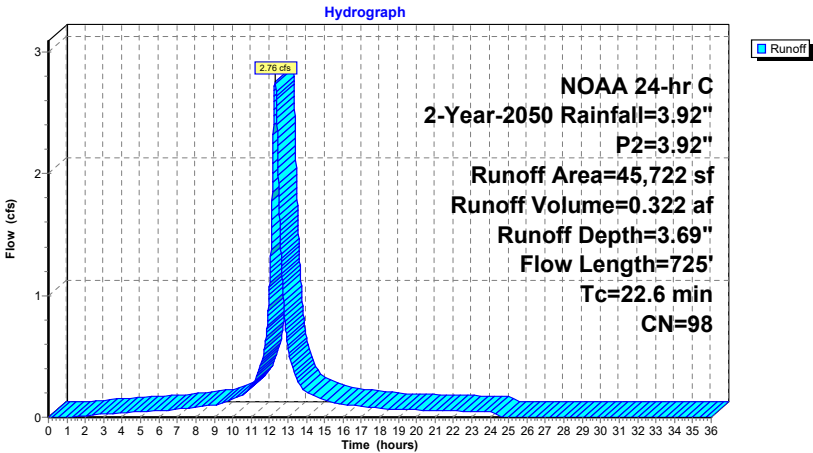
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description                 |
|-----------|----|-----------------------------|
| 45,722    | 98 | Unconnected pavement, HSG A |
| 45,722    |    | 100.00% Impervious Area     |
| 45,722    |    | 100.00% Unconnected         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                           |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------|
| 0.5         | 35               | 0.0200           | 1.23                 |                   | <b>Sheet Flow</b> ,<br>Smooth surfaces n= 0.011 P2= 3.92"                                                             |
| 8.5         | 27               | 0.0120           | 0.05                 |                   | <b>Sheet Flow</b> ,<br>Grass: Bermuda n= 0.410 P2= 3.92"<br>Using McCuen-Spiess flow length                           |
| 1.5         | 67               | 0.0120           | 0.77                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6        | 319              | 0.0100           | 0.50                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8         | 49               | 0.0200           | 0.99                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7         | 228              | 0.0050           | 5.09                 | 16.00             | <b>Pipe Channel</b> ,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.6        | 725              | Total            |                      |                   |                                                                                                                       |



Subcatchment 47S: Proposed Undisturbed Area (Impervious)



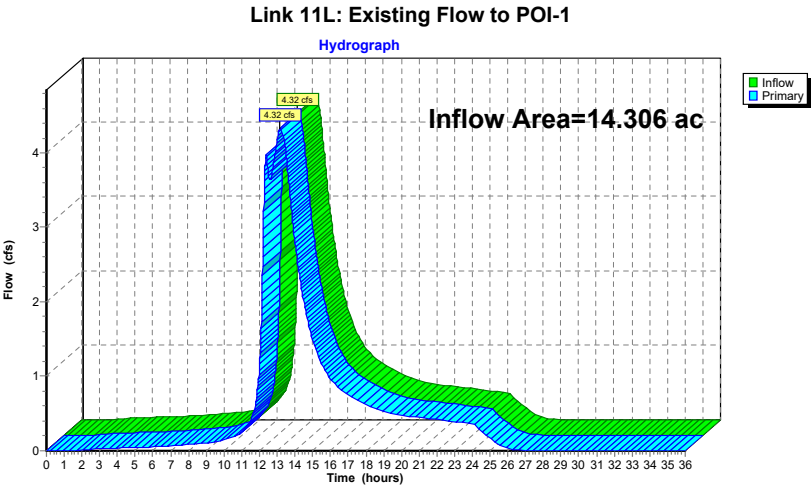
Hydrograph for Subcatchment 47S: Proposed Undisturbed Area (Impervious)

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 3.92             | 3.69            | 0.00         |
| 0.50         | 0.02             | 0.00            | 0.00         | 26.50        | 3.92             | 3.69            | 0.00         |
| 1.00         | 0.04             | 0.00            | 0.00         | 27.00        | 3.92             | 3.69            | 0.00         |
| 1.50         | 0.07             | 0.00            | 0.00         | 27.50        | 3.92             | 3.69            | 0.00         |
| 2.00         | 0.09             | 0.01            | 0.01         | 28.00        | 3.92             | 3.69            | 0.00         |
| 2.50         | 0.11             | 0.02            | 0.02         | 28.50        | 3.92             | 3.69            | 0.00         |
| 3.00         | 0.14             | 0.03            | 0.03         | 29.00        | 3.92             | 3.69            | 0.00         |
| 3.50         | 0.16             | 0.05            | 0.03         | 29.50        | 3.92             | 3.69            | 0.00         |
| 4.00         | 0.19             | 0.06            | 0.04         | 30.00        | 3.92             | 3.69            | 0.00         |
| 4.50         | 0.22             | 0.08            | 0.04         | 30.50        | 3.92             | 3.69            | 0.00         |
| 5.00         | 0.25             | 0.11            | 0.04         | 31.00        | 3.92             | 3.69            | 0.00         |
| 5.50         | 0.28             | 0.13            | 0.05         | 31.50        | 3.92             | 3.69            | 0.00         |
| 6.00         | 0.31             | 0.15            | 0.05         | 32.00        | 3.92             | 3.69            | 0.00         |
| 6.50         | 0.34             | 0.18            | 0.06         | 32.50        | 3.92             | 3.69            | 0.00         |
| 7.00         | 0.38             | 0.21            | 0.07         | 33.00        | 3.92             | 3.69            | 0.00         |
| 7.50         | 0.42             | 0.25            | 0.08         | 33.50        | 3.92             | 3.69            | 0.00         |
| 8.00         | 0.47             | 0.29            | 0.08         | 34.00        | 3.92             | 3.69            | 0.00         |
| 8.50         | 0.52             | 0.34            | 0.09         | 34.50        | 3.92             | 3.69            | 0.00         |
| 9.00         | 0.57             | 0.38            | 0.10         | 35.00        | 3.92             | 3.69            | 0.00         |
| 9.50         | 0.64             | 0.44            | 0.12         | 35.50        | 3.92             | 3.69            | 0.00         |
| 10.00        | 0.71             | 0.52            | 0.15         | 36.00        | 3.92             | 3.69            | 0.00         |
| 10.50        | 0.81             | 0.61            | 0.18         |              |                  |                 |              |
| 11.00        | 0.94             | 0.73            | 0.25         |              |                  |                 |              |
| 11.50        | 1.16             | 0.94            | 0.41         |              |                  |                 |              |
| 12.00        | 1.87             | 1.64            | 1.04         |              |                  |                 |              |
| 12.50        | 2.76             | 2.53            | 1.92         |              |                  |                 |              |
| 13.00        | 2.98             | 2.75            | 0.58         |              |                  |                 |              |
| 13.50        | 3.11             | 2.88            | 0.31         |              |                  |                 |              |
| 14.00        | 3.21             | 2.97            | 0.21         |              |                  |                 |              |
| 14.50        | 3.28             | 3.05            | 0.17         |              |                  |                 |              |
| 15.00        | 3.35             | 3.11            | 0.14         |              |                  |                 |              |
| 15.50        | 3.40             | 3.17            | 0.12         |              |                  |                 |              |
| 16.00        | 3.45             | 3.22            | 0.11         |              |                  |                 |              |
| 16.50        | 3.50             | 3.26            | 0.10         |              |                  |                 |              |
| 17.00        | 3.54             | 3.30            | 0.09         |              |                  |                 |              |
| 17.50        | 3.58             | 3.34            | 0.08         |              |                  |                 |              |
| 18.00        | 3.61             | 3.38            | 0.07         |              |                  |                 |              |
| 18.50        | 3.64             | 3.41            | 0.07         |              |                  |                 |              |
| 19.00        | 3.67             | 3.44            | 0.06         |              |                  |                 |              |
| 19.50        | 3.70             | 3.47            | 0.06         |              |                  |                 |              |
| 20.00        | 3.73             | 3.49            | 0.06         |              |                  |                 |              |
| 20.50        | 3.76             | 3.52            | 0.06         |              |                  |                 |              |
| 21.00        | 3.78             | 3.55            | 0.06         |              |                  |                 |              |
| 21.50        | 3.81             | 3.57            | 0.05         |              |                  |                 |              |
| 22.00        | 3.83             | 3.60            | 0.05         |              |                  |                 |              |
| 22.50        | 3.85             | 3.62            | 0.05         |              |                  |                 |              |
| 23.00        | 3.88             | 3.64            | 0.05         |              |                  |                 |              |
| 23.50        | 3.90             | 3.66            | 0.05         |              |                  |                 |              |
| 24.00        | 3.92             | 3.69            | 0.04         |              |                  |                 |              |
| 24.50        | 3.92             | 3.69            | 0.01         |              |                  |                 |              |
| 25.00        | 3.92             | 3.69            | 0.00         |              |                  |                 |              |
| 25.50        | 3.92             | 3.69            | 0.00         |              |                  |                 |              |

Summary for Link 11L: Existing Flow to POI-1

Inflow Area = 14.306 ac, 7.34% Impervious, Inflow Depth = 1.12" for 2-Year-2050 event  
Inflow = 4.32 cfs @ 13.13 hrs, Volume= 1.341 af  
Primary = 4.32 cfs @ 13.13 hrs, Volume= 1.341 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



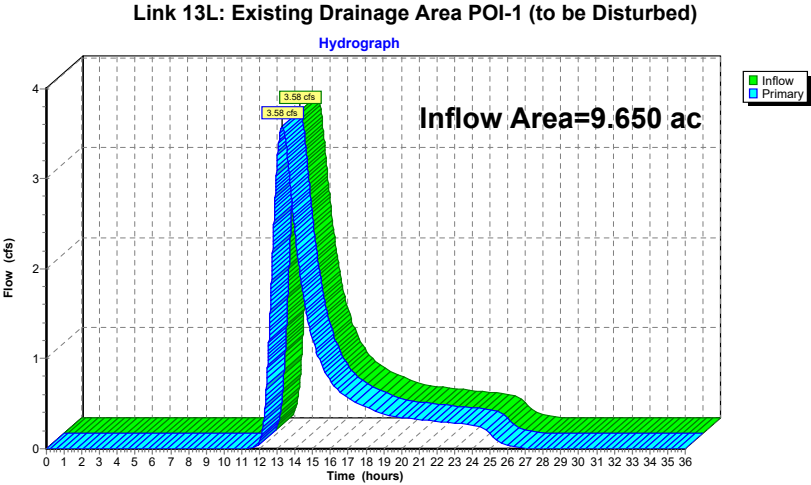
Hydrograph for Link 11L: Existing Flow to POI-1

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.03         | 0.00             | 0.03          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.01         | 0.00             | 0.01          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.01         | 0.00             | 0.01          |
| 1.50         | 0.00         | 0.00             | 0.00          | 27.50        | 0.00         | 0.00             | 0.00          |
| 2.00         | 0.01         | 0.00             | 0.01          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.02         | 0.00             | 0.02          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.03         | 0.00             | 0.03          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.03         | 0.00             | 0.03          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.04         | 0.00             | 0.04          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.04         | 0.00             | 0.04          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.04         | 0.00             | 0.04          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.05         | 0.00             | 0.05          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.05         | 0.00             | 0.05          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.06         | 0.00             | 0.06          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.07         | 0.00             | 0.07          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.08         | 0.00             | 0.08          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.08         | 0.00             | 0.08          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.09         | 0.00             | 0.09          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.10         | 0.00             | 0.10          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.12         | 0.00             | 0.12          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.15         | 0.00             | 0.15          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.18         | 0.00             | 0.18          |              |              |                  |               |
| 11.00        | 0.25         | 0.00             | 0.25          |              |              |                  |               |
| 11.50        | 0.41         | 0.00             | 0.41          |              |              |                  |               |
| 12.00        | 1.10         | 0.00             | 1.10          |              |              |                  |               |
| 12.50        | 3.72         | 0.00             | 3.72          |              |              |                  |               |
| 13.00        | 4.18         | 0.00             | 4.18          |              |              |                  |               |
| 13.50        | 3.98         | 0.00             | 3.98          |              |              |                  |               |
| 14.00        | 2.81         | 0.00             | 2.81          |              |              |                  |               |
| 14.50        | 2.00         | 0.00             | 2.00          |              |              |                  |               |
| 15.00        | 1.49         | 0.00             | 1.49          |              |              |                  |               |
| 15.50        | 1.17         | 0.00             | 1.17          |              |              |                  |               |
| 16.00        | 0.97         | 0.00             | 0.97          |              |              |                  |               |
| 16.50        | 0.84         | 0.00             | 0.84          |              |              |                  |               |
| 17.00        | 0.75         | 0.00             | 0.75          |              |              |                  |               |
| 17.50        | 0.68         | 0.00             | 0.68          |              |              |                  |               |
| 18.00        | 0.62         | 0.00             | 0.62          |              |              |                  |               |
| 18.50        | 0.57         | 0.00             | 0.57          |              |              |                  |               |
| 19.00        | 0.53         | 0.00             | 0.53          |              |              |                  |               |
| 19.50        | 0.50         | 0.00             | 0.50          |              |              |                  |               |
| 20.00        | 0.48         | 0.00             | 0.48          |              |              |                  |               |
| 20.50        | 0.46         | 0.00             | 0.46          |              |              |                  |               |
| 21.00        | 0.45         | 0.00             | 0.45          |              |              |                  |               |
| 21.50        | 0.43         | 0.00             | 0.43          |              |              |                  |               |
| 22.00        | 0.42         | 0.00             | 0.42          |              |              |                  |               |
| 22.50        | 0.41         | 0.00             | 0.41          |              |              |                  |               |
| 23.00        | 0.39         | 0.00             | 0.39          |              |              |                  |               |
| 23.50        | 0.38         | 0.00             | 0.38          |              |              |                  |               |
| 24.00        | 0.36         | 0.00             | 0.36          |              |              |                  |               |
| 24.50        | 0.26         | 0.00             | 0.26          |              |              |                  |               |
| 25.00        | 0.17         | 0.00             | 0.17          |              |              |                  |               |
| 25.50        | 0.08         | 0.00             | 0.08          |              |              |                  |               |

Summary for Link 13L: Existing Drainage Area POI-1 (to be Disturbed)

Inflow Area = 9.650 ac, 0.00% Impervious, Inflow Depth = 1.10" for 2-Year-2050 event  
Inflow = 3.58 cfs @ 13.31 hrs, Volume= 0.881 af  
Primary = 3.58 cfs @ 13.31 hrs, Volume= 0.881 af, Atten= 0%, Lag= 0.0 min  
Routed to Link 11L : Existing Flow to POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



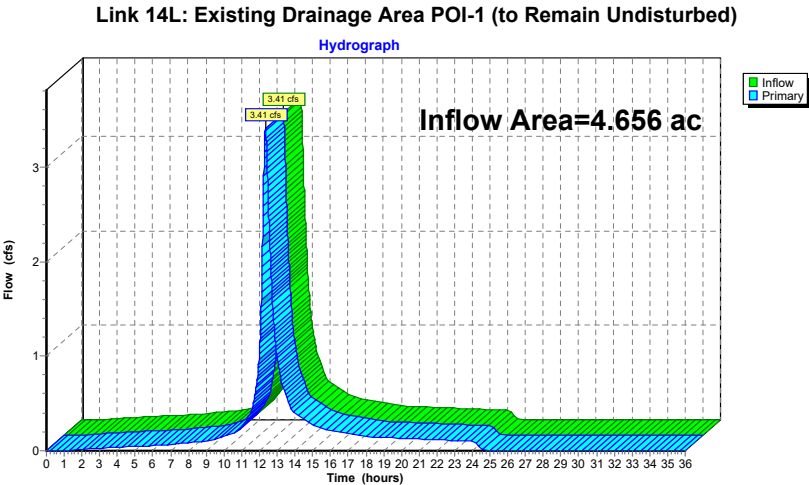
Hydrograph for Link 13L: Existing Drainage Area POI-1 (to be Disturbed)

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.03         | 0.00             | 0.03          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.01         | 0.00             | 0.01          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.01         | 0.00             | 0.01          |
| 1.50         | 0.00         | 0.00             | 0.00          | 27.50        | 0.00         | 0.00             | 0.00          |
| 2.00         | 0.00         | 0.00             | 0.00          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.00         | 0.00             | 0.00          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.00         | 0.00             | 0.00          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.00         | 0.00             | 0.00          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.00         | 0.00             | 0.00          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.00         | 0.00             | 0.00          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.00         | 0.00             | 0.00          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.00         | 0.00             | 0.00          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.00         | 0.00             | 0.00          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.00         | 0.00             | 0.00          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.00         | 0.00             | 0.00          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.00         | 0.00             | 0.00          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.00         | 0.00             | 0.00          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.00         | 0.00             | 0.00          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.00         | 0.00             | 0.00          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.00         | 0.00             | 0.00          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.00         | 0.00             | 0.00          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 11.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 11.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 12.00        | 0.06         | 0.00             | 0.06          |              |              |                  |               |
| 12.50        | 1.06         | 0.00             | 1.06          |              |              |                  |               |
| 13.00        | 3.19         | 0.00             | 3.19          |              |              |                  |               |
| 13.31        | 3.41         | 0.00             | 3.41          |              |              |                  |               |
| 14.00        | 2.41         | 0.00             | 2.41          |              |              |                  |               |
| 14.50        | 1.67         | 0.00             | 1.67          |              |              |                  |               |
| 15.00        | 1.21         | 0.00             | 1.21          |              |              |                  |               |
| 15.50        | 0.94         | 0.00             | 0.94          |              |              |                  |               |
| 16.00        | 0.75         | 0.00             | 0.75          |              |              |                  |               |
| 16.50        | 0.64         | 0.00             | 0.64          |              |              |                  |               |
| 17.00        | 0.56         | 0.00             | 0.56          |              |              |                  |               |
| 17.50        | 0.51         | 0.00             | 0.51          |              |              |                  |               |
| 18.00        | 0.47         | 0.00             | 0.47          |              |              |                  |               |
| 18.50        | 0.43         | 0.00             | 0.43          |              |              |                  |               |
| 19.00        | 0.39         | 0.00             | 0.39          |              |              |                  |               |
| 19.50        | 0.36         | 0.00             | 0.36          |              |              |                  |               |
| 20.00        | 0.35         | 0.00             | 0.35          |              |              |                  |               |
| 20.50        | 0.33         | 0.00             | 0.33          |              |              |                  |               |
| 21.00        | 0.32         | 0.00             | 0.32          |              |              |                  |               |
| 21.50        | 0.31         | 0.00             | 0.31          |              |              |                  |               |
| 22.00        | 0.30         | 0.00             | 0.30          |              |              |                  |               |
| 22.50        | 0.29         | 0.00             | 0.29          |              |              |                  |               |
| 23.00        | 0.28         | 0.00             | 0.28          |              |              |                  |               |
| 23.50        | 0.27         | 0.00             | 0.27          |              |              |                  |               |
| 24.00        | 0.26         | 0.00             | 0.26          |              |              |                  |               |
| 24.50        | 0.25         | 0.00             | 0.25          |              |              |                  |               |
| 25.00        | 0.17         | 0.00             | 0.17          |              |              |                  |               |
| 25.50        | 0.08         | 0.00             | 0.08          |              |              |                  |               |

Summary for Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed)

Inflow Area = 4.656 ac, 22.54% Impervious, Inflow Depth = 1.19" for 2-Year-2050 event  
Inflow = 3.41 cfs @ 12.33 hrs, Volume= 0.460 af  
Primary = 3.41 cfs @ 12.33 hrs, Volume= 0.460 af, Atten= 0%, Lag= 0.0 min  
Routed to Link 11L : Existing Flow to POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



Hydrograph for Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed)

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.00         | 0.00             | 0.00          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.00         | 0.00             | 0.00          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.00         | 0.00             | 0.00          |
| 1.50         | 0.00         | 0.00             | 0.00          | 27.50        | 0.00         | 0.00             | 0.00          |
| 2.00         | 0.01         | 0.00             | 0.01          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.02         | 0.00             | 0.02          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.03         | 0.00             | 0.03          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.03         | 0.00             | 0.03          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.04         | 0.00             | 0.04          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.04         | 0.00             | 0.04          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.04         | 0.00             | 0.04          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.05         | 0.00             | 0.05          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.05         | 0.00             | 0.05          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.06         | 0.00             | 0.06          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.07         | 0.00             | 0.07          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.08         | 0.00             | 0.08          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.08         | 0.00             | 0.08          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.09         | 0.00             | 0.09          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.10         | 0.00             | 0.10          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.12         | 0.00             | 0.12          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.15         | 0.00             | 0.15          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.18         | 0.00             | 0.18          |              |              |                  |               |
| 11.00        | 0.25         | 0.00             | 0.25          |              |              |                  |               |
| 11.50        | 0.41         | 0.00             | 0.41          |              |              |                  |               |
| 12.00        | 1.04         | 0.00             | 1.04          |              |              |                  |               |
| 12.50        | 2.66         | 0.00             | 2.66          |              |              |                  |               |
| 13.00        | 0.99         | 0.00             | 0.99          |              |              |                  |               |
| 13.50        | 0.58         | 0.00             | 0.58          |              |              |                  |               |
| 14.00        | 0.40         | 0.00             | 0.40          |              |              |                  |               |
| 14.50        | 0.34         | 0.00             | 0.34          |              |              |                  |               |
| 15.00        | 0.28         | 0.00             | 0.28          |              |              |                  |               |
| 15.50        | 0.23         | 0.00             | 0.23          |              |              |                  |               |
| 16.00        | 0.22         | 0.00             | 0.22          |              |              |                  |               |
| 16.50        | 0.20         | 0.00             | 0.20          |              |              |                  |               |
| 17.00        | 0.19         | 0.00             | 0.19          |              |              |                  |               |
| 17.50        | 0.17         | 0.00             | 0.17          |              |              |                  |               |
| 18.00        | 0.16         | 0.00             | 0.16          |              |              |                  |               |
| 18.50        | 0.14         | 0.00             | 0.14          |              |              |                  |               |
| 19.00        | 0.14         | 0.00             | 0.14          |              |              |                  |               |
| 19.50        | 0.13         | 0.00             | 0.13          |              |              |                  |               |
| 20.00        | 0.13         | 0.00             | 0.13          |              |              |                  |               |
| 20.50        | 0.13         | 0.00             | 0.13          |              |              |                  |               |
| 21.00        | 0.12         | 0.00             | 0.12          |              |              |                  |               |
| 21.50        | 0.12         | 0.00             | 0.12          |              |              |                  |               |
| 22.00        | 0.12         | 0.00             | 0.12          |              |              |                  |               |
| 22.50        | 0.11         | 0.00             | 0.11          |              |              |                  |               |
| 23.00        | 0.11         | 0.00             | 0.11          |              |              |                  |               |
| 23.50        | 0.10         | 0.00             | 0.10          |              |              |                  |               |
| 24.00        | 0.10         | 0.00             | 0.10          |              |              |                  |               |
| 24.50        | 0.02         | 0.00             | 0.02          |              |              |                  |               |
| 25.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 25.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment7S: POI-1 Pervious Runoff Area=420,357 sf 0.00% Impervious Runoff Depth=2.69"  
Flow Length=1,917' Tc=86.2 min CN=67 Runoff=9.50 cfs 2.163 af

Subcatchment46S: Proposed Undisturbed Runoff Area=157,085 sf 0.00% Impervious Runoff Depth=1.56"  
Flow Length=690' Tc=22.1 min CN=54 Runoff=4.04 cfs 0.469 af

Subcatchment47S: Proposed Runoff Area=45,722 sf 100.00% Impervious Runoff Depth=5.97"  
Flow Length=725' Tc=22.6 min CN=98 Runoff=4.39 cfs 0.522 af

Link 11L: Existing Flow to POI-1 Inflow=11.36 cfs 3.154 af  
Primary=11.36 cfs 3.154 af

Link 13L: Existing Drainage Area POI-1 (to be Disturbed) Inflow=9.50 cfs 2.163 af  
Primary=9.50 cfs 2.163 af

Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed) Inflow=8.38 cfs 0.991 af  
Primary=8.38 cfs 0.991 af

Total Runoff Area = 14.306 ac Runoff Volume = 3.154 af Average Runoff Depth = 2.65"  
92.66% Pervious = 13.256 ac 7.34% Impervious = 1.050 ac

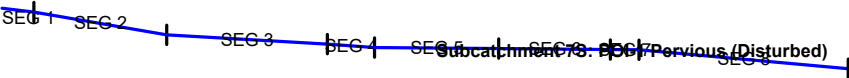
Summary for Subcatchment 7S: POI-1 Pervious (Disturbed)

Runoff = 9.50 cfs @ 13.21 hrs, Volume= 2.163 af, Depth= 2.69"  
Routed to Link 13L : Existing Drainage Area POI-1 (to be Disturbed)

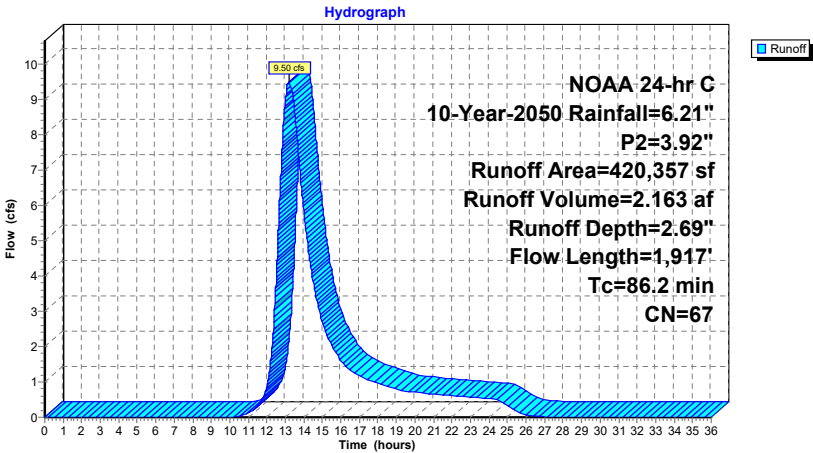
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description                          |
|-----------|----|--------------------------------------|
| 18,906    | 30 | Woods, Good, HSG A                   |
| 73,236    | 55 | Woods, Good, HSG B                   |
| 171,452   | 67 | Row crops, straight row, Good, HSG A |
| 153,091   | 78 | Row crops, straight row, Good, HSG B |
| 3,514     | 77 | Fallow, bare soil, HSG A             |
| 158       | 86 | Fallow, bare soil, HSG B             |
| 420,357   | 67 | Weighted Average                     |
| 420,357   |    | 100.00% Pervious Area                |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                               |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------------------------------------|
| 8.4      | 72            | 0.0150        | 0.14              |                | <b>Sheet Flow, SEG 1</b><br>Cultivated: Residue>20% n= 0.170 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 3.8      | 301           | 0.0210        | 1.30              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 8.1      | 364           | 0.0070        | 0.75              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 3.8      | 107           | 0.0090        | 0.47              |                | <b>Shallow Concentrated Flow, SEG 4</b><br>Woodland Kv= 5.0 fps                                           |
| 16.5     | 281           | 0.0010        | 0.28              |                | <b>Shallow Concentrated Flow, SEG 5</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 26.7     | 253           | 0.0010        | 0.16              |                | <b>Shallow Concentrated Flow, SEG 6</b><br>Woodland Kv= 5.0 fps                                           |
| 3.8      | 65            | 0.0010        | 0.28              |                | <b>Shallow Concentrated Flow, SEG 7</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 15.1     | 474           | 0.0110        | 0.52              |                | <b>Shallow Concentrated Flow, SEG 8</b><br>Woodland Kv= 5.0 fps                                           |
| 86.2     | 1,917         | Total         |                   |                |                                                                                                           |



Subcatchment 7S: POI-1 Pervious (Disturbed)



Hydrograph for Subcatchment 7S: POI-1 Pervious (Disturbed)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 2.69               | 0.07            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 2.69               | 0.03            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 2.69               | 0.01            |
| 1.50            | 0.10                | 0.00               | 0.00            | 27.50           | 6.21                | 2.69               | 0.00            |
| 2.00            | 0.14                | 0.00               | 0.00            | 28.00           | 6.21                | 2.69               | 0.00            |
| 2.50            | 0.18                | 0.00               | 0.00            | 28.50           | 6.21                | 2.69               | 0.00            |
| 3.00            | 0.22                | 0.00               | 0.00            | 29.00           | 6.21                | 2.69               | 0.00            |
| 3.50            | 0.26                | 0.00               | 0.00            | 29.50           | 6.21                | 2.69               | 0.00            |
| 4.00            | 0.30                | 0.00               | 0.00            | 30.00           | 6.21                | 2.69               | 0.00            |
| 4.50            | 0.35                | 0.00               | 0.00            | 30.50           | 6.21                | 2.69               | 0.00            |
| 5.00            | 0.39                | 0.00               | 0.00            | 31.00           | 6.21                | 2.69               | 0.00            |
| 5.50            | 0.44                | 0.00               | 0.00            | 31.50           | 6.21                | 2.69               | 0.00            |
| 6.00            | 0.49                | 0.00               | 0.00            | 32.00           | 6.21                | 2.69               | 0.00            |
| 6.50            | 0.55                | 0.00               | 0.00            | 32.50           | 6.21                | 2.69               | 0.00            |
| 7.00            | 0.61                | 0.00               | 0.00            | 33.00           | 6.21                | 2.69               | 0.00            |
| 7.50            | 0.67                | 0.00               | 0.00            | 33.50           | 6.21                | 2.69               | 0.00            |
| 8.00            | 0.74                | 0.00               | 0.00            | 34.00           | 6.21                | 2.69               | 0.00            |
| 8.50            | 0.82                | 0.00               | 0.00            | 34.50           | 6.21                | 2.69               | 0.00            |
| 9.00            | 0.91                | 0.00               | 0.00            | 35.00           | 6.21                | 2.69               | 0.00            |
| 9.50            | 1.01                | 0.00               | 0.00            | 35.50           | 6.21                | 2.69               | 0.00            |
| 10.00           | 1.13                | 0.00               | 0.00            | 36.00           | 6.21                | 2.69               | 0.00            |
| 10.50           | 1.28                | 0.02               | 0.03            |                 |                     |                    |                 |
| 11.00           | 1.49                | 0.05               | 0.12            |                 |                     |                    |                 |
| 11.50           | 1.84                | 0.13               | 0.31            |                 |                     |                    |                 |
| 12.00           | 2.96                | 0.57               | 0.86            |                 |                     |                    |                 |
| 12.50           | 4.37                | 1.38               | 3.87            |                 |                     |                    |                 |
| 13.00           | 4.72                | 1.61               | 8.96            |                 |                     |                    |                 |
| 13.50           | 4.93                | 1.75               | 8.69            |                 |                     |                    |                 |
| 14.00           | 5.08                | 1.86               | 5.78            |                 |                     |                    |                 |
| 14.50           | 5.20                | 1.95               | 3.84            |                 |                     |                    |                 |
| 15.00           | 5.30                | 2.02               | 2.70            |                 |                     |                    |                 |
| 15.50           | 5.39                | 2.08               | 2.03            |                 |                     |                    |                 |
| 16.00           | 5.47                | 2.13               | 1.60            |                 |                     |                    |                 |
| 16.50           | 5.54                | 2.19               | 1.34            |                 |                     |                    |                 |
| 17.00           | 5.60                | 2.24               | 1.16            |                 |                     |                    |                 |
| 17.50           | 5.66                | 2.28               | 1.05            |                 |                     |                    |                 |
| 18.00           | 5.72                | 2.32               | 0.96            |                 |                     |                    |                 |
| 18.50           | 5.77                | 2.36               | 0.87            |                 |                     |                    |                 |
| 19.00           | 5.82                | 2.39               | 0.79            |                 |                     |                    |                 |
| 19.50           | 5.86                | 2.43               | 0.74            |                 |                     |                    |                 |
| 20.00           | 5.91                | 2.46               | 0.71            |                 |                     |                    |                 |
| 20.50           | 5.95                | 2.49               | 0.68            |                 |                     |                    |                 |
| 21.00           | 5.99                | 2.52               | 0.66            |                 |                     |                    |                 |
| 21.50           | 6.03                | 2.55               | 0.64            |                 |                     |                    |                 |
| 22.00           | 6.07                | 2.58               | 0.61            |                 |                     |                    |                 |
| 22.50           | 6.11                | 2.61               | 0.59            |                 |                     |                    |                 |
| 23.00           | 6.14                | 2.64               | 0.57            |                 |                     |                    |                 |
| 23.50           | 6.18                | 2.66               | 0.55            |                 |                     |                    |                 |
| 24.00           | 6.21                | 2.69               | 0.53            |                 |                     |                    |                 |
| 24.50           | 6.21                | 2.69               | 0.49            |                 |                     |                    |                 |
| 25.00           | 6.21                | 2.69               | 0.34            |                 |                     |                    |                 |
| 25.50           | 6.21                | 2.69               | 0.16            |                 |                     |                    |                 |

Summary for Subcatchment 46S: Proposed Undisturbed Area (Pervious)

Runoff = 4.04 cfs @ 12.35 hrs, Volume= 0.469 af, Depth= 1.56"  
Routed to Link 14L : Existing Drainage Area POI-1 (to Remain Undisturbed)

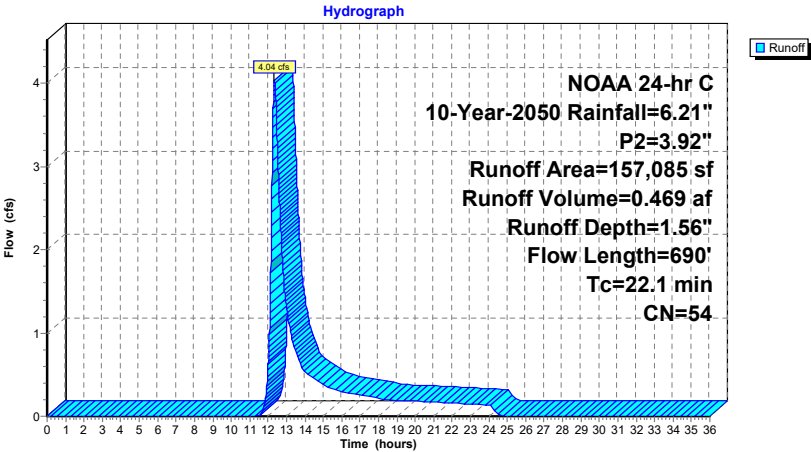
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description                    |
|-----------|----|--------------------------------|
| 15,827    | 39 | >75% Grass cover, Good, HSG A  |
| 80,837    | 61 | >75% Grass cover, Good, HSG B  |
| 30,052    | 32 | Woods/grass comb., Good, HSG A |
| 22,227    | 58 | Woods/grass comb., Good, HSG B |
| 8,142     | 86 | Fallow, bare soil, HSG B       |
| 157,085   | 54 | Weighted Average               |
| 157,085   |    | 100.00% Pervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                   |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------------------------------------------------|
| 8.5      | 27            | 0.0120        | 0.05              |                | Sheet Flow,<br>Grass: Bermuda n= 0.410 P2= 3.92"<br>Using McCuen-Spiess flow length                           |
| 1.5      | 67            | 0.0120        | 0.77              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6     | 319           | 0.0100        | 0.50              |                | Shallow Concentrated Flow,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8      | 49            | 0.0200        | 0.99              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7      | 228           | 0.0050        | 5.09              | 16.00          | Pipe Channel,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.1     | 690           | Total         |                   |                |                                                                                                               |



Subcatchment 46S: Proposed Undisturbed Area (Pervious)





Hydrograph for Subcatchment 46S: Proposed Undisturbed Area (Pervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 1.56               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 1.56               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 1.56               | 0.00            |
| 1.50            | 0.10                | 0.00               | 0.00            | 27.50           | 6.21                | 1.56               | 0.00            |
| 2.00            | 0.14                | 0.00               | 0.00            | 28.00           | 6.21                | 1.56               | 0.00            |
| 2.50            | 0.18                | 0.00               | 0.00            | 28.50           | 6.21                | 1.56               | 0.00            |
| 3.00            | 0.22                | 0.00               | 0.00            | 29.00           | 6.21                | 1.56               | 0.00            |
| 3.50            | 0.26                | 0.00               | 0.00            | 29.50           | 6.21                | 1.56               | 0.00            |
| 4.00            | 0.30                | 0.00               | 0.00            | 30.00           | 6.21                | 1.56               | 0.00            |
| 4.50            | 0.35                | 0.00               | 0.00            | 30.50           | 6.21                | 1.56               | 0.00            |
| 5.00            | 0.39                | 0.00               | 0.00            | 31.00           | 6.21                | 1.56               | 0.00            |
| 5.50            | 0.44                | 0.00               | 0.00            | 31.50           | 6.21                | 1.56               | 0.00            |
| 6.00            | 0.49                | 0.00               | 0.00            | 32.00           | 6.21                | 1.56               | 0.00            |
| 6.50            | 0.55                | 0.00               | 0.00            | 32.50           | 6.21                | 1.56               | 0.00            |
| 7.00            | 0.61                | 0.00               | 0.00            | 33.00           | 6.21                | 1.56               | 0.00            |
| 7.50            | 0.67                | 0.00               | 0.00            | 33.50           | 6.21                | 1.56               | 0.00            |
| 8.00            | 0.74                | 0.00               | 0.00            | 34.00           | 6.21                | 1.56               | 0.00            |
| 8.50            | 0.82                | 0.00               | 0.00            | 34.50           | 6.21                | 1.56               | 0.00            |
| 9.00            | 0.91                | 0.00               | 0.00            | 35.00           | 6.21                | 1.56               | 0.00            |
| 9.50            | 1.01                | 0.00               | 0.00            | 35.50           | 6.21                | 1.56               | 0.00            |
| 10.00           | 1.13                | 0.00               | 0.00            | 36.00           | 6.21                | 1.56               | 0.00            |
| 10.50           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.84                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.96                | 0.16               | 0.58            |                 |                     |                    |                 |
| 12.50           | 4.37                | 0.64               | 3.29            |                 |                     |                    |                 |
| 13.00           | 4.72                | 0.79               | 1.31            |                 |                     |                    |                 |
| 13.50           | 4.93                | 0.89               | 0.78            |                 |                     |                    |                 |
| 14.00           | 5.08                | 0.96               | 0.54            |                 |                     |                    |                 |
| 14.50           | 5.20                | 1.02               | 0.46            |                 |                     |                    |                 |
| 15.00           | 5.30                | 1.07               | 0.38            |                 |                     |                    |                 |
| 15.50           | 5.39                | 1.11               | 0.32            |                 |                     |                    |                 |
| 16.00           | 5.47                | 1.15               | 0.30            |                 |                     |                    |                 |
| 16.50           | 5.54                | 1.19               | 0.28            |                 |                     |                    |                 |
| 17.00           | 5.60                | 1.23               | 0.26            |                 |                     |                    |                 |
| 17.50           | 5.66                | 1.26               | 0.24            |                 |                     |                    |                 |
| 18.00           | 5.72                | 1.29               | 0.21            |                 |                     |                    |                 |
| 18.50           | 5.77                | 1.31               | 0.20            |                 |                     |                    |                 |
| 19.00           | 5.82                | 1.34               | 0.19            |                 |                     |                    |                 |
| 19.50           | 5.86                | 1.36               | 0.18            |                 |                     |                    |                 |
| 20.00           | 5.91                | 1.39               | 0.18            |                 |                     |                    |                 |
| 20.50           | 5.95                | 1.41               | 0.17            |                 |                     |                    |                 |
| 21.00           | 5.99                | 1.44               | 0.17            |                 |                     |                    |                 |
| 21.50           | 6.03                | 1.46               | 0.16            |                 |                     |                    |                 |
| 22.00           | 6.07                | 1.48               | 0.16            |                 |                     |                    |                 |
| 22.50           | 6.11                | 1.50               | 0.15            |                 |                     |                    |                 |
| 23.00           | 6.14                | 1.52               | 0.15            |                 |                     |                    |                 |
| 23.50           | 6.18                | 1.54               | 0.14            |                 |                     |                    |                 |
| 24.00           | 6.21                | 1.56               | 0.14            |                 |                     |                    |                 |
| 24.50           | 6.21                | 1.56               | 0.02            |                 |                     |                    |                 |
| 25.00           | 6.21                | 1.56               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 1.56               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 47S: Proposed Undisturbed Area (Impervious)

Runoff = 4.39 cfs @ 12.31 hrs, Volume= 0.522 af, Depth= 5.97"  
Routed to Link 14L : Existing Drainage Area POI-1 (to Remain Undisturbed)

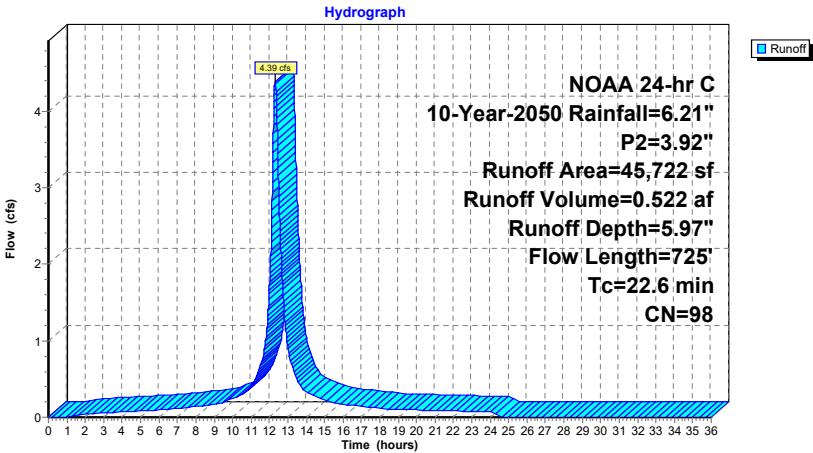
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description                 |
|-----------|----|-----------------------------|
| 45,722    | 98 | Unconnected pavement, HSG A |
| 45,722    |    | 100.00% Impervious Area     |
| 45,722    |    | 100.00% Unconnected         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                           |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------|
| 0.5         | 35               | 0.0200           | 1.23                 |                   | <b>Sheet Flow</b> ,<br>Smooth surfaces n= 0.011 P2= 3.92"                                                             |
| 8.5         | 27               | 0.0120           | 0.05                 |                   | <b>Sheet Flow</b> ,<br>Grass: Bermuda n= 0.410 P2= 3.92"<br>Using McCuen-Spiess flow length                           |
| 1.5         | 67               | 0.0120           | 0.77                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6        | 319              | 0.0100           | 0.50                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8         | 49               | 0.0200           | 0.99                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7         | 228              | 0.0050           | 5.09                 | 16.00             | <b>Pipe Channel</b> ,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.6        | 725              | Total            |                      |                   |                                                                                                                       |



Subcatchment 47S: Proposed Undisturbed Area (Impervious)



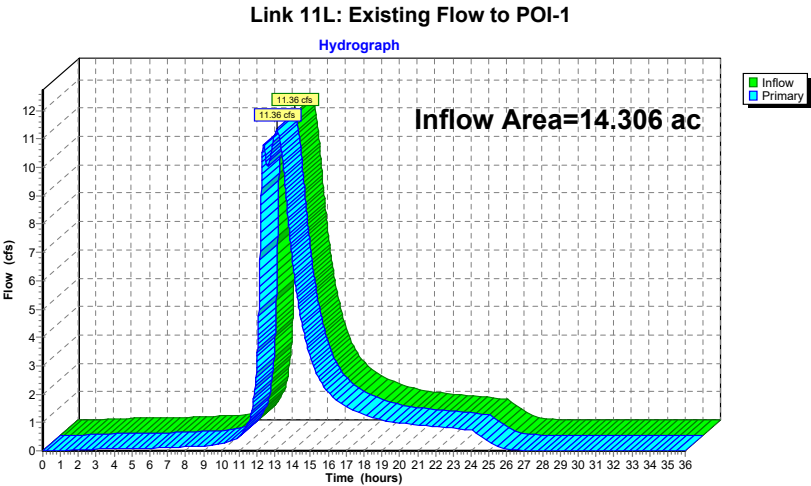
Hydrograph for Subcatchment 47S: Proposed Undisturbed Area (Impervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 5.97               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 5.97               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 5.97               | 0.00            |
| 1.50            | 0.10                | 0.01               | 0.02            | 27.50           | 6.21                | 5.97               | 0.00            |
| 2.00            | 0.14                | 0.03               | 0.04            | 28.00           | 6.21                | 5.97               | 0.00            |
| 2.50            | 0.18                | 0.06               | 0.05            | 28.50           | 6.21                | 5.97               | 0.00            |
| 3.00            | 0.22                | 0.08               | 0.06            | 29.00           | 6.21                | 5.97               | 0.00            |
| 3.50            | 0.26                | 0.11               | 0.06            | 29.50           | 6.21                | 5.97               | 0.00            |
| 4.00            | 0.30                | 0.15               | 0.07            | 30.00           | 6.21                | 5.97               | 0.00            |
| 4.50            | 0.35                | 0.19               | 0.08            | 30.50           | 6.21                | 5.97               | 0.00            |
| 5.00            | 0.39                | 0.22               | 0.08            | 31.00           | 6.21                | 5.97               | 0.00            |
| 5.50            | 0.44                | 0.27               | 0.09            | 31.50           | 6.21                | 5.97               | 0.00            |
| 6.00            | 0.49                | 0.31               | 0.09            | 32.00           | 6.21                | 5.97               | 0.00            |
| 6.50            | 0.55                | 0.36               | 0.10            | 32.50           | 6.21                | 5.97               | 0.00            |
| 7.00            | 0.61                | 0.41               | 0.11            | 33.00           | 6.21                | 5.97               | 0.00            |
| 7.50            | 0.67                | 0.48               | 0.13            | 33.50           | 6.21                | 5.97               | 0.00            |
| 8.00            | 0.74                | 0.55               | 0.14            | 34.00           | 6.21                | 5.97               | 0.00            |
| 8.50            | 0.82                | 0.62               | 0.16            | 34.50           | 6.21                | 5.97               | 0.00            |
| 9.00            | 0.91                | 0.70               | 0.17            | 35.00           | 6.21                | 5.97               | 0.00            |
| 9.50            | 1.01                | 0.80               | 0.20            | 35.50           | 6.21                | 5.97               | 0.00            |
| 10.00           | 1.13                | 0.92               | 0.25            | 36.00           | 6.21                | 5.97               | 0.00            |
| 10.50           | 1.28                | 1.06               | 0.30            |                 |                     |                    |                 |
| 11.00           | 1.49                | 1.27               | 0.40            |                 |                     |                    |                 |
| 11.50           | 1.84                | 1.61               | 0.66            |                 |                     |                    |                 |
| 12.00           | 2.96                | 2.73               | 1.66            |                 |                     |                    |                 |
| 12.50           | 4.37                | 4.14               | 3.06            |                 |                     |                    |                 |
| 13.00           | 4.72                | 4.48               | 0.92            |                 |                     |                    |                 |
| 13.50           | 4.93                | 4.69               | 0.49            |                 |                     |                    |                 |
| 14.00           | 5.08                | 4.84               | 0.33            |                 |                     |                    |                 |
| 14.50           | 5.20                | 4.96               | 0.27            |                 |                     |                    |                 |
| 15.00           | 5.30                | 5.07               | 0.22            |                 |                     |                    |                 |
| 15.50           | 5.39                | 5.15               | 0.18            |                 |                     |                    |                 |
| 16.00           | 5.47                | 5.23               | 0.17            |                 |                     |                    |                 |
| 16.50           | 5.54                | 5.30               | 0.16            |                 |                     |                    |                 |
| 17.00           | 5.60                | 5.37               | 0.14            |                 |                     |                    |                 |
| 17.50           | 5.66                | 5.43               | 0.13            |                 |                     |                    |                 |
| 18.00           | 5.72                | 5.48               | 0.12            |                 |                     |                    |                 |
| 18.50           | 5.77                | 5.53               | 0.11            |                 |                     |                    |                 |
| 19.00           | 5.82                | 5.58               | 0.10            |                 |                     |                    |                 |
| 19.50           | 5.86                | 5.62               | 0.10            |                 |                     |                    |                 |
| 20.00           | 5.91                | 5.67               | 0.10            |                 |                     |                    |                 |
| 20.50           | 5.95                | 5.71               | 0.09            |                 |                     |                    |                 |
| 21.00           | 5.99                | 5.75               | 0.09            |                 |                     |                    |                 |
| 21.50           | 6.03                | 5.79               | 0.09            |                 |                     |                    |                 |
| 22.00           | 6.07                | 5.83               | 0.08            |                 |                     |                    |                 |
| 22.50           | 6.11                | 5.87               | 0.08            |                 |                     |                    |                 |
| 23.00           | 6.14                | 5.90               | 0.08            |                 |                     |                    |                 |
| 23.50           | 6.18                | 5.94               | 0.07            |                 |                     |                    |                 |
| 24.00           | 6.21                | 5.97               | 0.07            |                 |                     |                    |                 |
| 24.50           | 6.21                | 5.97               | 0.01            |                 |                     |                    |                 |
| 25.00           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |

Summary for Link 11L: Existing Flow to POI-1

Inflow Area = 14.306 ac, 7.34% Impervious, Inflow Depth = 2.65" for 10-Year-2050 event  
Inflow = 11.36 cfs @ 13.12 hrs, Volume= 3.154 af  
Primary = 11.36 cfs @ 13.12 hrs, Volume= 3.154 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



Hydrograph for Link 11L: Existing Flow to POI-1

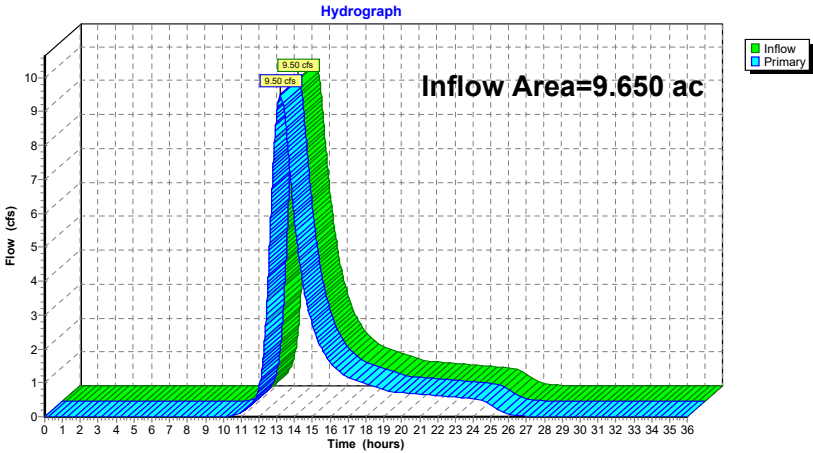
| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.07         | 0.00             | 0.07          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.03         | 0.00             | 0.03          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.01         | 0.00             | 0.01          |
| 1.50         | 0.02         | 0.00             | 0.02          | 27.50        | 0.00         | 0.00             | 0.00          |
| 2.00         | 0.04         | 0.00             | 0.04          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.05         | 0.00             | 0.05          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.06         | 0.00             | 0.06          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.06         | 0.00             | 0.06          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.07         | 0.00             | 0.07          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.08         | 0.00             | 0.08          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.08         | 0.00             | 0.08          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.09         | 0.00             | 0.09          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.09         | 0.00             | 0.09          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.10         | 0.00             | 0.10          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.11         | 0.00             | 0.11          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.13         | 0.00             | 0.13          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.14         | 0.00             | 0.14          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.16         | 0.00             | 0.16          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.17         | 0.00             | 0.17          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.20         | 0.00             | 0.20          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.25         | 0.00             | 0.25          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.33         | 0.00             | 0.33          |              |              |                  |               |
| 11.00        | 0.52         | 0.00             | 0.52          |              |              |                  |               |
| 11.50        | 0.97         | 0.00             | 0.97          |              |              |                  |               |
| 12.00        | 3.10         | 0.00             | 3.10          |              |              |                  |               |
| 12.50        | 10.22        | 0.00             | 10.22         |              |              |                  |               |
| 13.00        | 11.19        | 0.00             | 11.19         |              |              |                  |               |
| 13.50        | 9.96         | 0.00             | 9.96          |              |              |                  |               |
| 14.00        | 6.65         | 0.00             | 6.65          |              |              |                  |               |
| 14.50        | 4.57         | 0.00             | 4.57          |              |              |                  |               |
| 15.00        | 3.30         | 0.00             | 3.30          |              |              |                  |               |
| 15.50        | 2.53         | 0.00             | 2.53          |              |              |                  |               |
| 16.00        | 2.07         | 0.00             | 2.07          |              |              |                  |               |
| 16.50        | 1.77         | 0.00             | 1.77          |              |              |                  |               |
| 17.00        | 1.56         | 0.00             | 1.56          |              |              |                  |               |
| 17.50        | 1.42         | 0.00             | 1.42          |              |              |                  |               |
| 18.00        | 1.29         | 0.00             | 1.29          |              |              |                  |               |
| 18.50        | 1.17         | 0.00             | 1.17          |              |              |                  |               |
| 19.00        | 1.09         | 0.00             | 1.09          |              |              |                  |               |
| 19.50        | 1.02         | 0.00             | 1.02          |              |              |                  |               |
| 20.00        | 0.98         | 0.00             | 0.98          |              |              |                  |               |
| 20.50        | 0.95         | 0.00             | 0.95          |              |              |                  |               |
| 21.00        | 0.92         | 0.00             | 0.92          |              |              |                  |               |
| 21.50        | 0.88         | 0.00             | 0.88          |              |              |                  |               |
| 22.00        | 0.85         | 0.00             | 0.85          |              |              |                  |               |
| 22.50        | 0.82         | 0.00             | 0.82          |              |              |                  |               |
| 23.00        | 0.79         | 0.00             | 0.79          |              |              |                  |               |
| 23.50        | 0.76         | 0.00             | 0.76          |              |              |                  |               |
| 24.00        | 0.73         | 0.00             | 0.73          |              |              |                  |               |
| 24.50        | 0.52         | 0.00             | 0.52          |              |              |                  |               |
| 25.00        | 0.34         | 0.00             | 0.34          |              |              |                  |               |
| 25.50        | 0.16         | 0.00             | 0.16          |              |              |                  |               |

Summary for Link 13L: Existing Drainage Area POI-1 (to be Disturbed)

Inflow Area = 9.650 ac, 0.00% Impervious, Inflow Depth = 2.69" for 10-Year-2050 event  
Inflow = 9.50 cfs @ 13.21 hrs, Volume= 2.163 af  
Primary = 9.50 cfs @ 13.21 hrs, Volume= 2.163 af, Atten= 0%, Lag= 0.0 min  
Routed to Link 11L : Existing Flow to POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Link 13L: Existing Drainage Area POI-1 (to be Disturbed)



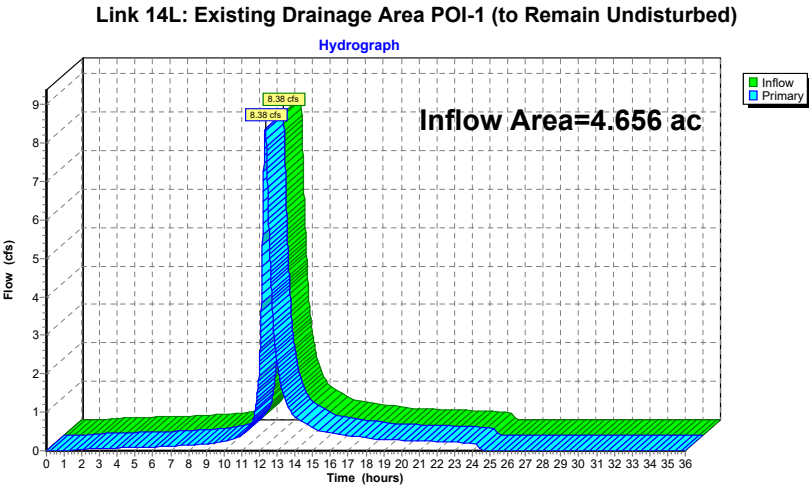
Hydrograph for Link 13L: Existing Drainage Area POI-1 (to be Disturbed)

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.07         | 0.00             | 0.07          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.03         | 0.00             | 0.03          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.01         | 0.00             | 0.01          |
| 1.50         | 0.00         | 0.00             | 0.00          | 27.50        | 0.00         | 0.00             | 0.00          |
| 2.00         | 0.00         | 0.00             | 0.00          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.00         | 0.00             | 0.00          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.00         | 0.00             | 0.00          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.00         | 0.00             | 0.00          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.00         | 0.00             | 0.00          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.00         | 0.00             | 0.00          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.00         | 0.00             | 0.00          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.00         | 0.00             | 0.00          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.00         | 0.00             | 0.00          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.00         | 0.00             | 0.00          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.00         | 0.00             | 0.00          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.00         | 0.00             | 0.00          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.00         | 0.00             | 0.00          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.00         | 0.00             | 0.00          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.00         | 0.00             | 0.00          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.00         | 0.00             | 0.00          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.00         | 0.00             | 0.00          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.03         | 0.00             | 0.03          |              |              |                  |               |
| 11.00        | 0.12         | 0.00             | 0.12          |              |              |                  |               |
| 11.50        | 0.31         | 0.00             | 0.31          |              |              |                  |               |
| 12.00        | 0.86         | 0.00             | 0.86          |              |              |                  |               |
| 12.50        | 3.87         | 0.00             | 3.87          |              |              |                  |               |
| 13.00        | 8.96         | 0.00             | 8.96          |              |              |                  |               |
| 13.50        | 8.69         | 0.00             | 8.69          |              |              |                  |               |
| 14.00        | 5.78         | 0.00             | 5.78          |              |              |                  |               |
| 14.50        | 3.84         | 0.00             | 3.84          |              |              |                  |               |
| 15.00        | 2.70         | 0.00             | 2.70          |              |              |                  |               |
| 15.50        | 2.03         | 0.00             | 2.03          |              |              |                  |               |
| 16.00        | 1.60         | 0.00             | 1.60          |              |              |                  |               |
| 16.50        | 1.34         | 0.00             | 1.34          |              |              |                  |               |
| 17.00        | 1.16         | 0.00             | 1.16          |              |              |                  |               |
| 17.50        | 1.05         | 0.00             | 1.05          |              |              |                  |               |
| 18.00        | 0.96         | 0.00             | 0.96          |              |              |                  |               |
| 18.50        | 0.87         | 0.00             | 0.87          |              |              |                  |               |
| 19.00        | 0.79         | 0.00             | 0.79          |              |              |                  |               |
| 19.50        | 0.74         | 0.00             | 0.74          |              |              |                  |               |
| 20.00        | 0.71         | 0.00             | 0.71          |              |              |                  |               |
| 20.50        | 0.68         | 0.00             | 0.68          |              |              |                  |               |
| 21.00        | 0.66         | 0.00             | 0.66          |              |              |                  |               |
| 21.50        | 0.64         | 0.00             | 0.64          |              |              |                  |               |
| 22.00        | 0.61         | 0.00             | 0.61          |              |              |                  |               |
| 22.50        | 0.59         | 0.00             | 0.59          |              |              |                  |               |
| 23.00        | 0.57         | 0.00             | 0.57          |              |              |                  |               |
| 23.50        | 0.55         | 0.00             | 0.55          |              |              |                  |               |
| 24.00        | 0.53         | 0.00             | 0.53          |              |              |                  |               |
| 24.50        | 0.49         | 0.00             | 0.49          |              |              |                  |               |
| 25.00        | 0.34         | 0.00             | 0.34          |              |              |                  |               |
| 25.50        | 0.16         | 0.00             | 0.16          |              |              |                  |               |

Summary for Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed)

Inflow Area = 4.656 ac, 22.54% Impervious, Inflow Depth = 2.55" for 10-Year-2050 event  
Inflow = 8.38 cfs @ 12.33 hrs, Volume= 0.991 af  
Primary = 8.38 cfs @ 12.33 hrs, Volume= 0.991 af, Atten= 0%, Lag= 0.0 min  
Routed to Link 11L : Existing Flow to POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



Hydrograph for Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed)

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.00         | 0.00             | 0.00          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.00         | 0.00             | 0.00          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.00         | 0.00             | 0.00          |
| 1.50         | 0.02         | 0.00             | 0.02          | 27.50        | 0.00         | 0.00             | 0.00          |
| 2.00         | 0.04         | 0.00             | 0.04          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.05         | 0.00             | 0.05          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.06         | 0.00             | 0.06          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.06         | 0.00             | 0.06          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.07         | 0.00             | 0.07          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.08         | 0.00             | 0.08          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.08         | 0.00             | 0.08          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.09         | 0.00             | 0.09          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.09         | 0.00             | 0.09          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.10         | 0.00             | 0.10          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.11         | 0.00             | 0.11          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.13         | 0.00             | 0.13          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.14         | 0.00             | 0.14          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.16         | 0.00             | 0.16          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.17         | 0.00             | 0.17          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.20         | 0.00             | 0.20          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.25         | 0.00             | 0.25          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.30         | 0.00             | 0.30          |              |              |                  |               |
| 11.00        | 0.40         | 0.00             | 0.40          |              |              |                  |               |
| 11.50        | 0.66         | 0.00             | 0.66          |              |              |                  |               |
| 12.00        | 2.24         | 0.00             | 2.24          |              |              |                  |               |
| 12.50        | 6.35         | 0.00             | 6.35          |              |              |                  |               |
| 13.00        | 2.23         | 0.00             | 2.23          |              |              |                  |               |
| 13.50        | 1.27         | 0.00             | 1.27          |              |              |                  |               |
| 14.00        | 0.87         | 0.00             | 0.87          |              |              |                  |               |
| 14.50        | 0.73         | 0.00             | 0.73          |              |              |                  |               |
| 15.00        | 0.61         | 0.00             | 0.61          |              |              |                  |               |
| 15.50        | 0.50         | 0.00             | 0.50          |              |              |                  |               |
| 16.00        | 0.47         | 0.00             | 0.47          |              |              |                  |               |
| 16.50        | 0.43         | 0.00             | 0.43          |              |              |                  |               |
| 17.00        | 0.40         | 0.00             | 0.40          |              |              |                  |               |
| 17.50        | 0.36         | 0.00             | 0.36          |              |              |                  |               |
| 18.00        | 0.33         | 0.00             | 0.33          |              |              |                  |               |
| 18.50        | 0.30         | 0.00             | 0.30          |              |              |                  |               |
| 19.00        | 0.29         | 0.00             | 0.29          |              |              |                  |               |
| 19.50        | 0.28         | 0.00             | 0.28          |              |              |                  |               |
| 20.00        | 0.28         | 0.00             | 0.28          |              |              |                  |               |
| 20.50        | 0.27         | 0.00             | 0.27          |              |              |                  |               |
| 21.00        | 0.26         | 0.00             | 0.26          |              |              |                  |               |
| 21.50        | 0.25         | 0.00             | 0.25          |              |              |                  |               |
| 22.00        | 0.24         | 0.00             | 0.24          |              |              |                  |               |
| 22.50        | 0.23         | 0.00             | 0.23          |              |              |                  |               |
| 23.00        | 0.22         | 0.00             | 0.22          |              |              |                  |               |
| 23.50        | 0.21         | 0.00             | 0.21          |              |              |                  |               |
| 24.00        | 0.21         | 0.00             | 0.21          |              |              |                  |               |
| 24.50        | 0.03         | 0.00             | 0.03          |              |              |                  |               |
| 25.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 25.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment7S: POI-1 Pervious Runoff Area=420,357 sf 0.00% Impervious Runoff Depth=7.67"  
Flow Length=1,917' Tc=86.2 min CN=67 Runoff=27.76 cfs 6.165 af

Subcatchment46S: Proposed Undisturbed Runoff Area=157,085 sf 0.00% Impervious Runoff Depth=5.68"  
Flow Length=690' Tc=22.1 min CN=54 Runoff=16.40 cfs 1.708 af

Subcatchment47S: Proposed Runoff Area=45,722 sf 100.00% Impervious Runoff Depth=11.82"  
Flow Length=725' Tc=22.6 min CN=98 Runoff=8.55 cfs 1.034 af

Link 11L: Existing Flow to POI-1 Inflow=34.12 cfs 8.906 af  
Primary=34.12 cfs 8.906 af

Link 13L: Existing Drainage Area POI-1 (to be Disturbed) Inflow=27.76 cfs 6.165 af  
Primary=27.76 cfs 6.165 af

Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed) Inflow=24.94 cfs 2.741 af  
Primary=24.94 cfs 2.741 af

Total Runoff Area = 14.306 ac Runoff Volume = 8.906 af Average Runoff Depth = 7.47"  
92.66% Pervious = 13.256 ac 7.34% Impervious = 1.050 ac

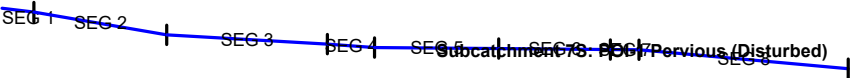
Summary for Subcatchment 7S: POI-1 Pervious (Disturbed)

Runoff = 27.76 cfs @ 13.12 hrs, Volume= 6.165 af, Depth= 7.67"  
Routed to Link 13L : Existing Drainage Area POI-1 (to be Disturbed)

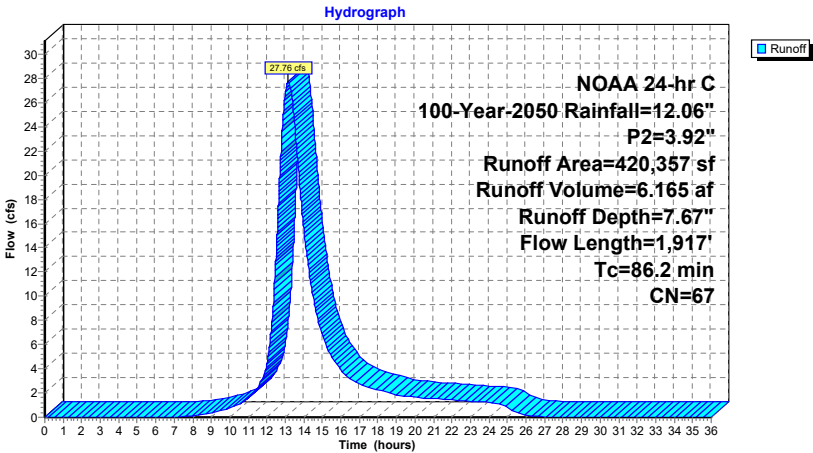
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description                          |
|-----------|----|--------------------------------------|
| 18,906    | 30 | Woods, Good, HSG A                   |
| 73,236    | 55 | Woods, Good, HSG B                   |
| 171,452   | 67 | Row crops, straight row, Good, HSG A |
| 153,091   | 78 | Row crops, straight row, Good, HSG B |
| 3,514     | 77 | Fallow, bare soil, HSG A             |
| 158       | 86 | Fallow, bare soil, HSG B             |
| 420,357   | 67 | Weighted Average                     |
| 420,357   |    | 100.00% Pervious Area                |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                               |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------------------------------------|
| 8.4      | 72            | 0.0150        | 0.14              |                | <b>Sheet Flow, SEG 1</b><br>Cultivated: Residue>20% n= 0.170 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 3.8      | 301           | 0.0210        | 1.30              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 8.1      | 364           | 0.0070        | 0.75              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 3.8      | 107           | 0.0090        | 0.47              |                | <b>Shallow Concentrated Flow, SEG 4</b><br>Woodland Kv= 5.0 fps                                           |
| 16.5     | 281           | 0.0010        | 0.28              |                | <b>Shallow Concentrated Flow, SEG 5</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 26.7     | 253           | 0.0010        | 0.16              |                | <b>Shallow Concentrated Flow, SEG 6</b><br>Woodland Kv= 5.0 fps                                           |
| 3.8      | 65            | 0.0010        | 0.28              |                | <b>Shallow Concentrated Flow, SEG 7</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 15.1     | 474           | 0.0110        | 0.52              |                | <b>Shallow Concentrated Flow, SEG 8</b><br>Woodland Kv= 5.0 fps                                           |
| 86.2     | 1,917         | Total         |                   |                |                                                                                                           |



Subcatchment 7S: POI-1 Pervious (Disturbed)



Hydrograph for Subcatchment 7S: POI-1 Pervious (Disturbed)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 7.67               | 0.16            |
| 0.50            | 0.07                | 0.00               | 0.00            | 26.50           | 12.06               | 7.67               | 0.07            |
| 1.00            | 0.13                | 0.00               | 0.00            | 27.00           | 12.06               | 7.67               | 0.03            |
| 1.50            | 0.20                | 0.00               | 0.00            | 27.50           | 12.06               | 7.67               | 0.01            |
| 2.00            | 0.27                | 0.00               | 0.00            | 28.00           | 12.06               | 7.67               | 0.00            |
| 2.50            | 0.35                | 0.00               | 0.00            | 28.50           | 12.06               | 7.67               | 0.00            |
| 3.00            | 0.43                | 0.00               | 0.00            | 29.00           | 12.06               | 7.67               | 0.00            |
| 3.50            | 0.51                | 0.00               | 0.00            | 29.50           | 12.06               | 7.67               | 0.00            |
| 4.00            | 0.59                | 0.00               | 0.00            | 30.00           | 12.06               | 7.67               | 0.00            |
| 4.50            | 0.68                | 0.00               | 0.00            | 30.50           | 12.06               | 7.67               | 0.00            |
| 5.00            | 0.77                | 0.00               | 0.00            | 31.00           | 12.06               | 7.67               | 0.00            |
| 5.50            | 0.86                | 0.00               | 0.00            | 31.50           | 12.06               | 7.67               | 0.00            |
| 6.00            | 0.96                | 0.00               | 0.00            | 32.00           | 12.06               | 7.67               | 0.00            |
| 6.50            | 1.06                | 0.00               | 0.00            | 32.50           | 12.06               | 7.67               | 0.00            |
| 7.00            | 1.18                | 0.01               | 0.01            | 33.00           | 12.06               | 7.67               | 0.00            |
| 7.50            | 1.30                | 0.02               | 0.05            | 33.50           | 12.06               | 7.67               | 0.00            |
| 8.00            | 1.44                | 0.04               | 0.13            | 34.00           | 12.06               | 7.67               | 0.00            |
| 8.50            | 1.60                | 0.07               | 0.24            | 34.50           | 12.06               | 7.67               | 0.00            |
| 9.00            | 1.76                | 0.11               | 0.38            | 35.00           | 12.06               | 7.67               | 0.00            |
| 9.50            | 1.96                | 0.16               | 0.54            | 35.50           | 12.06               | 7.67               | 0.00            |
| 10.00           | 2.20                | 0.24               | 0.77            | 36.00           | 12.06               | 7.67               | 0.00            |
| 10.50           | 2.49                | 0.35               | 1.10            |                 |                     |                    |                 |
| 11.00           | 2.89                | 0.53               | 1.57            |                 |                     |                    |                 |
| 11.50           | 3.56                | 0.89               | 2.40            |                 |                     |                    |                 |
| 12.00           | 5.75                | 2.34               | 4.43            |                 |                     |                    |                 |
| 12.50           | 8.50                | 4.54               | 13.49           |                 |                     |                    |                 |
| 13.00           | 9.17                | 5.11               | 26.79           |                 |                     |                    |                 |
| 13.50           | 9.57                | 5.46               | 24.32           |                 |                     |                    |                 |
| 14.00           | 9.86                | 5.71               | 15.49           |                 |                     |                    |                 |
| 14.50           | 10.10               | 5.92               | 9.95            |                 |                     |                    |                 |
| 15.00           | 10.30               | 6.09               | 6.81            |                 |                     |                    |                 |
| 15.50           | 10.46               | 6.24               | 5.01            |                 |                     |                    |                 |
| 16.00           | 10.62               | 6.37               | 3.90            |                 |                     |                    |                 |
| 16.50           | 10.76               | 6.50               | 3.21            |                 |                     |                    |                 |
| 17.00           | 10.88               | 6.61               | 2.77            |                 |                     |                    |                 |
| 17.50           | 11.00               | 6.71               | 2.49            |                 |                     |                    |                 |
| 18.00           | 11.10               | 6.81               | 2.26            |                 |                     |                    |                 |
| 18.50           | 11.20               | 6.89               | 2.05            |                 |                     |                    |                 |
| 19.00           | 11.29               | 6.98               | 1.87            |                 |                     |                    |                 |
| 19.50           | 11.38               | 7.06               | 1.74            |                 |                     |                    |                 |
| 20.00           | 11.47               | 7.13               | 1.65            |                 |                     |                    |                 |
| 20.50           | 11.55               | 7.21               | 1.58            |                 |                     |                    |                 |
| 21.00           | 11.63               | 7.28               | 1.53            |                 |                     |                    |                 |
| 21.50           | 11.71               | 7.35               | 1.48            |                 |                     |                    |                 |
| 22.00           | 11.79               | 7.42               | 1.42            |                 |                     |                    |                 |
| 22.50           | 11.86               | 7.48               | 1.37            |                 |                     |                    |                 |
| 23.00           | 11.93               | 7.55               | 1.32            |                 |                     |                    |                 |
| 23.50           | 11.99               | 7.61               | 1.27            |                 |                     |                    |                 |
| 24.00           | 12.06               | 7.67               | 1.22            |                 |                     |                    |                 |
| 24.50           | 12.06               | 7.67               | 1.13            |                 |                     |                    |                 |
| 25.00           | 12.06               | 7.67               | 0.79            |                 |                     |                    |                 |
| 25.50           | 12.06               | 7.67               | 0.37            |                 |                     |                    |                 |

Summary for Subcatchment 46S: Proposed Undisturbed Area (Pervious)

Runoff = 16.40 cfs @ 12.33 hrs, Volume= 1.708 af, Depth= 5.68"  
Routed to Link 14L : Existing Drainage Area POI-1 (to Remain Undisturbed)

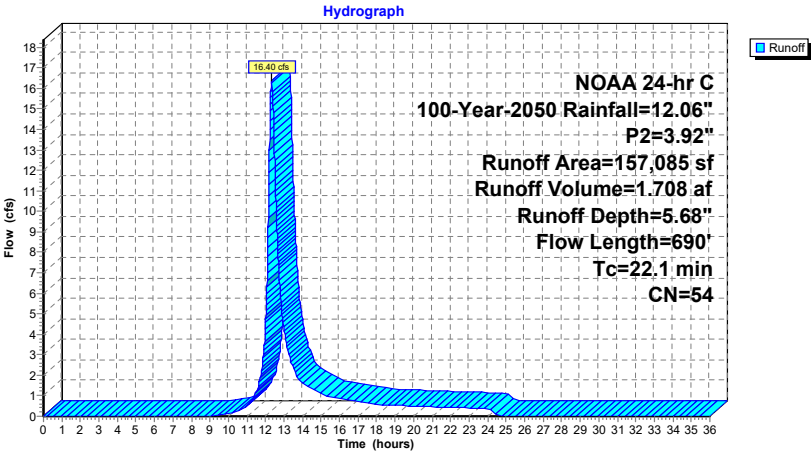
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description                    |
|-----------|----|--------------------------------|
| 15,827    | 39 | >75% Grass cover, Good, HSG A  |
| 80,837    | 61 | >75% Grass cover, Good, HSG B  |
| 30,052    | 32 | Woods/grass comb., Good, HSG A |
| 22,227    | 58 | Woods/grass comb., Good, HSG B |
| 8,142     | 86 | Fallow, bare soil, HSG B       |
| 157,085   | 54 | Weighted Average               |
| 157,085   |    | 100.00% Pervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                   |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------------------------------------------------|
| 8.5      | 27            | 0.0120        | 0.05              |                | Sheet Flow,<br>Grass: Bermuda n= 0.410 P2= 3.92"<br>Using McCuen-Spiess flow length                           |
| 1.5      | 67            | 0.0120        | 0.77              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6     | 319           | 0.0100        | 0.50              |                | Shallow Concentrated Flow,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8      | 49            | 0.0200        | 0.99              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7      | 228           | 0.0050        | 5.09              | 16.00          | Pipe Channel,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.1     | 690           | Total         |                   |                |                                                                                                               |



Subcatchment 46S: Proposed Undisturbed Area (Pervious)





Hydrograph for Subcatchment 46S: Proposed Undisturbed Area (Pervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 5.68               | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.00            | 26.50           | 12.06               | 5.68               | 0.00            |
| 1.00            | 0.13                | 0.00               | 0.00            | 27.00           | 12.06               | 5.68               | 0.00            |
| 1.50            | 0.20                | 0.00               | 0.00            | 27.50           | 12.06               | 5.68               | 0.00            |
| 2.00            | 0.27                | 0.00               | 0.00            | 28.00           | 12.06               | 5.68               | 0.00            |
| 2.50            | 0.35                | 0.00               | 0.00            | 28.50           | 12.06               | 5.68               | 0.00            |
| 3.00            | 0.43                | 0.00               | 0.00            | 29.00           | 12.06               | 5.68               | 0.00            |
| 3.50            | 0.51                | 0.00               | 0.00            | 29.50           | 12.06               | 5.68               | 0.00            |
| 4.00            | 0.59                | 0.00               | 0.00            | 30.00           | 12.06               | 5.68               | 0.00            |
| 4.50            | 0.68                | 0.00               | 0.00            | 30.50           | 12.06               | 5.68               | 0.00            |
| 5.00            | 0.77                | 0.00               | 0.00            | 31.00           | 12.06               | 5.68               | 0.00            |
| 5.50            | 0.86                | 0.00               | 0.00            | 31.50           | 12.06               | 5.68               | 0.00            |
| 6.00            | 0.96                | 0.00               | 0.00            | 32.00           | 12.06               | 5.68               | 0.00            |
| 6.50            | 1.06                | 0.00               | 0.00            | 32.50           | 12.06               | 5.68               | 0.00            |
| 7.00            | 1.18                | 0.00               | 0.00            | 33.00           | 12.06               | 5.68               | 0.00            |
| 7.50            | 1.30                | 0.00               | 0.00            | 33.50           | 12.06               | 5.68               | 0.00            |
| 8.00            | 1.44                | 0.00               | 0.00            | 34.00           | 12.06               | 5.68               | 0.00            |
| 8.50            | 1.60                | 0.00               | 0.00            | 34.50           | 12.06               | 5.68               | 0.00            |
| 9.00            | 1.76                | 0.00               | 0.00            | 35.00           | 12.06               | 5.68               | 0.00            |
| 9.50            | 1.96                | 0.01               | 0.04            | 35.50           | 12.06               | 5.68               | 0.00            |
| 10.00           | 2.20                | 0.03               | 0.12            | 36.00           | 12.06               | 5.68               | 0.00            |
| 10.50           | 2.49                | 0.07               | 0.25            |                 |                     |                    |                 |
| 11.00           | 2.89                | 0.15               | 0.51            |                 |                     |                    |                 |
| 11.50           | 3.56                | 0.33               | 1.18            |                 |                     |                    |                 |
| 12.00           | 5.75                | 1.30               | 4.55            |                 |                     |                    |                 |
| 12.50           | 8.50                | 3.01               | 12.19           |                 |                     |                    |                 |
| 13.00           | 9.17                | 3.48               | 4.17            |                 |                     |                    |                 |
| 13.50           | 9.57                | 3.78               | 2.36            |                 |                     |                    |                 |
| 14.00           | 9.86                | 3.99               | 1.61            |                 |                     |                    |                 |
| 14.50           | 10.10               | 4.17               | 1.35            |                 |                     |                    |                 |
| 15.00           | 10.30               | 4.32               | 1.11            |                 |                     |                    |                 |
| 15.50           | 10.46               | 4.44               | 0.92            |                 |                     |                    |                 |
| 16.00           | 10.62               | 4.56               | 0.85            |                 |                     |                    |                 |
| 16.50           | 10.76               | 4.66               | 0.79            |                 |                     |                    |                 |
| 17.00           | 10.88               | 4.76               | 0.73            |                 |                     |                    |                 |
| 17.50           | 11.00               | 4.85               | 0.66            |                 |                     |                    |                 |
| 18.00           | 11.10               | 4.93               | 0.60            |                 |                     |                    |                 |
| 18.50           | 11.20               | 5.01               | 0.55            |                 |                     |                    |                 |
| 19.00           | 11.29               | 5.08               | 0.53            |                 |                     |                    |                 |
| 19.50           | 11.38               | 5.15               | 0.51            |                 |                     |                    |                 |
| 20.00           | 11.47               | 5.22               | 0.50            |                 |                     |                    |                 |
| 20.50           | 11.55               | 5.28               | 0.48            |                 |                     |                    |                 |
| 21.00           | 11.63               | 5.35               | 0.47            |                 |                     |                    |                 |
| 21.50           | 11.71               | 5.41               | 0.45            |                 |                     |                    |                 |
| 22.00           | 11.79               | 5.47               | 0.43            |                 |                     |                    |                 |
| 22.50           | 11.86               | 5.52               | 0.42            |                 |                     |                    |                 |
| 23.00           | 11.93               | 5.58               | 0.40            |                 |                     |                    |                 |
| 23.50           | 11.99               | 5.63               | 0.38            |                 |                     |                    |                 |
| 24.00           | 12.06               | 5.68               | 0.37            |                 |                     |                    |                 |
| 24.50           | 12.06               | 5.68               | 0.06            |                 |                     |                    |                 |
| 25.00           | 12.06               | 5.68               | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 5.68               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 47S: Proposed Undisturbed Area (Impervious)

Runoff = 8.55 cfs @ 12.31 hrs, Volume= 1.034 af, Depth=11.82"  
Routed to Link 14L : Existing Drainage Area POI-1 (to Remain Undisturbed)

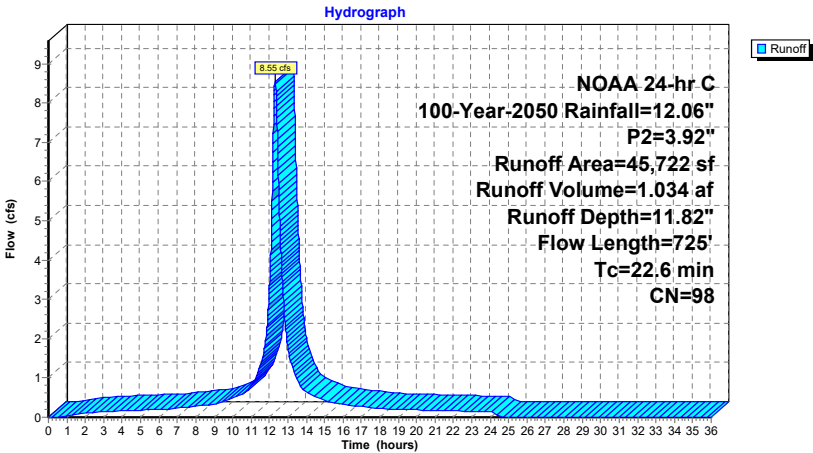
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description                 |
|-----------|----|-----------------------------|
| 45,722    | 98 | Unconnected pavement, HSG A |
| 45,722    |    | 100.00% Impervious Area     |
| 45,722    |    | 100.00% Unconnected         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                           |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------|
| 0.5         | 35               | 0.0200           | 1.23                 |                   | <b>Sheet Flow</b> ,<br>Smooth surfaces n= 0.011 P2= 3.92"                                                             |
| 8.5         | 27               | 0.0120           | 0.05                 |                   | <b>Sheet Flow</b> ,<br>Grass: Bermuda n= 0.410 P2= 3.92"<br>Using McCuen-Spiess flow length                           |
| 1.5         | 67               | 0.0120           | 0.77                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6        | 319              | 0.0100           | 0.50                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8         | 49               | 0.0200           | 0.99                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7         | 228              | 0.0050           | 5.09                 | 16.00             | <b>Pipe Channel</b> ,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.6        | 725              | Total            |                      |                   |                                                                                                                       |



Subcatchment 47S: Proposed Undisturbed Area (Impervious)



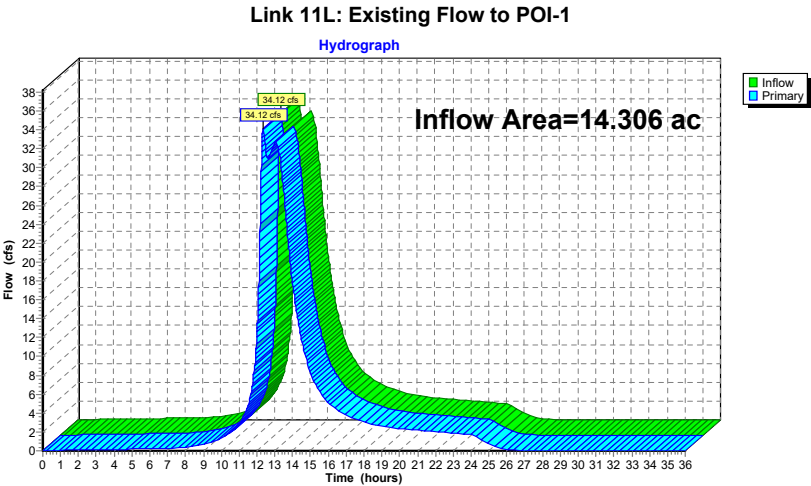
Hydrograph for Subcatchment 47S: Proposed Undisturbed Area (Impervious)

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 12.06            | 11.82           | 0.00         |
| 0.50         | 0.07             | 0.00            | 0.00         | 26.50        | 12.06            | 11.82           | 0.00         |
| 1.00         | 0.13             | 0.03            | 0.04         | 27.00        | 12.06            | 11.82           | 0.00         |
| 1.50         | 0.20             | 0.07            | 0.08         | 27.50        | 12.06            | 11.82           | 0.00         |
| 2.00         | 0.27             | 0.12            | 0.11         | 28.00        | 12.06            | 11.82           | 0.00         |
| 2.50         | 0.35             | 0.18            | 0.13         | 28.50        | 12.06            | 11.82           | 0.00         |
| 3.00         | 0.43             | 0.25            | 0.14         | 29.00        | 12.06            | 11.82           | 0.00         |
| 3.50         | 0.51             | 0.32            | 0.15         | 29.50        | 12.06            | 11.82           | 0.00         |
| 4.00         | 0.59             | 0.40            | 0.16         | 30.00        | 12.06            | 11.82           | 0.00         |
| 4.50         | 0.68             | 0.48            | 0.17         | 30.50        | 12.06            | 11.82           | 0.00         |
| 5.00         | 0.77             | 0.57            | 0.18         | 31.00        | 12.06            | 11.82           | 0.00         |
| 5.50         | 0.86             | 0.66            | 0.19         | 31.50        | 12.06            | 11.82           | 0.00         |
| 6.00         | 0.96             | 0.75            | 0.19         | 32.00        | 12.06            | 11.82           | 0.00         |
| 6.50         | 1.06             | 0.85            | 0.21         | 32.50        | 12.06            | 11.82           | 0.00         |
| 7.00         | 1.18             | 0.96            | 0.23         | 33.00        | 12.06            | 11.82           | 0.00         |
| 7.50         | 1.30             | 1.09            | 0.26         | 33.50        | 12.06            | 11.82           | 0.00         |
| 8.00         | 1.44             | 1.23            | 0.29         | 34.00        | 12.06            | 11.82           | 0.00         |
| 8.50         | 1.60             | 1.38            | 0.31         | 34.50        | 12.06            | 11.82           | 0.00         |
| 9.00         | 1.76             | 1.54            | 0.34         | 35.00        | 12.06            | 11.82           | 0.00         |
| 9.50         | 1.96             | 1.73            | 0.39         | 35.50        | 12.06            | 11.82           | 0.00         |
| 10.00        | 2.20             | 1.97            | 0.49         | 36.00        | 12.06            | 11.82           | 0.00         |
| 10.50        | 2.49             | 2.26            | 0.58         |              |                  |                 |              |
| 11.00        | 2.89             | 2.66            | 0.80         |              |                  |                 |              |
| 11.50        | 3.56             | 3.33            | 1.29         |              |                  |                 |              |
| 12.00        | 5.75             | 5.51            | 3.25         |              |                  |                 |              |
| 12.50        | 8.50             | 8.26            | 5.96         |              |                  |                 |              |
| 13.00        | 9.17             | 8.93            | 1.79         |              |                  |                 |              |
| 13.50        | 9.57             | 9.33            | 0.96         |              |                  |                 |              |
| 14.00        | 9.86             | 9.62            | 0.64         |              |                  |                 |              |
| 14.50        | 10.10            | 9.86            | 0.53         |              |                  |                 |              |
| 15.00        | 10.30            | 10.06           | 0.43         |              |                  |                 |              |
| 15.50        | 10.46            | 10.22           | 0.36         |              |                  |                 |              |
| 16.00        | 10.62            | 10.37           | 0.33         |              |                  |                 |              |
| 16.50        | 10.76            | 10.51           | 0.30         |              |                  |                 |              |
| 17.00        | 10.88            | 10.64           | 0.28         |              |                  |                 |              |
| 17.50        | 11.00            | 10.76           | 0.25         |              |                  |                 |              |
| 18.00        | 11.10            | 10.86           | 0.23         |              |                  |                 |              |
| 18.50        | 11.20            | 10.96           | 0.21         |              |                  |                 |              |
| 19.00        | 11.29            | 11.05           | 0.20         |              |                  |                 |              |
| 19.50        | 11.38            | 11.14           | 0.19         |              |                  |                 |              |
| 20.00        | 11.47            | 11.23           | 0.19         |              |                  |                 |              |
| 20.50        | 11.55            | 11.31           | 0.18         |              |                  |                 |              |
| 21.00        | 11.63            | 11.39           | 0.17         |              |                  |                 |              |
| 21.50        | 11.71            | 11.47           | 0.17         |              |                  |                 |              |
| 22.00        | 11.79            | 11.55           | 0.16         |              |                  |                 |              |
| 22.50        | 11.86            | 11.62           | 0.15         |              |                  |                 |              |
| 23.00        | 11.93            | 11.69           | 0.15         |              |                  |                 |              |
| 23.50        | 11.99            | 11.75           | 0.14         |              |                  |                 |              |
| 24.00        | 12.06            | 11.82           | 0.13         |              |                  |                 |              |
| 24.50        | 12.06            | 11.82           | 0.02         |              |                  |                 |              |
| 25.00        | 12.06            | 11.82           | 0.00         |              |                  |                 |              |
| 25.50        | 12.06            | 11.82           | 0.00         |              |                  |                 |              |

Summary for Link 11L: Existing Flow to POI-1

Inflow Area = 14.306 ac, 7.34% Impervious, Inflow Depth = 7.47" for 100-Year-2050 event  
Inflow = 34.12 cfs @ 12.35 hrs, Volume= 8.906 af  
Primary = 34.12 cfs @ 12.35 hrs, Volume= 8.906 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



Hydrograph for Link 11L: Existing Flow to POI-1

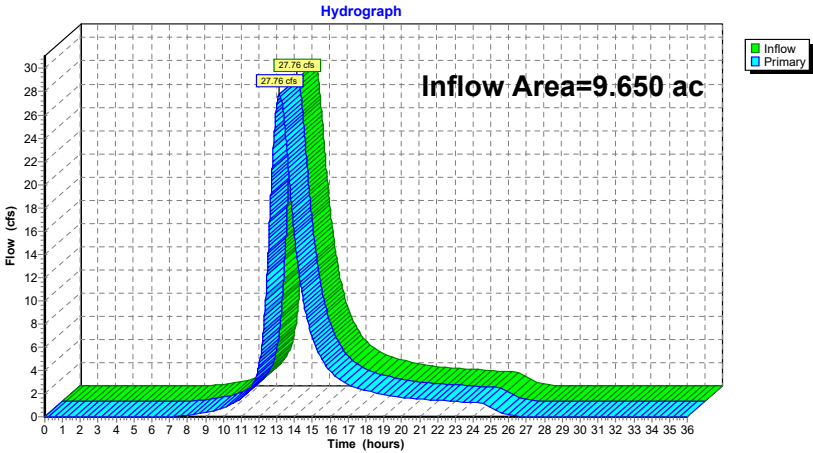
| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.16         | 0.00             | 0.16          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.07         | 0.00             | 0.07          |
| 1.00         | 0.04         | 0.00             | 0.04          | 27.00        | 0.03         | 0.00             | 0.03          |
| 1.50         | 0.08         | 0.00             | 0.08          | 27.50        | 0.01         | 0.00             | 0.01          |
| 2.00         | 0.11         | 0.00             | 0.11          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.13         | 0.00             | 0.13          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.14         | 0.00             | 0.14          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.15         | 0.00             | 0.15          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.16         | 0.00             | 0.16          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.17         | 0.00             | 0.17          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.18         | 0.00             | 0.18          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.19         | 0.00             | 0.19          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.19         | 0.00             | 0.19          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.21         | 0.00             | 0.21          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.24         | 0.00             | 0.24          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.31         | 0.00             | 0.31          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.42         | 0.00             | 0.42          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.55         | 0.00             | 0.55          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.72         | 0.00             | 0.72          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.98         | 0.00             | 0.98          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 1.38         | 0.00             | 1.38          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 1.94         | 0.00             | 1.94          |              |              |                  |               |
| 11.00        | 2.88         | 0.00             | 2.88          |              |              |                  |               |
| 11.50        | 4.88         | 0.00             | 4.88          |              |              |                  |               |
| 12.00        | 12.23        | 0.00             | 12.23         |              |              |                  |               |
| 12.50        | 31.64        | 0.00             | 31.64         |              |              |                  |               |
| 13.00        | 32.76        | 0.00             | 32.76         |              |              |                  |               |
| 13.50        | 27.64        | 0.00             | 27.64         |              |              |                  |               |
| 14.00        | 17.75        | 0.00             | 17.75         |              |              |                  |               |
| 14.50        | 11.83        | 0.00             | 11.83         |              |              |                  |               |
| 15.00        | 8.35         | 0.00             | 8.35          |              |              |                  |               |
| 15.50        | 6.30         | 0.00             | 6.30          |              |              |                  |               |
| 16.00        | 5.07         | 0.00             | 5.07          |              |              |                  |               |
| 16.50        | 4.30         | 0.00             | 4.30          |              |              |                  |               |
| 17.00        | 3.78         | 0.00             | 3.78          |              |              |                  |               |
| 17.50        | 3.41         | 0.00             | 3.41          |              |              |                  |               |
| 18.00        | 3.09         | 0.00             | 3.09          |              |              |                  |               |
| 18.50        | 2.81         | 0.00             | 2.81          |              |              |                  |               |
| 19.00        | 2.59         | 0.00             | 2.59          |              |              |                  |               |
| 19.50        | 2.44         | 0.00             | 2.44          |              |              |                  |               |
| 20.00        | 2.33         | 0.00             | 2.33          |              |              |                  |               |
| 20.50        | 2.24         | 0.00             | 2.24          |              |              |                  |               |
| 21.00        | 2.17         | 0.00             | 2.17          |              |              |                  |               |
| 21.50        | 2.09         | 0.00             | 2.09          |              |              |                  |               |
| 22.00        | 2.02         | 0.00             | 2.02          |              |              |                  |               |
| 22.50        | 1.94         | 0.00             | 1.94          |              |              |                  |               |
| 23.00        | 1.87         | 0.00             | 1.87          |              |              |                  |               |
| 23.50        | 1.80         | 0.00             | 1.80          |              |              |                  |               |
| 24.00        | 1.72         | 0.00             | 1.72          |              |              |                  |               |
| 24.50        | 1.21         | 0.00             | 1.21          |              |              |                  |               |
| 25.00        | 0.79         | 0.00             | 0.79          |              |              |                  |               |
| 25.50        | 0.37         | 0.00             | 0.37          |              |              |                  |               |

Summary for Link 13L: Existing Drainage Area POI-1 (to be Disturbed)

Inflow Area = 9.650 ac, 0.00% Impervious, Inflow Depth = 7.67" for 100-Year-2050 event  
Inflow = 27.76 cfs @ 13.12 hrs, Volume= 6.165 af  
Primary = 27.76 cfs @ 13.12 hrs, Volume= 6.165 af, Atten= 0%, Lag= 0.0 min  
Routed to Link 11L : Existing Flow to POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Link 13L: Existing Drainage Area POI-1 (to be Disturbed)



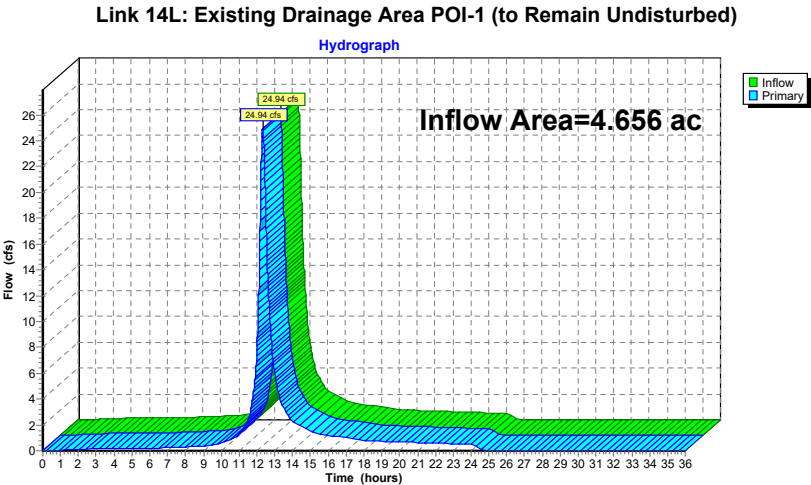
Hydrograph for Link 13L: Existing Drainage Area POI-1 (to be Disturbed)

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.16         | 0.00             | 0.16          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.07         | 0.00             | 0.07          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.03         | 0.00             | 0.03          |
| 1.50         | 0.00         | 0.00             | 0.00          | 27.50        | 0.01         | 0.00             | 0.01          |
| 2.00         | 0.00         | 0.00             | 0.00          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.00         | 0.00             | 0.00          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.00         | 0.00             | 0.00          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.00         | 0.00             | 0.00          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.00         | 0.00             | 0.00          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.00         | 0.00             | 0.00          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.00         | 0.00             | 0.00          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.00         | 0.00             | 0.00          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.00         | 0.00             | 0.00          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.00         | 0.00             | 0.00          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.01         | 0.00             | 0.01          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.05         | 0.00             | 0.05          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.13         | 0.00             | 0.13          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.24         | 0.00             | 0.24          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.38         | 0.00             | 0.38          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.54         | 0.00             | 0.54          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.77         | 0.00             | 0.77          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 1.10         | 0.00             | 1.10          |              |              |                  |               |
| 11.00        | 1.57         | 0.00             | 1.57          |              |              |                  |               |
| 11.50        | 2.40         | 0.00             | 2.40          |              |              |                  |               |
| 12.00        | 4.43         | 0.00             | 4.43          |              |              |                  |               |
| 12.50        | 13.49        | 0.00             | 13.49         |              |              |                  |               |
| 13.00        | 26.79        | 0.00             | 26.79         |              |              |                  |               |
| 13.50        | 24.32        | 0.00             | 24.32         |              |              |                  |               |
| 14.00        | 15.49        | 0.00             | 15.49         |              |              |                  |               |
| 14.50        | 9.95         | 0.00             | 9.95          |              |              |                  |               |
| 15.00        | 6.81         | 0.00             | 6.81          |              |              |                  |               |
| 15.50        | 5.01         | 0.00             | 5.01          |              |              |                  |               |
| 16.00        | 3.90         | 0.00             | 3.90          |              |              |                  |               |
| 16.50        | 3.21         | 0.00             | 3.21          |              |              |                  |               |
| 17.00        | 2.77         | 0.00             | 2.77          |              |              |                  |               |
| 17.50        | 2.49         | 0.00             | 2.49          |              |              |                  |               |
| 18.00        | 2.26         | 0.00             | 2.26          |              |              |                  |               |
| 18.50        | 2.05         | 0.00             | 2.05          |              |              |                  |               |
| 19.00        | 1.87         | 0.00             | 1.87          |              |              |                  |               |
| 19.50        | 1.74         | 0.00             | 1.74          |              |              |                  |               |
| 20.00        | 1.65         | 0.00             | 1.65          |              |              |                  |               |
| 20.50        | 1.58         | 0.00             | 1.58          |              |              |                  |               |
| 21.00        | 1.53         | 0.00             | 1.53          |              |              |                  |               |
| 21.50        | 1.48         | 0.00             | 1.48          |              |              |                  |               |
| 22.00        | 1.42         | 0.00             | 1.42          |              |              |                  |               |
| 22.50        | 1.37         | 0.00             | 1.37          |              |              |                  |               |
| 23.00        | 1.32         | 0.00             | 1.32          |              |              |                  |               |
| 23.50        | 1.27         | 0.00             | 1.27          |              |              |                  |               |
| 24.00        | 1.22         | 0.00             | 1.22          |              |              |                  |               |
| 24.50        | 1.13         | 0.00             | 1.13          |              |              |                  |               |
| 25.00        | 0.79         | 0.00             | 0.79          |              |              |                  |               |
| 25.50        | 0.37         | 0.00             | 0.37          |              |              |                  |               |

Summary for Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed)

Inflow Area = 4.656 ac, 22.54% Impervious, Inflow Depth = 7.07" for 100-Year-2050 event  
Inflow = 24.94 cfs @ 12.33 hrs, Volume= 2.741 af  
Primary = 24.94 cfs @ 12.33 hrs, Volume= 2.741 af, Atten= 0%, Lag= 0.0 min  
Routed to Link 11L : Existing Flow to POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs



Hydrograph for Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed)

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.00         | 0.00             | 0.00          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.00         | 0.00             | 0.00          |
| 1.00         | 0.04         | 0.00             | 0.04          | 27.00        | 0.00         | 0.00             | 0.00          |
| 1.50         | 0.08         | 0.00             | 0.08          | 27.50        | 0.00         | 0.00             | 0.00          |
| 2.00         | 0.11         | 0.00             | 0.11          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.13         | 0.00             | 0.13          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.14         | 0.00             | 0.14          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.15         | 0.00             | 0.15          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.16         | 0.00             | 0.16          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.17         | 0.00             | 0.17          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.18         | 0.00             | 0.18          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.19         | 0.00             | 0.19          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.19         | 0.00             | 0.19          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.21         | 0.00             | 0.21          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.23         | 0.00             | 0.23          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.26         | 0.00             | 0.26          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.29         | 0.00             | 0.29          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.31         | 0.00             | 0.31          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.34         | 0.00             | 0.34          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.43         | 0.00             | 0.43          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.61         | 0.00             | 0.61          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.84         | 0.00             | 0.84          |              |              |                  |               |
| 11.00        | 1.31         | 0.00             | 1.31          |              |              |                  |               |
| 11.50        | 2.48         | 0.00             | 2.48          |              |              |                  |               |
| 12.00        | 7.80         | 0.00             | 7.80          |              |              |                  |               |
| 12.50        | 18.15        | 0.00             | 18.15         |              |              |                  |               |
| 13.00        | 5.97         | 0.00             | 5.97          |              |              |                  |               |
| 13.50        | 3.32         | 0.00             | 3.32          |              |              |                  |               |
| 14.00        | 2.25         | 0.00             | 2.25          |              |              |                  |               |
| 14.50        | 1.88         | 0.00             | 1.88          |              |              |                  |               |
| 15.00        | 1.55         | 0.00             | 1.55          |              |              |                  |               |
| 15.50        | 1.28         | 0.00             | 1.28          |              |              |                  |               |
| 16.00        | 1.18         | 0.00             | 1.18          |              |              |                  |               |
| 16.50        | 1.09         | 0.00             | 1.09          |              |              |                  |               |
| 17.00        | 1.00         | 0.00             | 1.00          |              |              |                  |               |
| 17.50        | 0.91         | 0.00             | 0.91          |              |              |                  |               |
| 18.00        | 0.82         | 0.00             | 0.82          |              |              |                  |               |
| 18.50        | 0.75         | 0.00             | 0.75          |              |              |                  |               |
| 19.00        | 0.73         | 0.00             | 0.73          |              |              |                  |               |
| 19.50        | 0.70         | 0.00             | 0.70          |              |              |                  |               |
| 20.00        | 0.68         | 0.00             | 0.68          |              |              |                  |               |
| 20.50        | 0.66         | 0.00             | 0.66          |              |              |                  |               |
| 21.00        | 0.64         | 0.00             | 0.64          |              |              |                  |               |
| 21.50        | 0.62         | 0.00             | 0.62          |              |              |                  |               |
| 22.00        | 0.59         | 0.00             | 0.59          |              |              |                  |               |
| 22.50        | 0.57         | 0.00             | 0.57          |              |              |                  |               |
| 23.00        | 0.55         | 0.00             | 0.55          |              |              |                  |               |
| 23.50        | 0.52         | 0.00             | 0.52          |              |              |                  |               |
| 24.00        | 0.50         | 0.00             | 0.50          |              |              |                  |               |
| 24.50        | 0.08         | 0.00             | 0.08          |              |              |                  |               |
| 25.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 25.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |

2101ELK-STM Analysis POI-1 - Existing

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- 27 Subcat 46S: Proposed Undisturbed Area (Pervious)
- 30 Subcat 47S: Proposed Undisturbed Area (Impervious)
- 33 Link 11L: Existing Flow to POI-1
- 35 Link 13L: Existing Drainage Area POI-1 (to be Disturbed)
- 37 Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed)

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- 39 Node Listing
- 40 Subcat 7S: POI-1 Pervious (Disturbed)
- 43 Subcat 46S: Proposed Undisturbed Area (Pervious)
- 46 Subcat 47S: Proposed Undisturbed Area (Impervious)
- 49 Link 11L: Existing Flow to POI-1
- 51 Link 13L: Existing Drainage Area POI-1 (to be Disturbed)
- 53 Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed)

2-Year-2050 Event

- 55 Node Listing
- 56 Subcat 7S: POI-1 Pervious (Disturbed)
- 59 Subcat 46S: Proposed Undisturbed Area (Pervious)
- 62 Subcat 47S: Proposed Undisturbed Area (Impervious)
- 65 Link 11L: Existing Flow to POI-1
- 67 Link 13L: Existing Drainage Area POI-1 (to be Disturbed)
- 69 Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed)

10-Year-2050 Event

- 71 Node Listing

2101ELK-STM Analysis POI-1 - Existing

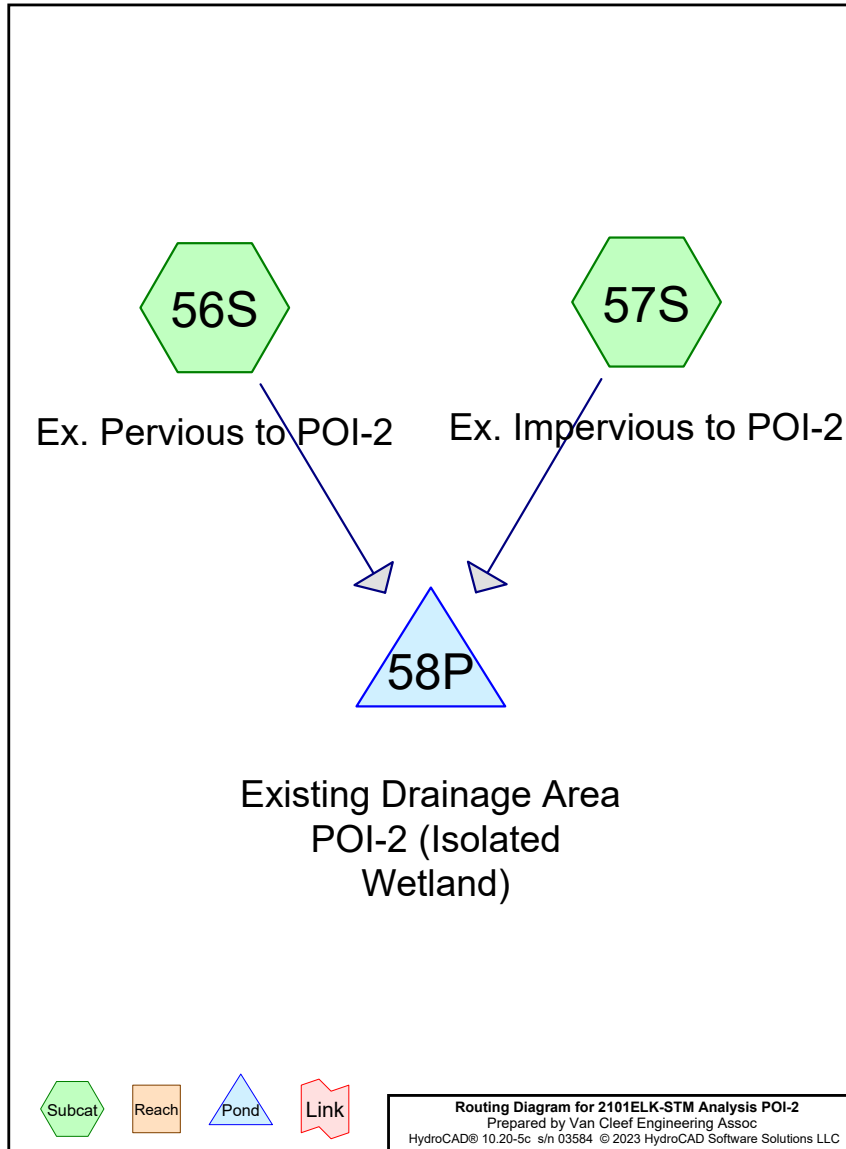
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- 87 Node Listing
- 88 Subcat 7S: POI-1 Pervious (Disturbed)
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- 94 Subcat 47S: Proposed Undisturbed Area (Impervious)
- 97 Link 11L: Existing Flow to POI-1
- 99 Link 13L: Existing Drainage Area POI-1 (to be Disturbed)
- 101 Link 14L: Existing Drainage Area POI-1 (to Remain Undisturbed)



## 2101ELK-STM Analysis POI-2

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Page 2

### Rainfall Events Listing (selected events)

| Event# | Event Name    | Storm Type | Curve | Mode    | Duration (hours) | B/B | Depth (inches) | AMC | P2 (inches) |
|--------|---------------|------------|-------|---------|------------------|-----|----------------|-----|-------------|
| 1      | 2-Year-2020   | NOAA 24-hr | C     | Default | 24.00            | 1   | 3.45           | 2   | 3.45        |
| 2      | 10-Year-2020  | NOAA 24-hr | C     | Default | 24.00            | 1   | 5.35           | 2   | 3.45        |
| 3      | 100-Year-2020 | NOAA 24-hr | C     | Default | 24.00            | 1   | 9.06           | 2   | 3.45        |
| 4      | 2-Year-2050   | NOAA 24-hr | C     | Default | 24.00            | 1   | 3.92           | 2   | 3.92        |
| 5      | 10-Year-2050  | NOAA 24-hr | C     | Default | 24.00            | 1   | 6.21           | 2   | 3.92        |
| 6      | 100-Year-2050 | NOAA 24-hr | C     | Default | 24.00            | 1   | 12.06          | 2   | 3.92        |

2101ELK-STM Analysis POI-2

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Area Listing (selected nodes)

| Area<br>(sq-ft) | CN | Description<br>(subcatchment-numbers) |
|-----------------|----|---------------------------------------|
| 79,767          | 39 | >75% Grass cover, Good, HSG A (56S)   |
| 4,864           | 61 | >75% Grass cover, Good, HSG B (56S)   |
| 25,475          | 98 | Paved parking, HSG A (57S)            |
| 97,820          | 30 | Woods, Good, HSG A (56S)              |
| 1,899           | 32 | Woods/grass comb., Good, HSG A (56S)  |
| 209,825         | 42 | TOTAL AREA                            |

2101ELK-STM Analysis POI-2

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Soil Listing (selected nodes)

| Area<br>(sq-ft) | Soil<br>Group | Subcatchment<br>Numbers |
|-----------------|---------------|-------------------------|
| 204,961         | HSG A         | 56S, 57S                |
| 4,864           | HSG B         | 56S                     |
| 0               | HSG C         |                         |
| 0               | HSG D         |                         |
| 0               | Other         |                         |
| 209,825         |               | TOTAL AREA              |



| Ground Covers (selected nodes) |                  |                  |                  |                  |                  |                            |
|--------------------------------|------------------|------------------|------------------|------------------|------------------|----------------------------|
| HSG-A<br>(sq-ft)               | HSG-B<br>(sq-ft) | HSG-C<br>(sq-ft) | HSG-D<br>(sq-ft) | Other<br>(sq-ft) | Total<br>(sq-ft) | Ground<br>Cover            |
| 79,767                         | 4,864            | 0                | 0                | 0                | 84,631           | >75% Grass<br>cover, Good  |
| 25,475                         | 0                | 0                | 0                | 0                | 25,475           | Paved parking              |
| 97,820                         | 0                | 0                | 0                | 0                | 97,820           | Woods, Good                |
| 1,899                          | 0                | 0                | 0                | 0                | 1,899            | Woods/grass<br>comb., Good |
| 204,961                        | 4,864            | 0                | 0                | 0                | 209,825          | TOTAL AREA                 |

S  
N

| Pipe Listing (selected nodes) |                |                     |                      |                  |                  |       |                   |                         |                         |              |
|-------------------------------|----------------|---------------------|----------------------|------------------|------------------|-------|-------------------|-------------------------|-------------------------|--------------|
| Line#                         | Node<br>Number | In-Invert<br>(feet) | Out-Invert<br>(feet) | Length<br>(feet) | Slope<br>(ft/ft) | n     | Width<br>(inches) | Diam/Height<br>(inches) | Inside-Fill<br>(inches) | Node<br>Name |
| 1                             | 56S            | 0.00                | 0.00                 | 265.0            | 0.1000           | 0.012 | 0.0               | 24.0                    | 0.0                     |              |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment56S: Ex. Pervious to POI-2

Runoff Area=184,350 sf 0.00% Impervious Runoff Depth=0.00"

Flow Length=747' Tc=19.3 min CN=35 Runoff=0.00 cfs 0 cf

Subcatchment57S: Ex. Impervious to

Runoff Area=25,475 sf 100.00% Impervious Runoff Depth=3.22"

Flow Length=221' Tc=14.1 min CN=98 Runoff=1.64 cfs 6,829 cf

Pond 58P: Existing Drainage Area POI-2

Peak Elev=124.21' Storage=6,829 cf Inflow=1.64 cfs 6,829 cf

Outflow=0.00 cfs 0 cf

Total Runoff Area = 209,825 sf Runoff Volume = 6,829 cf Average Runoff Depth = 0.39"

87.86% Pervious = 184,350 sf 12.14% Impervious = 25,475 sf

Summary for Subcatchment 56S: Ex. Pervious to POI-2

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Routed to Pond 58P : Existing Drainage Area POI-2 (Isolated Wetland)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description                    |
|-----------|----|--------------------------------|
| 79,767    | 39 | >75% Grass cover, Good, HSG A  |
| 4,864     | 61 | >75% Grass cover, Good, HSG B  |
| 1,899     | 32 | Woods/grass comb., Good, HSG A |
| 97,820    | 30 | Woods, Good, HSG A             |
| 184,350   | 35 | Weighted Average               |
| 184,350   |    | 100.00% Pervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                   |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------|
| 9.0      | 49            | 0.0140        | 0.09              |                | Sheet Flow, SEG 1                             |
|          |               |               |                   |                | Grass: Dense n= 0.240 P2= 3.45"               |
|          |               |               |                   |                | Using McCuen-Spiess flow length               |
| 6.3      | 186           | 0.0050        | 0.49              |                | Shallow Concentrated Flow, SEG 2              |
|          |               |               |                   |                | Short Grass Pasture Kv= 7.0 fps               |
| 2.4      | 100           | 0.0100        | 0.70              |                | Shallow Concentrated Flow, SEG 3              |
|          |               |               |                   |                | Short Grass Pasture Kv= 7.0 fps               |
| 0.2      | 265           | 0.1000        | 24.67             | 77.50          | Pipe Channel, SEG 4                           |
|          |               |               |                   |                | 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' |
|          |               |               |                   |                | n= 0.012 Concrete pipe, finished              |
| 1.4      | 147           | 0.1200        | 1.73              |                | Shallow Concentrated Flow, SEG 5              |
|          |               |               |                   |                | Woodland Kv= 5.0 fps                          |
| 19.3     | 747           | Total         |                   |                |                                               |

SEG 1

SEG 2

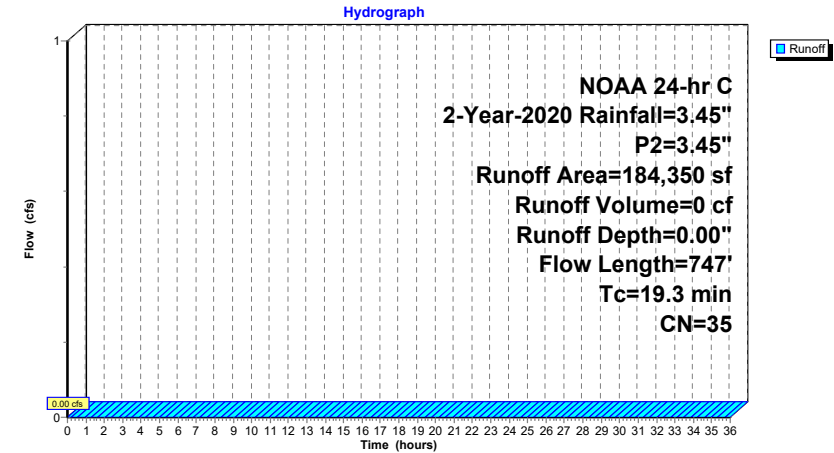
SEG 3

SEG 4

SEG 5

Subcatchment 56S: Ex. Pervious to POI-2

Subcatchment 56S: Ex. Pervious to POI-2



Hydrograph for Subcatchment 56S: Ex. Pervious to POI-2

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 0.00               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 0.00               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 0.00               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 0.00               | 0.00            |
| 2.00            | 0.08                | 0.00               | 0.00            | 28.00           | 3.45                | 0.00               | 0.00            |
| 2.50            | 0.10                | 0.00               | 0.00            | 28.50           | 3.45                | 0.00               | 0.00            |
| 3.00            | 0.12                | 0.00               | 0.00            | 29.00           | 3.45                | 0.00               | 0.00            |
| 3.50            | 0.14                | 0.00               | 0.00            | 29.50           | 3.45                | 0.00               | 0.00            |
| 4.00            | 0.17                | 0.00               | 0.00            | 30.00           | 3.45                | 0.00               | 0.00            |
| 4.50            | 0.19                | 0.00               | 0.00            | 30.50           | 3.45                | 0.00               | 0.00            |
| 5.00            | 0.22                | 0.00               | 0.00            | 31.00           | 3.45                | 0.00               | 0.00            |
| 5.50            | 0.25                | 0.00               | 0.00            | 31.50           | 3.45                | 0.00               | 0.00            |
| 6.00            | 0.27                | 0.00               | 0.00            | 32.00           | 3.45                | 0.00               | 0.00            |
| 6.50            | 0.30                | 0.00               | 0.00            | 32.50           | 3.45                | 0.00               | 0.00            |
| 7.00            | 0.34                | 0.00               | 0.00            | 33.00           | 3.45                | 0.00               | 0.00            |
| 7.50            | 0.37                | 0.00               | 0.00            | 33.50           | 3.45                | 0.00               | 0.00            |
| 8.00            | 0.41                | 0.00               | 0.00            | 34.00           | 3.45                | 0.00               | 0.00            |
| 8.50            | 0.46                | 0.00               | 0.00            | 34.50           | 3.45                | 0.00               | 0.00            |
| 9.00            | 0.50                | 0.00               | 0.00            | 35.00           | 3.45                | 0.00               | 0.00            |
| 9.50            | 0.56                | 0.00               | 0.00            | 35.50           | 3.45                | 0.00               | 0.00            |
| 10.00           | 0.63                | 0.00               | 0.00            | 36.00           | 3.45                | 0.00               | 0.00            |
| 10.50           | 0.71                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.64                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.43                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 2.62                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 2.74                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 2.82                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 2.89                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 2.95                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 2.99                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 3.04                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 3.08                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 3.11                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 3.15                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.00           | 3.18                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.50           | 3.20                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.00           | 3.23                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.50           | 3.26                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.00           | 3.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.50           | 3.31                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.00           | 3.33                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.50           | 3.35                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.00           | 3.37                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.50           | 3.39                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.00           | 3.41                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.50           | 3.43                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.00           | 3.45                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.50           | 3.45                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 0.00               | 0.00            |                 |                     |                    |                 |

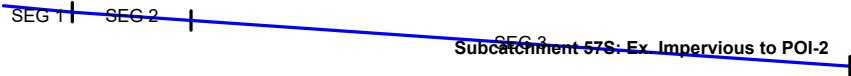
Summary for Subcatchment 57S: Ex. Impervious to POI-2

Runoff = 1.64 cfs @ 12.21 hrs, Volume= 6,829 cf, Depth= 3.22"  
Routed to Pond 58P : Existing Drainage Area POI-2 (Isolated Wetland)

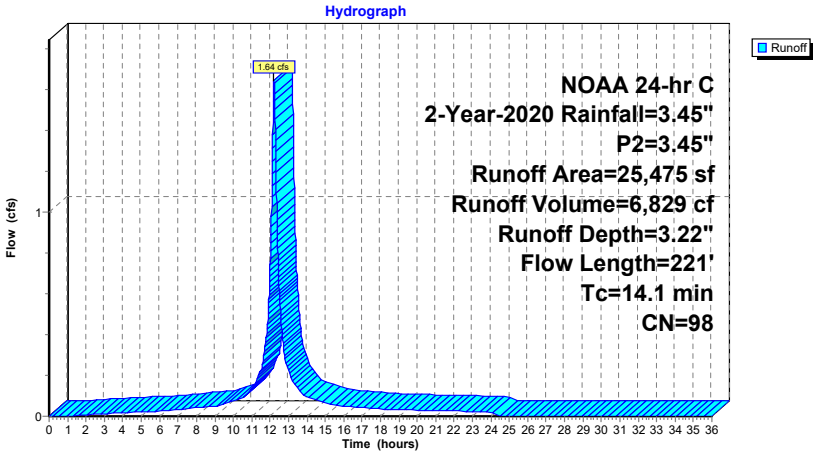
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 25,475    | 98 | Paved parking, HSG A    |
| 25,475    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 0.3      | 18            | 0.0200        | 1.01              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.45"                                            |
| 9.1      | 31            | 0.0150        | 0.06              |                | Sheet Flow, SEG 2<br>Woods: Light underbrush n= 0.400 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 4.7      | 172           | 0.0150        | 0.61              |                | Shallow Concentrated Flow, SEG 3<br>Woodland Kv= 5.0 fps                                           |
| 14.1     | 221           |               |                   |                | Total                                                                                              |



Subcatchment 57S: Ex. Impervious to POI-2



Hydrograph for Subcatchment 57S: Ex. Impervious to POI-2

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 3.22               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 3.22               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 3.22               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 3.22               | 0.00            |
| 2.00            | 0.08                | 0.01               | 0.01            | 28.00           | 3.45                | 3.22               | 0.00            |
| 2.50            | 0.10                | 0.01               | 0.01            | 28.50           | 3.45                | 3.22               | 0.00            |
| 3.00            | 0.12                | 0.02               | 0.01            | 29.00           | 3.45                | 3.22               | 0.00            |
| 3.50            | 0.14                | 0.04               | 0.01            | 29.50           | 3.45                | 3.22               | 0.00            |
| 4.00            | 0.17                | 0.05               | 0.02            | 30.00           | 3.45                | 3.22               | 0.00            |
| 4.50            | 0.19                | 0.07               | 0.02            | 30.50           | 3.45                | 3.22               | 0.00            |
| 5.00            | 0.22                | 0.08               | 0.02            | 31.00           | 3.45                | 3.22               | 0.00            |
| 5.50            | 0.25                | 0.10               | 0.02            | 31.50           | 3.45                | 3.22               | 0.00            |
| 6.00            | 0.27                | 0.12               | 0.02            | 32.00           | 3.45                | 3.22               | 0.00            |
| 6.50            | 0.30                | 0.15               | 0.03            | 32.50           | 3.45                | 3.22               | 0.00            |
| 7.00            | 0.34                | 0.17               | 0.03            | 33.00           | 3.45                | 3.22               | 0.00            |
| 7.50            | 0.37                | 0.21               | 0.04            | 33.50           | 3.45                | 3.22               | 0.00            |
| 8.00            | 0.41                | 0.24               | 0.04            | 34.00           | 3.45                | 3.22               | 0.00            |
| 8.50            | 0.46                | 0.28               | 0.05            | 34.50           | 3.45                | 3.22               | 0.00            |
| 9.00            | 0.50                | 0.32               | 0.05            | 35.00           | 3.45                | 3.22               | 0.00            |
| 9.50            | 0.56                | 0.37               | 0.06            | 35.50           | 3.45                | 3.22               | 0.00            |
| 10.00           | 0.63                | 0.44               | 0.08            | 36.00           | 3.45                | 3.22               | 0.00            |
| 10.50           | 0.71                | 0.51               | 0.09            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.63               | 0.13            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.81               | 0.23            |                 |                     |                    |                 |
| 12.00           | 1.64                | 1.42               | 0.71            |                 |                     |                    |                 |
| 12.50           | 2.43                | 2.20               | 0.82            |                 |                     |                    |                 |
| 13.00           | 2.62                | 2.39               | 0.22            |                 |                     |                    |                 |
| 13.50           | 2.74                | 2.51               | 0.13            |                 |                     |                    |                 |
| 14.00           | 2.82                | 2.59               | 0.10            |                 |                     |                    |                 |
| 14.50           | 2.89                | 2.66               | 0.08            |                 |                     |                    |                 |
| 15.00           | 2.95                | 2.71               | 0.06            |                 |                     |                    |                 |
| 15.50           | 2.99                | 2.76               | 0.06            |                 |                     |                    |                 |
| 16.00           | 3.04                | 2.80               | 0.05            |                 |                     |                    |                 |
| 16.50           | 3.08                | 2.84               | 0.05            |                 |                     |                    |                 |
| 17.00           | 3.11                | 2.88               | 0.04            |                 |                     |                    |                 |
| 17.50           | 3.15                | 2.91               | 0.04            |                 |                     |                    |                 |
| 18.00           | 3.18                | 2.94               | 0.03            |                 |                     |                    |                 |
| 18.50           | 3.20                | 2.97               | 0.03            |                 |                     |                    |                 |
| 19.00           | 3.23                | 3.00               | 0.03            |                 |                     |                    |                 |
| 19.50           | 3.26                | 3.02               | 0.03            |                 |                     |                    |                 |
| 20.00           | 3.28                | 3.05               | 0.03            |                 |                     |                    |                 |
| 20.50           | 3.31                | 3.07               | 0.03            |                 |                     |                    |                 |
| 21.00           | 3.33                | 3.10               | 0.03            |                 |                     |                    |                 |
| 21.50           | 3.35                | 3.12               | 0.03            |                 |                     |                    |                 |
| 22.00           | 3.37                | 3.14               | 0.03            |                 |                     |                    |                 |
| 22.50           | 3.39                | 3.16               | 0.02            |                 |                     |                    |                 |
| 23.00           | 3.41                | 3.18               | 0.02            |                 |                     |                    |                 |
| 23.50           | 3.43                | 3.20               | 0.02            |                 |                     |                    |                 |
| 24.00           | 3.45                | 3.22               | 0.02            |                 |                     |                    |                 |
| 24.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |

Summary for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

Inflow Area = 209,825 sf, 12.14% Impervious, Inflow Depth = 0.39" for 2-Year-2020 event  
Inflow = 1.64 cfs @ 12.21 hrs, Volume= 6,829 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

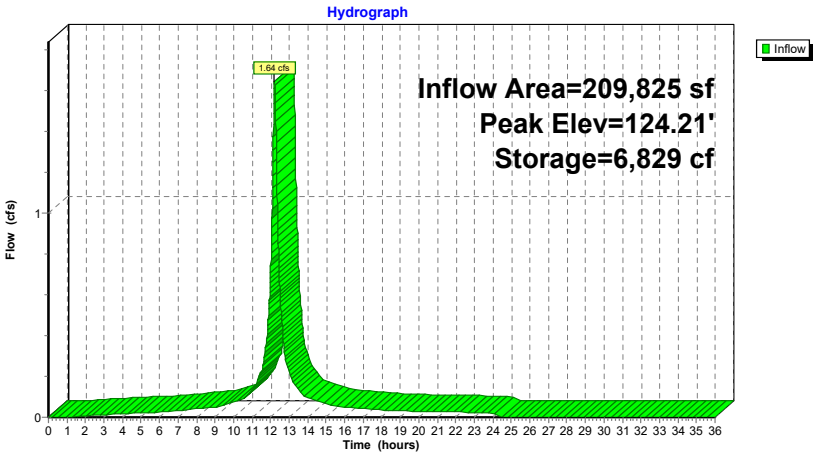
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 124.21' @ 24.79 hrs Surf.Area= 12,948 sf Storage= 6,829 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

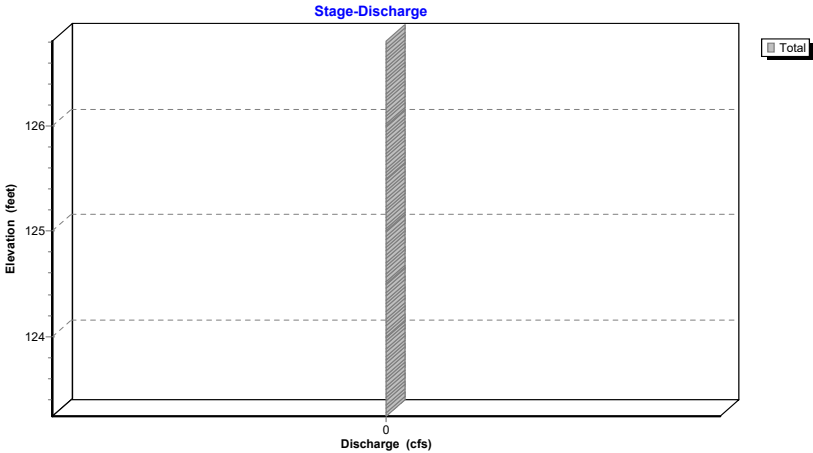
| Volume              | Invert               | Avail.Storage             | Storage Description                                 |
|---------------------|----------------------|---------------------------|-----------------------------------------------------|
| #1                  | 123.25'              | 97,696 cf                 | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                           |
| 123.25              | 1,260                | 0                         | 0                                                   |
| 123.50              | 4,142                | 675                       | 675                                                 |
| 123.75              | 7,451                | 1,449                     | 2,124                                               |
| 124.00              | 10,505               | 2,245                     | 4,369                                               |
| 124.50              | 16,329               | 6,709                     | 11,077                                              |
| 125.00              | 23,865               | 10,049                    | 21,126                                              |
| 125.50              | 32,790               | 14,164                    | 35,290                                              |
| 126.00              | 42,891               | 18,920                    | 54,210                                              |
| 126.80              | 65,825               | 43,486                    | 97,696                                              |

Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

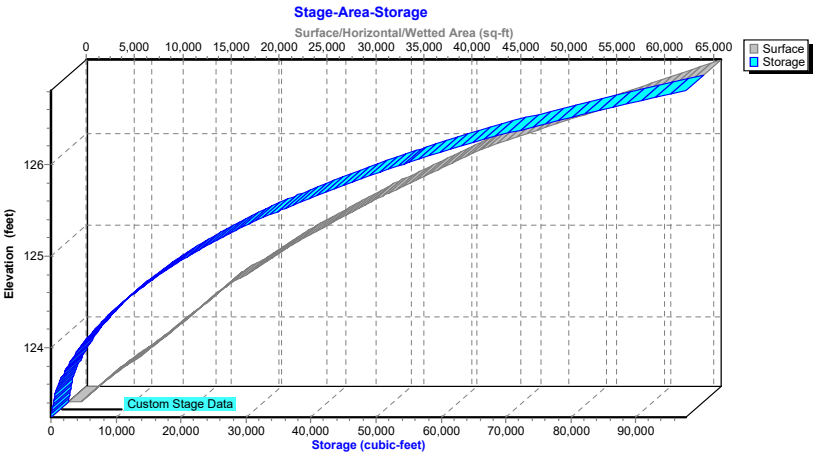
Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)



Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)



Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)



**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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**Hydrograph for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)**

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) |
|-----------------|-----------------|-------------------------|---------------------|-----------------|-----------------|-------------------------|---------------------|
| 0.00            | 0.00            | 0                       | 123.25              | 26.00           | 0.00            | 6,829                   | 124.21              |
| 0.50            | 0.00            | 0                       | 123.25              | 26.50           | 0.00            | 6,829                   | 124.21              |
| 1.00            | 0.00            | 0                       | 123.25              | 27.00           | 0.00            | 6,829                   | 124.21              |
| 1.50            | 0.00            | 1                       | 123.25              | 27.50           | 0.00            | 6,829                   | 124.21              |
| 2.00            | 0.01            | 7                       | 123.26              | 28.00           | 0.00            | 6,829                   | 124.21              |
| 2.50            | 0.01            | 20                      | 123.27              | 28.50           | 0.00            | 6,829                   | 124.21              |
| 3.00            | 0.01            | 39                      | 123.28              | 29.00           | 0.00            | 6,829                   | 124.21              |
| 3.50            | 0.01            | 63                      | 123.29              | 29.50           | 0.00            | 6,829                   | 124.21              |
| 4.00            | 0.02            | 91                      | 123.31              | 30.00           | 0.00            | 6,829                   | 124.21              |
| 4.50            | 0.02            | 124                     | 123.32              | 30.50           | 0.00            | 6,829                   | 124.21              |
| 5.00            | 0.02            | 160                     | 123.34              | 31.00           | 0.00            | 6,829                   | 124.21              |
| 5.50            | 0.02            | 200                     | 123.36              | 31.50           | 0.00            | 6,829                   | 124.21              |
| 6.00            | 0.02            | 243                     | 123.37              | 32.00           | 0.00            | 6,829                   | 124.21              |
| 6.50            | 0.03            | 291                     | 123.39              | 32.50           | 0.00            | 6,829                   | 124.21              |
| 7.00            | 0.03            | 345                     | 123.41              | 33.00           | 0.00            | 6,829                   | 124.21              |
| 7.50            | 0.04            | 408                     | 123.43              | 33.50           | 0.00            | 6,829                   | 124.21              |
| 8.00            | 0.04            | 478                     | 123.45              | 34.00           | 0.00            | 6,829                   | 124.21              |
| 8.50            | 0.05            | 556                     | 123.47              | 34.50           | 0.00            | 6,829                   | 124.21              |
| 9.00            | 0.05            | 642                     | 123.49              | 35.00           | 0.00            | 6,829                   | 124.21              |
| 9.50            | 0.06            | 741                     | 123.52              | 35.50           | 0.00            | 6,829                   | 124.21              |
| 10.00           | 0.08            | 865                     | 123.54              | 36.00           | 0.00            | 6,829                   | 124.21              |
| 10.50           | 0.09            | 1,017                   | 123.57              |                 |                 |                         |                     |
| 11.00           | 0.13            | 1,214                   | 123.61              |                 |                 |                         |                     |
| 11.50           | 0.23            | 1,530                   | 123.66              |                 |                 |                         |                     |
| 12.00           | <b>0.71</b>     | 2,226                   | 123.76              |                 |                 |                         |                     |
| 12.50           | <b>0.62</b>     | 4,280                   | 123.99              |                 |                 |                         |                     |
| 13.00           | 0.22            | 4,920                   | 124.05              |                 |                 |                         |                     |
| 13.50           | 0.13            | 5,228                   | 124.08              |                 |                 |                         |                     |
| 14.00           | 0.10            | 5,425                   | 124.10              |                 |                 |                         |                     |
| 14.50           | 0.08            | 5,583                   | 124.11              |                 |                 |                         |                     |
| 15.00           | 0.06            | 5,714                   | 124.12              |                 |                 |                         |                     |
| 15.50           | 0.06            | 5,820                   | 124.13              |                 |                 |                         |                     |
| 16.00           | 0.05            | 5,915                   | 124.14              |                 |                 |                         |                     |
| 16.50           | 0.05            | 6,003                   | 124.14              |                 |                 |                         |                     |
| 17.00           | 0.04            | 6,084                   | 124.15              |                 |                 |                         |                     |
| 17.50           | 0.04            | 6,157                   | 124.16              |                 |                 |                         |                     |
| 18.00           | 0.03            | 6,223                   | 124.16              |                 |                 |                         |                     |
| 18.50           | 0.03            | 6,283                   | 124.17              |                 |                 |                         |                     |
| 19.00           | 0.03            | 6,340                   | 124.17              |                 |                 |                         |                     |
| 19.50           | 0.03            | 6,395                   | 124.18              |                 |                 |                         |                     |
| 20.00           | 0.03            | 6,449                   | 124.18              |                 |                 |                         |                     |
| 20.50           | 0.03            | 6,500                   | 124.18              |                 |                 |                         |                     |
| 21.00           | 0.03            | 6,550                   | 124.19              |                 |                 |                         |                     |
| 21.50           | 0.03            | 6,598                   | 124.19              |                 |                 |                         |                     |
| 22.00           | 0.03            | 6,644                   | 124.20              |                 |                 |                         |                     |
| 22.50           | 0.02            | 6,688                   | 124.20              |                 |                 |                         |                     |
| 23.00           | 0.02            | 6,731                   | 124.20              |                 |                 |                         |                     |
| 23.50           | 0.02            | 6,771                   | 124.21              |                 |                 |                         |                     |
| 24.00           | 0.02            | 6,810                   | 124.21              |                 |                 |                         |                     |
| 24.50           | 0.00            | <b>6,828</b>            | <b>124.21</b>       |                 |                 |                         |                     |
| 25.00           | 0.00            | <b>6,829</b>            | <b>124.21</b>       |                 |                 |                         |                     |
| 25.50           | 0.00            | 6,829                   | 124.21              |                 |                 |                         |                     |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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**Stage-Discharge for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)**

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 123.25              | <b>0.00</b>        | 124.29              | 0.00               | 125.33              | 0.00               | 126.37              | 0.00               |
| 123.27              | 0.00               | 124.31              | 0.00               | 125.35              | 0.00               | 126.39              | 0.00               |
| 123.29              | 0.00               | 124.33              | 0.00               | 125.37              | 0.00               | 126.41              | 0.00               |
| 123.31              | 0.00               | 124.35              | 0.00               | 125.39              | 0.00               | 126.43              | 0.00               |
| 123.33              | 0.00               | 124.37              | 0.00               | 125.41              | 0.00               | 126.45              | 0.00               |
| 123.35              | 0.00               | 124.39              | 0.00               | 125.43              | 0.00               | 126.47              | 0.00               |
| 123.37              | 0.00               | 124.41              | 0.00               | 125.45              | 0.00               | 126.49              | 0.00               |
| 123.39              | 0.00               | 124.43              | 0.00               | 125.47              | 0.00               | 126.51              | 0.00               |
| 123.41              | 0.00               | 124.45              | 0.00               | 125.49              | 0.00               | 126.53              | 0.00               |
| 123.43              | 0.00               | 124.47              | 0.00               | 125.51              | 0.00               | 126.55              | 0.00               |
| 123.45              | 0.00               | 124.49              | 0.00               | 125.53              | 0.00               | 126.57              | 0.00               |
| 123.47              | 0.00               | 124.51              | 0.00               | 125.55              | 0.00               | 126.59              | 0.00               |
| 123.49              | 0.00               | 124.53              | 0.00               | 125.57              | 0.00               | 126.61              | 0.00               |
| 123.51              | 0.00               | 124.55              | 0.00               | 125.59              | 0.00               | 126.63              | 0.00               |
| 123.53              | 0.00               | 124.57              | 0.00               | 125.61              | 0.00               | 126.65              | 0.00               |
| 123.55              | 0.00               | 124.59              | 0.00               | 125.63              | 0.00               | 126.67              | 0.00               |
| 123.57              | 0.00               | 124.61              | 0.00               | 125.65              | 0.00               | 126.69              | 0.00               |
| 123.59              | 0.00               | 124.63              | 0.00               | 125.67              | 0.00               | 126.71              | 0.00               |
| 123.61              | 0.00               | 124.65              | 0.00               | 125.69              | 0.00               | 126.73              | 0.00               |
| 123.63              | 0.00               | 124.67              | 0.00               | 125.71              | 0.00               | 126.75              | 0.00               |
| 123.65              | 0.00               | 124.69              | 0.00               | 125.73              | 0.00               | 126.77              | 0.00               |
| 123.67              | 0.00               | 124.71              | 0.00               | 125.75              | 0.00               | 126.79              | 0.00               |
| 123.69              | 0.00               | 124.73              | 0.00               | 125.77              | 0.00               |                     |                    |
| 123.71              | 0.00               | 124.75              | 0.00               | 125.79              | 0.00               |                     |                    |
| 123.73              | 0.00               | 124.77              | 0.00               | 125.81              | 0.00               |                     |                    |
| 123.75              | 0.00               | 124.79              | 0.00               | 125.83              | 0.00               |                     |                    |
| 123.77              | 0.00               | 124.81              | 0.00               | 125.85              | 0.00               |                     |                    |
| 123.79              | 0.00               | 124.83              | 0.00               | 125.87              | 0.00               |                     |                    |
| 123.81              | 0.00               | 124.85              | 0.00               | 125.89              | 0.00               |                     |                    |
| 123.83              | 0.00               | 124.87              | 0.00               | 125.91              | 0.00               |                     |                    |
| 123.85              | 0.00               | 124.89              | 0.00               | 125.93              | 0.00               |                     |                    |
| 123.87              | 0.00               | 124.91              | 0.00               | 125.95              | 0.00               |                     |                    |
| 123.89              | 0.00               | 124.93              | 0.00               | 125.97              | 0.00               |                     |                    |
| 123.91              | 0.00               | 124.95              | 0.00               | 125.99              | 0.00               |                     |                    |
| 123.93              | 0.00               | 124.97              | 0.00               | 126.01              | 0.00               |                     |                    |
| 123.95              | 0.00               | 124.99              | 0.00               | 126.03              | 0.00               |                     |                    |
| 123.97              | 0.00               | 125.01              | 0.00               | 126.05              | 0.00               |                     |                    |
| 123.99              | 0.00               | 125.03              | 0.00               | 126.07              | 0.00               |                     |                    |
| 124.01              | 0.00               | 125.05              | 0.00               | 126.09              | 0.00               |                     |                    |
| 124.03              | 0.00               | 125.07              | 0.00               | 126.11              | 0.00               |                     |                    |
| 124.05              | 0.00               | 125.09              | 0.00               | 126.13              | 0.00               |                     |                    |
| 124.07              | 0.00               | 125.11              | 0.00               | 126.15              | 0.00               |                     |                    |
| 124.09              | 0.00               | 125.13              | 0.00               | 126.17              | 0.00               |                     |                    |
| 124.11              | 0.00               | 125.15              | 0.00               | 126.19              | 0.00               |                     |                    |
| 124.13              | 0.00               | 125.17              | 0.00               | 126.21              | 0.00               |                     |                    |
| 124.15              | 0.00               | 125.19              | 0.00               | 126.23              | 0.00               |                     |                    |
| 124.17              | 0.00               | 125.21              | 0.00               | 126.25              | 0.00               |                     |                    |
| 124.19              | 0.00               | 125.23              | 0.00               | 126.27              | 0.00               |                     |                    |
| 124.21              | 0.00               | 125.25              | 0.00               | 126.29              | 0.00               |                     |                    |
| 124.23              | 0.00               | 125.27              | 0.00               | 126.31              | 0.00               |                     |                    |
| 124.25              | 0.00               | 125.29              | 0.00               | 126.33              | 0.00               |                     |                    |
| 124.27              | 0.00               | 125.31              | 0.00               | 126.35              | 0.00               |                     |                    |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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**Stage-Area-Storage for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 123.25              | 1,260              | 0                       | 125.85              | 39,861             | 48,003                  |
| 123.30              | 1,836              | 77                      | 125.90              | 40,871             | 50,022                  |
| 123.35              | 2,413              | 184                     | 125.95              | 41,881             | 52,091                  |
| 123.40              | 2,989              | 319                     | 126.00              | 42,891             | 54,210                  |
| 123.45              | 3,566              | 483                     | 126.05              | 44,324             | 56,390                  |
| 123.50              | 4,142              | 675                     | 126.10              | 45,758             | 58,642                  |
| 123.55              | 4,804              | 899                     | 126.15              | 47,191             | 60,966                  |
| 123.60              | 5,466              | 1,156                   | 126.20              | 48,625             | 63,361                  |
| 123.65              | 6,127              | 1,445                   | 126.25              | 50,058             | 65,828                  |
| 123.70              | 6,789              | 1,768                   | 126.30              | 51,491             | 68,367                  |
| 123.75              | 7,451              | 2,124                   | 126.35              | 52,925             | 70,978                  |
| 123.80              | 8,062              | 2,512                   | 126.40              | 54,358             | 73,660                  |
| 123.85              | 8,673              | 2,931                   | 126.45              | 55,791             | 76,413                  |
| 123.90              | 9,283              | 3,379                   | 126.50              | 57,225             | 79,239                  |
| 123.95              | 9,894              | 3,859                   | 126.55              | 58,658             | 82,136                  |
| 124.00              | 10,505             | 4,369                   | 126.60              | 60,091             | 85,105                  |
| 124.05              | 11,087             | 4,909                   | 126.65              | 61,525             | 88,145                  |
| 124.10              | 11,670             | 5,478                   | 126.70              | 62,958             | 91,257                  |
| 124.15              | 12,252             | 6,076                   | 126.75              | 64,392             | 94,441                  |
| 124.20              | 12,835             | 6,703                   | 126.80              | <b>65,825</b>      | <b>97,696</b>           |
| 124.25              | 13,417             | 7,359                   |                     |                    |                         |
| 124.30              | 13,999             | 8,045                   |                     |                    |                         |
| 124.35              | 14,582             | 8,759                   |                     |                    |                         |
| 124.40              | 15,164             | 9,503                   |                     |                    |                         |
| 124.45              | 15,747             | 10,275                  |                     |                    |                         |
| 124.50              | 16,329             | 11,077                  |                     |                    |                         |
| 124.55              | 17,083             | 11,913                  |                     |                    |                         |
| 124.60              | 17,836             | 12,786                  |                     |                    |                         |
| 124.65              | 18,590             | 13,696                  |                     |                    |                         |
| 124.70              | 19,343             | 14,645                  |                     |                    |                         |
| 124.75              | 20,097             | 15,631                  |                     |                    |                         |
| 124.80              | 20,851             | 16,654                  |                     |                    |                         |
| 124.85              | 21,604             | 17,716                  |                     |                    |                         |
| 124.90              | 22,358             | 18,815                  |                     |                    |                         |
| 124.95              | 23,111             | 19,951                  |                     |                    |                         |
| 125.00              | 23,865             | 21,126                  |                     |                    |                         |
| 125.05              | 24,757             | 22,341                  |                     |                    |                         |
| 125.10              | 25,650             | 23,602                  |                     |                    |                         |
| 125.15              | 26,543             | 24,906                  |                     |                    |                         |
| 125.20              | 27,435             | 26,256                  |                     |                    |                         |
| 125.25              | 28,328             | 27,650                  |                     |                    |                         |
| 125.30              | 29,220             | 29,089                  |                     |                    |                         |
| 125.35              | 30,112             | 30,572                  |                     |                    |                         |
| 125.40              | 31,005             | 32,100                  |                     |                    |                         |
| 125.45              | 31,898             | 33,672                  |                     |                    |                         |
| 125.50              | 32,790             | 35,290                  |                     |                    |                         |
| 125.55              | 33,800             | 36,954                  |                     |                    |                         |
| 125.60              | 34,810             | 38,670                  |                     |                    |                         |
| 125.65              | 35,820             | 40,435                  |                     |                    |                         |
| 125.70              | 36,830             | 42,252                  |                     |                    |                         |
| 125.75              | 37,841             | 44,118                  |                     |                    |                         |
| 125.80              | 38,851             | 46,036                  |                     |                    |                         |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment56S: Ex. Pervious to POI-2** Runoff Area=184,350 sf 0.00% Impervious Runoff Depth=0.13"  
Flow Length=747' Tc=19.3 min CN=35 Runoff=0.07 cfs 2,034 cf

**Subcatchment57S: Ex. Impervious to** Runoff Area=25,475 sf 100.00% Impervious Runoff Depth=5.11"  
Flow Length=221' Tc=14.1 min CN=98 Runoff=2.57 cfs 10,854 cf

**Pond 58P: Existing Drainage Area POI-2** Peak Elev=124.61' Storage=12,888 cf Inflow=2.57 cfs 12,888 cf  
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 209,825 sf Runoff Volume = 12,888 cf Average Runoff Depth = 0.74"**  
**87.86% Pervious = 184,350 sf 12.14% Impervious = 25,475 sf**



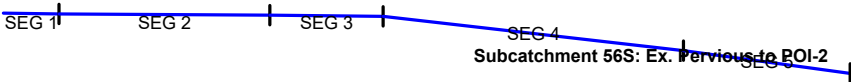
Summary for Subcatchment 56S: Ex. Pervious to POI-2

Runoff = 0.07 cfs @ 13.49 hrs, Volume= 2,034 cf, Depth= 0.13"  
Routed to Pond 58P : Existing Drainage Area POI-2 (Isolated Wetland)

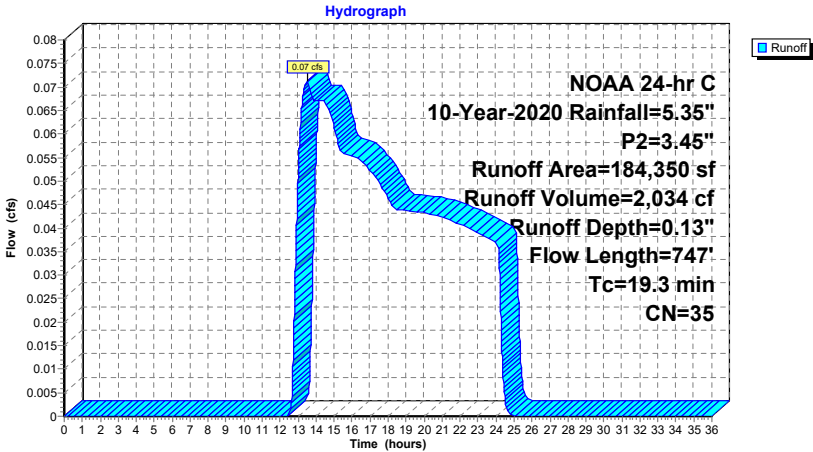
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description                    |
|-----------|----|--------------------------------|
| 79,767    | 39 | >75% Grass cover, Good, HSG A  |
| 4,864     | 61 | >75% Grass cover, Good, HSG B  |
| 1,899     | 32 | Woods/grass comb., Good, HSG A |
| 97,820    | 30 | Woods, Good, HSG A             |
| 184,350   | 35 | Weighted Average               |
| 184,350   |    | 100.00% Pervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                              |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------------|
| 9.0      | 49            | 0.0140        | 0.09              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.45"<br>Using McCuen-Spiess flow length                  |
| 6.3      | 186           | 0.0050        | 0.49              |                | Shallow Concentrated Flow, SEG 2<br>Short Grass Pasture Kv= 7.0 fps                                      |
| 2.4      | 100           | 0.0100        | 0.70              |                | Shallow Concentrated Flow, SEG 3<br>Short Grass Pasture Kv= 7.0 fps                                      |
| 0.2      | 265           | 0.1000        | 24.67             | 77.50          | Pipe Channel, SEG 4<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.012 Concrete pipe, finished |
| 1.4      | 147           | 0.1200        | 1.73              |                | Shallow Concentrated Flow, SEG 5<br>Woodland Kv= 5.0 fps                                                 |
| 19.3     | 747           | Total         |                   |                |                                                                                                          |



Subcatchment 56S: Ex. Pervious to POI-2



**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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**Hydrograph for Subcatchment 56S: Ex. Pervious to POI-2**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 0.13               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 0.13               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 0.13               | 0.00            |
| 1.50            | 0.09                | 0.00               | 0.00            | 27.50           | 5.35                | 0.13               | 0.00            |
| 2.00            | 0.12                | 0.00               | 0.00            | 28.00           | 5.35                | 0.13               | 0.00            |
| 2.50            | 0.15                | 0.00               | 0.00            | 28.50           | 5.35                | 0.13               | 0.00            |
| 3.00            | 0.19                | 0.00               | 0.00            | 29.00           | 5.35                | 0.13               | 0.00            |
| 3.50            | 0.22                | 0.00               | 0.00            | 29.50           | 5.35                | 0.13               | 0.00            |
| 4.00            | 0.26                | 0.00               | 0.00            | 30.00           | 5.35                | 0.13               | 0.00            |
| 4.50            | 0.30                | 0.00               | 0.00            | 30.50           | 5.35                | 0.13               | 0.00            |
| 5.00            | 0.34                | 0.00               | 0.00            | 31.00           | 5.35                | 0.13               | 0.00            |
| 5.50            | 0.38                | 0.00               | 0.00            | 31.50           | 5.35                | 0.13               | 0.00            |
| 6.00            | 0.42                | 0.00               | 0.00            | 32.00           | 5.35                | 0.13               | 0.00            |
| 6.50            | 0.47                | 0.00               | 0.00            | 32.50           | 5.35                | 0.13               | 0.00            |
| 7.00            | 0.52                | 0.00               | 0.00            | 33.00           | 5.35                | 0.13               | 0.00            |
| 7.50            | 0.58                | 0.00               | 0.00            | 33.50           | 5.35                | 0.13               | 0.00            |
| 8.00            | 0.64                | 0.00               | 0.00            | 34.00           | 5.35                | 0.13               | 0.00            |
| 8.50            | 0.71                | 0.00               | 0.00            | 34.50           | 5.35                | 0.13               | 0.00            |
| 9.00            | 0.78                | 0.00               | 0.00            | 35.00           | 5.35                | 0.13               | 0.00            |
| 9.50            | 0.87                | 0.00               | 0.00            | 35.50           | 5.35                | 0.13               | 0.00            |
| 10.00           | 0.98                | 0.00               | 0.00            | 36.00           | 5.35                | 0.13               | 0.00            |
| 10.50           | 1.10                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.58                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.55                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 3.77                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 4.07                | 0.01               | <b>0.05</b>     |                 |                     |                    |                 |
| 13.50           | 4.25                | 0.01               | <b>0.07</b>     |                 |                     |                    |                 |
| 14.00           | 4.37                | 0.02               | 0.07            |                 |                     |                    |                 |
| 14.50           | 4.48                | 0.03               | 0.07            |                 |                     |                    |                 |
| 15.00           | 4.57                | 0.04               | 0.06            |                 |                     |                    |                 |
| 15.50           | 4.64                | 0.04               | 0.06            |                 |                     |                    |                 |
| 16.00           | 4.71                | 0.05               | 0.06            |                 |                     |                    |                 |
| 16.50           | 4.77                | 0.06               | 0.05            |                 |                     |                    |                 |
| 17.00           | 4.83                | 0.06               | 0.05            |                 |                     |                    |                 |
| 17.50           | 4.88                | 0.07               | 0.05            |                 |                     |                    |                 |
| 18.00           | 4.93                | 0.07               | 0.05            |                 |                     |                    |                 |
| 18.50           | 4.97                | 0.08               | 0.04            |                 |                     |                    |                 |
| 19.00           | 5.01                | 0.08               | 0.04            |                 |                     |                    |                 |
| 19.50           | 5.05                | 0.09               | 0.04            |                 |                     |                    |                 |
| 20.00           | 5.09                | 0.09               | 0.04            |                 |                     |                    |                 |
| 20.50           | 5.13                | 0.10               | 0.04            |                 |                     |                    |                 |
| 21.00           | 5.16                | 0.10               | 0.04            |                 |                     |                    |                 |
| 21.50           | 5.20                | 0.11               | 0.04            |                 |                     |                    |                 |
| 22.00           | 5.23                | 0.11               | 0.04            |                 |                     |                    |                 |
| 22.50           | 5.26                | 0.12               | 0.04            |                 |                     |                    |                 |
| 23.00           | 5.29                | 0.12               | 0.04            |                 |                     |                    |                 |
| 23.50           | 5.32                | 0.13               | 0.04            |                 |                     |                    |                 |
| 24.00           | <b>5.35</b>         | <b>0.13</b>        | 0.04            |                 |                     |                    |                 |
| 24.50           | 5.35                | 0.13               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 0.13               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 0.13               | 0.00            |                 |                     |                    |                 |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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**Summary for Subcatchment 57S: Ex. Impervious to POI-2**

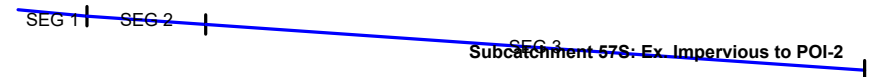
Runoff = 2.57 cfs @ 12.21 hrs, Volume= 10,854 cf, Depth= 5.11"  
Routed to Pond 58P : Existing Drainage Area POI-2 (Isolated Wetland)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

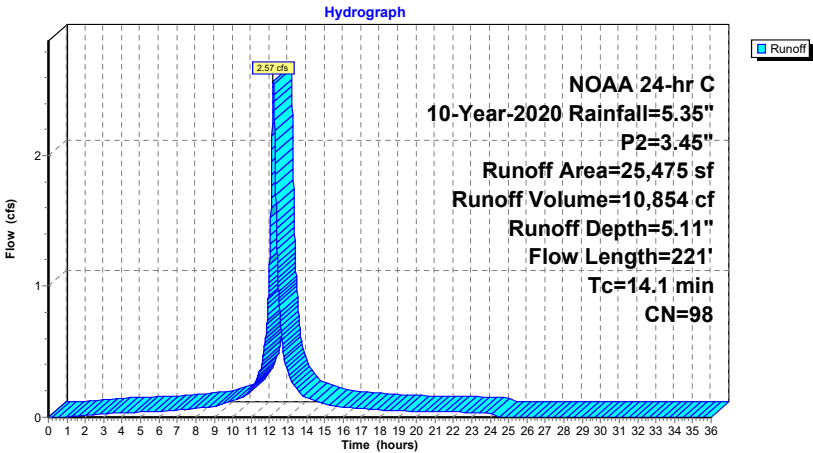
| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 25,475    | 98 | Paved parking, HSG A    |
| 25,475    |    | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                               |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------|
| 0.3         | 18               | 0.0200           | 1.01                 |                   | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.45"                                            |
| 9.1         | 31               | 0.0150           | 0.06                 |                   | <b>Sheet Flow, SEG 2</b><br>Woods: Light underbrush n= 0.400 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 4.7         | 172              | 0.0150           | 0.61                 |                   | <b>Shallow Concentrated Flow, SEG 3</b><br>Woodland Kv= 5.0 fps                                           |
| 14.1        | 221              | Total            |                      |                   |                                                                                                           |



Subcatchment 57S: Ex. Impervious to POI-2



Hydrograph for Subcatchment 57S: Ex. Impervious to POI-2

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 5.35             | 5.11            | 0.00         |
| 0.50         | 0.03             | 0.00            | 0.00         | 26.50        | 5.35             | 5.11            | 0.00         |
| 1.00         | 0.06             | 0.00            | 0.00         | 27.00        | 5.35             | 5.11            | 0.00         |
| 1.50         | 0.09             | 0.01            | 0.01         | 27.50        | 5.35             | 5.11            | 0.00         |
| 2.00         | 0.12             | 0.02            | 0.02         | 28.00        | 5.35             | 5.11            | 0.00         |
| 2.50         | 0.15             | 0.04            | 0.02         | 28.50        | 5.35             | 5.11            | 0.00         |
| 3.00         | 0.19             | 0.06            | 0.03         | 29.00        | 5.35             | 5.11            | 0.00         |
| 3.50         | 0.22             | 0.09            | 0.03         | 29.50        | 5.35             | 5.11            | 0.00         |
| 4.00         | 0.26             | 0.11            | 0.03         | 30.00        | 5.35             | 5.11            | 0.00         |
| 4.50         | 0.30             | 0.15            | 0.04         | 30.50        | 5.35             | 5.11            | 0.00         |
| 5.00         | 0.34             | 0.18            | 0.04         | 31.00        | 5.35             | 5.11            | 0.00         |
| 5.50         | 0.38             | 0.21            | 0.04         | 31.50        | 5.35             | 5.11            | 0.00         |
| 6.00         | 0.42             | 0.25            | 0.04         | 32.00        | 5.35             | 5.11            | 0.00         |
| 6.50         | 0.47             | 0.29            | 0.05         | 32.50        | 5.35             | 5.11            | 0.00         |
| 7.00         | 0.52             | 0.34            | 0.06         | 33.00        | 5.35             | 5.11            | 0.00         |
| 7.50         | 0.58             | 0.39            | 0.06         | 33.50        | 5.35             | 5.11            | 0.00         |
| 8.00         | 0.64             | 0.45            | 0.07         | 34.00        | 5.35             | 5.11            | 0.00         |
| 8.50         | 0.71             | 0.51            | 0.08         | 34.50        | 5.35             | 5.11            | 0.00         |
| 9.00         | 0.78             | 0.58            | 0.08         | 35.00        | 5.35             | 5.11            | 0.00         |
| 9.50         | 0.87             | 0.66            | 0.10         | 35.50        | 5.35             | 5.11            | 0.00         |
| 10.00        | 0.98             | 0.77            | 0.12         | 36.00        | 5.35             | 5.11            | 0.00         |
| 10.50        | 1.10             | 0.89            | 0.15         |              |                  |                 |              |
| 11.00        | 1.28             | 1.07            | 0.21         |              |                  |                 |              |
| 11.50        | 1.58             | 1.36            | 0.36         |              |                  |                 |              |
| 12.00        | 2.55             | 2.32            | 1.11         |              |                  |                 |              |
| 12.50        | 3.77             | 3.53            | 0.96         |              |                  |                 |              |
| 13.00        | 4.07             | 3.83            | 0.34         |              |                  |                 |              |
| 13.50        | 4.25             | 4.01            | 0.21         |              |                  |                 |              |
| 14.00        | 4.37             | 4.14            | 0.15         |              |                  |                 |              |
| 14.50        | 4.48             | 4.25            | 0.12         |              |                  |                 |              |
| 15.00        | 4.57             | 4.33            | 0.10         |              |                  |                 |              |
| 15.50        | 4.64             | 4.41            | 0.09         |              |                  |                 |              |
| 16.00        | 4.71             | 4.47            | 0.08         |              |                  |                 |              |
| 16.50        | 4.77             | 4.53            | 0.07         |              |                  |                 |              |
| 17.00        | 4.83             | 4.59            | 0.07         |              |                  |                 |              |
| 17.50        | 4.88             | 4.64            | 0.06         |              |                  |                 |              |
| 18.00        | 4.93             | 4.69            | 0.05         |              |                  |                 |              |
| 18.50        | 4.97             | 4.73            | 0.05         |              |                  |                 |              |
| 19.00        | 5.01             | 4.77            | 0.05         |              |                  |                 |              |
| 19.50        | 5.05             | 4.81            | 0.05         |              |                  |                 |              |
| 20.00        | 5.09             | 4.85            | 0.05         |              |                  |                 |              |
| 20.50        | 5.13             | 4.89            | 0.04         |              |                  |                 |              |
| 21.00        | 5.16             | 4.92            | 0.04         |              |                  |                 |              |
| 21.50        | 5.20             | 4.96            | 0.04         |              |                  |                 |              |
| 22.00        | 5.23             | 4.99            | 0.04         |              |                  |                 |              |
| 22.50        | 5.26             | 5.02            | 0.04         |              |                  |                 |              |
| 23.00        | 5.29             | 5.05            | 0.04         |              |                  |                 |              |
| 23.50        | 5.32             | 5.08            | 0.03         |              |                  |                 |              |
| 24.00        | 5.35             | 5.11            | 0.03         |              |                  |                 |              |
| 24.50        | 5.35             | 5.11            | 0.00         |              |                  |                 |              |
| 25.00        | 5.35             | 5.11            | 0.00         |              |                  |                 |              |
| 25.50        | 5.35             | 5.11            | 0.00         |              |                  |                 |              |

Summary for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

Inflow Area = 209,825 sf, 12.14% Impervious, Inflow Depth = 0.74" for 10-Year-2020 event  
Inflow = 2.57 cfs @ 12.21 hrs, Volume= 12,888 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

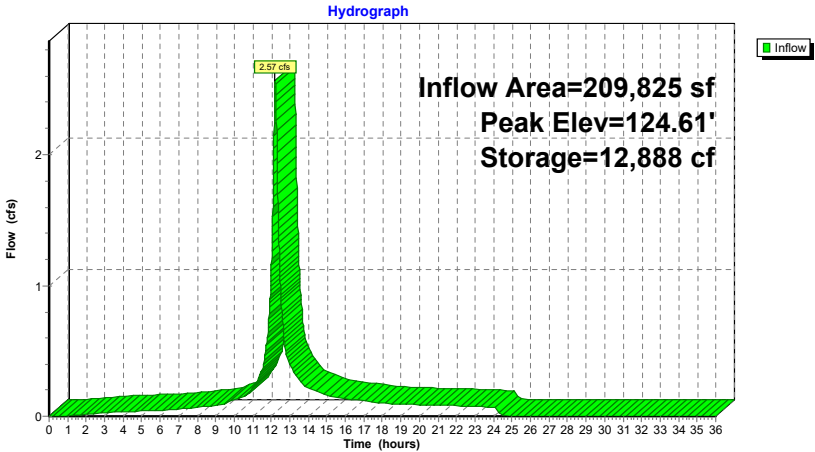
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 124.61' @ 25.10 hrs Surf.Area= 17,922 sf Storage= 12,888 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

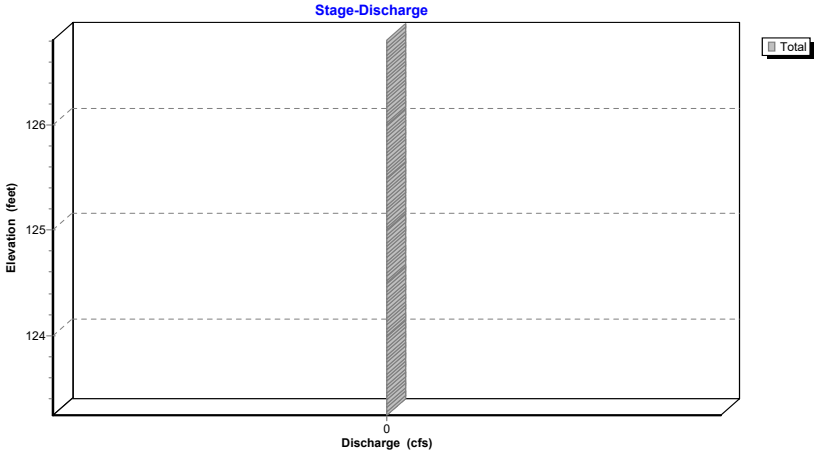
| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 123.25'           | 97,696 cf              | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 123.25           | 1,260             | 0                      | 0                                                   |
| 123.50           | 4,142             | 675                    | 675                                                 |
| 123.75           | 7,451             | 1,449                  | 2,124                                               |
| 124.00           | 10,505            | 2,245                  | 4,369                                               |
| 124.50           | 16,329            | 6,709                  | 11,077                                              |
| 125.00           | 23,865            | 10,049                 | 21,126                                              |
| 125.50           | 32,790            | 14,164                 | 35,290                                              |
| 126.00           | 42,891            | 18,920                 | 54,210                                              |
| 126.80           | 65,825            | 43,486                 | 97,696                                              |

Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

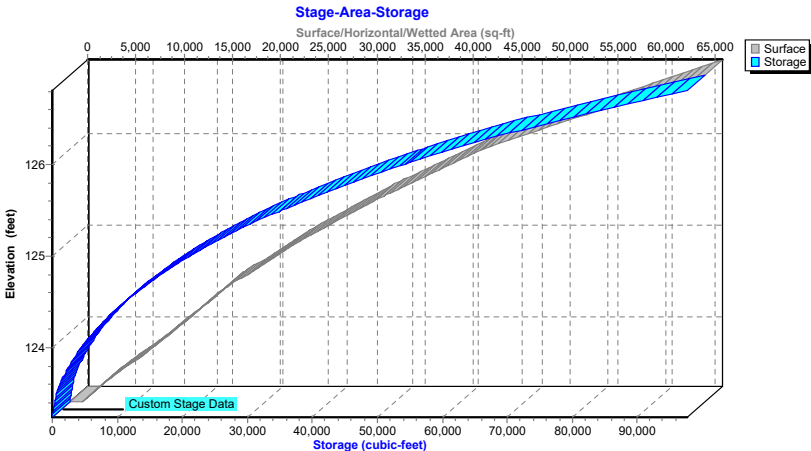
Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)



Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)



Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)



Hydrograph for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) |
|--------------|--------------|----------------------|------------------|--------------|--------------|----------------------|------------------|
| 0.00         | 0.00         | 0                    | 123.25           | 26.00        | 0.00         | 12,888               | 124.61           |
| 0.50         | 0.00         | 0                    | 123.25           | 26.50        | 0.00         | 12,888               | 124.61           |
| 1.00         | 0.00         | 1                    | 123.25           | 27.00        | 0.00         | 12,888               | 124.61           |
| 1.50         | 0.01         | 11                   | 123.26           | 27.50        | 0.00         | 12,888               | 124.61           |
| 2.00         | 0.02         | 35                   | 123.27           | 28.00        | 0.00         | 12,888               | 124.61           |
| 2.50         | 0.02         | 69                   | 123.30           | 28.50        | 0.00         | 12,888               | 124.61           |
| 3.00         | 0.03         | 111                  | 123.32           | 29.00        | 0.00         | 12,888               | 124.61           |
| 3.50         | 0.03         | 161                  | 123.34           | 29.50        | 0.00         | 12,888               | 124.61           |
| 4.00         | 0.03         | 218                  | 123.36           | 30.00        | 0.00         | 12,888               | 124.61           |
| 4.50         | 0.04         | 280                  | 123.39           | 30.50        | 0.00         | 12,888               | 124.61           |
| 5.00         | 0.04         | 347                  | 123.41           | 31.00        | 0.00         | 12,888               | 124.61           |
| 5.50         | 0.04         | 419                  | 123.43           | 31.50        | 0.00         | 12,888               | 124.61           |
| 6.00         | 0.04         | 496                  | 123.45           | 32.00        | 0.00         | 12,888               | 124.61           |
| 6.50         | 0.05         | 579                  | 123.48           | 32.50        | 0.00         | 12,888               | 124.61           |
| 7.00         | 0.06         | 673                  | 123.50           | 33.00        | 0.00         | 12,888               | 124.61           |
| 7.50         | 0.06         | 778                  | 123.52           | 33.50        | 0.00         | 12,888               | 124.61           |
| 8.00         | 0.07         | 896                  | 123.55           | 34.00        | 0.00         | 12,888               | 124.61           |
| 8.50         | 0.08         | 1,026                | 123.58           | 34.50        | 0.00         | 12,888               | 124.61           |
| 9.00         | 0.08         | 1,167                | 123.60           | 35.00        | 0.00         | 12,888               | 124.61           |
| 9.50         | 0.10         | 1,328                | 123.63           | 35.50        | 0.00         | 12,888               | 124.61           |
| 10.00        | 0.12         | 1,529                | 123.66           | 36.00        | 0.00         | 12,888               | 124.61           |
| 10.50        | 0.15         | 1,772                | 123.70           |              |              |                      |                  |
| 11.00        | 0.21         | 2,087                | 123.74           |              |              |                      |                  |
| 11.50        | 0.36         | 2,588                | 123.81           |              |              |                      |                  |
| 12.00        | 1.11         | 3,683                | 123.93           |              |              |                      |                  |
| 12.50        | 0.96         | 6,890                | 124.21           |              |              |                      |                  |
| 13.00        | 0.39         | 7,921                | 124.29           |              |              |                      |                  |
| 13.50        | 0.28         | 8,518                | 124.33           |              |              |                      |                  |
| 14.00        | 0.22         | 8,949                | 124.36           |              |              |                      |                  |
| 14.50        | 0.19         | 9,315                | 124.39           |              |              |                      |                  |
| 15.00        | 0.16         | 9,634                | 124.41           |              |              |                      |                  |
| 15.50        | 0.14         | 9,903                | 124.43           |              |              |                      |                  |
| 16.00        | 0.13         | 10,151               | 124.44           |              |              |                      |                  |
| 16.50        | 0.13         | 10,387               | 124.46           |              |              |                      |                  |
| 17.00        | 0.12         | 10,609               | 124.47           |              |              |                      |                  |
| 17.50        | 0.11         | 10,815               | 124.48           |              |              |                      |                  |
| 18.00        | 0.10         | 11,005               | 124.50           |              |              |                      |                  |
| 18.50        | 0.09         | 11,178               | 124.51           |              |              |                      |                  |
| 19.00        | 0.09         | 11,345               | 124.52           |              |              |                      |                  |
| 19.50        | 0.09         | 11,510               | 124.53           |              |              |                      |                  |
| 20.00        | 0.09         | 11,671               | 124.54           |              |              |                      |                  |
| 20.50        | 0.09         | 11,828               | 124.55           |              |              |                      |                  |
| 21.00        | 0.08         | 11,982               | 124.55           |              |              |                      |                  |
| 21.50        | 0.08         | 12,132               | 124.56           |              |              |                      |                  |
| 22.00        | 0.08         | 12,278               | 124.57           |              |              |                      |                  |
| 22.50        | 0.08         | 12,420               | 124.58           |              |              |                      |                  |
| 23.00        | 0.07         | 12,557               | 124.59           |              |              |                      |                  |
| 23.50        | 0.07         | 12,689               | 124.59           |              |              |                      |                  |
| 24.00        | 0.07         | 12,817               | 124.60           |              |              |                      |                  |
| 24.50        | 0.00         | 12,886               | 124.61           |              |              |                      |                  |
| 25.00        | 0.00         | 12,888               | 124.61           |              |              |                      |                  |
| 25.50        | 0.00         | 12,888               | 124.61           |              |              |                      |                  |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)**

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 123.25              | 0.00               | 124.29              | 0.00               | 125.33              | 0.00               | 126.37              | 0.00               |
| 123.27              | 0.00               | 124.31              | 0.00               | 125.35              | 0.00               | 126.39              | 0.00               |
| 123.29              | 0.00               | 124.33              | 0.00               | 125.37              | 0.00               | 126.41              | 0.00               |
| 123.31              | 0.00               | 124.35              | 0.00               | 125.39              | 0.00               | 126.43              | 0.00               |
| 123.33              | 0.00               | 124.37              | 0.00               | 125.41              | 0.00               | 126.45              | 0.00               |
| 123.35              | 0.00               | 124.39              | 0.00               | 125.43              | 0.00               | 126.47              | 0.00               |
| 123.37              | 0.00               | 124.41              | 0.00               | 125.45              | 0.00               | 126.49              | 0.00               |
| 123.39              | 0.00               | 124.43              | 0.00               | 125.47              | 0.00               | 126.51              | 0.00               |
| 123.41              | 0.00               | 124.45              | 0.00               | 125.49              | 0.00               | 126.53              | 0.00               |
| 123.43              | 0.00               | 124.47              | 0.00               | 125.51              | 0.00               | 126.55              | 0.00               |
| 123.45              | 0.00               | 124.49              | 0.00               | 125.53              | 0.00               | 126.57              | 0.00               |
| 123.47              | 0.00               | 124.51              | 0.00               | 125.55              | 0.00               | 126.59              | 0.00               |
| 123.49              | 0.00               | 124.53              | 0.00               | 125.57              | 0.00               | 126.61              | 0.00               |
| 123.51              | 0.00               | 124.55              | 0.00               | 125.59              | 0.00               | 126.63              | 0.00               |
| 123.53              | 0.00               | 124.57              | 0.00               | 125.61              | 0.00               | 126.65              | 0.00               |
| 123.55              | 0.00               | 124.59              | 0.00               | 125.63              | 0.00               | 126.67              | 0.00               |
| 123.57              | 0.00               | 124.61              | 0.00               | 125.65              | 0.00               | 126.69              | 0.00               |
| 123.59              | 0.00               | 124.63              | 0.00               | 125.67              | 0.00               | 126.71              | 0.00               |
| 123.61              | 0.00               | 124.65              | 0.00               | 125.69              | 0.00               | 126.73              | 0.00               |
| 123.63              | 0.00               | 124.67              | 0.00               | 125.71              | 0.00               | 126.75              | 0.00               |
| 123.65              | 0.00               | 124.69              | 0.00               | 125.73              | 0.00               | 126.77              | 0.00               |
| 123.67              | 0.00               | 124.71              | 0.00               | 125.75              | 0.00               | 126.79              | 0.00               |
| 123.69              | 0.00               | 124.73              | 0.00               | 125.77              | 0.00               |                     |                    |
| 123.71              | 0.00               | 124.75              | 0.00               | 125.79              | 0.00               |                     |                    |
| 123.73              | 0.00               | 124.77              | 0.00               | 125.81              | 0.00               |                     |                    |
| 123.75              | 0.00               | 124.79              | 0.00               | 125.83              | 0.00               |                     |                    |
| 123.77              | 0.00               | 124.81              | 0.00               | 125.85              | 0.00               |                     |                    |
| 123.79              | 0.00               | 124.83              | 0.00               | 125.87              | 0.00               |                     |                    |
| 123.81              | 0.00               | 124.85              | 0.00               | 125.89              | 0.00               |                     |                    |
| 123.83              | 0.00               | 124.87              | 0.00               | 125.91              | 0.00               |                     |                    |
| 123.85              | 0.00               | 124.89              | 0.00               | 125.93              | 0.00               |                     |                    |
| 123.87              | 0.00               | 124.91              | 0.00               | 125.95              | 0.00               |                     |                    |
| 123.89              | 0.00               | 124.93              | 0.00               | 125.97              | 0.00               |                     |                    |
| 123.91              | 0.00               | 124.95              | 0.00               | 125.99              | 0.00               |                     |                    |
| 123.93              | 0.00               | 124.97              | 0.00               | 126.01              | 0.00               |                     |                    |
| 123.95              | 0.00               | 124.99              | 0.00               | 126.03              | 0.00               |                     |                    |
| 123.97              | 0.00               | 125.01              | 0.00               | 126.05              | 0.00               |                     |                    |
| 123.99              | 0.00               | 125.03              | 0.00               | 126.07              | 0.00               |                     |                    |
| 124.01              | 0.00               | 125.05              | 0.00               | 126.09              | 0.00               |                     |                    |
| 124.03              | 0.00               | 125.07              | 0.00               | 126.11              | 0.00               |                     |                    |
| 124.05              | 0.00               | 125.09              | 0.00               | 126.13              | 0.00               |                     |                    |
| 124.07              | 0.00               | 125.11              | 0.00               | 126.15              | 0.00               |                     |                    |
| 124.09              | 0.00               | 125.13              | 0.00               | 126.17              | 0.00               |                     |                    |
| 124.11              | 0.00               | 125.15              | 0.00               | 126.19              | 0.00               |                     |                    |
| 124.13              | 0.00               | 125.17              | 0.00               | 126.21              | 0.00               |                     |                    |
| 124.15              | 0.00               | 125.19              | 0.00               | 126.23              | 0.00               |                     |                    |
| 124.17              | 0.00               | 125.21              | 0.00               | 126.25              | 0.00               |                     |                    |
| 124.19              | 0.00               | 125.23              | 0.00               | 126.27              | 0.00               |                     |                    |
| 124.21              | 0.00               | 125.25              | 0.00               | 126.29              | 0.00               |                     |                    |
| 124.23              | 0.00               | 125.27              | 0.00               | 126.31              | 0.00               |                     |                    |
| 124.25              | 0.00               | 125.29              | 0.00               | 126.33              | 0.00               |                     |                    |
| 124.27              | 0.00               | 125.31              | 0.00               | 126.35              | 0.00               |                     |                    |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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**Stage-Area-Storage for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 123.25              | 1,260              | 0                       | 125.85              | 39,861             | 48,003                  |
| 123.30              | 1,836              | 77                      | 125.90              | 40,871             | 50,022                  |
| 123.35              | 2,413              | 184                     | 125.95              | 41,881             | 52,091                  |
| 123.40              | 2,989              | 319                     | 126.00              | 42,891             | 54,210                  |
| 123.45              | 3,566              | 483                     | 126.05              | 44,324             | 56,390                  |
| 123.50              | 4,142              | 675                     | 126.10              | 45,758             | 58,642                  |
| 123.55              | 4,804              | 899                     | 126.15              | 47,191             | 60,966                  |
| 123.60              | 5,466              | 1,156                   | 126.20              | 48,625             | 63,361                  |
| 123.65              | 6,127              | 1,445                   | 126.25              | 50,058             | 65,828                  |
| 123.70              | 6,789              | 1,768                   | 126.30              | 51,491             | 68,367                  |
| 123.75              | 7,451              | 2,124                   | 126.35              | 52,925             | 70,978                  |
| 123.80              | 8,062              | 2,512                   | 126.40              | 54,358             | 73,660                  |
| 123.85              | 8,673              | 2,931                   | 126.45              | 55,791             | 76,413                  |
| 123.90              | 9,283              | 3,379                   | 126.50              | 57,225             | 79,239                  |
| 123.95              | 9,894              | 3,859                   | 126.55              | 58,658             | 82,136                  |
| 124.00              | 10,505             | 4,369                   | 126.60              | 60,091             | 85,105                  |
| 124.05              | 11,087             | 4,909                   | 126.65              | 61,525             | 88,145                  |
| 124.10              | 11,670             | 5,478                   | 126.70              | 62,958             | 91,257                  |
| 124.15              | 12,252             | 6,076                   | 126.75              | 64,392             | 94,441                  |
| 124.20              | 12,835             | 6,703                   | 126.80              | <b>65,825</b>      | <b>97,696</b>           |
| 124.25              | 13,417             | 7,359                   |                     |                    |                         |
| 124.30              | 13,999             | 8,045                   |                     |                    |                         |
| 124.35              | 14,582             | 8,759                   |                     |                    |                         |
| 124.40              | 15,164             | 9,503                   |                     |                    |                         |
| 124.45              | 15,747             | 10,275                  |                     |                    |                         |
| 124.50              | 16,329             | 11,077                  |                     |                    |                         |
| 124.55              | 17,083             | 11,913                  |                     |                    |                         |
| 124.60              | 17,836             | 12,786                  |                     |                    |                         |
| 124.65              | 18,590             | 13,696                  |                     |                    |                         |
| 124.70              | 19,343             | 14,645                  |                     |                    |                         |
| 124.75              | 20,097             | 15,631                  |                     |                    |                         |
| 124.80              | 20,851             | 16,654                  |                     |                    |                         |
| 124.85              | 21,604             | 17,716                  |                     |                    |                         |
| 124.90              | 22,358             | 18,815                  |                     |                    |                         |
| 124.95              | 23,111             | 19,951                  |                     |                    |                         |
| 125.00              | 23,865             | 21,126                  |                     |                    |                         |
| 125.05              | 24,757             | 22,341                  |                     |                    |                         |
| 125.10              | 25,650             | 23,602                  |                     |                    |                         |
| 125.15              | 26,543             | 24,906                  |                     |                    |                         |
| 125.20              | 27,435             | 26,256                  |                     |                    |                         |
| 125.25              | 28,328             | 27,650                  |                     |                    |                         |
| 125.30              | 29,220             | 29,089                  |                     |                    |                         |
| 125.35              | 30,112             | 30,572                  |                     |                    |                         |
| 125.40              | 31,005             | 32,100                  |                     |                    |                         |
| 125.45              | 31,898             | 33,672                  |                     |                    |                         |
| 125.50              | 32,790             | 35,290                  |                     |                    |                         |
| 125.55              | 33,800             | 36,954                  |                     |                    |                         |
| 125.60              | 34,810             | 38,670                  |                     |                    |                         |
| 125.65              | 35,820             | 40,435                  |                     |                    |                         |
| 125.70              | 36,830             | 42,252                  |                     |                    |                         |
| 125.75              | 37,841             | 44,118                  |                     |                    |                         |
| 125.80              | 38,851             | 46,036                  |                     |                    |                         |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment56S: Ex. Pervious to POI-2** Runoff Area=184,350 sf 0.00% Impervious Runoff Depth=1.19"  
Flow Length=747' Tc=19.3 min CN=35 Runoff=2.75 cfs 18,355 cf

**Subcatchment57S: Ex. Impervious to** Runoff Area=25,475 sf 100.00% Impervious Runoff Depth=8.82"  
Flow Length=221' Tc=14.1 min CN=98 Runoff=4.36 cfs 18,723 cf

**Pond 58P: Existing Drainage Area POI-2** Peak Elev=125.55' Storage=37,079 cf Inflow=6.29 cfs 37,079 cf  
Outflow=0.00 cfs 0 cf

Total Runoff Area = 209,825 sf Runoff Volume = 37,079 cf Average Runoff Depth = 2.12"  
87.86% Pervious = 184,350 sf 12.14% Impervious = 25,475 sf

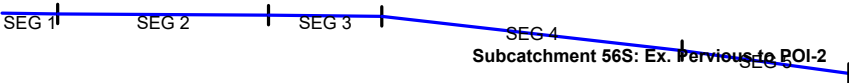
Summary for Subcatchment 56S: Ex. Pervious to POI-2

Runoff = 2.75 cfs @ 12.37 hrs, Volume= 18,355 cf, Depth= 1.19"  
Routed to Pond 58P : Existing Drainage Area POI-2 (Isolated Wetland)

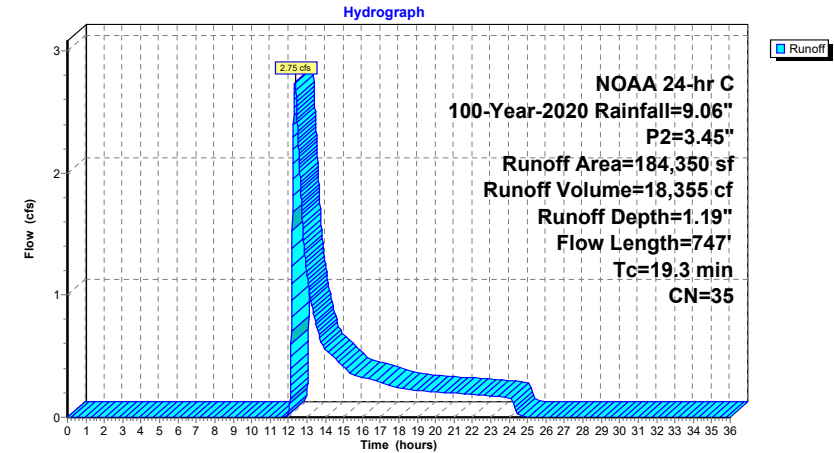
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description                    |
|-----------|----|--------------------------------|
| 79,767    | 39 | >75% Grass cover, Good, HSG A  |
| 4,864     | 61 | >75% Grass cover, Good, HSG B  |
| 1,899     | 32 | Woods/grass comb., Good, HSG A |
| 97,820    | 30 | Woods, Good, HSG A             |
| 184,350   | 35 | Weighted Average               |
| 184,350   |    | 100.00% Pervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                     |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------------------------------------------|
| 9.0      | 49            | 0.0140        | 0.09              |                | <b>Sheet Flow, SEG 1</b><br>Grass: Dense n= 0.240 P2= 3.45"<br>Using McCuen-Spiess flow length                  |
| 6.3      | 186           | 0.0050        | 0.49              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Short Grass Pasture Kv= 7.0 fps                                      |
| 2.4      | 100           | 0.0100        | 0.70              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Short Grass Pasture Kv= 7.0 fps                                      |
| 0.2      | 265           | 0.1000        | 24.67             | 77.50          | <b>Pipe Channel, SEG 4</b><br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.012 Concrete pipe, finished |
| 1.4      | 147           | 0.1200        | 1.73              |                | <b>Shallow Concentrated Flow, SEG 5</b><br>Woodland Kv= 5.0 fps                                                 |
| 19.3     | 747           | Total         |                   |                |                                                                                                                 |



Subcatchment 56S: Ex. Pervious to POI-2



Hydrograph for Subcatchment 56S: Ex. Pervious to POI-2

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 1.19               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 1.19               | 0.00            |
| 1.00            | 0.10                | 0.00               | 0.00            | 27.00           | 9.06                | 1.19               | 0.00            |
| 1.50            | 0.15                | 0.00               | 0.00            | 27.50           | 9.06                | 1.19               | 0.00            |
| 2.00            | 0.20                | 0.00               | 0.00            | 28.00           | 9.06                | 1.19               | 0.00            |
| 2.50            | 0.26                | 0.00               | 0.00            | 28.50           | 9.06                | 1.19               | 0.00            |
| 3.00            | 0.32                | 0.00               | 0.00            | 29.00           | 9.06                | 1.19               | 0.00            |
| 3.50            | 0.38                | 0.00               | 0.00            | 29.50           | 9.06                | 1.19               | 0.00            |
| 4.00            | 0.44                | 0.00               | 0.00            | 30.00           | 9.06                | 1.19               | 0.00            |
| 4.50            | 0.51                | 0.00               | 0.00            | 30.50           | 9.06                | 1.19               | 0.00            |
| 5.00            | 0.58                | 0.00               | 0.00            | 31.00           | 9.06                | 1.19               | 0.00            |
| 5.50            | 0.65                | 0.00               | 0.00            | 31.50           | 9.06                | 1.19               | 0.00            |
| 6.00            | 0.72                | 0.00               | 0.00            | 32.00           | 9.06                | 1.19               | 0.00            |
| 6.50            | 0.80                | 0.00               | 0.00            | 32.50           | 9.06                | 1.19               | 0.00            |
| 7.00            | 0.88                | 0.00               | 0.00            | 33.00           | 9.06                | 1.19               | 0.00            |
| 7.50            | 0.98                | 0.00               | 0.00            | 33.50           | 9.06                | 1.19               | 0.00            |
| 8.00            | 1.09                | 0.00               | 0.00            | 34.00           | 9.06                | 1.19               | 0.00            |
| 8.50            | 1.20                | 0.00               | 0.00            | 34.50           | 9.06                | 1.19               | 0.00            |
| 9.00            | 1.32                | 0.00               | 0.00            | 35.00           | 9.06                | 1.19               | 0.00            |
| 9.50            | 1.47                | 0.00               | 0.00            | 35.50           | 9.06                | 1.19               | 0.00            |
| 10.00           | 1.65                | 0.00               | 0.00            | 36.00           | 9.06                | 1.19               | 0.00            |
| 10.50           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.17                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 2.68                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 4.32                | 0.02               | 0.01            |                 |                     |                    |                 |
| 12.50           | 6.38                | 0.34               | 2.38            |                 |                     |                    |                 |
| 13.00           | 6.89                | 0.46               | 1.18            |                 |                     |                    |                 |
| 13.50           | 7.19                | 0.55               | 0.77            |                 |                     |                    |                 |
| 14.00           | 7.41                | 0.61               | 0.56            |                 |                     |                    |                 |
| 14.50           | 7.59                | 0.67               | 0.49            |                 |                     |                    |                 |
| 15.00           | 7.74                | 0.72               | 0.41            |                 |                     |                    |                 |
| 15.50           | 7.86                | 0.76               | 0.35            |                 |                     |                    |                 |
| 16.00           | 7.97                | 0.79               | 0.33            |                 |                     |                    |                 |
| 16.50           | 8.08                | 0.83               | 0.31            |                 |                     |                    |                 |
| 17.00           | 8.18                | 0.86               | 0.29            |                 |                     |                    |                 |
| 17.50           | 8.26                | 0.90               | 0.26            |                 |                     |                    |                 |
| 18.00           | 8.34                | 0.92               | 0.24            |                 |                     |                    |                 |
| 18.50           | 8.41                | 0.95               | 0.22            |                 |                     |                    |                 |
| 19.00           | 8.48                | 0.97               | 0.22            |                 |                     |                    |                 |
| 19.50           | 8.55                | 1.00               | 0.21            |                 |                     |                    |                 |
| 20.00           | 8.62                | 1.02               | 0.21            |                 |                     |                    |                 |
| 20.50           | 8.68                | 1.05               | 0.20            |                 |                     |                    |                 |
| 21.00           | 8.74                | 1.07               | 0.20            |                 |                     |                    |                 |
| 21.50           | 8.80                | 1.09               | 0.19            |                 |                     |                    |                 |
| 22.00           | 8.86                | 1.11               | 0.19            |                 |                     |                    |                 |
| 22.50           | 8.91                | 1.14               | 0.18            |                 |                     |                    |                 |
| 23.00           | 8.96                | 1.16               | 0.17            |                 |                     |                    |                 |
| 23.50           | 9.01                | 1.18               | 0.17            |                 |                     |                    |                 |
| 24.00           | 9.06                | 1.19               | 0.16            |                 |                     |                    |                 |
| 24.50           | 9.06                | 1.19               | 0.02            |                 |                     |                    |                 |
| 25.00           | 9.06                | 1.19               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 1.19               | 0.00            |                 |                     |                    |                 |



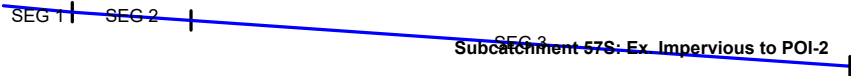
Summary for Subcatchment 57S: Ex. Impervious to POI-2

Runoff = 4.36 cfs @ 12.21 hrs, Volume= 18,723 cf, Depth= 8.82"  
Routed to Pond 58P : Existing Drainage Area POI-2 (Isolated Wetland)

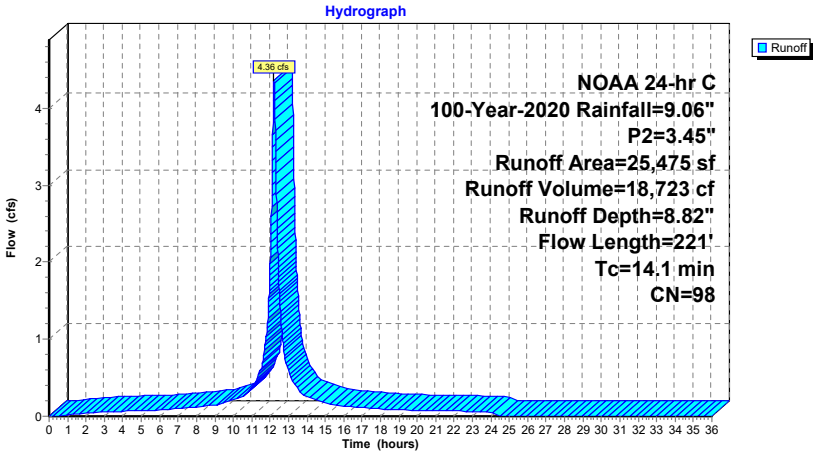
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 25,475    | 98 | Paved parking, HSG A    |
| 25,475    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 0.3      | 18            | 0.0200        | 1.01              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.45"                                            |
| 9.1      | 31            | 0.0150        | 0.06              |                | Sheet Flow, SEG 2<br>Woods: Light underbrush n= 0.400 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 4.7      | 172           | 0.0150        | 0.61              |                | Shallow Concentrated Flow, SEG 3<br>Woodland Kv= 5.0 fps                                           |
| 14.1     | 221           |               |                   |                | Total                                                                                              |



Subcatchment 57S: Ex. Impervious to POI-2



Hydrograph for Subcatchment 57S: Ex. Impervious to POI-2

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 8.82               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 8.82               | 0.00            |
| 1.00            | 0.10                | 0.01               | 0.02            | 27.00           | 9.06                | 8.82               | 0.00            |
| 1.50            | 0.15                | 0.04               | 0.03            | 27.50           | 9.06                | 8.82               | 0.00            |
| 2.00            | 0.20                | 0.07               | 0.04            | 28.00           | 9.06                | 8.82               | 0.00            |
| 2.50            | 0.26                | 0.11               | 0.05            | 28.50           | 9.06                | 8.82               | 0.00            |
| 3.00            | 0.32                | 0.16               | 0.06            | 29.00           | 9.06                | 8.82               | 0.00            |
| 3.50            | 0.38                | 0.21               | 0.06            | 29.50           | 9.06                | 8.82               | 0.00            |
| 4.00            | 0.44                | 0.27               | 0.07            | 30.00           | 9.06                | 8.82               | 0.00            |
| 4.50            | 0.51                | 0.33               | 0.07            | 30.50           | 9.06                | 8.82               | 0.00            |
| 5.00            | 0.58                | 0.39               | 0.07            | 31.00           | 9.06                | 8.82               | 0.00            |
| 5.50            | 0.65                | 0.45               | 0.08            | 31.50           | 9.06                | 8.82               | 0.00            |
| 6.00            | 0.72                | 0.52               | 0.08            | 32.00           | 9.06                | 8.82               | 0.00            |
| 6.50            | 0.80                | 0.59               | 0.09            | 32.50           | 9.06                | 8.82               | 0.00            |
| 7.00            | 0.88                | 0.68               | 0.10            | 33.00           | 9.06                | 8.82               | 0.00            |
| 7.50            | 0.98                | 0.77               | 0.11            | 33.50           | 9.06                | 8.82               | 0.00            |
| 8.00            | 1.09                | 0.87               | 0.12            | 34.00           | 9.06                | 8.82               | 0.00            |
| 8.50            | 1.20                | 0.99               | 0.13            | 34.50           | 9.06                | 8.82               | 0.00            |
| 9.00            | 1.32                | 1.11               | 0.14            | 35.00           | 9.06                | 8.82               | 0.00            |
| 9.50            | 1.47                | 1.25               | 0.17            | 35.50           | 9.06                | 8.82               | 0.00            |
| 10.00           | 1.65                | 1.43               | 0.21            | 36.00           | 9.06                | 8.82               | 0.00            |
| 10.50           | 1.87                | 1.64               | 0.25            |                 |                     |                    |                 |
| 11.00           | 2.17                | 1.95               | 0.37            |                 |                     |                    |                 |
| 11.50           | 2.68                | 2.45               | 0.61            |                 |                     |                    |                 |
| 12.00           | 4.32                | 4.08               | 1.90            |                 |                     |                    |                 |
| 12.50           | 6.38                | 6.14               | 1.63            |                 |                     |                    |                 |
| 13.00           | 6.89                | 6.65               | 0.58            |                 |                     |                    |                 |
| 13.50           | 7.19                | 6.95               | 0.35            |                 |                     |                    |                 |
| 14.00           | 7.41                | 7.17               | 0.25            |                 |                     |                    |                 |
| 14.50           | 7.59                | 7.35               | 0.21            |                 |                     |                    |                 |
| 15.00           | 7.74                | 7.50               | 0.17            |                 |                     |                    |                 |
| 15.50           | 7.86                | 7.62               | 0.14            |                 |                     |                    |                 |
| 16.00           | 7.97                | 7.73               | 0.13            |                 |                     |                    |                 |
| 16.50           | 8.08                | 7.84               | 0.12            |                 |                     |                    |                 |
| 17.00           | 8.18                | 7.94               | 0.11            |                 |                     |                    |                 |
| 17.50           | 8.26                | 8.02               | 0.10            |                 |                     |                    |                 |
| 18.00           | 8.34                | 8.10               | 0.09            |                 |                     |                    |                 |
| 18.50           | 8.41                | 8.17               | 0.08            |                 |                     |                    |                 |
| 19.00           | 8.48                | 8.24               | 0.08            |                 |                     |                    |                 |
| 19.50           | 8.55                | 8.31               | 0.08            |                 |                     |                    |                 |
| 20.00           | 8.62                | 8.38               | 0.08            |                 |                     |                    |                 |
| 20.50           | 8.68                | 8.44               | 0.07            |                 |                     |                    |                 |
| 21.00           | 8.74                | 8.50               | 0.07            |                 |                     |                    |                 |
| 21.50           | 8.80                | 8.56               | 0.07            |                 |                     |                    |                 |
| 22.00           | 8.86                | 8.61               | 0.07            |                 |                     |                    |                 |
| 22.50           | 8.91                | 8.67               | 0.06            |                 |                     |                    |                 |
| 23.00           | 8.96                | 8.72               | 0.06            |                 |                     |                    |                 |
| 23.50           | 9.01                | 8.77               | 0.06            |                 |                     |                    |                 |
| 24.00           | 9.06                | 8.82               | 0.06            |                 |                     |                    |                 |
| 24.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |

Summary for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

Inflow Area = 209,825 sf, 12.14% Impervious, Inflow Depth = 2.12" for 100-Year-2020 event  
Inflow = 6.29 cfs @ 12.26 hrs, Volume= 37,079 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

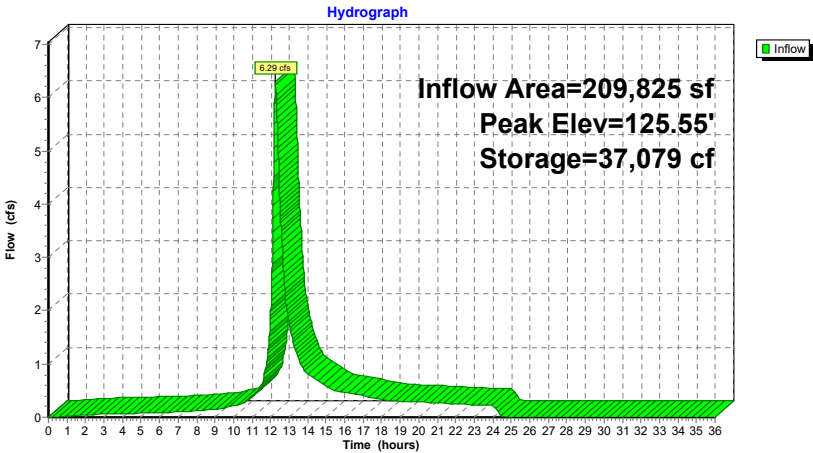
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 125.55' @ 25.10 hrs Surf.Area= 33,874 sf Storage= 37,079 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

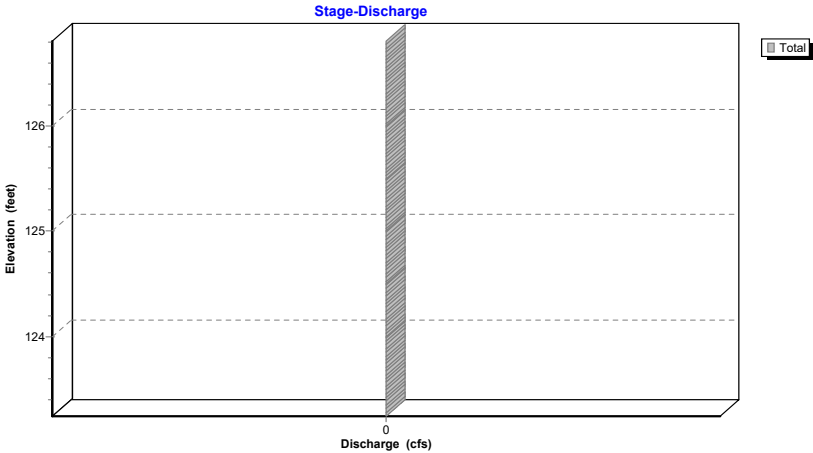
| Volume              | Invert               | Avail.Storage             | Storage Description                                 |
|---------------------|----------------------|---------------------------|-----------------------------------------------------|
| #1                  | 123.25'              | 97,696 cf                 | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                           |
| 123.25              | 1,260                | 0                         | 0                                                   |
| 123.50              | 4,142                | 675                       | 675                                                 |
| 123.75              | 7,451                | 1,449                     | 2,124                                               |
| 124.00              | 10,505               | 2,245                     | 4,369                                               |
| 124.50              | 16,329               | 6,709                     | 11,077                                              |
| 125.00              | 23,865               | 10,049                    | 21,126                                              |
| 125.50              | 32,790               | 14,164                    | 35,290                                              |
| 126.00              | 42,891               | 18,920                    | 54,210                                              |
| 126.80              | 65,825               | 43,486                    | 97,696                                              |

Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

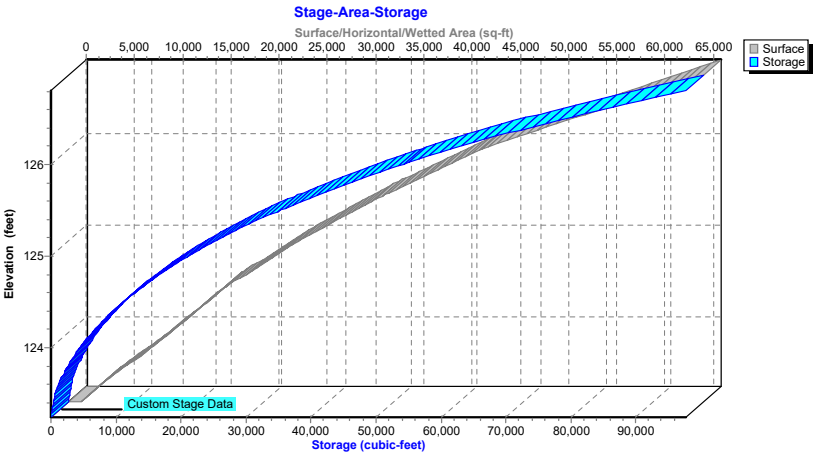
Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)



Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)



Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)



Hydrograph for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) |
|-----------------|-----------------|-------------------------|---------------------|-----------------|-----------------|-------------------------|---------------------|
| 0.00            | 0.00            | 0                       | 123.25              | 26.00           | 0.00            | 37,079                  | 125.55              |
| 0.50            | 0.00            | 0                       | 123.25              | 26.50           | 0.00            | 37,079                  | 125.55              |
| 1.00            | 0.02            | 12                      | 123.26              | 27.00           | 0.00            | 37,079                  | 125.55              |
| 1.50            | 0.03            | 56                      | 123.29              | 27.50           | 0.00            | 37,079                  | 125.55              |
| 2.00            | 0.04            | 122                     | 123.32              | 28.00           | 0.00            | 37,079                  | 125.55              |
| 2.50            | 0.05            | 203                     | 123.36              | 28.50           | 0.00            | 37,079                  | 125.55              |
| 3.00            | 0.06            | 298                     | 123.39              | 29.00           | 0.00            | 37,079                  | 125.55              |
| 3.50            | 0.06            | 402                     | 123.43              | 29.50           | 0.00            | 37,079                  | 125.55              |
| 4.00            | 0.07            | 515                     | 123.46              | 30.00           | 0.00            | 37,079                  | 125.55              |
| 4.50            | 0.07            | 637                     | 123.49              | 30.50           | 0.00            | 37,079                  | 125.55              |
| 5.00            | 0.07            | 765                     | 123.52              | 31.00           | 0.00            | 37,079                  | 125.55              |
| 5.50            | 0.08            | 900                     | 123.55              | 31.50           | 0.00            | 37,079                  | 125.55              |
| 6.00            | 0.08            | 1,041                   | 123.58              | 32.00           | 0.00            | 37,079                  | 125.55              |
| 6.50            | 0.09            | 1,192                   | 123.61              | 32.50           | 0.00            | 37,079                  | 125.55              |
| 7.00            | 0.10            | 1,361                   | 123.64              | 33.00           | 0.00            | 37,079                  | 125.55              |
| 7.50            | 0.11            | 1,550                   | 123.67              | 33.50           | 0.00            | 37,079                  | 125.55              |
| 8.00            | 0.12            | 1,759                   | 123.70              | 34.00           | 0.00            | 37,079                  | 125.55              |
| 8.50            | 0.13            | 1,987                   | 123.73              | 34.50           | 0.00            | 37,079                  | 125.55              |
| 9.00            | 0.14            | 2,235                   | 123.76              | 35.00           | 0.00            | 37,079                  | 125.55              |
| 9.50            | 0.17            | 2,515                   | 123.80              | 35.50           | 0.00            | 37,079                  | 125.55              |
| 10.00           | 0.21            | 2,863                   | 123.84              | 36.00           | 0.00            | 37,079                  | 125.55              |
| 10.50           | 0.25            | 3,284                   | 123.89              |                 |                 |                         |                     |
| 11.00           | 0.37            | 3,825                   | 123.95              |                 |                 |                         |                     |
| 11.50           | 0.61            | 4,684                   | 124.03              |                 |                 |                         |                     |
| 12.00           | 1.91            | 6,554                   | 124.19              |                 |                 |                         |                     |
| 12.50           | 4.01            | 14,928                  | 124.71              |                 |                 |                         |                     |
| 13.00           | 1.77            | 19,655                  | 124.94              |                 |                 |                         |                     |
| 13.50           | 1.12            | 22,178                  | 125.04              |                 |                 |                         |                     |
| 14.00           | 0.81            | 23,859                  | 125.11              |                 |                 |                         |                     |
| 14.50           | 0.70            | 25,215                  | 125.16              |                 |                 |                         |                     |
| 15.00           | 0.58            | 26,368                  | 125.20              |                 |                 |                         |                     |
| 15.50           | 0.49            | 27,320                  | 125.24              |                 |                 |                         |                     |
| 16.00           | 0.46            | 28,180                  | 125.27              |                 |                 |                         |                     |
| 16.50           | 0.43            | 28,986                  | 125.30              |                 |                 |                         |                     |
| 17.00           | 0.40            | 29,736                  | 125.32              |                 |                 |                         |                     |
| 17.50           | 0.37            | 30,428                  | 125.35              |                 |                 |                         |                     |
| 18.00           | 0.33            | 31,058                  | 125.37              |                 |                 |                         |                     |
| 18.50           | 0.31            | 31,630                  | 125.38              |                 |                 |                         |                     |
| 19.00           | 0.30            | 32,176                  | 125.40              |                 |                 |                         |                     |
| 19.50           | 0.29            | 32,709                  | 125.42              |                 |                 |                         |                     |
| 20.00           | 0.29            | 33,229                  | 125.44              |                 |                 |                         |                     |
| 20.50           | 0.28            | 33,734                  | 125.45              |                 |                 |                         |                     |
| 21.00           | 0.27            | 34,225                  | 125.47              |                 |                 |                         |                     |
| 21.50           | 0.26            | 34,701                  | 125.48              |                 |                 |                         |                     |
| 22.00           | 0.25            | 35,162                  | 125.50              |                 |                 |                         |                     |
| 22.50           | 0.24            | 35,607                  | 125.51              |                 |                 |                         |                     |
| 23.00           | 0.23            | 36,036                  | 125.52              |                 |                 |                         |                     |
| 23.50           | 0.22            | 36,449                  | 125.53              |                 |                 |                         |                     |
| 24.00           | 0.22            | 36,846                  | 125.55              |                 |                 |                         |                     |
| 24.50           | 0.02            | 37,071                  | 125.55              |                 |                 |                         |                     |
| 25.00           | 0.00            | 37,079                  | 125.55              |                 |                 |                         |                     |
| 25.50           | 0.00            | 37,079                  | 125.55              |                 |                 |                         |                     |

Stage-Discharge for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 123.25              | 0.00               | 124.29              | 0.00               | 125.33              | 0.00               | 126.37              | 0.00               |
| 123.27              | 0.00               | 124.31              | 0.00               | 125.35              | 0.00               | 126.39              | 0.00               |
| 123.29              | 0.00               | 124.33              | 0.00               | 125.37              | 0.00               | 126.41              | 0.00               |
| 123.31              | 0.00               | 124.35              | 0.00               | 125.39              | 0.00               | 126.43              | 0.00               |
| 123.33              | 0.00               | 124.37              | 0.00               | 125.41              | 0.00               | 126.45              | 0.00               |
| 123.35              | 0.00               | 124.39              | 0.00               | 125.43              | 0.00               | 126.47              | 0.00               |
| 123.37              | 0.00               | 124.41              | 0.00               | 125.45              | 0.00               | 126.49              | 0.00               |
| 123.39              | 0.00               | 124.43              | 0.00               | 125.47              | 0.00               | 126.51              | 0.00               |
| 123.41              | 0.00               | 124.45              | 0.00               | 125.49              | 0.00               | 126.53              | 0.00               |
| 123.43              | 0.00               | 124.47              | 0.00               | 125.51              | 0.00               | 126.55              | 0.00               |
| 123.45              | 0.00               | 124.49              | 0.00               | 125.53              | 0.00               | 126.57              | 0.00               |
| 123.47              | 0.00               | 124.51              | 0.00               | 125.55              | 0.00               | 126.59              | 0.00               |
| 123.49              | 0.00               | 124.53              | 0.00               | 125.57              | 0.00               | 126.61              | 0.00               |
| 123.51              | 0.00               | 124.55              | 0.00               | 125.59              | 0.00               | 126.63              | 0.00               |
| 123.53              | 0.00               | 124.57              | 0.00               | 125.61              | 0.00               | 126.65              | 0.00               |
| 123.55              | 0.00               | 124.59              | 0.00               | 125.63              | 0.00               | 126.67              | 0.00               |
| 123.57              | 0.00               | 124.61              | 0.00               | 125.65              | 0.00               | 126.69              | 0.00               |
| 123.59              | 0.00               | 124.63              | 0.00               | 125.67              | 0.00               | 126.71              | 0.00               |
| 123.61              | 0.00               | 124.65              | 0.00               | 125.69              | 0.00               | 126.73              | 0.00               |
| 123.63              | 0.00               | 124.67              | 0.00               | 125.71              | 0.00               | 126.75              | 0.00               |
| 123.65              | 0.00               | 124.69              | 0.00               | 125.73              | 0.00               | 126.77              | 0.00               |
| 123.67              | 0.00               | 124.71              | 0.00               | 125.75              | 0.00               | 126.79              | 0.00               |
| 123.69              | 0.00               | 124.73              | 0.00               | 125.77              | 0.00               |                     |                    |
| 123.71              | 0.00               | 124.75              | 0.00               | 125.79              | 0.00               |                     |                    |
| 123.73              | 0.00               | 124.77              | 0.00               | 125.81              | 0.00               |                     |                    |
| 123.75              | 0.00               | 124.79              | 0.00               | 125.83              | 0.00               |                     |                    |
| 123.77              | 0.00               | 124.81              | 0.00               | 125.85              | 0.00               |                     |                    |
| 123.79              | 0.00               | 124.83              | 0.00               | 125.87              | 0.00               |                     |                    |
| 123.81              | 0.00               | 124.85              | 0.00               | 125.89              | 0.00               |                     |                    |
| 123.83              | 0.00               | 124.87              | 0.00               | 125.91              | 0.00               |                     |                    |
| 123.85              | 0.00               | 124.89              | 0.00               | 125.93              | 0.00               |                     |                    |
| 123.87              | 0.00               | 124.91              | 0.00               | 125.95              | 0.00               |                     |                    |
| 123.89              | 0.00               | 124.93              | 0.00               | 125.97              | 0.00               |                     |                    |
| 123.91              | 0.00               | 124.95              | 0.00               | 125.99              | 0.00               |                     |                    |
| 123.93              | 0.00               | 124.97              | 0.00               | 126.01              | 0.00               |                     |                    |
| 123.95              | 0.00               | 124.99              | 0.00               | 126.03              | 0.00               |                     |                    |
| 123.97              | 0.00               | 125.01              | 0.00               | 126.05              | 0.00               |                     |                    |
| 123.99              | 0.00               | 125.03              | 0.00               | 126.07              | 0.00               |                     |                    |
| 124.01              | 0.00               | 125.05              | 0.00               | 126.09              | 0.00               |                     |                    |
| 124.03              | 0.00               | 125.07              | 0.00               | 126.11              | 0.00               |                     |                    |
| 124.05              | 0.00               | 125.09              | 0.00               | 126.13              | 0.00               |                     |                    |
| 124.07              | 0.00               | 125.11              | 0.00               | 126.15              | 0.00               |                     |                    |
| 124.09              | 0.00               | 125.13              | 0.00               | 126.17              | 0.00               |                     |                    |
| 124.11              | 0.00               | 125.15              | 0.00               | 126.19              | 0.00               |                     |                    |
| 124.13              | 0.00               | 125.17              | 0.00               | 126.21              | 0.00               |                     |                    |
| 124.15              | 0.00               | 125.19              | 0.00               | 126.23              | 0.00               |                     |                    |
| 124.17              | 0.00               | 125.21              | 0.00               | 126.25              | 0.00               |                     |                    |
| 124.19              | 0.00               | 125.23              | 0.00               | 126.27              | 0.00               |                     |                    |
| 124.21              | 0.00               | 125.25              | 0.00               | 126.29              | 0.00               |                     |                    |
| 124.23              | 0.00               | 125.27              | 0.00               | 126.31              | 0.00               |                     |                    |
| 124.25              | 0.00               | 125.29              | 0.00               | 126.33              | 0.00               |                     |                    |
| 124.27              | 0.00               | 125.31              | 0.00               | 126.35              | 0.00               |                     |                    |

Stage-Area-Storage for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 123.25              | 1,260              | 0                       | 125.85              | 39,861             | 48,003                  |
| 123.30              | 1,836              | 77                      | 125.90              | 40,871             | 50,022                  |
| 123.35              | 2,413              | 184                     | 125.95              | 41,881             | 52,091                  |
| 123.40              | 2,989              | 319                     | 126.00              | 42,891             | 54,210                  |
| 123.45              | 3,566              | 483                     | 126.05              | 44,324             | 56,390                  |
| 123.50              | 4,142              | 675                     | 126.10              | 45,758             | 58,642                  |
| 123.55              | 4,804              | 899                     | 126.15              | 47,191             | 60,966                  |
| 123.60              | 5,466              | 1,156                   | 126.20              | 48,625             | 63,361                  |
| 123.65              | 6,127              | 1,445                   | 126.25              | 50,058             | 65,828                  |
| 123.70              | 6,789              | 1,768                   | 126.30              | 51,491             | 68,367                  |
| 123.75              | 7,451              | 2,124                   | 126.35              | 52,925             | 70,978                  |
| 123.80              | 8,062              | 2,512                   | 126.40              | 54,358             | 73,660                  |
| 123.85              | 8,673              | 2,931                   | 126.45              | 55,791             | 76,413                  |
| 123.90              | 9,283              | 3,379                   | 126.50              | 57,225             | 79,239                  |
| 123.95              | 9,894              | 3,859                   | 126.55              | 58,658             | 82,136                  |
| 124.00              | 10,505             | 4,369                   | 126.60              | 60,091             | 85,105                  |
| 124.05              | 11,087             | 4,909                   | 126.65              | 61,525             | 88,145                  |
| 124.10              | 11,670             | 5,478                   | 126.70              | 62,958             | 91,257                  |
| 124.15              | 12,252             | 6,076                   | 126.75              | 64,392             | 94,441                  |
| 124.20              | 12,835             | 6,703                   | 126.80              | 65,825             | 97,696                  |
| 124.25              | 13,417             | 7,359                   |                     |                    |                         |
| 124.30              | 13,999             | 8,045                   |                     |                    |                         |
| 124.35              | 14,582             | 8,759                   |                     |                    |                         |
| 124.40              | 15,164             | 9,503                   |                     |                    |                         |
| 124.45              | 15,747             | 10,275                  |                     |                    |                         |
| 124.50              | 16,329             | 11,077                  |                     |                    |                         |
| 124.55              | 17,083             | 11,913                  |                     |                    |                         |
| 124.60              | 17,836             | 12,786                  |                     |                    |                         |
| 124.65              | 18,590             | 13,696                  |                     |                    |                         |
| 124.70              | 19,343             | 14,645                  |                     |                    |                         |
| 124.75              | 20,097             | 15,631                  |                     |                    |                         |
| 124.80              | 20,851             | 16,654                  |                     |                    |                         |
| 124.85              | 21,604             | 17,716                  |                     |                    |                         |
| 124.90              | 22,358             | 18,815                  |                     |                    |                         |
| 124.95              | 23,111             | 19,951                  |                     |                    |                         |
| 125.00              | 23,865             | 21,126                  |                     |                    |                         |
| 125.05              | 24,757             | 22,341                  |                     |                    |                         |
| 125.10              | 25,650             | 23,602                  |                     |                    |                         |
| 125.15              | 26,543             | 24,906                  |                     |                    |                         |
| 125.20              | 27,435             | 26,256                  |                     |                    |                         |
| 125.25              | 28,328             | 27,650                  |                     |                    |                         |
| 125.30              | 29,220             | 29,089                  |                     |                    |                         |
| 125.35              | 30,112             | 30,572                  |                     |                    |                         |
| 125.40              | 31,005             | 32,100                  |                     |                    |                         |
| 125.45              | 31,898             | 33,672                  |                     |                    |                         |
| 125.50              | 32,790             | 35,290                  |                     |                    |                         |
| 125.55              | 33,800             | 36,954                  |                     |                    |                         |
| 125.60              | 34,810             | 38,670                  |                     |                    |                         |
| 125.65              | 35,820             | 40,435                  |                     |                    |                         |
| 125.70              | 36,830             | 42,252                  |                     |                    |                         |
| 125.75              | 37,841             | 44,118                  |                     |                    |                         |
| 125.80              | 38,851             | 46,036                  |                     |                    |                         |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment56S: Ex. Pervious to POI-2** Runoff Area=184,350 sf 0.00% Impervious Runoff Depth=0.00"  
Flow Length=747' Tc=18.7 min CN=35 Runoff=0.00 cfs 35 cf

**Subcatchment57S: Ex. Impervious to** Runoff Area=25,475 sf 100.00% Impervious Runoff Depth=3.69"  
Flow Length=221' Tc=13.5 min CN=98 Runoff=1.90 cfs 7,824 cf

**Pond 58P: Existing Drainage Area POI-2** Peak Elev=124.29' Storage=7,858 cf Inflow=1.90 cfs 7,858 cf  
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 209,825 sf Runoff Volume = 7,858 cf Average Runoff Depth = 0.45"**  
**87.86% Pervious = 184,350 sf 12.14% Impervious = 25,475 sf**

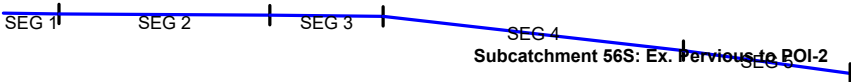
Summary for Subcatchment 56S: Ex. Pervious to POI-2

Runoff = 0.00 cfs @ 24.08 hrs, Volume= 35 cf, Depth= 0.00"  
Routed to Pond 58P : Existing Drainage Area POI-2 (Isolated Wetland)

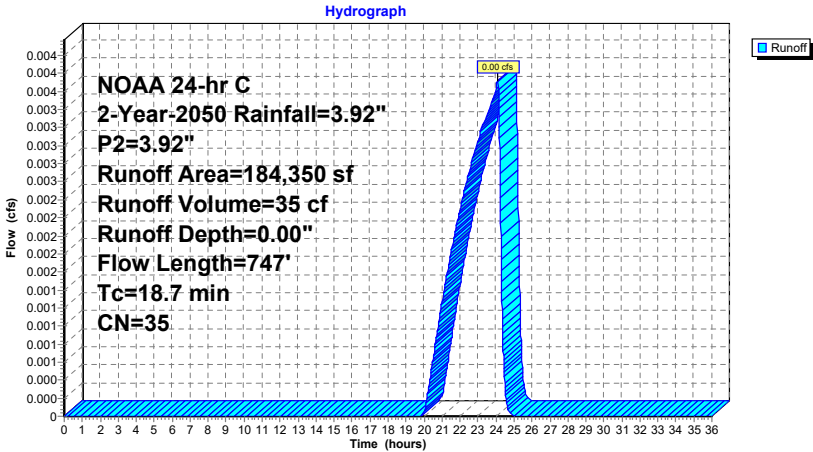
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description                    |  |  |  |
|-----------|----|--------------------------------|--|--|--|
| 79,767    | 39 | >75% Grass cover, Good, HSG A  |  |  |  |
| 4,864     | 61 | >75% Grass cover, Good, HSG B  |  |  |  |
| 1,899     | 32 | Woods/grass comb., Good, HSG A |  |  |  |
| 97,820    | 30 | Woods, Good, HSG A             |  |  |  |
| 184,350   | 35 | Weighted Average               |  |  |  |
| 184,350   |    | 100.00% Pervious Area          |  |  |  |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                     |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------------------------------------------|
| 8.4      | 49            | 0.0140        | 0.10              |                | <b>Sheet Flow, SEG 1</b><br>Grass: Dense n= 0.240 P2= 3.92"<br>Using McCuen-Spiess flow length                  |
| 6.3      | 186           | 0.0050        | 0.49              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Short Grass Pasture Kv= 7.0 fps                                      |
| 2.4      | 100           | 0.0100        | 0.70              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Short Grass Pasture Kv= 7.0 fps                                      |
| 0.2      | 265           | 0.1000        | 24.67             | 77.50          | <b>Pipe Channel, SEG 4</b><br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.012 Concrete pipe, finished |
| 1.4      | 147           | 0.1200        | 1.73              |                | <b>Shallow Concentrated Flow, SEG 5</b><br>Woodland Kv= 5.0 fps                                                 |
| 18.7     | 747           | Total         |                   |                |                                                                                                                 |



Subcatchment 56S: Ex. Pervious to POI-2



Hydrograph for Subcatchment 56S: Ex. Pervious to POI-2

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 0.00               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 0.00               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 0.00               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 0.00               | 0.00            |
| 2.00            | 0.09                | 0.00               | 0.00            | 28.00           | 3.92                | 0.00               | 0.00            |
| 2.50            | 0.11                | 0.00               | 0.00            | 28.50           | 3.92                | 0.00               | 0.00            |
| 3.00            | 0.14                | 0.00               | 0.00            | 29.00           | 3.92                | 0.00               | 0.00            |
| 3.50            | 0.16                | 0.00               | 0.00            | 29.50           | 3.92                | 0.00               | 0.00            |
| 4.00            | 0.19                | 0.00               | 0.00            | 30.00           | 3.92                | 0.00               | 0.00            |
| 4.50            | 0.22                | 0.00               | 0.00            | 30.50           | 3.92                | 0.00               | 0.00            |
| 5.00            | 0.25                | 0.00               | 0.00            | 31.00           | 3.92                | 0.00               | 0.00            |
| 5.50            | 0.28                | 0.00               | 0.00            | 31.50           | 3.92                | 0.00               | 0.00            |
| 6.00            | 0.31                | 0.00               | 0.00            | 32.00           | 3.92                | 0.00               | 0.00            |
| 6.50            | 0.34                | 0.00               | 0.00            | 32.50           | 3.92                | 0.00               | 0.00            |
| 7.00            | 0.38                | 0.00               | 0.00            | 33.00           | 3.92                | 0.00               | 0.00            |
| 7.50            | 0.42                | 0.00               | 0.00            | 33.50           | 3.92                | 0.00               | 0.00            |
| 8.00            | 0.47                | 0.00               | 0.00            | 34.00           | 3.92                | 0.00               | 0.00            |
| 8.50            | 0.52                | 0.00               | 0.00            | 34.50           | 3.92                | 0.00               | 0.00            |
| 9.00            | 0.57                | 0.00               | 0.00            | 35.00           | 3.92                | 0.00               | 0.00            |
| 9.50            | 0.64                | 0.00               | 0.00            | 35.50           | 3.92                | 0.00               | 0.00            |
| 10.00           | 0.71                | 0.00               | 0.00            | 36.00           | 3.92                | 0.00               | 0.00            |
| 10.50           | 0.81                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.76                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 2.98                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 3.11                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 3.21                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 3.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 3.35                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 3.40                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 3.45                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 3.50                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 3.54                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 3.58                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.00           | 3.61                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.50           | 3.64                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.00           | 3.67                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.50           | 3.70                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.00           | 3.73                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.50           | 3.76                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.00           | 3.78                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.50           | 3.81                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.00           | 3.83                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.50           | 3.85                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.00           | 3.88                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.50           | 3.90                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.00           | 3.92                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.50           | 3.92                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 0.00               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 57S: Ex. Impervious to POI-2

Runoff = 1.90 cfs @ 12.21 hrs, Volume= 7,824 cf, Depth= 3.69"

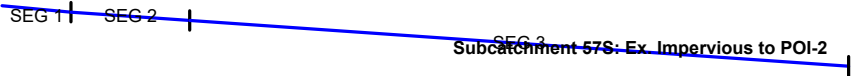
Routed to Pond 58P : Existing Drainage Area POI-2 (Isolated Wetland)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

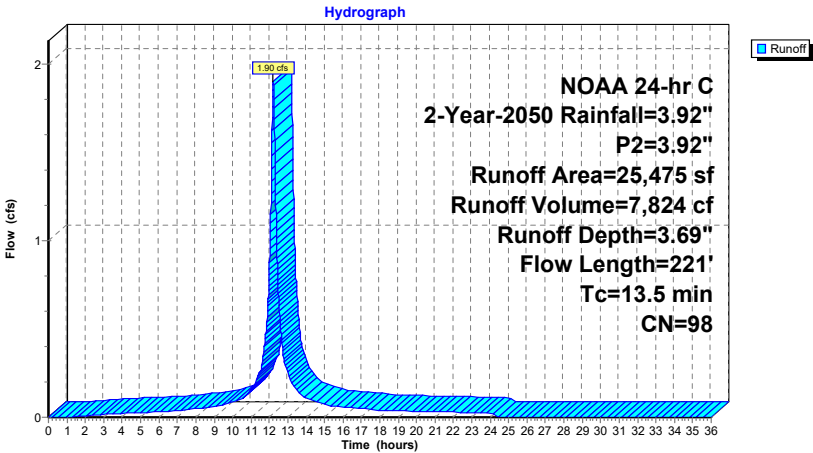
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description             |  |  |  |
|-----------|----|-------------------------|--|--|--|
| 25,475    | 98 | Paved parking, HSG A    |  |  |  |
| 25,475    |    | 100.00% Impervious Area |  |  |  |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                               |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------------------------------------|
| 0.3      | 18            | 0.0200        | 1.08              |                | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.92"                                            |
| 8.5      | 31            | 0.0150        | 0.06              |                | <b>Sheet Flow, SEG 2</b><br>Woods: Light underbrush n= 0.400 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 4.7      | 172           | 0.0150        | 0.61              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Woodland Kv= 5.0 fps                                           |
| 13.5     | 221           | Total         |                   |                |                                                                                                           |



Subcatchment 57S: Ex. Impervious to POI-2



Hydrograph for Subcatchment 57S: Ex. Impervious to POI-2

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 3.92             | 3.69            | 0.00         |
| 0.50         | 0.02             | 0.00            | 0.00         | 26.50        | 3.92             | 3.69            | 0.00         |
| 1.00         | 0.04             | 0.00            | 0.00         | 27.00        | 3.92             | 3.69            | 0.00         |
| 1.50         | 0.07             | 0.00            | 0.00         | 27.50        | 3.92             | 3.69            | 0.00         |
| 2.00         | 0.09             | 0.01            | 0.01         | 28.00        | 3.92             | 3.69            | 0.00         |
| 2.50         | 0.11             | 0.02            | 0.01         | 28.50        | 3.92             | 3.69            | 0.00         |
| 3.00         | 0.14             | 0.03            | 0.02         | 29.00        | 3.92             | 3.69            | 0.00         |
| 3.50         | 0.16             | 0.05            | 0.02         | 29.50        | 3.92             | 3.69            | 0.00         |
| 4.00         | 0.19             | 0.06            | 0.02         | 30.00        | 3.92             | 3.69            | 0.00         |
| 4.50         | 0.22             | 0.08            | 0.02         | 30.50        | 3.92             | 3.69            | 0.00         |
| 5.00         | 0.25             | 0.11            | 0.03         | 31.00        | 3.92             | 3.69            | 0.00         |
| 5.50         | 0.28             | 0.13            | 0.03         | 31.50        | 3.92             | 3.69            | 0.00         |
| 6.00         | 0.31             | 0.15            | 0.03         | 32.00        | 3.92             | 3.69            | 0.00         |
| 6.50         | 0.34             | 0.18            | 0.03         | 32.50        | 3.92             | 3.69            | 0.00         |
| 7.00         | 0.38             | 0.21            | 0.04         | 33.00        | 3.92             | 3.69            | 0.00         |
| 7.50         | 0.42             | 0.25            | 0.04         | 33.50        | 3.92             | 3.69            | 0.00         |
| 8.00         | 0.47             | 0.29            | 0.05         | 34.00        | 3.92             | 3.69            | 0.00         |
| 8.50         | 0.52             | 0.34            | 0.05         | 34.50        | 3.92             | 3.69            | 0.00         |
| 9.00         | 0.57             | 0.38            | 0.06         | 35.00        | 3.92             | 3.69            | 0.00         |
| 9.50         | 0.64             | 0.44            | 0.07         | 35.50        | 3.92             | 3.69            | 0.00         |
| 10.00        | 0.71             | 0.52            | 0.09         | 36.00        | 3.92             | 3.69            | 0.00         |
| 10.50        | 0.81             | 0.61            | 0.11         |              |                  |                 |              |
| 11.00        | 0.94             | 0.73            | 0.16         |              |                  |                 |              |
| 11.50        | 1.16             | 0.94            | 0.26         |              |                  |                 |              |
| 12.00        | 1.87             | 1.64            | 0.84         |              |                  |                 |              |
| 12.50        | 2.76             | 2.53            | 0.88         |              |                  |                 |              |
| 13.00        | 2.98             | 2.75            | 0.25         |              |                  |                 |              |
| 13.50        | 3.11             | 2.88            | 0.15         |              |                  |                 |              |
| 14.00        | 3.21             | 2.97            | 0.11         |              |                  |                 |              |
| 14.50        | 3.28             | 3.05            | 0.09         |              |                  |                 |              |
| 15.00        | 3.35             | 3.11            | 0.07         |              |                  |                 |              |
| 15.50        | 3.40             | 3.17            | 0.06         |              |                  |                 |              |
| 16.00        | 3.45             | 3.22            | 0.06         |              |                  |                 |              |
| 16.50        | 3.50             | 3.26            | 0.05         |              |                  |                 |              |
| 17.00        | 3.54             | 3.30            | 0.05         |              |                  |                 |              |
| 17.50        | 3.58             | 3.34            | 0.04         |              |                  |                 |              |
| 18.00        | 3.61             | 3.38            | 0.04         |              |                  |                 |              |
| 18.50        | 3.64             | 3.41            | 0.04         |              |                  |                 |              |
| 19.00        | 3.67             | 3.44            | 0.04         |              |                  |                 |              |
| 19.50        | 3.70             | 3.47            | 0.03         |              |                  |                 |              |
| 20.00        | 3.73             | 3.49            | 0.03         |              |                  |                 |              |
| 20.50        | 3.76             | 3.52            | 0.03         |              |                  |                 |              |
| 21.00        | 3.78             | 3.55            | 0.03         |              |                  |                 |              |
| 21.50        | 3.81             | 3.57            | 0.03         |              |                  |                 |              |
| 22.00        | 3.83             | 3.60            | 0.03         |              |                  |                 |              |
| 22.50        | 3.85             | 3.62            | 0.03         |              |                  |                 |              |
| 23.00        | 3.88             | 3.64            | 0.03         |              |                  |                 |              |
| 23.50        | 3.90             | 3.66            | 0.03         |              |                  |                 |              |
| 24.00        | 3.92             | 3.69            | 0.02         |              |                  |                 |              |
| 24.50        | 3.92             | 3.69            | 0.00         |              |                  |                 |              |
| 25.00        | 3.92             | 3.69            | 0.00         |              |                  |                 |              |
| 25.50        | 3.92             | 3.69            | 0.00         |              |                  |                 |              |



Summary for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

Inflow Area = 209,825 sf, 12.14% Impervious, Inflow Depth = 0.45" for 2-Year-2050 event  
Inflow = 1.90 cfs @ 12.21 hrs, Volume= 7,858 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

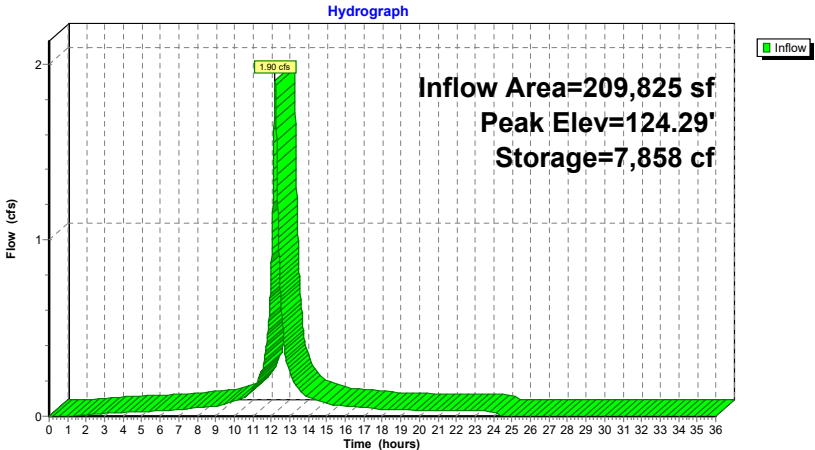
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 124.29' @ 25.07 hrs Surf.Area= 13,844 sf Storage= 7,858 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

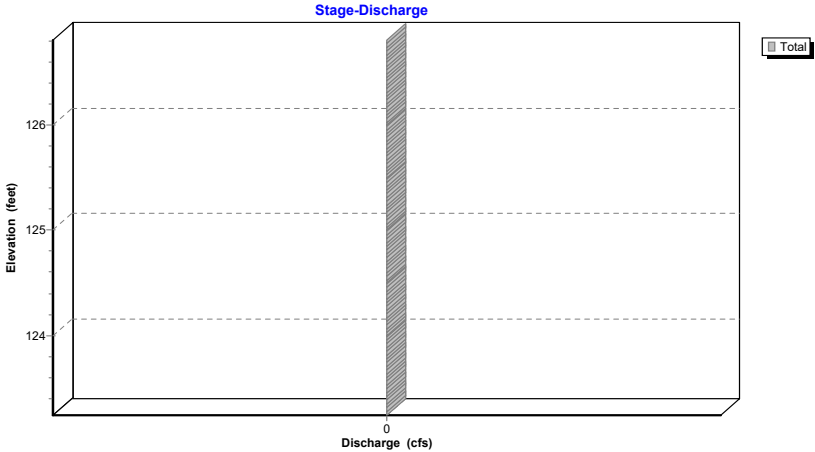
| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 123.25'           | 97,696 cf              | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 123.25           | 1,260             | 0                      | 0                                                   |
| 123.50           | 4,142             | 675                    | 675                                                 |
| 123.75           | 7,451             | 1,449                  | 2,124                                               |
| 124.00           | 10,505            | 2,245                  | 4,369                                               |
| 124.50           | 16,329            | 6,709                  | 11,077                                              |
| 125.00           | 23,865            | 10,049                 | 21,126                                              |
| 125.50           | 32,790            | 14,164                 | 35,290                                              |
| 126.00           | 42,891            | 18,920                 | 54,210                                              |
| 126.80           | 65,825            | 43,486                 | 97,696                                              |

Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

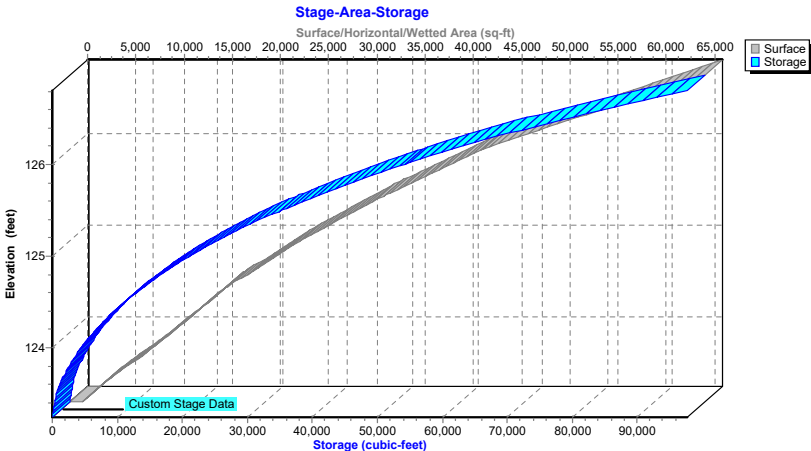
Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)



Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)



Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)



Hydrograph for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) |
|--------------|--------------|----------------------|------------------|--------------|--------------|----------------------|------------------|
| 0.00         | 0.00         | 0                    | 123.25           | 26.00        | 0.00         | 7,858                | 124.29           |
| 0.50         | 0.00         | 0                    | 123.25           | 26.50        | 0.00         | 7,858                | 124.29           |
| 1.00         | 0.00         | 0                    | 123.25           | 27.00        | 0.00         | 7,858                | 124.29           |
| 1.50         | 0.00         | 2                    | 123.25           | 27.50        | 0.00         | 7,858                | 124.29           |
| 2.00         | 0.01         | 13                   | 123.26           | 28.00        | 0.00         | 7,858                | 124.29           |
| 2.50         | 0.01         | 31                   | 123.27           | 28.50        | 0.00         | 7,858                | 124.29           |
| 3.00         | 0.02         | 55                   | 123.29           | 29.00        | 0.00         | 7,858                | 124.29           |
| 3.50         | 0.02         | 85                   | 123.30           | 29.50        | 0.00         | 7,858                | 124.29           |
| 4.00         | 0.02         | 120                  | 123.32           | 30.00        | 0.00         | 7,858                | 124.29           |
| 4.50         | 0.02         | 160                  | 123.34           | 30.50        | 0.00         | 7,858                | 124.29           |
| 5.00         | 0.03         | 204                  | 123.36           | 31.00        | 0.00         | 7,858                | 124.29           |
| 5.50         | 0.03         | 252                  | 123.38           | 31.50        | 0.00         | 7,858                | 124.29           |
| 6.00         | 0.03         | 304                  | 123.39           | 32.00        | 0.00         | 7,858                | 124.29           |
| 6.50         | 0.03         | 360                  | 123.41           | 32.50        | 0.00         | 7,858                | 124.29           |
| 7.00         | 0.04         | 425                  | 123.43           | 33.00        | 0.00         | 7,858                | 124.29           |
| 7.50         | 0.04         | 498                  | 123.45           | 33.50        | 0.00         | 7,858                | 124.29           |
| 8.00         | 0.05         | 580                  | 123.48           | 34.00        | 0.00         | 7,858                | 124.29           |
| 8.50         | 0.05         | 671                  | 123.50           | 34.50        | 0.00         | 7,858                | 124.29           |
| 9.00         | 0.06         | 771                  | 123.52           | 35.00        | 0.00         | 7,858                | 124.29           |
| 9.50         | 0.07         | 886                  | 123.55           | 35.50        | 0.00         | 7,858                | 124.29           |
| 10.00        | 0.09         | 1,030                | 123.58           | 36.00        | 0.00         | 7,858                | 124.29           |
| 10.50        | 0.11         | 1,205                | 123.61           |              |              |                      |                  |
| 11.00        | 0.16         | 1,433                | 123.65           |              |              |                      |                  |
| 11.50        | 0.26         | 1,798                | 123.70           |              |              |                      |                  |
| 12.00        | 0.84         | 2,608                | 123.81           |              |              |                      |                  |
| 12.50        | 0.88         | 4,953                | 124.05           |              |              |                      |                  |
| 13.00        | 0.25         | 5,661                | 124.12           |              |              |                      |                  |
| 13.50        | 0.15         | 6,008                | 124.14           |              |              |                      |                  |
| 14.00        | 0.11         | 6,232                | 124.16           |              |              |                      |                  |
| 14.50        | 0.09         | 6,411                | 124.18           |              |              |                      |                  |
| 15.00        | 0.07         | 6,559                | 124.19           |              |              |                      |                  |
| 15.50        | 0.06         | 6,678                | 124.20           |              |              |                      |                  |
| 16.00        | 0.06         | 6,787                | 124.21           |              |              |                      |                  |
| 16.50        | 0.05         | 6,886                | 124.21           |              |              |                      |                  |
| 17.00        | 0.05         | 6,978                | 124.22           |              |              |                      |                  |
| 17.50        | 0.04         | 7,062                | 124.23           |              |              |                      |                  |
| 18.00        | 0.04         | 7,137                | 124.23           |              |              |                      |                  |
| 18.50        | 0.04         | 7,205                | 124.24           |              |              |                      |                  |
| 19.00        | 0.04         | 7,269                | 124.24           |              |              |                      |                  |
| 19.50        | 0.03         | 7,332                | 124.25           |              |              |                      |                  |
| 20.00        | 0.03         | 7,393                | 124.25           |              |              |                      |                  |
| 20.50        | 0.03         | 7,452                | 124.26           |              |              |                      |                  |
| 21.00        | 0.03         | 7,510                | 124.26           |              |              |                      |                  |
| 21.50        | 0.03         | 7,567                | 124.27           |              |              |                      |                  |
| 22.00        | 0.03         | 7,623                | 124.27           |              |              |                      |                  |
| 22.50        | 0.03         | 7,678                | 124.27           |              |              |                      |                  |
| 23.00        | 0.03         | 7,732                | 124.28           |              |              |                      |                  |
| 23.50        | 0.03         | 7,784                | 124.28           |              |              |                      |                  |
| 24.00        | 0.03         | 7,834                | 124.28           |              |              |                      |                  |
| 24.50        | 0.00         | 7,858                | 124.29           |              |              |                      |                  |
| 25.00        | 0.00         | 7,858                | 124.29           |              |              |                      |                  |
| 25.50        | 0.00         | 7,858                | 124.29           |              |              |                      |                  |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)**

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 123.25              | 0.00               | 124.29              | 0.00               | 125.33              | 0.00               | 126.37              | 0.00               |
| 123.27              | 0.00               | 124.31              | 0.00               | 125.35              | 0.00               | 126.39              | 0.00               |
| 123.29              | 0.00               | 124.33              | 0.00               | 125.37              | 0.00               | 126.41              | 0.00               |
| 123.31              | 0.00               | 124.35              | 0.00               | 125.39              | 0.00               | 126.43              | 0.00               |
| 123.33              | 0.00               | 124.37              | 0.00               | 125.41              | 0.00               | 126.45              | 0.00               |
| 123.35              | 0.00               | 124.39              | 0.00               | 125.43              | 0.00               | 126.47              | 0.00               |
| 123.37              | 0.00               | 124.41              | 0.00               | 125.45              | 0.00               | 126.49              | 0.00               |
| 123.39              | 0.00               | 124.43              | 0.00               | 125.47              | 0.00               | 126.51              | 0.00               |
| 123.41              | 0.00               | 124.45              | 0.00               | 125.49              | 0.00               | 126.53              | 0.00               |
| 123.43              | 0.00               | 124.47              | 0.00               | 125.51              | 0.00               | 126.55              | 0.00               |
| 123.45              | 0.00               | 124.49              | 0.00               | 125.53              | 0.00               | 126.57              | 0.00               |
| 123.47              | 0.00               | 124.51              | 0.00               | 125.55              | 0.00               | 126.59              | 0.00               |
| 123.49              | 0.00               | 124.53              | 0.00               | 125.57              | 0.00               | 126.61              | 0.00               |
| 123.51              | 0.00               | 124.55              | 0.00               | 125.59              | 0.00               | 126.63              | 0.00               |
| 123.53              | 0.00               | 124.57              | 0.00               | 125.61              | 0.00               | 126.65              | 0.00               |
| 123.55              | 0.00               | 124.59              | 0.00               | 125.63              | 0.00               | 126.67              | 0.00               |
| 123.57              | 0.00               | 124.61              | 0.00               | 125.65              | 0.00               | 126.69              | 0.00               |
| 123.59              | 0.00               | 124.63              | 0.00               | 125.67              | 0.00               | 126.71              | 0.00               |
| 123.61              | 0.00               | 124.65              | 0.00               | 125.69              | 0.00               | 126.73              | 0.00               |
| 123.63              | 0.00               | 124.67              | 0.00               | 125.71              | 0.00               | 126.75              | 0.00               |
| 123.65              | 0.00               | 124.69              | 0.00               | 125.73              | 0.00               | 126.77              | 0.00               |
| 123.67              | 0.00               | 124.71              | 0.00               | 125.75              | 0.00               | 126.79              | 0.00               |
| 123.69              | 0.00               | 124.73              | 0.00               | 125.77              | 0.00               |                     |                    |
| 123.71              | 0.00               | 124.75              | 0.00               | 125.79              | 0.00               |                     |                    |
| 123.73              | 0.00               | 124.77              | 0.00               | 125.81              | 0.00               |                     |                    |
| 123.75              | 0.00               | 124.79              | 0.00               | 125.83              | 0.00               |                     |                    |
| 123.77              | 0.00               | 124.81              | 0.00               | 125.85              | 0.00               |                     |                    |
| 123.79              | 0.00               | 124.83              | 0.00               | 125.87              | 0.00               |                     |                    |
| 123.81              | 0.00               | 124.85              | 0.00               | 125.89              | 0.00               |                     |                    |
| 123.83              | 0.00               | 124.87              | 0.00               | 125.91              | 0.00               |                     |                    |
| 123.85              | 0.00               | 124.89              | 0.00               | 125.93              | 0.00               |                     |                    |
| 123.87              | 0.00               | 124.91              | 0.00               | 125.95              | 0.00               |                     |                    |
| 123.89              | 0.00               | 124.93              | 0.00               | 125.97              | 0.00               |                     |                    |
| 123.91              | 0.00               | 124.95              | 0.00               | 125.99              | 0.00               |                     |                    |
| 123.93              | 0.00               | 124.97              | 0.00               | 126.01              | 0.00               |                     |                    |
| 123.95              | 0.00               | 124.99              | 0.00               | 126.03              | 0.00               |                     |                    |
| 123.97              | 0.00               | 125.01              | 0.00               | 126.05              | 0.00               |                     |                    |
| 123.99              | 0.00               | 125.03              | 0.00               | 126.07              | 0.00               |                     |                    |
| 124.01              | 0.00               | 125.05              | 0.00               | 126.09              | 0.00               |                     |                    |
| 124.03              | 0.00               | 125.07              | 0.00               | 126.11              | 0.00               |                     |                    |
| 124.05              | 0.00               | 125.09              | 0.00               | 126.13              | 0.00               |                     |                    |
| 124.07              | 0.00               | 125.11              | 0.00               | 126.15              | 0.00               |                     |                    |
| 124.09              | 0.00               | 125.13              | 0.00               | 126.17              | 0.00               |                     |                    |
| 124.11              | 0.00               | 125.15              | 0.00               | 126.19              | 0.00               |                     |                    |
| 124.13              | 0.00               | 125.17              | 0.00               | 126.21              | 0.00               |                     |                    |
| 124.15              | 0.00               | 125.19              | 0.00               | 126.23              | 0.00               |                     |                    |
| 124.17              | 0.00               | 125.21              | 0.00               | 126.25              | 0.00               |                     |                    |
| 124.19              | 0.00               | 125.23              | 0.00               | 126.27              | 0.00               |                     |                    |
| 124.21              | 0.00               | 125.25              | 0.00               | 126.29              | 0.00               |                     |                    |
| 124.23              | 0.00               | 125.27              | 0.00               | 126.31              | 0.00               |                     |                    |
| 124.25              | 0.00               | 125.29              | 0.00               | 126.33              | 0.00               |                     |                    |
| 124.27              | 0.00               | 125.31              | 0.00               | 126.35              | 0.00               |                     |                    |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 123.25              | 1,260              | 0                       | 125.85              | 39,861             | 48,003                  |
| 123.30              | 1,836              | 77                      | 125.90              | 40,871             | 50,022                  |
| 123.35              | 2,413              | 184                     | 125.95              | 41,881             | 52,091                  |
| 123.40              | 2,989              | 319                     | 126.00              | 42,891             | 54,210                  |
| 123.45              | 3,566              | 483                     | 126.05              | 44,324             | 56,390                  |
| 123.50              | 4,142              | 675                     | 126.10              | 45,758             | 58,642                  |
| 123.55              | 4,804              | 899                     | 126.15              | 47,191             | 60,966                  |
| 123.60              | 5,466              | 1,156                   | 126.20              | 48,625             | 63,361                  |
| 123.65              | 6,127              | 1,445                   | 126.25              | 50,058             | 65,828                  |
| 123.70              | 6,789              | 1,768                   | 126.30              | 51,491             | 68,367                  |
| 123.75              | 7,451              | 2,124                   | 126.35              | 52,925             | 70,978                  |
| 123.80              | 8,062              | 2,512                   | 126.40              | 54,358             | 73,660                  |
| 123.85              | 8,673              | 2,931                   | 126.45              | 55,791             | 76,413                  |
| 123.90              | 9,283              | 3,379                   | 126.50              | 57,225             | 79,239                  |
| 123.95              | 9,894              | 3,859                   | 126.55              | 58,658             | 82,136                  |
| 124.00              | 10,505             | 4,369                   | 126.60              | 60,091             | 85,105                  |
| 124.05              | 11,087             | 4,909                   | 126.65              | 61,525             | 88,145                  |
| 124.10              | 11,670             | 5,478                   | 126.70              | 62,958             | 91,257                  |
| 124.15              | 12,252             | 6,076                   | 126.75              | 64,392             | 94,441                  |
| 124.20              | 12,835             | 6,703                   | 126.80              | <b>65,825</b>      | <b>97,696</b>           |
| 124.25              | 13,417             | 7,359                   |                     |                    |                         |
| 124.30              | 13,999             | 8,045                   |                     |                    |                         |
| 124.35              | 14,582             | 8,759                   |                     |                    |                         |
| 124.40              | 15,164             | 9,503                   |                     |                    |                         |
| 124.45              | 15,747             | 10,275                  |                     |                    |                         |
| 124.50              | 16,329             | 11,077                  |                     |                    |                         |
| 124.55              | 17,083             | 11,913                  |                     |                    |                         |
| 124.60              | 17,836             | 12,786                  |                     |                    |                         |
| 124.65              | 18,590             | 13,696                  |                     |                    |                         |
| 124.70              | 19,343             | 14,645                  |                     |                    |                         |
| 124.75              | 20,097             | 15,631                  |                     |                    |                         |
| 124.80              | 20,851             | 16,654                  |                     |                    |                         |
| 124.85              | 21,604             | 17,716                  |                     |                    |                         |
| 124.90              | 22,358             | 18,815                  |                     |                    |                         |
| 124.95              | 23,111             | 19,951                  |                     |                    |                         |
| 125.00              | 23,865             | 21,126                  |                     |                    |                         |
| 125.05              | 24,757             | 22,341                  |                     |                    |                         |
| 125.10              | 25,650             | 23,602                  |                     |                    |                         |
| 125.15              | 26,543             | 24,906                  |                     |                    |                         |
| 125.20              | 27,435             | 26,256                  |                     |                    |                         |
| 125.25              | 28,328             | 27,650                  |                     |                    |                         |
| 125.30              | 29,220             | 29,089                  |                     |                    |                         |
| 125.35              | 30,112             | 30,572                  |                     |                    |                         |
| 125.40              | 31,005             | 32,100                  |                     |                    |                         |
| 125.45              | 31,898             | 33,672                  |                     |                    |                         |
| 125.50              | 32,790             | 35,290                  |                     |                    |                         |
| 125.55              | 33,800             | 36,954                  |                     |                    |                         |
| 125.60              | 34,810             | 38,670                  |                     |                    |                         |
| 125.65              | 35,820             | 40,435                  |                     |                    |                         |
| 125.70              | 36,830             | 42,252                  |                     |                    |                         |
| 125.75              | 37,841             | 44,118                  |                     |                    |                         |
| 125.80              | 38,851             | 46,036                  |                     |                    |                         |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment56S: Ex. Pervious to POI-2Runoff Area=184,350 sf 0.00% Impervious Runoff Depth=0.30"  
Flow Length=747' Tc=18.7 min CN=35 Runoff=0.27 cfs 4,542 cf

Subcatchment57S: Ex. Impervious toRunoff Area=25,475 sf 100.00% Impervious Runoff Depth=5.97"  
Flow Length=221' Tc=13.5 min CN=98 Runoff=3.03 cfs 12,677 cf

Pond 58P: Existing Drainage Area POI-2Peak Elev=124.83' Storage=17,219 cf Inflow=3.03 cfs 17,219 cf  
Outflow=0.00 cfs 0 cf

Total Runoff Area = 209,825 sf Runoff Volume = 17,219 cf Average Runoff Depth = 0.98"  
87.86% Pervious = 184,350 sf 12.14% Impervious = 25,475 sf

Summary for Subcatchment 56S: Ex. Pervious to POI-2

Runoff = 0.27 cfs @ 12.70 hrs, Volume= 4,542 cf, Depth= 0.30"  
Routed to Pond 58P : Existing Drainage Area POI-2 (Isolated Wetland)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description                    |
|-----------|----|--------------------------------|
| 79,767    | 39 | >75% Grass cover, Good, HSG A  |
| 4,864     | 61 | >75% Grass cover, Good, HSG B  |
| 1,899     | 32 | Woods/grass comb., Good, HSG A |
| 97,820    | 30 | Woods, Good, HSG A             |
| 184,350   | 35 | Weighted Average               |
| 184,350   |    | 100.00% Pervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                              |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------------|
| 8.4      | 49            | 0.0140        | 0.10              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92"<br>Using McCuen-Spiess flow length                  |
| 6.3      | 186           | 0.0050        | 0.49              |                | Shallow Concentrated Flow, SEG 2<br>Short Grass Pasture Kv= 7.0 fps                                      |
| 2.4      | 100           | 0.0100        | 0.70              |                | Shallow Concentrated Flow, SEG 3<br>Short Grass Pasture Kv= 7.0 fps                                      |
| 0.2      | 265           | 0.1000        | 24.67             | 77.50          | Pipe Channel, SEG 4<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.012 Concrete pipe, finished |
| 1.4      | 147           | 0.1200        | 1.73              |                | Shallow Concentrated Flow, SEG 5<br>Woodland Kv= 5.0 fps                                                 |
| 18.7     | 747           | Total         |                   |                |                                                                                                          |

SEG 1

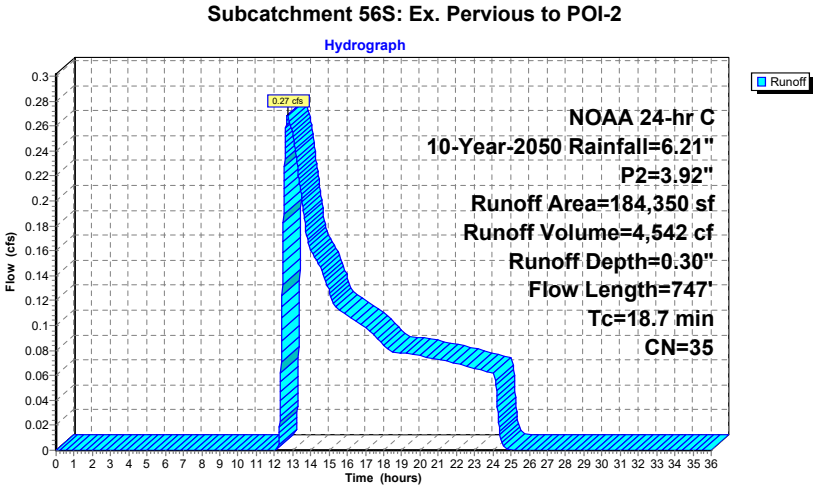
SEG 2

SEG 3

SEG 4

Subcatchment 56S: Ex. Pervious to POI-2

SEG 5



Hydrograph for Subcatchment 56S: Ex. Pervious to POI-2

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 0.30               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 0.30               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 0.30               | 0.00            |
| 1.50            | 0.10                | 0.00               | 0.00            | 27.50           | 6.21                | 0.30               | 0.00            |
| 2.00            | 0.14                | 0.00               | 0.00            | 28.00           | 6.21                | 0.30               | 0.00            |
| 2.50            | 0.18                | 0.00               | 0.00            | 28.50           | 6.21                | 0.30               | 0.00            |
| 3.00            | 0.22                | 0.00               | 0.00            | 29.00           | 6.21                | 0.30               | 0.00            |
| 3.50            | 0.26                | 0.00               | 0.00            | 29.50           | 6.21                | 0.30               | 0.00            |
| 4.00            | 0.30                | 0.00               | 0.00            | 30.00           | 6.21                | 0.30               | 0.00            |
| 4.50            | 0.35                | 0.00               | 0.00            | 30.50           | 6.21                | 0.30               | 0.00            |
| 5.00            | 0.39                | 0.00               | 0.00            | 31.00           | 6.21                | 0.30               | 0.00            |
| 5.50            | 0.44                | 0.00               | 0.00            | 31.50           | 6.21                | 0.30               | 0.00            |
| 6.00            | 0.49                | 0.00               | 0.00            | 32.00           | 6.21                | 0.30               | 0.00            |
| 6.50            | 0.55                | 0.00               | 0.00            | 32.50           | 6.21                | 0.30               | 0.00            |
| 7.00            | 0.61                | 0.00               | 0.00            | 33.00           | 6.21                | 0.30               | 0.00            |
| 7.50            | 0.67                | 0.00               | 0.00            | 33.50           | 6.21                | 0.30               | 0.00            |
| 8.00            | 0.74                | 0.00               | 0.00            | 34.00           | 6.21                | 0.30               | 0.00            |
| 8.50            | 0.82                | 0.00               | 0.00            | 34.50           | 6.21                | 0.30               | 0.00            |
| 9.00            | 0.91                | 0.00               | 0.00            | 35.00           | 6.21                | 0.30               | 0.00            |
| 9.50            | 1.01                | 0.00               | 0.00            | 35.50           | 6.21                | 0.30               | 0.00            |
| 10.00           | 1.13                | 0.00               | 0.00            | 36.00           | 6.21                | 0.30               | 0.00            |
| 10.50           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.84                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.96                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 4.37                | 0.02               | 0.19            |                 |                     |                    |                 |
| 13.00           | 4.72                | 0.05               | 0.25            |                 |                     |                    |                 |
| 13.50           | 4.93                | 0.07               | 0.20            |                 |                     |                    |                 |
| 14.00           | 5.08                | 0.09               | 0.16            |                 |                     |                    |                 |
| 14.50           | 5.20                | 0.11               | 0.15            |                 |                     |                    |                 |
| 15.00           | 5.30                | 0.13               | 0.13            |                 |                     |                    |                 |
| 15.50           | 5.39                | 0.14               | 0.11            |                 |                     |                    |                 |
| 16.00           | 5.47                | 0.15               | 0.11            |                 |                     |                    |                 |
| 16.50           | 5.54                | 0.16               | 0.10            |                 |                     |                    |                 |
| 17.00           | 5.60                | 0.17               | 0.10            |                 |                     |                    |                 |
| 17.50           | 5.66                | 0.19               | 0.09            |                 |                     |                    |                 |
| 18.00           | 5.72                | 0.20               | 0.08            |                 |                     |                    |                 |
| 18.50           | 5.77                | 0.20               | 0.08            |                 |                     |                    |                 |
| 19.00           | 5.82                | 0.21               | 0.08            |                 |                     |                    |                 |
| 19.50           | 5.86                | 0.22               | 0.08            |                 |                     |                    |                 |
| 20.00           | 5.91                | 0.23               | 0.08            |                 |                     |                    |                 |
| 20.50           | 5.95                | 0.24               | 0.07            |                 |                     |                    |                 |
| 21.00           | 5.99                | 0.25               | 0.07            |                 |                     |                    |                 |
| 21.50           | 6.03                | 0.26               | 0.07            |                 |                     |                    |                 |
| 22.00           | 6.07                | 0.27               | 0.07            |                 |                     |                    |                 |
| 22.50           | 6.11                | 0.27               | 0.07            |                 |                     |                    |                 |
| 23.00           | 6.14                | 0.28               | 0.07            |                 |                     |                    |                 |
| 23.50           | 6.18                | 0.29               | 0.06            |                 |                     |                    |                 |
| 24.00           | 6.21                | 0.30               | 0.06            |                 |                     |                    |                 |
| 24.50           | 6.21                | 0.30               | 0.01            |                 |                     |                    |                 |
| 25.00           | 6.21                | 0.30               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 0.30               | 0.00            |                 |                     |                    |                 |

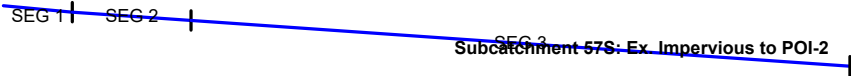
Summary for Subcatchment 57S: Ex. Impervious to POI-2

Runoff = 3.03 cfs @ 12.21 hrs, Volume= 12,677 cf, Depth= 5.97"  
Routed to Pond 58P : Existing Drainage Area POI-2 (Isolated Wetland)

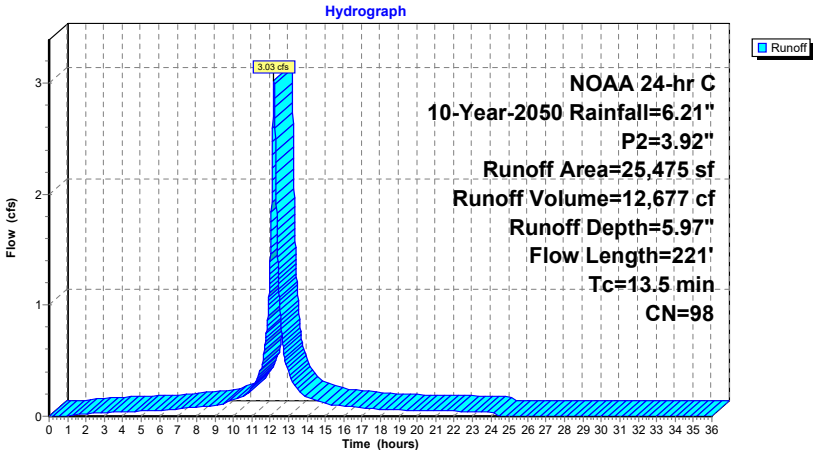
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 25,475    | 98 | Paved parking, HSG A    |
| 25,475    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 0.3      | 18            | 0.0200        | 1.08              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.92"                                            |
| 8.5      | 31            | 0.0150        | 0.06              |                | Sheet Flow, SEG 2<br>Woods: Light underbrush n= 0.400 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 4.7      | 172           | 0.0150        | 0.61              |                | Shallow Concentrated Flow, SEG 3<br>Woodland Kv= 5.0 fps                                           |
| 13.5     | 221           |               |                   |                | Total                                                                                              |



Subcatchment 57S: Ex. Impervious to POI-2



Hydrograph for Subcatchment 57S: Ex. Impervious to POI-2

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 5.97               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 5.97               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 5.97               | 0.00            |
| 1.50            | 0.10                | 0.01               | 0.01            | 27.50           | 6.21                | 5.97               | 0.00            |
| 2.00            | 0.14                | 0.03               | 0.02            | 28.00           | 6.21                | 5.97               | 0.00            |
| 2.50            | 0.18                | 0.06               | 0.03            | 28.50           | 6.21                | 5.97               | 0.00            |
| 3.00            | 0.22                | 0.08               | 0.03            | 29.00           | 6.21                | 5.97               | 0.00            |
| 3.50            | 0.26                | 0.11               | 0.04            | 29.50           | 6.21                | 5.97               | 0.00            |
| 4.00            | 0.30                | 0.15               | 0.04            | 30.00           | 6.21                | 5.97               | 0.00            |
| 4.50            | 0.35                | 0.19               | 0.04            | 30.50           | 6.21                | 5.97               | 0.00            |
| 5.00            | 0.39                | 0.22               | 0.05            | 31.00           | 6.21                | 5.97               | 0.00            |
| 5.50            | 0.44                | 0.27               | 0.05            | 31.50           | 6.21                | 5.97               | 0.00            |
| 6.00            | 0.49                | 0.31               | 0.05            | 32.00           | 6.21                | 5.97               | 0.00            |
| 6.50            | 0.55                | 0.36               | 0.06            | 32.50           | 6.21                | 5.97               | 0.00            |
| 7.00            | 0.61                | 0.41               | 0.07            | 33.00           | 6.21                | 5.97               | 0.00            |
| 7.50            | 0.67                | 0.48               | 0.07            | 33.50           | 6.21                | 5.97               | 0.00            |
| 8.00            | 0.74                | 0.55               | 0.08            | 34.00           | 6.21                | 5.97               | 0.00            |
| 8.50            | 0.82                | 0.62               | 0.09            | 34.50           | 6.21                | 5.97               | 0.00            |
| 9.00            | 0.91                | 0.70               | 0.10            | 35.00           | 6.21                | 5.97               | 0.00            |
| 9.50            | 1.01                | 0.80               | 0.12            | 35.50           | 6.21                | 5.97               | 0.00            |
| 10.00           | 1.13                | 0.92               | 0.14            | 36.00           | 6.21                | 5.97               | 0.00            |
| 10.50           | 1.28                | 1.06               | 0.17            |                 |                     |                    |                 |
| 11.00           | 1.49                | 1.27               | 0.25            |                 |                     |                    |                 |
| 11.50           | 1.84                | 1.61               | 0.42            |                 |                     |                    |                 |
| 12.00           | 2.96                | 2.73               | 1.34            |                 |                     |                    |                 |
| 12.50           | 4.37                | 4.14               | 1.08            |                 |                     |                    |                 |
| 13.00           | 4.72                | 4.48               | 0.40            |                 |                     |                    |                 |
| 13.50           | 4.93                | 4.69               | 0.24            |                 |                     |                    |                 |
| 14.00           | 5.08                | 4.84               | 0.17            |                 |                     |                    |                 |
| 14.50           | 5.20                | 4.96               | 0.14            |                 |                     |                    |                 |
| 15.00           | 5.30                | 5.07               | 0.12            |                 |                     |                    |                 |
| 15.50           | 5.39                | 5.15               | 0.10            |                 |                     |                    |                 |
| 16.00           | 5.47                | 5.23               | 0.09            |                 |                     |                    |                 |
| 16.50           | 5.54                | 5.30               | 0.08            |                 |                     |                    |                 |
| 17.00           | 5.60                | 5.37               | 0.08            |                 |                     |                    |                 |
| 17.50           | 5.66                | 5.43               | 0.07            |                 |                     |                    |                 |
| 18.00           | 5.72                | 5.48               | 0.06            |                 |                     |                    |                 |
| 18.50           | 5.77                | 5.53               | 0.06            |                 |                     |                    |                 |
| 19.00           | 5.82                | 5.58               | 0.06            |                 |                     |                    |                 |
| 19.50           | 5.86                | 5.62               | 0.05            |                 |                     |                    |                 |
| 20.00           | 5.91                | 5.67               | 0.05            |                 |                     |                    |                 |
| 20.50           | 5.95                | 5.71               | 0.05            |                 |                     |                    |                 |
| 21.00           | 5.99                | 5.75               | 0.05            |                 |                     |                    |                 |
| 21.50           | 6.03                | 5.79               | 0.05            |                 |                     |                    |                 |
| 22.00           | 6.07                | 5.83               | 0.05            |                 |                     |                    |                 |
| 22.50           | 6.11                | 5.87               | 0.04            |                 |                     |                    |                 |
| 23.00           | 6.14                | 5.90               | 0.04            |                 |                     |                    |                 |
| 23.50           | 6.18                | 5.94               | 0.04            |                 |                     |                    |                 |
| 24.00           | 6.21                | 5.97               | 0.04            |                 |                     |                    |                 |
| 24.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |

Summary for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

Inflow Area = 209,825 sf, 12.14% Impervious, Inflow Depth = 0.98" for 10-Year-2050 event  
Inflow = 3.03 cfs @ 12.21 hrs, Volume= 17,219 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

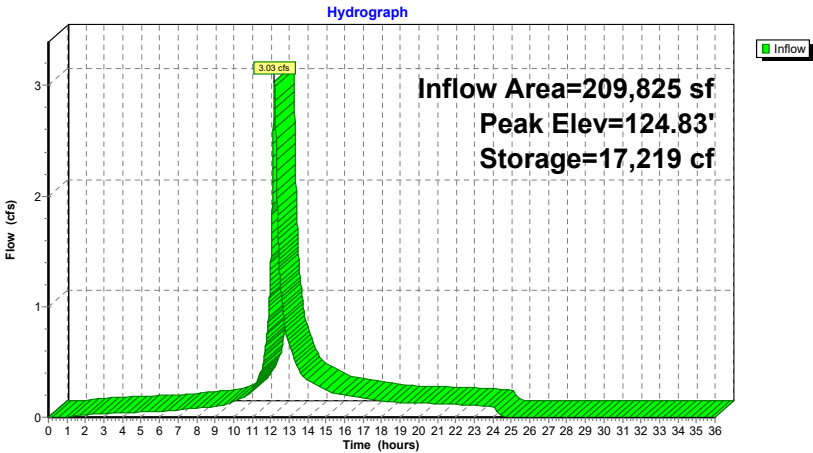
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 124.83' @ 25.07 hrs Surf.Area= 21,255 sf Storage= 17,219 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

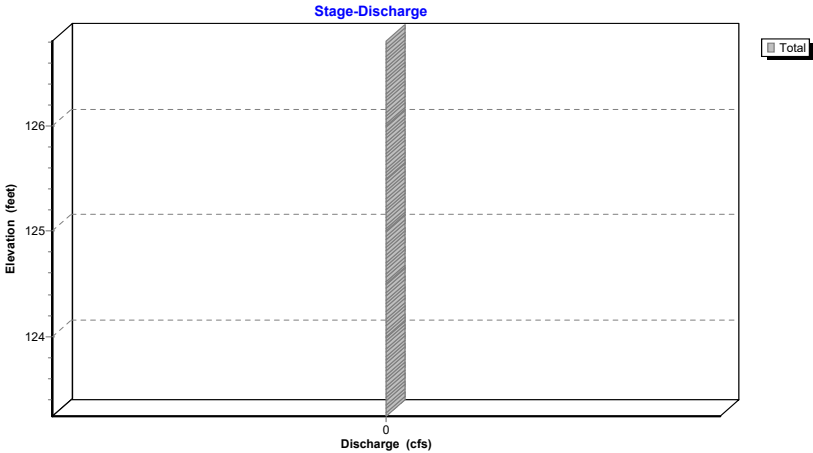
| Volume              | Invert               | Avail.Storage             | Storage Description                                 |
|---------------------|----------------------|---------------------------|-----------------------------------------------------|
| #1                  | 123.25'              | 97,696 cf                 | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                           |
| 123.25              | 1,260                | 0                         | 0                                                   |
| 123.50              | 4,142                | 675                       | 675                                                 |
| 123.75              | 7,451                | 1,449                     | 2,124                                               |
| 124.00              | 10,505               | 2,245                     | 4,369                                               |
| 124.50              | 16,329               | 6,709                     | 11,077                                              |
| 125.00              | 23,865               | 10,049                    | 21,126                                              |
| 125.50              | 32,790               | 14,164                    | 35,290                                              |
| 126.00              | 42,891               | 18,920                    | 54,210                                              |
| 126.80              | 65,825               | 43,486                    | 97,696                                              |

Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

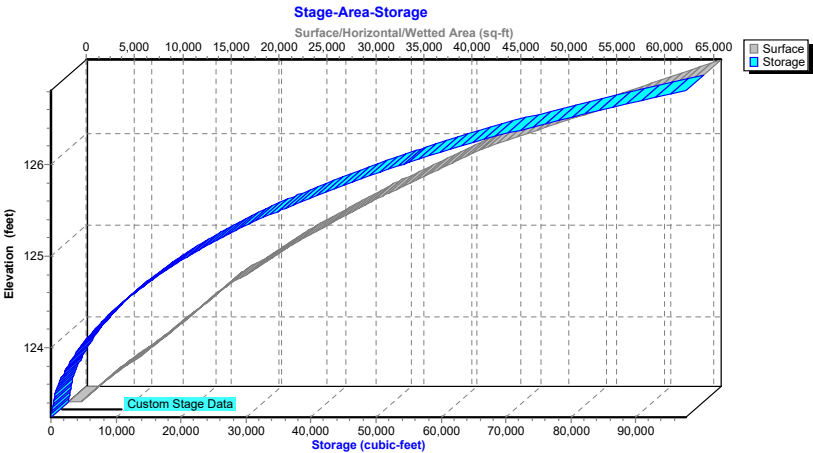
Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)



Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)



Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)





**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Hydrograph for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)**

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) |
|-----------------|-----------------|-------------------------|---------------------|-----------------|-----------------|-------------------------|---------------------|
| 0.00            | 0.00            | 0                       | 123.25              | 26.00           | 0.00            | 17,219                  | 124.83              |
| 0.50            | 0.00            | 0                       | 123.25              | 26.50           | 0.00            | 17,219                  | 124.83              |
| 1.00            | 0.00            | 2                       | 123.25              | 27.00           | 0.00            | 17,219                  | 124.83              |
| 1.50            | 0.01            | 19                      | 123.26              | 27.50           | 0.00            | 17,219                  | 124.83              |
| 2.00            | 0.02            | 52                      | 123.29              | 28.00           | 0.00            | 17,219                  | 124.83              |
| 2.50            | 0.03            | 97                      | 123.31              | 28.50           | 0.00            | 17,219                  | 124.83              |
| 3.00            | 0.03            | 151                     | 123.34              | 29.00           | 0.00            | 17,219                  | 124.83              |
| 3.50            | 0.04            | 214                     | 123.36              | 29.50           | 0.00            | 17,219                  | 124.83              |
| 4.00            | 0.04            | 284                     | 123.39              | 30.00           | 0.00            | 17,219                  | 124.83              |
| 4.50            | 0.04            | 360                     | 123.41              | 30.50           | 0.00            | 17,219                  | 124.83              |
| 5.00            | 0.05            | 441                     | 123.44              | 31.00           | 0.00            | 17,219                  | 124.83              |
| 5.50            | 0.05            | 528                     | 123.46              | 31.50           | 0.00            | 17,219                  | 124.83              |
| 6.00            | 0.05            | 620                     | 123.49              | 32.00           | 0.00            | 17,219                  | 124.83              |
| 6.50            | 0.06            | 719                     | 123.51              | 32.50           | 0.00            | 17,219                  | 124.83              |
| 7.00            | 0.07            | 831                     | 123.54              | 33.00           | 0.00            | 17,219                  | 124.83              |
| 7.50            | 0.07            | 956                     | 123.56              | 33.50           | 0.00            | 17,219                  | 124.83              |
| 8.00            | 0.08            | 1,095                   | 123.59              | 34.00           | 0.00            | 17,219                  | 124.83              |
| 8.50            | 0.09            | 1,248                   | 123.62              | 34.50           | 0.00            | 17,219                  | 124.83              |
| 9.00            | 0.10            | 1,415                   | 123.64              | 35.00           | 0.00            | 17,219                  | 124.83              |
| 9.50            | 0.12            | 1,604                   | 123.68              | 35.50           | 0.00            | 17,219                  | 124.83              |
| 10.00           | 0.14            | 1,840                   | 123.71              | 36.00           | 0.00            | 17,219                  | 124.83              |
| 10.50           | 0.17            | 2,126                   | 123.75              |                 |                 |                         |                     |
| 11.00           | 0.25            | 2,496                   | 123.80              |                 |                 |                         |                     |
| 11.50           | 0.42            | 3,086                   | 123.87              |                 |                 |                         |                     |
| 12.00           | <b>1.34</b>     | 4,385                   | 124.00              |                 |                 |                         |                     |
| 12.50           | <b>1.27</b>     | 8,200                   | 124.31              |                 |                 |                         |                     |
| 13.00           | 0.65            | 9,783                   | 124.42              |                 |                 |                         |                     |
| 13.50           | 0.44            | 10,746                  | 124.48              |                 |                 |                         |                     |
| 14.00           | 0.33            | 11,419                  | 124.52              |                 |                 |                         |                     |
| 14.50           | 0.29            | 11,981                  | 124.55              |                 |                 |                         |                     |
| 15.00           | 0.25            | 12,464                  | 124.58              |                 |                 |                         |                     |
| 15.50           | 0.21            | 12,869                  | 124.60              |                 |                 |                         |                     |
| 16.00           | 0.20            | 13,239                  | 124.63              |                 |                 |                         |                     |
| 16.50           | 0.19            | 13,589                  | 124.64              |                 |                 |                         |                     |
| 17.00           | 0.18            | 13,917                  | 124.66              |                 |                 |                         |                     |
| 17.50           | 0.16            | 14,220                  | 124.68              |                 |                 |                         |                     |
| 18.00           | 0.15            | 14,498                  | 124.69              |                 |                 |                         |                     |
| 18.50           | 0.14            | 14,752                  | 124.71              |                 |                 |                         |                     |
| 19.00           | 0.13            | 14,996                  | 124.72              |                 |                 |                         |                     |
| 19.50           | 0.13            | 15,235                  | 124.73              |                 |                 |                         |                     |
| 20.00           | 0.13            | 15,469                  | 124.74              |                 |                 |                         |                     |
| 20.50           | 0.13            | 15,697                  | 124.75              |                 |                 |                         |                     |
| 21.00           | 0.12            | 15,920                  | 124.76              |                 |                 |                         |                     |
| 21.50           | 0.12            | 16,136                  | 124.77              |                 |                 |                         |                     |
| 22.00           | 0.12            | 16,346                  | 124.79              |                 |                 |                         |                     |
| 22.50           | 0.11            | 16,550                  | 124.79              |                 |                 |                         |                     |
| 23.00           | 0.11            | 16,746                  | 124.80              |                 |                 |                         |                     |
| 23.50           | 0.10            | 16,936                  | 124.81              |                 |                 |                         |                     |
| 24.00           | 0.10            | 17,119                  | 124.82              |                 |                 |                         |                     |
| 24.50           | 0.01            | 17,217                  | 124.83              |                 |                 |                         |                     |
| 25.00           | 0.00            | <b>17,219</b>           | <b>124.83</b>       |                 |                 |                         |                     |
| 25.50           | 0.00            | <b>17,219</b>           | <b>124.83</b>       |                 |                 |                         |                     |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)**

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 123.25              | <b>0.00</b>        | 124.29              | 0.00               | 125.33              | 0.00               | 126.37              | 0.00               |
| 123.27              | 0.00               | 124.31              | 0.00               | 125.35              | 0.00               | 126.39              | 0.00               |
| 123.29              | 0.00               | 124.33              | 0.00               | 125.37              | 0.00               | 126.41              | 0.00               |
| 123.31              | 0.00               | 124.35              | 0.00               | 125.39              | 0.00               | 126.43              | 0.00               |
| 123.33              | 0.00               | 124.37              | 0.00               | 125.41              | 0.00               | 126.45              | 0.00               |
| 123.35              | 0.00               | 124.39              | 0.00               | 125.43              | 0.00               | 126.47              | 0.00               |
| 123.37              | 0.00               | 124.41              | 0.00               | 125.45              | 0.00               | 126.49              | 0.00               |
| 123.39              | 0.00               | 124.43              | 0.00               | 125.47              | 0.00               | 126.51              | 0.00               |
| 123.41              | 0.00               | 124.45              | 0.00               | 125.49              | 0.00               | 126.53              | 0.00               |
| 123.43              | 0.00               | 124.47              | 0.00               | 125.51              | 0.00               | 126.55              | 0.00               |
| 123.45              | 0.00               | 124.49              | 0.00               | 125.53              | 0.00               | 126.57              | 0.00               |
| 123.47              | 0.00               | 124.51              | 0.00               | 125.55              | 0.00               | 126.59              | 0.00               |
| 123.49              | 0.00               | 124.53              | 0.00               | 125.57              | 0.00               | 126.61              | 0.00               |
| 123.51              | 0.00               | 124.55              | 0.00               | 125.59              | 0.00               | 126.63              | 0.00               |
| 123.53              | 0.00               | 124.57              | 0.00               | 125.61              | 0.00               | 126.65              | 0.00               |
| 123.55              | 0.00               | 124.59              | 0.00               | 125.63              | 0.00               | 126.67              | 0.00               |
| 123.57              | 0.00               | 124.61              | 0.00               | 125.65              | 0.00               | 126.69              | 0.00               |
| 123.59              | 0.00               | 124.63              | 0.00               | 125.67              | 0.00               | 126.71              | 0.00               |
| 123.61              | 0.00               | 124.65              | 0.00               | 125.69              | 0.00               | 126.73              | 0.00               |
| 123.63              | 0.00               | 124.67              | 0.00               | 125.71              | 0.00               | 126.75              | 0.00               |
| 123.65              | 0.00               | 124.69              | 0.00               | 125.73              | 0.00               | 126.77              | 0.00               |
| 123.67              | 0.00               | 124.71              | 0.00               | 125.75              | 0.00               | 126.79              | 0.00               |
| 123.69              | 0.00               | 124.73              | 0.00               | 125.77              | 0.00               |                     |                    |
| 123.71              | 0.00               | 124.75              | 0.00               | 125.79              | 0.00               |                     |                    |
| 123.73              | 0.00               | 124.77              | 0.00               | 125.81              | 0.00               |                     |                    |
| 123.75              | 0.00               | 124.79              | 0.00               | 125.83              | 0.00               |                     |                    |
| 123.77              | 0.00               | 124.81              | 0.00               | 125.85              | 0.00               |                     |                    |
| 123.79              | 0.00               | 124.83              | 0.00               | 125.87              | 0.00               |                     |                    |
| 123.81              | 0.00               | 124.85              | 0.00               | 125.89              | 0.00               |                     |                    |
| 123.83              | 0.00               | 124.87              | 0.00               | 125.91              | 0.00               |                     |                    |
| 123.85              | 0.00               | 124.89              | 0.00               | 125.93              | 0.00               |                     |                    |
| 123.87              | 0.00               | 124.91              | 0.00               | 125.95              | 0.00               |                     |                    |
| 123.89              | 0.00               | 124.93              | 0.00               | 125.97              | 0.00               |                     |                    |
| 123.91              | 0.00               | 124.95              | 0.00               | 125.99              | 0.00               |                     |                    |
| 123.93              | 0.00               | 124.97              | 0.00               | 126.01              | 0.00               |                     |                    |
| 123.95              | 0.00               | 124.99              | 0.00               | 126.03              | 0.00               |                     |                    |
| 123.97              | 0.00               | 125.01              | 0.00               | 126.05              | 0.00               |                     |                    |
| 123.99              | 0.00               | 125.03              | 0.00               | 126.07              | 0.00               |                     |                    |
| 124.01              | 0.00               | 125.05              | 0.00               | 126.09              | 0.00               |                     |                    |
| 124.03              | 0.00               | 125.07              | 0.00               | 126.11              | 0.00               |                     |                    |
| 124.05              | 0.00               | 125.09              | 0.00               | 126.13              | 0.00               |                     |                    |
| 124.07              | 0.00               | 125.11              | 0.00               | 126.15              | 0.00               |                     |                    |
| 124.09              | 0.00               | 125.13              | 0.00               | 126.17              | 0.00               |                     |                    |
| 124.11              | 0.00               | 125.15              | 0.00               | 126.19              | 0.00               |                     |                    |
| 124.13              | 0.00               | 125.17              | 0.00               | 126.21              | 0.00               |                     |                    |
| 124.15              | 0.00               | 125.19              | 0.00               | 126.23              | 0.00               |                     |                    |
| 124.17              | 0.00               | 125.21              | 0.00               | 126.25              | 0.00               |                     |                    |
| 124.19              | 0.00               | 125.23              | 0.00               | 126.27              | 0.00               |                     |                    |
| 124.21              | 0.00               | 125.25              | 0.00               | 126.29              | 0.00               |                     |                    |
| 124.23              | 0.00               | 125.27              | 0.00               | 126.31              | 0.00               |                     |                    |
| 124.25              | 0.00               | 125.29              | 0.00               | 126.33              | 0.00               |                     |                    |
| 124.27              | 0.00               | 125.31              | 0.00               | 126.35              | 0.00               |                     |                    |

Stage-Area-Storage for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 123.25              | 1,260              | 0                       | 125.85              | 39,861             | 48,003                  |
| 123.30              | 1,836              | 77                      | 125.90              | 40,871             | 50,022                  |
| 123.35              | 2,413              | 184                     | 125.95              | 41,881             | 52,091                  |
| 123.40              | 2,989              | 319                     | 126.00              | 42,891             | 54,210                  |
| 123.45              | 3,566              | 483                     | 126.05              | 44,324             | 56,390                  |
| 123.50              | 4,142              | 675                     | 126.10              | 45,758             | 58,642                  |
| 123.55              | 4,804              | 899                     | 126.15              | 47,191             | 60,966                  |
| 123.60              | 5,466              | 1,156                   | 126.20              | 48,625             | 63,361                  |
| 123.65              | 6,127              | 1,445                   | 126.25              | 50,058             | 65,828                  |
| 123.70              | 6,789              | 1,768                   | 126.30              | 51,491             | 68,367                  |
| 123.75              | 7,451              | 2,124                   | 126.35              | 52,925             | 70,978                  |
| 123.80              | 8,062              | 2,512                   | 126.40              | 54,358             | 73,660                  |
| 123.85              | 8,673              | 2,931                   | 126.45              | 55,791             | 76,413                  |
| 123.90              | 9,283              | 3,379                   | 126.50              | 57,225             | 79,239                  |
| 123.95              | 9,894              | 3,859                   | 126.55              | 58,658             | 82,136                  |
| 124.00              | 10,505             | 4,369                   | 126.60              | 60,091             | 85,105                  |
| 124.05              | 11,087             | 4,909                   | 126.65              | 61,525             | 88,145                  |
| 124.10              | 11,670             | 5,478                   | 126.70              | 62,958             | 91,257                  |
| 124.15              | 12,252             | 6,076                   | 126.75              | 64,392             | 94,441                  |
| 124.20              | 12,835             | 6,703                   | 126.80              | 65,825             | 97,696                  |
| 124.25              | 13,417             | 7,359                   |                     |                    |                         |
| 124.30              | 13,999             | 8,045                   |                     |                    |                         |
| 124.35              | 14,582             | 8,759                   |                     |                    |                         |
| 124.40              | 15,164             | 9,503                   |                     |                    |                         |
| 124.45              | 15,747             | 10,275                  |                     |                    |                         |
| 124.50              | 16,329             | 11,077                  |                     |                    |                         |
| 124.55              | 17,083             | 11,913                  |                     |                    |                         |
| 124.60              | 17,836             | 12,786                  |                     |                    |                         |
| 124.65              | 18,590             | 13,696                  |                     |                    |                         |
| 124.70              | 19,343             | 14,645                  |                     |                    |                         |
| 124.75              | 20,097             | 15,631                  |                     |                    |                         |
| 124.80              | 20,851             | 16,654                  |                     |                    |                         |
| 124.85              | 21,604             | 17,716                  |                     |                    |                         |
| 124.90              | 22,358             | 18,815                  |                     |                    |                         |
| 124.95              | 23,111             | 19,951                  |                     |                    |                         |
| 125.00              | 23,865             | 21,126                  |                     |                    |                         |
| 125.05              | 24,757             | 22,341                  |                     |                    |                         |
| 125.10              | 25,650             | 23,602                  |                     |                    |                         |
| 125.15              | 26,543             | 24,906                  |                     |                    |                         |
| 125.20              | 27,435             | 26,256                  |                     |                    |                         |
| 125.25              | 28,328             | 27,650                  |                     |                    |                         |
| 125.30              | 29,220             | 29,089                  |                     |                    |                         |
| 125.35              | 30,112             | 30,572                  |                     |                    |                         |
| 125.40              | 31,005             | 32,100                  |                     |                    |                         |
| 125.45              | 31,898             | 33,672                  |                     |                    |                         |
| 125.50              | 32,790             | 35,290                  |                     |                    |                         |
| 125.55              | 33,800             | 36,954                  |                     |                    |                         |
| 125.60              | 34,810             | 38,670                  |                     |                    |                         |
| 125.65              | 35,820             | 40,435                  |                     |                    |                         |
| 125.70              | 36,830             | 42,252                  |                     |                    |                         |
| 125.75              | 37,841             | 44,118                  |                     |                    |                         |
| 125.80              | 38,851             | 46,036                  |                     |                    |                         |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment56S: Ex. Pervious to POI-2 Runoff Area=184,350 sf 0.00% Impervious Runoff Depth=2.59"  
Flow Length=747' Tc=18.7 min CN=35 Runoff=8.07 cfs 39,752 cf

Subcatchment57S: Ex. Impervious to Runoff Area=25,475 sf 100.00% Impervious Runoff Depth=11.82"  
Flow Length=221' Tc=13.5 min CN=98 Runoff=5.90 cfs 25,090 cf

Pond 58P: Existing Drainage Area POI-2 Peak Elev=126.23' Storage=64,842 cf Inflow=13.04 cfs 64,842 cf  
Outflow=0.00 cfs 0 cf

Total Runoff Area = 209,825 sf Runoff Volume = 64,842 cf Average Runoff Depth = 3.71"  
87.86% Pervious = 184,350 sf 12.14% Impervious = 25,475 sf

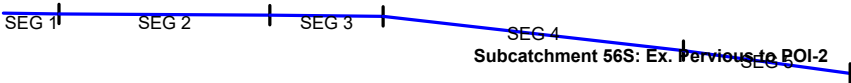
Summary for Subcatchment 56S: Ex. Pervious to POI-2

Runoff = 8.07 cfs @ 12.32 hrs, Volume= 39,752 cf, Depth= 2.59"  
Routed to Pond 58P : Existing Drainage Area POI-2 (Isolated Wetland)

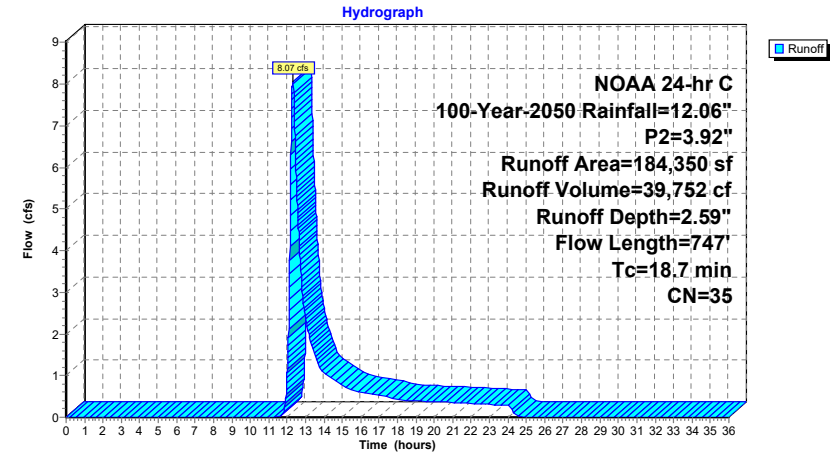
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description                    |
|-----------|----|--------------------------------|
| 79,767    | 39 | >75% Grass cover, Good, HSG A  |
| 4,864     | 61 | >75% Grass cover, Good, HSG B  |
| 1,899     | 32 | Woods/grass comb., Good, HSG A |
| 97,820    | 30 | Woods, Good, HSG A             |
| 184,350   | 35 | Weighted Average               |
| 184,350   |    | 100.00% Pervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                     |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------------------------------------------|
| 8.4      | 49            | 0.0140        | 0.10              |                | <b>Sheet Flow, SEG 1</b><br>Grass: Dense n= 0.240 P2= 3.92"<br>Using McCuen-Spiess flow length                  |
| 6.3      | 186           | 0.0050        | 0.49              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Short Grass Pasture Kv= 7.0 fps                                      |
| 2.4      | 100           | 0.0100        | 0.70              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Short Grass Pasture Kv= 7.0 fps                                      |
| 0.2      | 265           | 0.1000        | 24.67             | 77.50          | <b>Pipe Channel, SEG 4</b><br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.012 Concrete pipe, finished |
| 1.4      | 147           | 0.1200        | 1.73              |                | <b>Shallow Concentrated Flow, SEG 5</b><br>Woodland Kv= 5.0 fps                                                 |
| 18.7     | 747           | Total         |                   |                |                                                                                                                 |



Subcatchment 56S: Ex. Pervious to POI-2



**Hydrograph for Subcatchment 56S: Ex. Pervious to POI-2**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 2.59               | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.00            | 26.50           | 12.06               | 2.59               | 0.00            |
| 1.00            | 0.13                | 0.00               | 0.00            | 27.00           | 12.06               | 2.59               | 0.00            |
| 1.50            | 0.20                | 0.00               | 0.00            | 27.50           | 12.06               | 2.59               | 0.00            |
| 2.00            | 0.27                | 0.00               | 0.00            | 28.00           | 12.06               | 2.59               | 0.00            |
| 2.50            | 0.35                | 0.00               | 0.00            | 28.50           | 12.06               | 2.59               | 0.00            |
| 3.00            | 0.43                | 0.00               | 0.00            | 29.00           | 12.06               | 2.59               | 0.00            |
| 3.50            | 0.51                | 0.00               | 0.00            | 29.50           | 12.06               | 2.59               | 0.00            |
| 4.00            | 0.59                | 0.00               | 0.00            | 30.00           | 12.06               | 2.59               | 0.00            |
| 4.50            | 0.68                | 0.00               | 0.00            | 30.50           | 12.06               | 2.59               | 0.00            |
| 5.00            | 0.77                | 0.00               | 0.00            | 31.00           | 12.06               | 2.59               | 0.00            |
| 5.50            | 0.86                | 0.00               | 0.00            | 31.50           | 12.06               | 2.59               | 0.00            |
| 6.00            | 0.96                | 0.00               | 0.00            | 32.00           | 12.06               | 2.59               | 0.00            |
| 6.50            | 1.06                | 0.00               | 0.00            | 32.50           | 12.06               | 2.59               | 0.00            |
| 7.00            | 1.18                | 0.00               | 0.00            | 33.00           | 12.06               | 2.59               | 0.00            |
| 7.50            | 1.30                | 0.00               | 0.00            | 33.50           | 12.06               | 2.59               | 0.00            |
| 8.00            | 1.44                | 0.00               | 0.00            | 34.00           | 12.06               | 2.59               | 0.00            |
| 8.50            | 1.60                | 0.00               | 0.00            | 34.50           | 12.06               | 2.59               | 0.00            |
| 9.00            | 1.76                | 0.00               | 0.00            | 35.00           | 12.06               | 2.59               | 0.00            |
| 9.50            | 1.96                | 0.00               | 0.00            | 35.50           | 12.06               | 2.59               | 0.00            |
| 10.00           | 2.20                | 0.00               | 0.00            | 36.00           | 12.06               | 2.59               | 0.00            |
| 10.50           | 2.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.89                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 3.56                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 5.75                | 0.20               | <b>0.96</b>     |                 |                     |                    |                 |
| 12.50           | 8.50                | 0.98               | <b>5.77</b>     |                 |                     |                    |                 |
| 13.00           | 9.17                | 1.24               | 2.39            |                 |                     |                    |                 |
| 13.50           | 9.57                | 1.41               | 1.49            |                 |                     |                    |                 |
| 14.00           | 9.86                | 1.53               | 1.07            |                 |                     |                    |                 |
| 14.50           | 10.10               | 1.64               | 0.92            |                 |                     |                    |                 |
| 15.00           | 10.30               | 1.72               | 0.77            |                 |                     |                    |                 |
| 15.50           | 10.46               | 1.80               | 0.65            |                 |                     |                    |                 |
| 16.00           | 10.62               | 1.87               | 0.61            |                 |                     |                    |                 |
| 16.50           | 10.76               | 1.94               | 0.57            |                 |                     |                    |                 |
| 17.00           | 10.88               | 2.00               | 0.52            |                 |                     |                    |                 |
| 17.50           | 11.00               | 2.05               | 0.48            |                 |                     |                    |                 |
| 18.00           | 11.10               | 2.10               | 0.44            |                 |                     |                    |                 |
| 18.50           | 11.20               | 2.15               | 0.40            |                 |                     |                    |                 |
| 19.00           | 11.29               | 2.20               | 0.39            |                 |                     |                    |                 |
| 19.50           | 11.38               | 2.24               | 0.38            |                 |                     |                    |                 |
| 20.00           | 11.47               | 2.28               | 0.37            |                 |                     |                    |                 |
| 20.50           | 11.55               | 2.33               | 0.36            |                 |                     |                    |                 |
| 21.00           | 11.63               | 2.37               | 0.35            |                 |                     |                    |                 |
| 21.50           | 11.71               | 2.41               | 0.34            |                 |                     |                    |                 |
| 22.00           | 11.79               | 2.45               | 0.33            |                 |                     |                    |                 |
| 22.50           | 11.86               | 2.48               | 0.32            |                 |                     |                    |                 |
| 23.00           | 11.93               | 2.52               | 0.31            |                 |                     |                    |                 |
| 23.50           | 11.99               | 2.55               | 0.29            |                 |                     |                    |                 |
| 24.00           | <b>12.06</b>        | <b>2.59</b>        | 0.28            |                 |                     |                    |                 |
| 24.50           | 12.06               | 2.59               | 0.02            |                 |                     |                    |                 |
| 25.00           | 12.06               | 2.59               | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 2.59               | 0.00            |                 |                     |                    |                 |

**Summary for Subcatchment 57S: Ex. Impervious to POI-2**

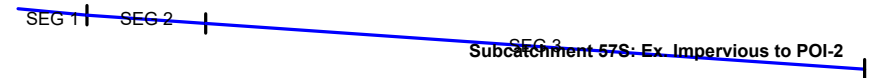
Runoff = 5.90 cfs @ 12.21 hrs, Volume= 25,090 cf, Depth=11.82"  
 Routed to Pond 58P : Existing Drainage Area POI-2 (Isolated Wetland)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

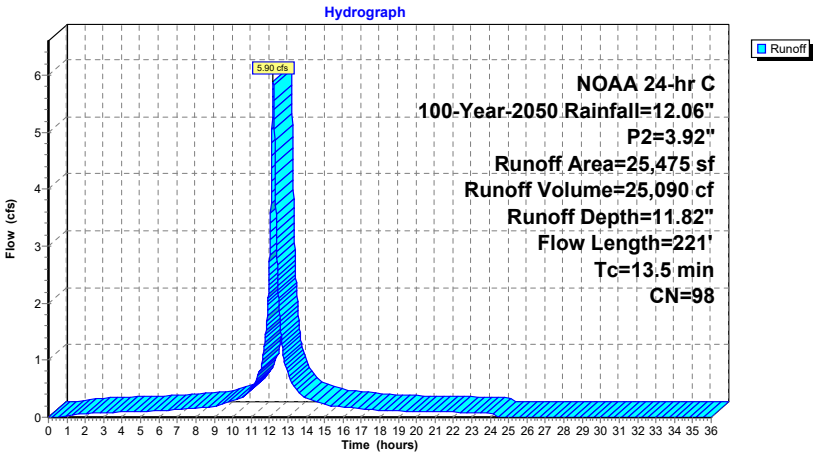
| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 25,475    | 98 | Paved parking, HSG A    |
| 25,475    |    | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                               |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------|
| 0.3         | 18               | 0.0200           | 1.08                 |                   | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.92"                                            |
| 8.5         | 31               | 0.0150           | 0.06                 |                   | <b>Sheet Flow, SEG 2</b><br>Woods: Light underbrush n= 0.400 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 4.7         | 172              | 0.0150           | 0.61                 |                   | <b>Shallow Concentrated Flow, SEG 3</b><br>Woodland Kv= 5.0 fps                                           |
| 13.5        | 221              | Total            |                      |                   |                                                                                                           |



Subcatchment 57S: Ex. Impervious to POI-2



Hydrograph for Subcatchment 57S: Ex. Impervious to POI-2

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 11.82              | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.00            | 26.50           | 12.06               | 11.82              | 0.00            |
| 1.00            | 0.13                | 0.03               | 0.03            | 27.00           | 12.06               | 11.82              | 0.00            |
| 1.50            | 0.20                | 0.07               | 0.05            | 27.50           | 12.06               | 11.82              | 0.00            |
| 2.00            | 0.27                | 0.12               | 0.06            | 28.00           | 12.06               | 11.82              | 0.00            |
| 2.50            | 0.35                | 0.18               | 0.07            | 28.50           | 12.06               | 11.82              | 0.00            |
| 3.00            | 0.43                | 0.25               | 0.08            | 29.00           | 12.06               | 11.82              | 0.00            |
| 3.50            | 0.51                | 0.32               | 0.09            | 29.50           | 12.06               | 11.82              | 0.00            |
| 4.00            | 0.59                | 0.40               | 0.09            | 30.00           | 12.06               | 11.82              | 0.00            |
| 4.50            | 0.68                | 0.48               | 0.10            | 30.50           | 12.06               | 11.82              | 0.00            |
| 5.00            | 0.77                | 0.57               | 0.10            | 31.00           | 12.06               | 11.82              | 0.00            |
| 5.50            | 0.86                | 0.66               | 0.11            | 31.50           | 12.06               | 11.82              | 0.00            |
| 6.00            | 0.96                | 0.75               | 0.11            | 32.00           | 12.06               | 11.82              | 0.00            |
| 6.50            | 1.06                | 0.85               | 0.12            | 32.50           | 12.06               | 11.82              | 0.00            |
| 7.00            | 1.18                | 0.96               | 0.13            | 33.00           | 12.06               | 11.82              | 0.00            |
| 7.50            | 1.30                | 1.09               | 0.15            | 33.50           | 12.06               | 11.82              | 0.00            |
| 8.00            | 1.44                | 1.23               | 0.16            | 34.00           | 12.06               | 11.82              | 0.00            |
| 8.50            | 1.60                | 1.38               | 0.18            | 34.50           | 12.06               | 11.82              | 0.00            |
| 9.00            | 1.76                | 1.54               | 0.19            | 35.00           | 12.06               | 11.82              | 0.00            |
| 9.50            | 1.96                | 1.73               | 0.23            | 35.50           | 12.06               | 11.82              | 0.00            |
| 10.00           | 2.20                | 1.97               | 0.29            | 36.00           | 12.06               | 11.82              | 0.00            |
| 10.50           | 2.49                | 2.26               | 0.34            |                 |                     |                    |                 |
| 11.00           | 2.89                | 2.66               | 0.50            |                 |                     |                    |                 |
| 11.50           | 3.56                | 3.33               | 0.82            |                 |                     |                    |                 |
| 12.00           | 5.75                | 5.51               | 2.61            |                 |                     |                    |                 |
| 12.50           | 8.50                | 8.26               | 2.10            |                 |                     |                    |                 |
| 13.00           | 9.17                | 8.93               | 0.77            |                 |                     |                    |                 |
| 13.50           | 9.57                | 9.33               | 0.47            |                 |                     |                    |                 |
| 14.00           | 9.86                | 9.62               | 0.33            |                 |                     |                    |                 |
| 14.50           | 10.10               | 9.86               | 0.28            |                 |                     |                    |                 |
| 15.00           | 10.30               | 10.06              | 0.23            |                 |                     |                    |                 |
| 15.50           | 10.46               | 10.22              | 0.19            |                 |                     |                    |                 |
| 16.00           | 10.62               | 10.37              | 0.18            |                 |                     |                    |                 |
| 16.50           | 10.76               | 10.51              | 0.16            |                 |                     |                    |                 |
| 17.00           | 10.88               | 10.64              | 0.15            |                 |                     |                    |                 |
| 17.50           | 11.00               | 10.76              | 0.14            |                 |                     |                    |                 |
| 18.00           | 11.10               | 10.86              | 0.12            |                 |                     |                    |                 |
| 18.50           | 11.20               | 10.96              | 0.11            |                 |                     |                    |                 |
| 19.00           | 11.29               | 11.05              | 0.11            |                 |                     |                    |                 |
| 19.50           | 11.38               | 11.14              | 0.11            |                 |                     |                    |                 |
| 20.00           | 11.47               | 11.23              | 0.10            |                 |                     |                    |                 |
| 20.50           | 11.55               | 11.31              | 0.10            |                 |                     |                    |                 |
| 21.00           | 11.63               | 11.39              | 0.09            |                 |                     |                    |                 |
| 21.50           | 11.71               | 11.47              | 0.09            |                 |                     |                    |                 |
| 22.00           | 11.79               | 11.55              | 0.09            |                 |                     |                    |                 |
| 22.50           | 11.86               | 11.62              | 0.08            |                 |                     |                    |                 |
| 23.00           | 11.93               | 11.69              | 0.08            |                 |                     |                    |                 |
| 23.50           | 11.99               | 11.75              | 0.08            |                 |                     |                    |                 |
| 24.00           | 12.06               | 11.82              | 0.08            |                 |                     |                    |                 |
| 24.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.00           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |

Summary for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

Inflow Area = 209,825 sf, 12.14% Impervious, Inflow Depth = 3.71" for 100-Year-2050 event  
Inflow = 13.04 cfs @ 12.26 hrs, Volume= 64,842 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

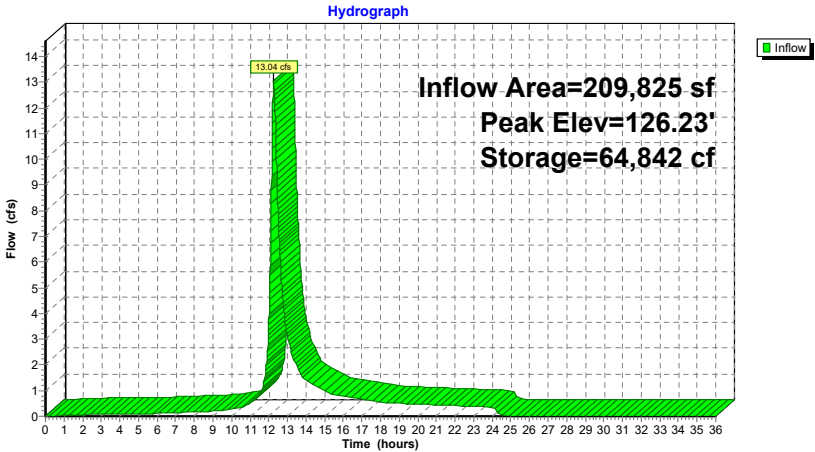
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 126.23' @ 25.07 hrs Surf.Area= 49,490 sf Storage= 64,842 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

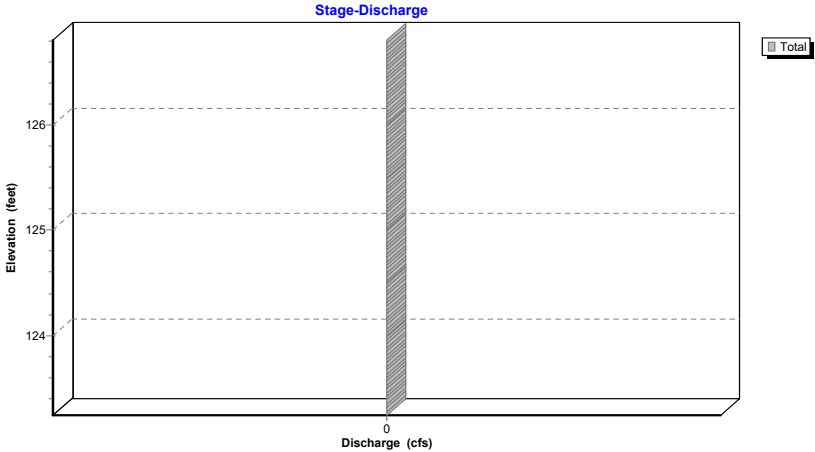
| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 123.25'           | 97,696 cf              | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 123.25           | 1,260             | 0                      | 0                                                   |
| 123.50           | 4,142             | 675                    | 675                                                 |
| 123.75           | 7,451             | 1,449                  | 2,124                                               |
| 124.00           | 10,505            | 2,245                  | 4,369                                               |
| 124.50           | 16,329            | 6,709                  | 11,077                                              |
| 125.00           | 23,865            | 10,049                 | 21,126                                              |
| 125.50           | 32,790            | 14,164                 | 35,290                                              |
| 126.00           | 42,891            | 18,920                 | 54,210                                              |
| 126.80           | 65,825            | 43,486                 | 97,696                                              |

Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

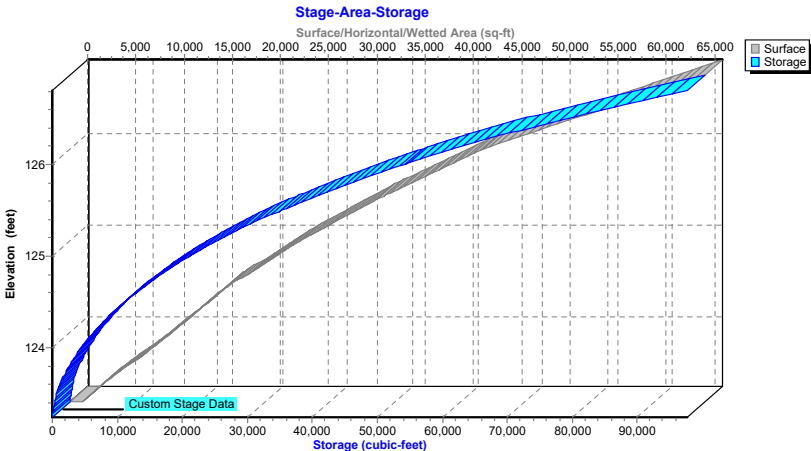
Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)



Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)



Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)



Hydrograph for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) |
|--------------|--------------|----------------------|------------------|--------------|--------------|----------------------|------------------|
| 0.00         | 0.00         | 0                    | 123.25           | 26.00        | 0.00         | 64,842               | 126.23           |
| 0.50         | 0.00         | 0                    | 123.25           | 26.50        | 0.00         | 64,842               | 126.23           |
| 1.00         | 0.03         | 33                   | 123.27           | 27.00        | 0.00         | 64,842               | 126.23           |
| 1.50         | 0.05         | 109                  | 123.32           | 27.50        | 0.00         | 64,842               | 126.23           |
| 2.00         | 0.06         | 213                  | 123.36           | 28.00        | 0.00         | 64,842               | 126.23           |
| 2.50         | 0.07         | 336                  | 123.41           | 28.50        | 0.00         | 64,842               | 126.23           |
| 3.00         | 0.08         | 473                  | 123.45           | 29.00        | 0.00         | 64,842               | 126.23           |
| 3.50         | 0.09         | 622                  | 123.49           | 29.50        | 0.00         | 64,842               | 126.23           |
| 4.00         | 0.09         | 781                  | 123.52           | 30.00        | 0.00         | 64,842               | 126.23           |
| 4.50         | 0.10         | 950                  | 123.56           | 30.50        | 0.00         | 64,842               | 126.23           |
| 5.00         | 0.10         | 1,127                | 123.59           | 31.00        | 0.00         | 64,842               | 126.23           |
| 5.50         | 0.11         | 1,313                | 123.63           | 31.50        | 0.00         | 64,842               | 126.23           |
| 6.00         | 0.11         | 1,506                | 123.66           | 32.00        | 0.00         | 64,842               | 126.23           |
| 6.50         | 0.12         | 1,711                | 123.69           | 32.50        | 0.00         | 64,842               | 126.23           |
| 7.00         | 0.13         | 1,940                | 123.72           | 33.00        | 0.00         | 64,842               | 126.23           |
| 7.50         | 0.15         | 2,196                | 123.76           | 33.50        | 0.00         | 64,842               | 126.23           |
| 8.00         | 0.16         | 2,478                | 123.80           | 34.00        | 0.00         | 64,842               | 126.23           |
| 8.50         | 0.18         | 2,785                | 123.83           | 34.50        | 0.00         | 64,842               | 126.23           |
| 9.00         | 0.19         | 3,119                | 123.87           | 35.00        | 0.00         | 64,842               | 126.23           |
| 9.50         | 0.23         | 3,496                | 123.91           | 35.50        | 0.00         | 64,842               | 126.23           |
| 10.00        | 0.29         | 3,964                | 123.96           | 36.00        | 0.00         | 64,842               | 126.23           |
| 10.50        | 0.34         | 4,528                | 124.02           |              |              |                      |                  |
| 11.00        | 0.50         | 5,257                | 124.08           |              |              |                      |                  |
| 11.50        | 0.82         | 6,414                | 124.18           |              |              |                      |                  |
| 12.00        | <b>3.56</b>  | 9,252                | 124.38           |              |              |                      |                  |
| 12.50        | <b>7.86</b>  | 26,379               | 125.20           |              |              |                      |                  |
| 13.00        | 3.16         | 35,205               | 125.50           |              |              |                      |                  |
| 13.50        | 1.96         | 39,659               | 125.63           |              |              |                      |                  |
| 14.00        | 1.41         | 42,584               | 125.71           |              |              |                      |                  |
| 14.50        | 1.20         | 44,925               | 125.77           |              |              |                      |                  |
| 15.00        | 0.99         | 46,902               | 125.82           |              |              |                      |                  |
| 15.50        | 0.84         | 48,525               | 125.86           |              |              |                      |                  |
| 16.00        | 0.79         | 49,989               | 125.90           |              |              |                      |                  |
| 16.50        | 0.73         | 51,355               | 125.93           |              |              |                      |                  |
| 17.00        | 0.67         | 52,621               | 125.96           |              |              |                      |                  |
| 17.50        | 0.62         | 53,785               | 125.99           |              |              |                      |                  |
| 18.00        | 0.56         | 54,844               | 126.01           |              |              |                      |                  |
| 18.50        | 0.52         | 55,802               | 126.04           |              |              |                      |                  |
| 19.00        | 0.50         | 56,717               | 126.06           |              |              |                      |                  |
| 19.50        | 0.49         | 57,607               | 126.08           |              |              |                      |                  |
| 20.00        | 0.48         | 58,474               | 126.10           |              |              |                      |                  |
| 20.50        | 0.46         | 59,315               | 126.11           |              |              |                      |                  |
| 21.00        | 0.45         | 60,131               | 126.13           |              |              |                      |                  |
| 21.50        | 0.43         | 60,920               | 126.15           |              |              |                      |                  |
| 22.00        | 0.42         | 61,684               | 126.17           |              |              |                      |                  |
| 22.50        | 0.40         | 62,420               | 126.18           |              |              |                      |                  |
| 23.00        | 0.39         | 63,130               | 126.20           |              |              |                      |                  |
| 23.50        | 0.37         | 63,811               | 126.21           |              |              |                      |                  |
| 24.00        | 0.36         | 64,466               | 126.22           |              |              |                      |                  |
| 24.50        | 0.03         | 64,831               | 126.23           |              |              |                      |                  |
| 25.00        | 0.00         | <b>64,842</b>        | <b>126.23</b>    |              |              |                      |                  |
| 25.50        | 0.00         | <b>64,842</b>        | <b>126.23</b>    |              |              |                      |                  |

Stage-Discharge for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 123.25              | 0.00               | 124.29              | 0.00               | 125.33              | 0.00               | 126.37              | 0.00               |
| 123.27              | 0.00               | 124.31              | 0.00               | 125.35              | 0.00               | 126.39              | 0.00               |
| 123.29              | 0.00               | 124.33              | 0.00               | 125.37              | 0.00               | 126.41              | 0.00               |
| 123.31              | 0.00               | 124.35              | 0.00               | 125.39              | 0.00               | 126.43              | 0.00               |
| 123.33              | 0.00               | 124.37              | 0.00               | 125.41              | 0.00               | 126.45              | 0.00               |
| 123.35              | 0.00               | 124.39              | 0.00               | 125.43              | 0.00               | 126.47              | 0.00               |
| 123.37              | 0.00               | 124.41              | 0.00               | 125.45              | 0.00               | 126.49              | 0.00               |
| 123.39              | 0.00               | 124.43              | 0.00               | 125.47              | 0.00               | 126.51              | 0.00               |
| 123.41              | 0.00               | 124.45              | 0.00               | 125.49              | 0.00               | 126.53              | 0.00               |
| 123.43              | 0.00               | 124.47              | 0.00               | 125.51              | 0.00               | 126.55              | 0.00               |
| 123.45              | 0.00               | 124.49              | 0.00               | 125.53              | 0.00               | 126.57              | 0.00               |
| 123.47              | 0.00               | 124.51              | 0.00               | 125.55              | 0.00               | 126.59              | 0.00               |
| 123.49              | 0.00               | 124.53              | 0.00               | 125.57              | 0.00               | 126.61              | 0.00               |
| 123.51              | 0.00               | 124.55              | 0.00               | 125.59              | 0.00               | 126.63              | 0.00               |
| 123.53              | 0.00               | 124.57              | 0.00               | 125.61              | 0.00               | 126.65              | 0.00               |
| 123.55              | 0.00               | 124.59              | 0.00               | 125.63              | 0.00               | 126.67              | 0.00               |
| 123.57              | 0.00               | 124.61              | 0.00               | 125.65              | 0.00               | 126.69              | 0.00               |
| 123.59              | 0.00               | 124.63              | 0.00               | 125.67              | 0.00               | 126.71              | 0.00               |
| 123.61              | 0.00               | 124.65              | 0.00               | 125.69              | 0.00               | 126.73              | 0.00               |
| 123.63              | 0.00               | 124.67              | 0.00               | 125.71              | 0.00               | 126.75              | 0.00               |
| 123.65              | 0.00               | 124.69              | 0.00               | 125.73              | 0.00               | 126.77              | 0.00               |
| 123.67              | 0.00               | 124.71              | 0.00               | 125.75              | 0.00               | 126.79              | 0.00               |
| 123.69              | 0.00               | 124.73              | 0.00               | 125.77              | 0.00               |                     |                    |
| 123.71              | 0.00               | 124.75              | 0.00               | 125.79              | 0.00               |                     |                    |
| 123.73              | 0.00               | 124.77              | 0.00               | 125.81              | 0.00               |                     |                    |
| 123.75              | 0.00               | 124.79              | 0.00               | 125.83              | 0.00               |                     |                    |
| 123.77              | 0.00               | 124.81              | 0.00               | 125.85              | 0.00               |                     |                    |
| 123.79              | 0.00               | 124.83              | 0.00               | 125.87              | 0.00               |                     |                    |
| 123.81              | 0.00               | 124.85              | 0.00               | 125.89              | 0.00               |                     |                    |
| 123.83              | 0.00               | 124.87              | 0.00               | 125.91              | 0.00               |                     |                    |
| 123.85              | 0.00               | 124.89              | 0.00               | 125.93              | 0.00               |                     |                    |
| 123.87              | 0.00               | 124.91              | 0.00               | 125.95              | 0.00               |                     |                    |
| 123.89              | 0.00               | 124.93              | 0.00               | 125.97              | 0.00               |                     |                    |
| 123.91              | 0.00               | 124.95              | 0.00               | 125.99              | 0.00               |                     |                    |
| 123.93              | 0.00               | 124.97              | 0.00               | 126.01              | 0.00               |                     |                    |
| 123.95              | 0.00               | 124.99              | 0.00               | 126.03              | 0.00               |                     |                    |
| 123.97              | 0.00               | 125.01              | 0.00               | 126.05              | 0.00               |                     |                    |
| 123.99              | 0.00               | 125.03              | 0.00               | 126.07              | 0.00               |                     |                    |
| 124.01              | 0.00               | 125.05              | 0.00               | 126.09              | 0.00               |                     |                    |
| 124.03              | 0.00               | 125.07              | 0.00               | 126.11              | 0.00               |                     |                    |
| 124.05              | 0.00               | 125.09              | 0.00               | 126.13              | 0.00               |                     |                    |
| 124.07              | 0.00               | 125.11              | 0.00               | 126.15              | 0.00               |                     |                    |
| 124.09              | 0.00               | 125.13              | 0.00               | 126.17              | 0.00               |                     |                    |
| 124.11              | 0.00               | 125.15              | 0.00               | 126.19              | 0.00               |                     |                    |
| 124.13              | 0.00               | 125.17              | 0.00               | 126.21              | 0.00               |                     |                    |
| 124.15              | 0.00               | 125.19              | 0.00               | 126.23              | 0.00               |                     |                    |
| 124.17              | 0.00               | 125.21              | 0.00               | 126.25              | 0.00               |                     |                    |
| 124.19              | 0.00               | 125.23              | 0.00               | 126.27              | 0.00               |                     |                    |
| 124.21              | 0.00               | 125.25              | 0.00               | 126.29              | 0.00               |                     |                    |
| 124.23              | 0.00               | 125.27              | 0.00               | 126.31              | 0.00               |                     |                    |
| 124.25              | 0.00               | 125.29              | 0.00               | 126.33              | 0.00               |                     |                    |
| 124.27              | 0.00               | 125.31              | 0.00               | 126.35              | 0.00               |                     |                    |

Stage-Area-Storage for Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 123.25              | 1,260              | 0                       | 125.85              | 39,861             | 48,003                  |
| 123.30              | 1,836              | 77                      | 125.90              | 40,871             | 50,022                  |
| 123.35              | 2,413              | 184                     | 125.95              | 41,881             | 52,091                  |
| 123.40              | 2,989              | 319                     | 126.00              | 42,891             | 54,210                  |
| 123.45              | 3,566              | 483                     | 126.05              | 44,324             | 56,390                  |
| 123.50              | 4,142              | 675                     | 126.10              | 45,758             | 58,642                  |
| 123.55              | 4,804              | 899                     | 126.15              | 47,191             | 60,966                  |
| 123.60              | 5,466              | 1,156                   | 126.20              | 48,625             | 63,361                  |
| 123.65              | 6,127              | 1,445                   | 126.25              | 50,058             | 65,828                  |
| 123.70              | 6,789              | 1,768                   | 126.30              | 51,491             | 68,367                  |
| 123.75              | 7,451              | 2,124                   | 126.35              | 52,925             | 70,978                  |
| 123.80              | 8,062              | 2,512                   | 126.40              | 54,358             | 73,660                  |
| 123.85              | 8,673              | 2,931                   | 126.45              | 55,791             | 76,413                  |
| 123.90              | 9,283              | 3,379                   | 126.50              | 57,225             | 79,239                  |
| 123.95              | 9,894              | 3,859                   | 126.55              | 58,658             | 82,136                  |
| 124.00              | 10,505             | 4,369                   | 126.60              | 60,091             | 85,105                  |
| 124.05              | 11,087             | 4,909                   | 126.65              | 61,525             | 88,145                  |
| 124.10              | 11,670             | 5,478                   | 126.70              | 62,958             | 91,257                  |
| 124.15              | 12,252             | 6,076                   | 126.75              | 64,392             | 94,441                  |
| 124.20              | 12,835             | 6,703                   | 126.80              | 65,825             | 97,696                  |
| 124.25              | 13,417             | 7,359                   |                     |                    |                         |
| 124.30              | 13,999             | 8,045                   |                     |                    |                         |
| 124.35              | 14,582             | 8,759                   |                     |                    |                         |
| 124.40              | 15,164             | 9,503                   |                     |                    |                         |
| 124.45              | 15,747             | 10,275                  |                     |                    |                         |
| 124.50              | 16,329             | 11,077                  |                     |                    |                         |
| 124.55              | 17,083             | 11,913                  |                     |                    |                         |
| 124.60              | 17,836             | 12,786                  |                     |                    |                         |
| 124.65              | 18,590             | 13,696                  |                     |                    |                         |
| 124.70              | 19,343             | 14,645                  |                     |                    |                         |
| 124.75              | 20,097             | 15,631                  |                     |                    |                         |
| 124.80              | 20,851             | 16,654                  |                     |                    |                         |
| 124.85              | 21,604             | 17,716                  |                     |                    |                         |
| 124.90              | 22,358             | 18,815                  |                     |                    |                         |
| 124.95              | 23,111             | 19,951                  |                     |                    |                         |
| 125.00              | 23,865             | 21,126                  |                     |                    |                         |
| 125.05              | 24,757             | 22,341                  |                     |                    |                         |
| 125.10              | 25,650             | 23,602                  |                     |                    |                         |
| 125.15              | 26,543             | 24,906                  |                     |                    |                         |
| 125.20              | 27,435             | 26,256                  |                     |                    |                         |
| 125.25              | 28,328             | 27,650                  |                     |                    |                         |
| 125.30              | 29,220             | 29,089                  |                     |                    |                         |
| 125.35              | 30,112             | 30,572                  |                     |                    |                         |
| 125.40              | 31,005             | 32,100                  |                     |                    |                         |
| 125.45              | 31,898             | 33,672                  |                     |                    |                         |
| 125.50              | 32,790             | 35,290                  |                     |                    |                         |
| 125.55              | 33,800             | 36,954                  |                     |                    |                         |
| 125.60              | 34,810             | 38,670                  |                     |                    |                         |
| 125.65              | 35,820             | 40,435                  |                     |                    |                         |
| 125.70              | 36,830             | 42,252                  |                     |                    |                         |
| 125.75              | 37,841             | 44,118                  |                     |                    |                         |
| 125.80              | 38,851             | 46,036                  |                     |                    |                         |



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100-Year-2020 Event

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- 37 Subcat 57S: Ex. Impervious to POI-2
- 40 Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

2-Year-2050 Event

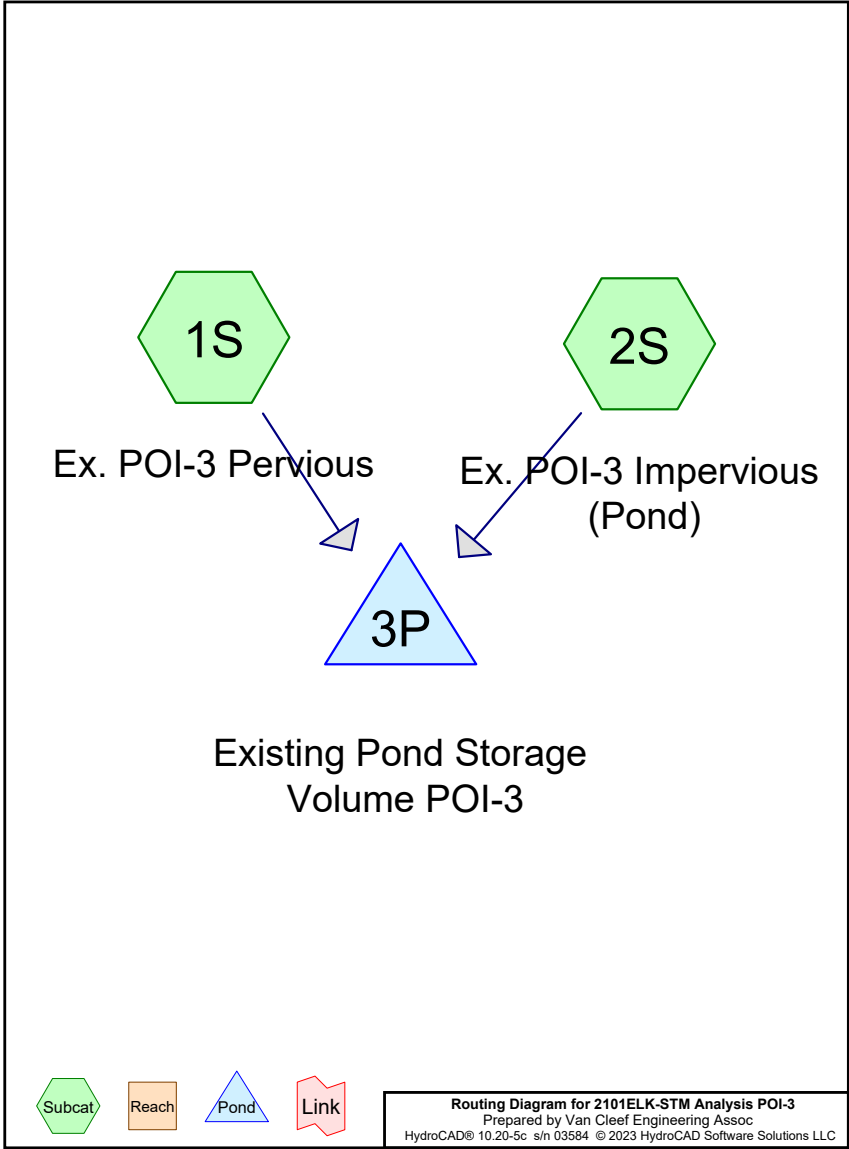
- 46 Node Listing
- 47 Subcat 56S: Ex. Pervious to POI-2
- 50 Subcat 57S: Ex. Impervious to POI-2
- 53 Pond 58P: Existing Drainage Area POI-2 (Isolated Wetland)

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- 59 Node Listing
- 60 Subcat 56S: Ex. Pervious to POI-2
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| Rainfall Events Listing (selected events) |               |            |       |         |                  |     |                |     |             |  |
|-------------------------------------------|---------------|------------|-------|---------|------------------|-----|----------------|-----|-------------|--|
| Event#                                    | Event Name    | Storm Type | Curve | Mode    | Duration (hours) | B/B | Depth (inches) | AMC | P2 (inches) |  |
| 1                                         | 2-Year-2020   | NOAA 24-hr | C     | Default | 24.00            | 1   | 3.45           | 2   | 3.45        |  |
| 2                                         | 10-Year-2020  | NOAA 24-hr | C     | Default | 24.00            | 1   | 5.35           | 2   | 3.45        |  |
| 3                                         | 100-Year-2020 | NOAA 24-hr | C     | Default | 24.00            | 1   | 9.06           | 2   | 3.45        |  |
| 4                                         | 2-Year-2050   | NOAA 24-hr | C     | Default | 24.00            | 1   | 3.92           | 2   | 3.92        |  |
| 5                                         | 10-Year-2050  | NOAA 24-hr | C     | Default | 24.00            | 1   | 6.21           | 2   | 3.92        |  |
| 6                                         | 100-Year-2050 | NOAA 24-hr | C     | Default | 24.00            | 1   | 12.06          | 2   | 3.92        |  |

2101ELK-STM Analysis POI-3

Prepared by Van Cleef Engineering Assoc  
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Area Listing (selected nodes)

| Area<br>(sq-ft) | CN | Description<br>(subcatchment-numbers) |
|-----------------|----|---------------------------------------|
| 218             | 30 | Meadow, non-grazed, HSG A (1S)        |
| 2,760           | 58 | Meadow, non-grazed, HSG B (1S)        |
| 8,729           | 98 | Water Surface, HSG B (2S)             |
| 44,993          | 30 | Woods, Good, HSG A (1S)               |
| 19,695          | 55 | Woods, Good, HSG B (1S)               |
| 76,395          | 45 | TOTAL AREA                            |

2101ELK-STM Analysis POI-3

Prepared by Van Cleef Engineering Assoc  
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Soil Listing (selected nodes)

| Area<br>(sq-ft) | Soil<br>Group | Subcatchment<br>Numbers |
|-----------------|---------------|-------------------------|
| 45,211          | HSG A         | 1S                      |
| 31,184          | HSG B         | 1S, 2S                  |
| 0               | HSG C         |                         |
| 0               | HSG D         |                         |
| 0               | Other         |                         |
| 76,395          |               | TOTAL AREA              |

| Ground Covers (selected nodes) |                  |                  |                  |                  |                  |                       | Subcat<br>Numbe |
|--------------------------------|------------------|------------------|------------------|------------------|------------------|-----------------------|-----------------|
| HSG-A<br>(sq-ft)               | HSG-B<br>(sq-ft) | HSG-C<br>(sq-ft) | HSG-D<br>(sq-ft) | Other<br>(sq-ft) | Total<br>(sq-ft) | Ground<br>Cover       |                 |
| 218                            | 2,760            | 0                | 0                | 0                | 2,978            | Meadow,<br>non-grazed |                 |
| 0                              | 8,729            | 0                | 0                | 0                | 8,729            | Water Surface         |                 |
| 44,993                         | 19,695           | 0                | 0                | 0                | 64,688           | Woods, Good           |                 |
| 45,211                         | 31,184           | 0                | 0                | 0                | 76,395           | TOTAL AREA            |                 |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S: Ex. POI-3 Pervious

Runoff Area=67,666 sf 0.00% Impervious Runoff Depth=0.00"  
Flow Length=324' Tc=22.2 min CN=38 Runoff=0.00 cfs 12 cf

Subcatchment2S: Ex. POI-3 Impervious

Runoff Area=8,729 sf 100.00% Impervious Runoff Depth=3.22"  
Tc=0.0 min CN=98 Runoff=0.81 cfs 2,340 cf

Pond 3P: Existing Pond Storage Volume

Peak Elev=119.24' Storage=2,352 cf Inflow=0.81 cfs 2,352 cf  
Outflow=0.00 cfs 0 cf

Total Runoff Area = 76,395 sf Runoff Volume = 2,352 cf Average Runoff Depth = 0.37"

88.57% Pervious = 67,666 sf 11.43% Impervious = 8,729 sf

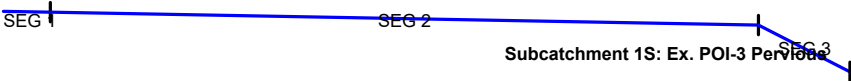
Summary for Subcatchment 1S: Ex. POI-3 Pervious

Runoff = 0.00 cfs @ 24.10 hrs, Volume= 12 cf, Depth= 0.00"  
Routed to Pond 3P : Existing Pond Storage Volume POI-3

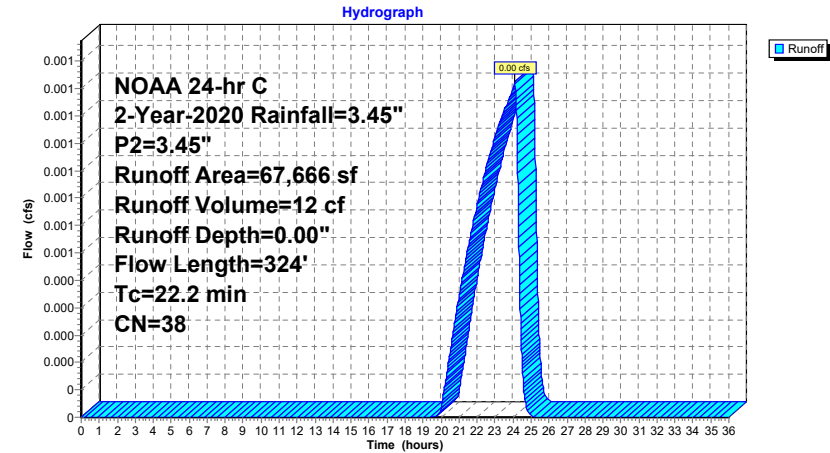
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description               |
|-----------|----|---------------------------|
| 218       | 30 | Meadow, non-grazed, HSG A |
| 2,760     | 58 | Meadow, non-grazed, HSG B |
| 44,993    | 30 | Woods, Good, HSG A        |
| 19,695    | 55 | Woods, Good, HSG B        |
| 67,666    | 38 | Weighted Average          |
| 67,666    |    | 100.00% Pervious Area     |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 9.1      | 18            | 0.0050        | 0.03              |                | Sheet Flow, SEG 1<br>Woods: Light underbrush n= 0.400 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 12.8     | 271           | 0.0050        | 0.35              |                | Shallow Concentrated Flow, SEG 2<br>Woodland Kv= 5.0 fps                                           |
| 0.3      | 35            | 0.1400        | 1.87              |                | Shallow Concentrated Flow, SEG 3<br>Woodland Kv= 5.0 fps                                           |
| 22.2     | 324           | Total         |                   |                |                                                                                                    |



Subcatchment 1S: Ex. POI-3 Pervious



Hydrograph for Subcatchment 1S: Ex. POI-3 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 0.00               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 0.00               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 0.00               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 0.00               | 0.00            |
| 2.00            | 0.08                | 0.00               | 0.00            | 28.00           | 3.45                | 0.00               | 0.00            |
| 2.50            | 0.10                | 0.00               | 0.00            | 28.50           | 3.45                | 0.00               | 0.00            |
| 3.00            | 0.12                | 0.00               | 0.00            | 29.00           | 3.45                | 0.00               | 0.00            |
| 3.50            | 0.14                | 0.00               | 0.00            | 29.50           | 3.45                | 0.00               | 0.00            |
| 4.00            | 0.17                | 0.00               | 0.00            | 30.00           | 3.45                | 0.00               | 0.00            |
| 4.50            | 0.19                | 0.00               | 0.00            | 30.50           | 3.45                | 0.00               | 0.00            |
| 5.00            | 0.22                | 0.00               | 0.00            | 31.00           | 3.45                | 0.00               | 0.00            |
| 5.50            | 0.25                | 0.00               | 0.00            | 31.50           | 3.45                | 0.00               | 0.00            |
| 6.00            | 0.27                | 0.00               | 0.00            | 32.00           | 3.45                | 0.00               | 0.00            |
| 6.50            | 0.30                | 0.00               | 0.00            | 32.50           | 3.45                | 0.00               | 0.00            |
| 7.00            | 0.34                | 0.00               | 0.00            | 33.00           | 3.45                | 0.00               | 0.00            |
| 7.50            | 0.37                | 0.00               | 0.00            | 33.50           | 3.45                | 0.00               | 0.00            |
| 8.00            | 0.41                | 0.00               | 0.00            | 34.00           | 3.45                | 0.00               | 0.00            |
| 8.50            | 0.46                | 0.00               | 0.00            | 34.50           | 3.45                | 0.00               | 0.00            |
| 9.00            | 0.50                | 0.00               | 0.00            | 35.00           | 3.45                | 0.00               | 0.00            |
| 9.50            | 0.56                | 0.00               | 0.00            | 35.50           | 3.45                | 0.00               | 0.00            |
| 10.00           | 0.63                | 0.00               | 0.00            | 36.00           | 3.45                | 0.00               | 0.00            |
| 10.50           | 0.71                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.64                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.43                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 2.62                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 2.74                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 2.82                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 2.89                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 2.95                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 2.99                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 3.04                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 3.08                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 3.11                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 3.15                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.00           | 3.18                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.50           | 3.20                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.00           | 3.23                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.50           | 3.26                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.00           | 3.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.50           | 3.31                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.00           | 3.33                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.50           | 3.35                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.00           | 3.37                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.50           | 3.39                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.00           | 3.41                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.50           | 3.43                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.00           | 3.45                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.50           | 3.45                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 0.00               | 0.00            |                 |                     |                    |                 |

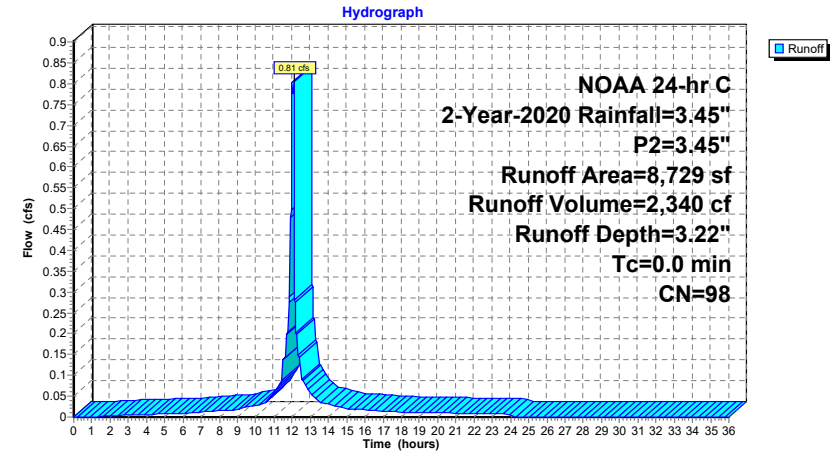
Summary for Subcatchment 2S: Ex. POI-3 Impervious (Pond)

Runoff = 0.81 cfs @ 12.09 hrs, Volume= 2,340 cf, Depth= 3.22"  
Routed to Pond 3P : Existing Pond Storage Volume POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 8,729     | 98 | Water Surface, HSG B    |
| 8,729     |    | 100.00% Impervious Area |

Subcatchment 2S: Ex. POI-3 Impervious (Pond)



Hydrograph for Subcatchment 2S: Ex. POI-3 Impervious (Pond)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 3.22               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 3.22               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 3.22               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 3.22               | 0.00            |
| 2.00            | 0.08                | 0.01               | 0.00            | 28.00           | 3.45                | 3.22               | 0.00            |
| 2.50            | 0.10                | 0.01               | 0.00            | 28.50           | 3.45                | 3.22               | 0.00            |
| 3.00            | 0.12                | 0.02               | 0.00            | 29.00           | 3.45                | 3.22               | 0.00            |
| 3.50            | 0.14                | 0.04               | 0.01            | 29.50           | 3.45                | 3.22               | 0.00            |
| 4.00            | 0.17                | 0.05               | 0.01            | 30.00           | 3.45                | 3.22               | 0.00            |
| 4.50            | 0.19                | 0.07               | 0.01            | 30.50           | 3.45                | 3.22               | 0.00            |
| 5.00            | 0.22                | 0.08               | 0.01            | 31.00           | 3.45                | 3.22               | 0.00            |
| 5.50            | 0.25                | 0.10               | 0.01            | 31.50           | 3.45                | 3.22               | 0.00            |
| 6.00            | 0.27                | 0.12               | 0.01            | 32.00           | 3.45                | 3.22               | 0.00            |
| 6.50            | 0.30                | 0.15               | 0.01            | 32.50           | 3.45                | 3.22               | 0.00            |
| 7.00            | 0.34                | 0.17               | 0.01            | 33.00           | 3.45                | 3.22               | 0.00            |
| 7.50            | 0.37                | 0.21               | 0.01            | 33.50           | 3.45                | 3.22               | 0.00            |
| 8.00            | 0.41                | 0.24               | 0.01            | 34.00           | 3.45                | 3.22               | 0.00            |
| 8.50            | 0.46                | 0.28               | 0.02            | 34.50           | 3.45                | 3.22               | 0.00            |
| 9.00            | 0.50                | 0.32               | 0.02            | 35.00           | 3.45                | 3.22               | 0.00            |
| 9.50            | 0.56                | 0.37               | 0.02            | 35.50           | 3.45                | 3.22               | 0.00            |
| 10.00           | 0.63                | 0.44               | 0.03            | 36.00           | 3.45                | 3.22               | 0.00            |
| 10.50           | 0.71                | 0.51               | 0.04            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.63               | 0.06            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.81               | 0.11            |                 |                     |                    |                 |
| 12.00           | 1.64                | 1.42               | 0.64            |                 |                     |                    |                 |
| 12.50           | 2.43                | 2.20               | 0.12            |                 |                     |                    |                 |
| 13.00           | 2.62                | 2.39               | 0.06            |                 |                     |                    |                 |
| 13.50           | 2.74                | 2.51               | 0.04            |                 |                     |                    |                 |
| 14.00           | 2.82                | 2.59               | 0.03            |                 |                     |                    |                 |
| 14.50           | 2.89                | 2.66               | 0.03            |                 |                     |                    |                 |
| 15.00           | 2.95                | 2.71               | 0.02            |                 |                     |                    |                 |
| 15.50           | 2.99                | 2.76               | 0.02            |                 |                     |                    |                 |
| 16.00           | 3.04                | 2.80               | 0.02            |                 |                     |                    |                 |
| 16.50           | 3.08                | 2.84               | 0.02            |                 |                     |                    |                 |
| 17.00           | 3.11                | 2.88               | 0.01            |                 |                     |                    |                 |
| 17.50           | 3.15                | 2.91               | 0.01            |                 |                     |                    |                 |
| 18.00           | 3.18                | 2.94               | 0.01            |                 |                     |                    |                 |
| 18.50           | 3.20                | 2.97               | 0.01            |                 |                     |                    |                 |
| 19.00           | 3.23                | 3.00               | 0.01            |                 |                     |                    |                 |
| 19.50           | 3.26                | 3.02               | 0.01            |                 |                     |                    |                 |
| 20.00           | 3.28                | 3.05               | 0.01            |                 |                     |                    |                 |
| 20.50           | 3.31                | 3.07               | 0.01            |                 |                     |                    |                 |
| 21.00           | 3.33                | 3.10               | 0.01            |                 |                     |                    |                 |
| 21.50           | 3.35                | 3.12               | 0.01            |                 |                     |                    |                 |
| 22.00           | 3.37                | 3.14               | 0.01            |                 |                     |                    |                 |
| 22.50           | 3.39                | 3.16               | 0.01            |                 |                     |                    |                 |
| 23.00           | 3.41                | 3.18               | 0.01            |                 |                     |                    |                 |
| 23.50           | 3.43                | 3.20               | 0.01            |                 |                     |                    |                 |
| 24.00           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 24.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |

Summary for Pond 3P: Existing Pond Storage Volume POI-3

Inflow Area = 76,395 sf, 11.43% Impervious, Inflow Depth = 0.37" for 2-Year-2020 event  
Inflow = 0.81 cfs @ 12.09 hrs, Volume= 2,352 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

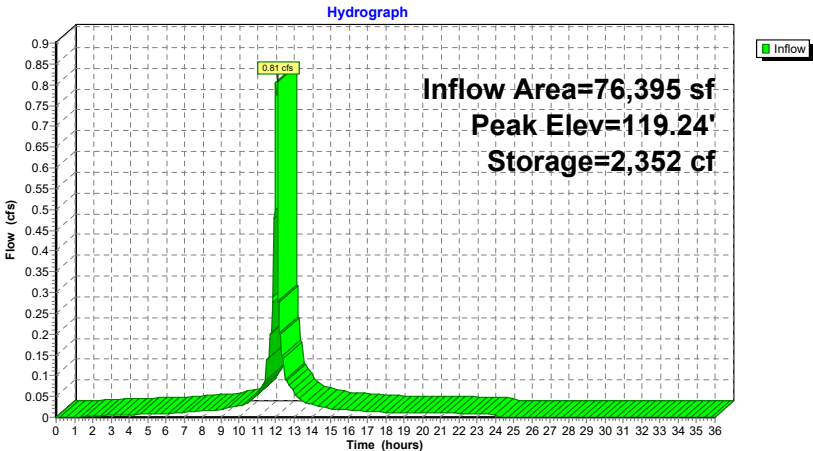
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 119.24' @ 25.27 hrs Surf.Area= 10,079 sf Storage= 2,352 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

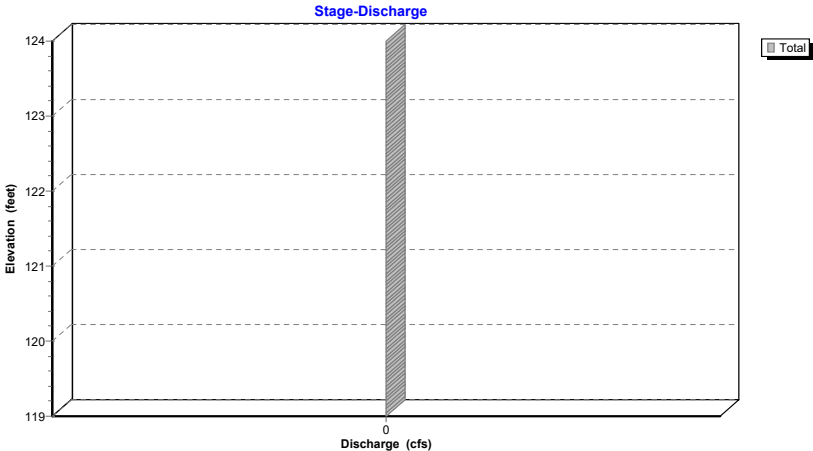
| Volume              | Invert               | Avail.Storage             | Storage Description                                 |
|---------------------|----------------------|---------------------------|-----------------------------------------------------|
| #1                  | 119.00'              | 65,239 cf                 | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                           |
| 119.00              | 9,792                | 0                         | 0                                                   |
| 120.00              | 11,006               | 10,399                    | 10,399                                              |
| 121.00              | 12,283               | 11,645                    | 22,044                                              |
| 122.00              | 13,612               | 12,948                    | 34,991                                              |
| 123.00              | 15,010               | 14,311                    | 49,302                                              |
| 124.00              | 16,863               | 15,937                    | 65,239                                              |

Pond 3P: Existing Pond Storage Volume POI-3

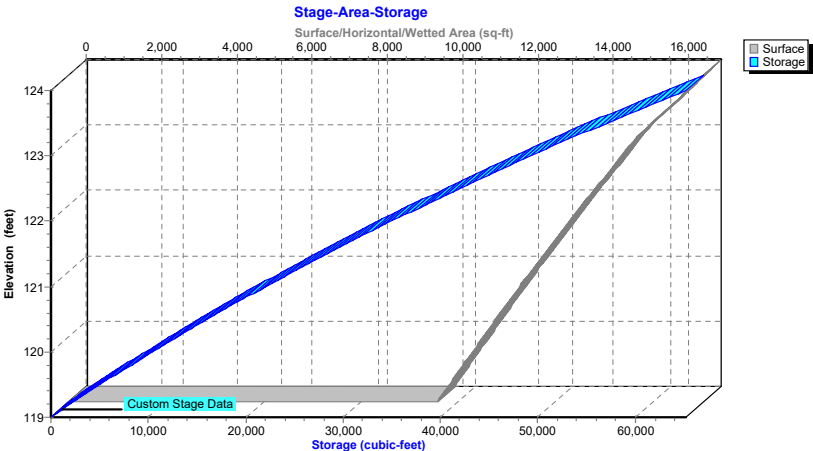
Pond 3P: Existing Pond Storage Volume POI-3



Pond 3P: Existing Pond Storage Volume POI-3



Pond 3P: Existing Pond Storage Volume POI-3





**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Hydrograph for Pond 3P: Existing Pond Storage Volume POI-3**

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) |
|-----------------|-----------------|-------------------------|---------------------|-----------------|-----------------|-------------------------|---------------------|
| 0.00            | 0.00            | 0                       | 119.00              | 26.00           | 0.00            | 2,352                   | 119.24              |
| 0.50            | 0.00            | 0                       | 119.00              | 26.50           | 0.00            | 2,352                   | 119.24              |
| 1.00            | 0.00            | 0                       | 119.00              | 27.00           | 0.00            | 2,352                   | 119.24              |
| 1.50            | 0.00            | 1                       | 119.00              | 27.50           | 0.00            | 2,352                   | 119.24              |
| 2.00            | 0.00            | 4                       | 119.00              | 28.00           | 0.00            | 2,352                   | 119.24              |
| 2.50            | 0.00            | 10                      | 119.00              | 28.50           | 0.00            | 2,352                   | 119.24              |
| 3.00            | 0.00            | 17                      | 119.00              | 29.00           | 0.00            | 2,352                   | 119.24              |
| 3.50            | 0.01            | 26                      | 119.00              | 29.50           | 0.00            | 2,352                   | 119.24              |
| 4.00            | 0.01            | 36                      | 119.00              | 30.00           | 0.00            | 2,352                   | 119.24              |
| 4.50            | 0.01            | 48                      | 119.00              | 30.50           | 0.00            | 2,352                   | 119.24              |
| 5.00            | 0.01            | 61                      | 119.01              | 31.00           | 0.00            | 2,352                   | 119.24              |
| 5.50            | 0.01            | 75                      | 119.01              | 31.50           | 0.00            | 2,352                   | 119.24              |
| 6.00            | 0.01            | 90                      | 119.01              | 32.00           | 0.00            | 2,352                   | 119.24              |
| 6.50            | 0.01            | 107                     | 119.01              | 32.50           | 0.00            | 2,352                   | 119.24              |
| 7.00            | 0.01            | 127                     | 119.01              | 33.00           | 0.00            | 2,352                   | 119.24              |
| 7.50            | 0.01            | 150                     | 119.02              | 33.50           | 0.00            | 2,352                   | 119.24              |
| 8.00            | 0.01            | 175                     | 119.02              | 34.00           | 0.00            | 2,352                   | 119.24              |
| 8.50            | 0.02            | 203                     | 119.02              | 34.50           | 0.00            | 2,352                   | 119.24              |
| 9.00            | 0.02            | 234                     | 119.02              | 35.00           | 0.00            | 2,352                   | 119.24              |
| 9.50            | 0.02            | 271                     | 119.03              | 35.50           | 0.00            | 2,352                   | 119.24              |
| 10.00           | 0.03            | 318                     | 119.03              | 36.00           | 0.00            | 2,352                   | 119.24              |
| 10.50           | 0.04            | 374                     | 119.04              |                 |                 |                         |                     |
| 11.00           | 0.06            | 455                     | 119.05              |                 |                 |                         |                     |
| 11.50           | 0.11            | 589                     | 119.06              |                 |                 |                         |                     |
| 12.00           | <b>0.64</b>     | 1,038                   | 119.11              |                 |                 |                         |                     |
| 12.50           | <b>0.12</b>     | 1,601                   | 119.16              |                 |                 |                         |                     |
| 13.00           | 0.06            | 1,740                   | 119.18              |                 |                 |                         |                     |
| 13.50           | 0.04            | 1,825                   | 119.18              |                 |                 |                         |                     |
| 14.00           | 0.03            | 1,884                   | 119.19              |                 |                 |                         |                     |
| 14.50           | 0.03            | 1,934                   | 119.20              |                 |                 |                         |                     |
| 15.00           | 0.02            | 1,975                   | 119.20              |                 |                 |                         |                     |
| 15.50           | 0.02            | 2,009                   | 119.20              |                 |                 |                         |                     |
| 16.00           | 0.02            | 2,040                   | 119.21              |                 |                 |                         |                     |
| 16.50           | 0.02            | 2,069                   | 119.21              |                 |                 |                         |                     |
| 17.00           | 0.01            | 2,096                   | 119.21              |                 |                 |                         |                     |
| 17.50           | 0.01            | 2,120                   | 119.21              |                 |                 |                         |                     |
| 18.00           | 0.01            | 2,142                   | 119.22              |                 |                 |                         |                     |
| 18.50           | 0.01            | 2,162                   | 119.22              |                 |                 |                         |                     |
| 19.00           | 0.01            | 2,181                   | 119.22              |                 |                 |                         |                     |
| 19.50           | 0.01            | 2,199                   | 119.22              |                 |                 |                         |                     |
| 20.00           | 0.01            | 2,217                   | 119.22              |                 |                 |                         |                     |
| 20.50           | 0.01            | 2,235                   | 119.23              |                 |                 |                         |                     |
| 21.00           | 0.01            | 2,252                   | 119.23              |                 |                 |                         |                     |
| 21.50           | 0.01            | 2,270                   | 119.23              |                 |                 |                         |                     |
| 22.00           | 0.01            | 2,286                   | 119.23              |                 |                 |                         |                     |
| 22.50           | 0.01            | 2,303                   | 119.23              |                 |                 |                         |                     |
| 23.00           | 0.01            | 2,319                   | 119.23              |                 |                 |                         |                     |
| 23.50           | 0.01            | 2,334                   | 119.23              |                 |                 |                         |                     |
| 24.00           | 0.01            | 2,350                   | 119.24              |                 |                 |                         |                     |
| 24.50           | 0.00            | 2,352                   | 119.24              |                 |                 |                         |                     |
| 25.00           | 0.00            | <b>2,352</b>            | <b>119.24</b>       |                 |                 |                         |                     |
| 25.50           | 0.00            | <b>2,352</b>            | <b>119.24</b>       |                 |                 |                         |                     |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 3P: Existing Pond Storage Volume POI-3**

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|
| 119.00              | <b>0.00</b>        | 121.60              | 0.00               |
| 119.05              | 0.00               | 121.65              | 0.00               |
| 119.10              | 0.00               | 121.70              | 0.00               |
| 119.15              | 0.00               | 121.75              | 0.00               |
| 119.20              | 0.00               | 121.80              | 0.00               |
| 119.25              | 0.00               | 121.85              | 0.00               |
| 119.30              | 0.00               | 121.90              | 0.00               |
| 119.35              | 0.00               | 121.95              | 0.00               |
| 119.40              | 0.00               | 122.00              | 0.00               |
| 119.45              | 0.00               | 122.05              | 0.00               |
| 119.50              | 0.00               | 122.10              | 0.00               |
| 119.55              | 0.00               | 122.15              | 0.00               |
| 119.60              | 0.00               | 122.20              | 0.00               |
| 119.65              | 0.00               | 122.25              | 0.00               |
| 119.70              | 0.00               | 122.30              | 0.00               |
| 119.75              | 0.00               | 122.35              | 0.00               |
| 119.80              | 0.00               | 122.40              | 0.00               |
| 119.85              | 0.00               | 122.45              | 0.00               |
| 119.90              | 0.00               | 122.50              | 0.00               |
| 119.95              | 0.00               | 122.55              | 0.00               |
| 120.00              | 0.00               | 122.60              | 0.00               |
| 120.05              | 0.00               | 122.65              | 0.00               |
| 120.10              | 0.00               | 122.70              | 0.00               |
| 120.15              | 0.00               | 122.75              | 0.00               |
| 120.20              | 0.00               | 122.80              | 0.00               |
| 120.25              | 0.00               | 122.85              | 0.00               |
| 120.30              | 0.00               | 122.90              | 0.00               |
| 120.35              | 0.00               | 122.95              | 0.00               |
| 120.40              | 0.00               | 123.00              | 0.00               |
| 120.45              | 0.00               | 123.05              | 0.00               |
| 120.50              | 0.00               | 123.10              | 0.00               |
| 120.55              | 0.00               | 123.15              | 0.00               |
| 120.60              | 0.00               | 123.20              | 0.00               |
| 120.65              | 0.00               | 123.25              | 0.00               |
| 120.70              | 0.00               | 123.30              | 0.00               |
| 120.75              | 0.00               | 123.35              | 0.00               |
| 120.80              | 0.00               | 123.40              | 0.00               |
| 120.85              | 0.00               | 123.45              | 0.00               |
| 120.90              | 0.00               | 123.50              | 0.00               |
| 120.95              | 0.00               | 123.55              | 0.00               |
| 121.00              | 0.00               | 123.60              | 0.00               |
| 121.05              | 0.00               | 123.65              | 0.00               |
| 121.10              | 0.00               | 123.70              | 0.00               |
| 121.15              | 0.00               | 123.75              | 0.00               |
| 121.20              | 0.00               | 123.80              | 0.00               |
| 121.25              | 0.00               | 123.85              | 0.00               |
| 121.30              | 0.00               | 123.90              | 0.00               |
| 121.35              | 0.00               | 123.95              | 0.00               |
| 121.40              | 0.00               | 124.00              | 0.00               |
| 121.45              | 0.00               |                     |                    |
| 121.50              | 0.00               |                     |                    |
| 121.55              | 0.00               |                     |                    |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 3P: Existing Pond Storage Volume POI-3**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 119.00              | 9,792              | 0                       | 121.60              | 13,080             | 29,653                  |
| 119.05              | 9,853              | 491                     | 121.65              | 13,147             | 30,308                  |
| 119.10              | 9,913              | 985                     | 121.70              | 13,213             | 30,967                  |
| 119.15              | 9,974              | 1,482                   | 121.75              | 13,280             | 31,630                  |
| 119.20              | 10,035             | 1,983                   | 121.80              | 13,346             | 32,295                  |
| 119.25              | 10,096             | 2,486                   | 121.85              | 13,413             | 32,964                  |
| 119.30              | 10,156             | 2,992                   | 121.90              | 13,479             | 33,636                  |
| 119.35              | 10,217             | 3,502                   | 121.95              | 13,546             | 34,312                  |
| 119.40              | 10,278             | 4,014                   | 122.00              | 13,612             | 34,991                  |
| 119.45              | 10,338             | 4,529                   | 122.05              | 13,682             | 35,673                  |
| 119.50              | 10,399             | 5,048                   | 122.10              | 13,752             | 36,359                  |
| 119.55              | 10,460             | 5,569                   | 122.15              | 13,822             | 37,049                  |
| 119.60              | 10,520             | 6,094                   | 122.20              | 13,892             | 37,741                  |
| 119.65              | 10,581             | 6,621                   | 122.25              | 13,962             | 38,438                  |
| 119.70              | 10,642             | 7,152                   | 122.30              | 14,031             | 39,138                  |
| 119.75              | 10,703             | 7,685                   | 122.35              | 14,101             | 39,841                  |
| 119.80              | 10,763             | 8,222                   | 122.40              | 14,171             | 40,548                  |
| 119.85              | 10,824             | 8,762                   | 122.45              | 14,241             | 41,258                  |
| 119.90              | 10,885             | 9,304                   | 122.50              | 14,311             | 41,972                  |
| 119.95              | 10,945             | 9,850                   | 122.55              | 14,381             | 42,689                  |
| 120.00              | 11,006             | 10,399                  | 122.60              | 14,451             | 43,410                  |
| 120.05              | 11,070             | 10,951                  | 122.65              | 14,521             | 44,134                  |
| 120.10              | 11,134             | 11,506                  | 122.70              | 14,591             | 44,862                  |
| 120.15              | 11,198             | 12,064                  | 122.75              | 14,661             | 45,593                  |
| 120.20              | 11,261             | 12,626                  | 122.80              | 14,730             | 46,328                  |
| 120.25              | 11,325             | 13,190                  | 122.85              | 14,800             | 47,066                  |
| 120.30              | 11,389             | 13,758                  | 122.90              | 14,870             | 47,808                  |
| 120.35              | 11,453             | 14,329                  | 122.95              | 14,940             | 48,553                  |
| 120.40              | 11,517             | 14,904                  | 123.00              | 15,010             | 49,302                  |
| 120.45              | 11,581             | 15,481                  | 123.05              | 15,103             | 50,055                  |
| 120.50              | 11,645             | 16,062                  | 123.10              | 15,195             | 50,812                  |
| 120.55              | 11,708             | 16,645                  | 123.15              | 15,288             | 51,574                  |
| 120.60              | 11,772             | 17,232                  | 123.20              | 15,381             | 52,341                  |
| 120.65              | 11,836             | 17,823                  | 123.25              | 15,473             | 53,112                  |
| 120.70              | 11,900             | 18,416                  | 123.30              | 15,566             | 53,888                  |
| 120.75              | 11,964             | 19,013                  | 123.35              | 15,659             | 54,669                  |
| 120.80              | 12,028             | 19,612                  | 123.40              | 15,751             | 55,454                  |
| 120.85              | 12,091             | 20,215                  | 123.45              | 15,844             | 56,244                  |
| 120.90              | 12,155             | 20,822                  | 123.50              | 15,937             | 57,039                  |
| 120.95              | 12,219             | 21,431                  | 123.55              | 16,029             | 57,838                  |
| 121.00              | 12,283             | 22,044                  | 123.60              | 16,122             | 58,642                  |
| 121.05              | 12,349             | 22,659                  | 123.65              | 16,214             | 59,450                  |
| 121.10              | 12,416             | 23,278                  | 123.70              | 16,307             | 60,263                  |
| 121.15              | 12,482             | 23,901                  | 123.75              | 16,400             | 61,081                  |
| 121.20              | 12,549             | 24,527                  | 123.80              | 16,492             | 61,903                  |
| 121.25              | 12,615             | 25,156                  | 123.85              | 16,585             | 62,730                  |
| 121.30              | 12,682             | 25,788                  | 123.90              | 16,678             | 63,561                  |
| 121.35              | 12,748             | 26,424                  | 123.95              | 16,770             | 64,398                  |
| 121.40              | 12,815             | 27,063                  | 124.00              | <b>16,863</b>      | <b>65,239</b>           |
| 121.45              | 12,881             | 27,705                  |                     |                    |                         |
| 121.50              | 12,948             | 28,351                  |                     |                    |                         |
| 121.55              | 13,014             | 29,000                  |                     |                    |                         |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment1S: Ex. POI-3 Pervious** Runoff Area=67,666 sf 0.00% Impervious Runoff Depth=0.24"  
Flow Length=324' Tc=22.2 min CN=38 Runoff=0.07 cfs 1,334 cf

**Subcatchment2S: Ex. POI-3 Impervious** Runoff Area=8,729 sf 100.00% Impervious Runoff Depth=5.11"  
Tc=0.0 min CN=98 Runoff=1.26 cfs 3,719 cf

**Pond 3P: Existing Pond Storage Volume** Peak Elev=119.50' Storage=5,053 cf Inflow=1.26 cfs 5,053 cf  
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 76,395 sf Runoff Volume = 5,053 cf Average Runoff Depth = 0.79"**  
**88.57% Pervious = 67,666 sf 11.43% Impervious = 8,729 sf**

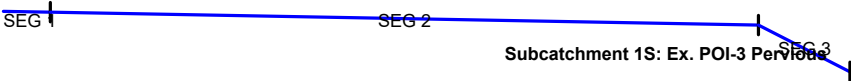
Summary for Subcatchment 1S: Ex. POI-3 Pervious

Runoff = 0.07 cfs @ 13.00 hrs, Volume= 1,334 cf, Depth= 0.24"  
Routed to Pond 3P : Existing Pond Storage Volume POI-3

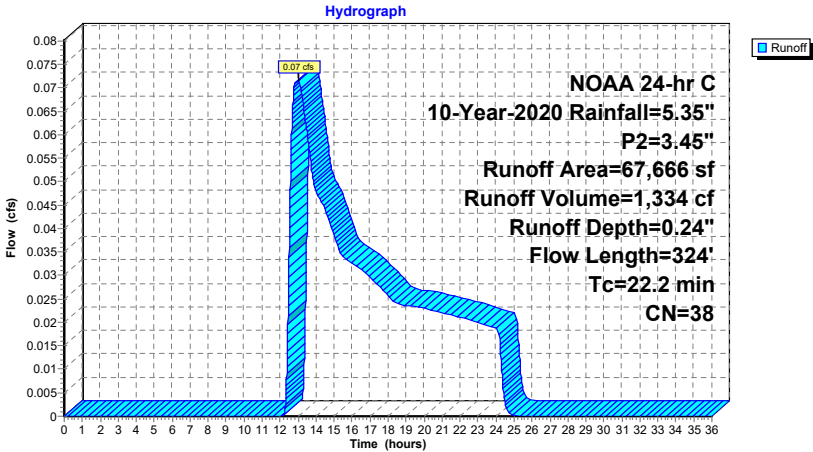
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description               |
|-----------|----|---------------------------|
| 218       | 30 | Meadow, non-grazed, HSG A |
| 2,760     | 58 | Meadow, non-grazed, HSG B |
| 44,993    | 30 | Woods, Good, HSG A        |
| 19,695    | 55 | Woods, Good, HSG B        |
| 67,666    | 38 | Weighted Average          |
| 67,666    |    | 100.00% Pervious Area     |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 9.1      | 18            | 0.0050        | 0.03              |                | Sheet Flow, SEG 1<br>Woods: Light underbrush n= 0.400 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 12.8     | 271           | 0.0050        | 0.35              |                | Shallow Concentrated Flow, SEG 2<br>Woodland Kv= 5.0 fps                                           |
| 0.3      | 35            | 0.1400        | 1.87              |                | Shallow Concentrated Flow, SEG 3<br>Woodland Kv= 5.0 fps                                           |
| 22.2     | 324           | Total         |                   |                |                                                                                                    |



Subcatchment 1S: Ex. POI-3 Pervious



Hydrograph for Subcatchment 1S: Ex. POI-3 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 0.24               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 0.24               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 0.24               | 0.00            |
| 1.50            | 0.09                | 0.00               | 0.00            | 27.50           | 5.35                | 0.24               | 0.00            |
| 2.00            | 0.12                | 0.00               | 0.00            | 28.00           | 5.35                | 0.24               | 0.00            |
| 2.50            | 0.15                | 0.00               | 0.00            | 28.50           | 5.35                | 0.24               | 0.00            |
| 3.00            | 0.19                | 0.00               | 0.00            | 29.00           | 5.35                | 0.24               | 0.00            |
| 3.50            | 0.22                | 0.00               | 0.00            | 29.50           | 5.35                | 0.24               | 0.00            |
| 4.00            | 0.26                | 0.00               | 0.00            | 30.00           | 5.35                | 0.24               | 0.00            |
| 4.50            | 0.30                | 0.00               | 0.00            | 30.50           | 5.35                | 0.24               | 0.00            |
| 5.00            | 0.34                | 0.00               | 0.00            | 31.00           | 5.35                | 0.24               | 0.00            |
| 5.50            | 0.38                | 0.00               | 0.00            | 31.50           | 5.35                | 0.24               | 0.00            |
| 6.00            | 0.42                | 0.00               | 0.00            | 32.00           | 5.35                | 0.24               | 0.00            |
| 6.50            | 0.47                | 0.00               | 0.00            | 32.50           | 5.35                | 0.24               | 0.00            |
| 7.00            | 0.52                | 0.00               | 0.00            | 33.00           | 5.35                | 0.24               | 0.00            |
| 7.50            | 0.58                | 0.00               | 0.00            | 33.50           | 5.35                | 0.24               | 0.00            |
| 8.00            | 0.64                | 0.00               | 0.00            | 34.00           | 5.35                | 0.24               | 0.00            |
| 8.50            | 0.71                | 0.00               | 0.00            | 34.50           | 5.35                | 0.24               | 0.00            |
| 9.00            | 0.78                | 0.00               | 0.00            | 35.00           | 5.35                | 0.24               | 0.00            |
| 9.50            | 0.87                | 0.00               | 0.00            | 35.50           | 5.35                | 0.24               | 0.00            |
| 10.00           | 0.98                | 0.00               | 0.00            | 36.00           | 5.35                | 0.24               | 0.00            |
| 10.50           | 1.10                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.58                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.55                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 3.77                | 0.02               | 0.03            |                 |                     |                    |                 |
| 13.00           | 4.07                | 0.04               | 0.07            |                 |                     |                    |                 |
| 13.50           | 4.25                | 0.06               | 0.06            |                 |                     |                    |                 |
| 14.00           | 4.37                | 0.07               | 0.05            |                 |                     |                    |                 |
| 14.50           | 4.48                | 0.08               | 0.04            |                 |                     |                    |                 |
| 15.00           | 4.57                | 0.10               | 0.04            |                 |                     |                    |                 |
| 15.50           | 4.64                | 0.11               | 0.03            |                 |                     |                    |                 |
| 16.00           | 4.71                | 0.12               | 0.03            |                 |                     |                    |                 |
| 16.50           | 4.77                | 0.13               | 0.03            |                 |                     |                    |                 |
| 17.00           | 4.83                | 0.14               | 0.03            |                 |                     |                    |                 |
| 17.50           | 4.88                | 0.15               | 0.03            |                 |                     |                    |                 |
| 18.00           | 4.93                | 0.15               | 0.03            |                 |                     |                    |                 |
| 18.50           | 4.97                | 0.16               | 0.02            |                 |                     |                    |                 |
| 19.00           | 5.01                | 0.17               | 0.02            |                 |                     |                    |                 |
| 19.50           | 5.05                | 0.18               | 0.02            |                 |                     |                    |                 |
| 20.00           | 5.09                | 0.18               | 0.02            |                 |                     |                    |                 |
| 20.50           | 5.13                | 0.19               | 0.02            |                 |                     |                    |                 |
| 21.00           | 5.16                | 0.20               | 0.02            |                 |                     |                    |                 |
| 21.50           | 5.20                | 0.20               | 0.02            |                 |                     |                    |                 |
| 22.00           | 5.23                | 0.21               | 0.02            |                 |                     |                    |                 |
| 22.50           | 5.26                | 0.22               | 0.02            |                 |                     |                    |                 |
| 23.00           | 5.29                | 0.22               | 0.02            |                 |                     |                    |                 |
| 23.50           | 5.32                | 0.23               | 0.02            |                 |                     |                    |                 |
| 24.00           | 5.35                | 0.24               | 0.02            |                 |                     |                    |                 |
| 24.50           | 5.35                | 0.24               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 0.24               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 0.24               | 0.00            |                 |                     |                    |                 |

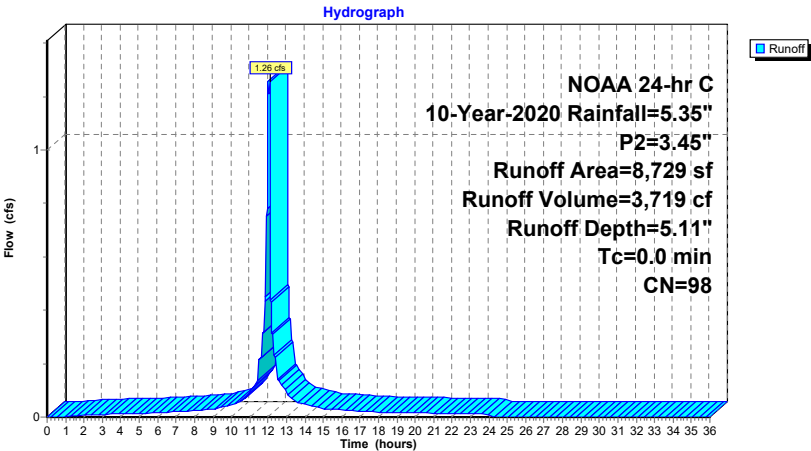
Summary for Subcatchment 2S: Ex. POI-3 Impervious (Pond)

Runoff = 1.26 cfs @ 12.09 hrs, Volume= 3,719 cf, Depth= 5.11"  
Routed to Pond 3P : Existing Pond Storage Volume POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 8,729     | 98 | Water Surface, HSG B    |
| 8,729     |    | 100.00% Impervious Area |

Subcatchment 2S: Ex. POI-3 Impervious (Pond)



Hydrograph for Subcatchment 2S: Ex. POI-3 Impervious (Pond)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 5.11               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 5.11               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 5.11               | 0.00            |
| 1.50            | 0.09                | 0.01               | 0.00            | 27.50           | 5.35                | 5.11               | 0.00            |
| 2.00            | 0.12                | 0.02               | 0.01            | 28.00           | 5.35                | 5.11               | 0.00            |
| 2.50            | 0.15                | 0.04               | 0.01            | 28.50           | 5.35                | 5.11               | 0.00            |
| 3.00            | 0.19                | 0.06               | 0.01            | 29.00           | 5.35                | 5.11               | 0.00            |
| 3.50            | 0.22                | 0.09               | 0.01            | 29.50           | 5.35                | 5.11               | 0.00            |
| 4.00            | 0.26                | 0.11               | 0.01            | 30.00           | 5.35                | 5.11               | 0.00            |
| 4.50            | 0.30                | 0.15               | 0.01            | 30.50           | 5.35                | 5.11               | 0.00            |
| 5.00            | 0.34                | 0.18               | 0.01            | 31.00           | 5.35                | 5.11               | 0.00            |
| 5.50            | 0.38                | 0.21               | 0.01            | 31.50           | 5.35                | 5.11               | 0.00            |
| 6.00            | 0.42                | 0.25               | 0.02            | 32.00           | 5.35                | 5.11               | 0.00            |
| 6.50            | 0.47                | 0.29               | 0.02            | 32.50           | 5.35                | 5.11               | 0.00            |
| 7.00            | 0.52                | 0.34               | 0.02            | 33.00           | 5.35                | 5.11               | 0.00            |
| 7.50            | 0.58                | 0.39               | 0.02            | 33.50           | 5.35                | 5.11               | 0.00            |
| 8.00            | 0.64                | 0.45               | 0.02            | 34.00           | 5.35                | 5.11               | 0.00            |
| 8.50            | 0.71                | 0.51               | 0.03            | 34.50           | 5.35                | 5.11               | 0.00            |
| 9.00            | 0.78                | 0.58               | 0.03            | 35.00           | 5.35                | 5.11               | 0.00            |
| 9.50            | 0.87                | 0.66               | 0.04            | 35.50           | 5.35                | 5.11               | 0.00            |
| 10.00           | 0.98                | 0.77               | 0.05            | 36.00           | 5.35                | 5.11               | 0.00            |
| 10.50           | 1.10                | 0.89               | 0.06            |                 |                     |                    |                 |
| 11.00           | 1.28                | 1.07               | 0.09            |                 |                     |                    |                 |
| 11.50           | 1.58                | 1.36               | 0.18            |                 |                     |                    |                 |
| 12.00           | 2.55                | 2.32               | 1.00            |                 |                     |                    |                 |
| 12.50           | 3.77                | 3.53               | 0.18            |                 |                     |                    |                 |
| 13.00           | 4.07                | 3.83               | 0.09            |                 |                     |                    |                 |
| 13.50           | 4.25                | 4.01               | 0.06            |                 |                     |                    |                 |
| 14.00           | 4.37                | 4.14               | 0.05            |                 |                     |                    |                 |
| 14.50           | 4.48                | 4.25               | 0.04            |                 |                     |                    |                 |
| 15.00           | 4.57                | 4.33               | 0.03            |                 |                     |                    |                 |
| 15.50           | 4.64                | 4.41               | 0.03            |                 |                     |                    |                 |
| 16.00           | 4.71                | 4.47               | 0.03            |                 |                     |                    |                 |
| 16.50           | 4.77                | 4.53               | 0.02            |                 |                     |                    |                 |
| 17.00           | 4.83                | 4.59               | 0.02            |                 |                     |                    |                 |
| 17.50           | 4.88                | 4.64               | 0.02            |                 |                     |                    |                 |
| 18.00           | 4.93                | 4.69               | 0.02            |                 |                     |                    |                 |
| 18.50           | 4.97                | 4.73               | 0.02            |                 |                     |                    |                 |
| 19.00           | 5.01                | 4.77               | 0.02            |                 |                     |                    |                 |
| 19.50           | 5.05                | 4.81               | 0.02            |                 |                     |                    |                 |
| 20.00           | 5.09                | 4.85               | 0.02            |                 |                     |                    |                 |
| 20.50           | 5.13                | 4.89               | 0.01            |                 |                     |                    |                 |
| 21.00           | 5.16                | 4.92               | 0.01            |                 |                     |                    |                 |
| 21.50           | 5.20                | 4.96               | 0.01            |                 |                     |                    |                 |
| 22.00           | 5.23                | 4.99               | 0.01            |                 |                     |                    |                 |
| 22.50           | 5.26                | 5.02               | 0.01            |                 |                     |                    |                 |
| 23.00           | 5.29                | 5.05               | 0.01            |                 |                     |                    |                 |
| 23.50           | 5.32                | 5.08               | 0.01            |                 |                     |                    |                 |
| 24.00           | 5.35                | 5.11               | 0.01            |                 |                     |                    |                 |
| 24.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |

Summary for Pond 3P: Existing Pond Storage Volume POI-3

Inflow Area = 76,395 sf, 11.43% Impervious, Inflow Depth = 0.79" for 10-Year-2020 event  
Inflow = 1.26 cfs @ 12.09 hrs, Volume= 5,053 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

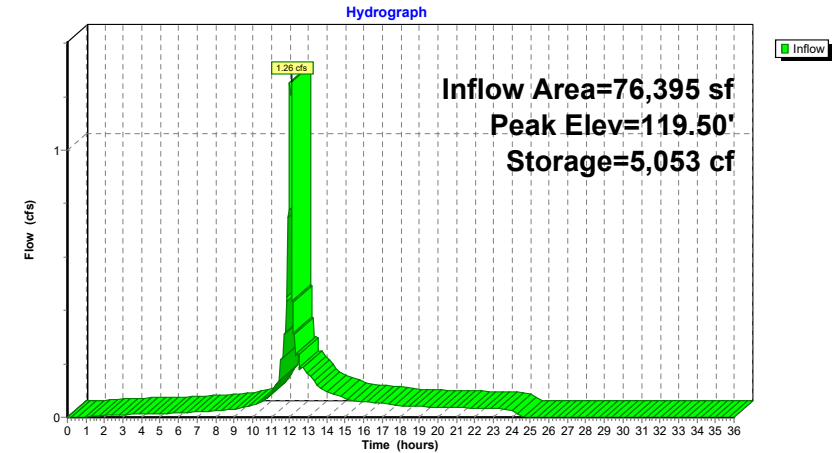
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 119.50' @ 25.27 hrs Surf.Area= 10,400 sf Storage= 5,053 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

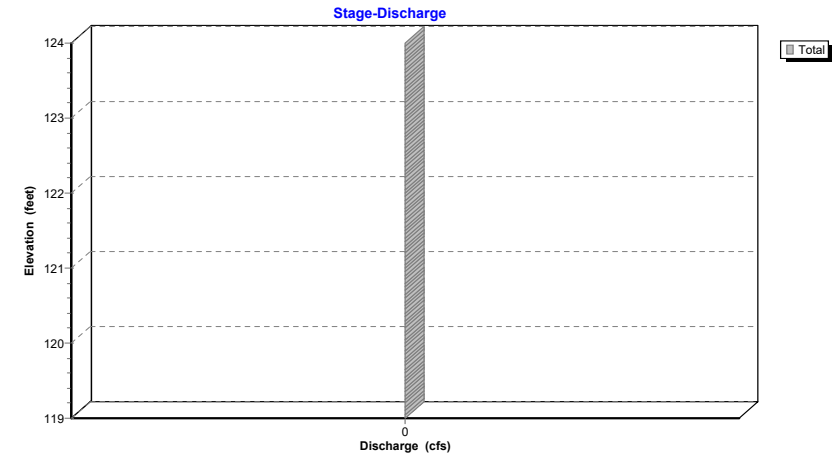
| Volume              | Invert               | Avail.Storage             | Storage Description                                 |
|---------------------|----------------------|---------------------------|-----------------------------------------------------|
| #1                  | 119.00'              | 65,239 cf                 | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                           |
| 119.00              | 9,792                | 0                         | 0                                                   |
| 120.00              | 11,006               | 10,399                    | 10,399                                              |
| 121.00              | 12,283               | 11,645                    | 22,044                                              |
| 122.00              | 13,612               | 12,948                    | 34,991                                              |
| 123.00              | 15,010               | 14,311                    | 49,302                                              |
| 124.00              | 16,863               | 15,937                    | 65,239                                              |

Pond 3P: Existing Pond Storage Volume POI-3

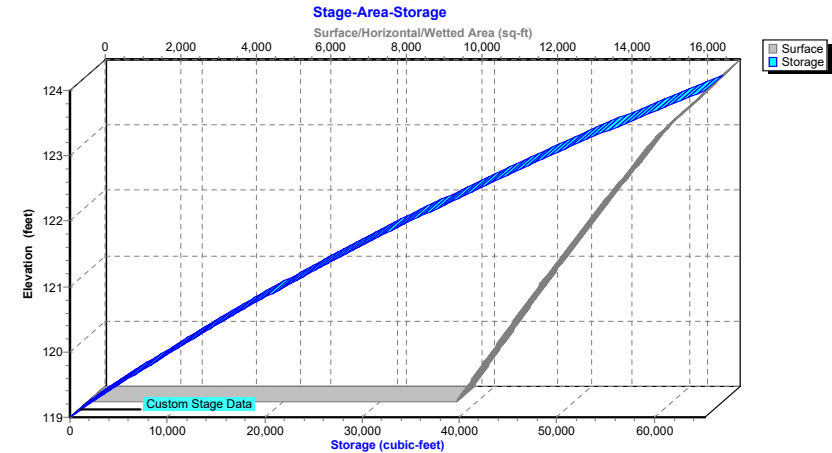
Pond 3P: Existing Pond Storage Volume POI-3



Pond 3P: Existing Pond Storage Volume POI-3



Pond 3P: Existing Pond Storage Volume POI-3



**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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**Hydrograph for Pond 3P: Existing Pond Storage Volume POI-3**

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) |
|-----------------|-----------------|-------------------------|---------------------|-----------------|-----------------|-------------------------|---------------------|
| 0.00            | 0.00            | 0                       | 119.00              | 26.00           | 0.00            | 5,053                   | 119.50              |
| 0.50            | 0.00            | 0                       | 119.00              | 26.50           | 0.00            | 5,053                   | 119.50              |
| 1.00            | 0.00            | 1                       | 119.00              | 27.00           | 0.00            | 5,053                   | 119.50              |
| 1.50            | 0.00            | 7                       | 119.00              | 27.50           | 0.00            | 5,053                   | 119.50              |
| 2.00            | 0.01            | 16                      | 119.00              | 28.00           | 0.00            | 5,053                   | 119.50              |
| 2.50            | 0.01            | 29                      | 119.00              | 28.50           | 0.00            | 5,053                   | 119.50              |
| 3.00            | 0.01            | 45                      | 119.00              | 29.00           | 0.00            | 5,053                   | 119.50              |
| 3.50            | 0.01            | 63                      | 119.01              | 29.50           | 0.00            | 5,053                   | 119.50              |
| 4.00            | 0.01            | 84                      | 119.01              | 30.00           | 0.00            | 5,053                   | 119.50              |
| 4.50            | 0.01            | 106                     | 119.01              | 30.50           | 0.00            | 5,053                   | 119.50              |
| 5.00            | 0.01            | 130                     | 119.01              | 31.00           | 0.00            | 5,053                   | 119.50              |
| 5.50            | 0.01            | 155                     | 119.02              | 31.50           | 0.00            | 5,053                   | 119.50              |
| 6.00            | 0.02            | 182                     | 119.02              | 32.00           | 0.00            | 5,053                   | 119.50              |
| 6.50            | 0.02            | 212                     | 119.02              | 32.50           | 0.00            | 5,053                   | 119.50              |
| 7.00            | 0.02            | 246                     | 119.03              | 33.00           | 0.00            | 5,053                   | 119.50              |
| 7.50            | 0.02            | 284                     | 119.03              | 33.50           | 0.00            | 5,053                   | 119.50              |
| 8.00            | 0.02            | 326                     | 119.03              | 34.00           | 0.00            | 5,053                   | 119.50              |
| 8.50            | 0.03            | 372                     | 119.04              | 34.50           | 0.00            | 5,053                   | 119.50              |
| 9.00            | 0.03            | 422                     | 119.04              | 35.00           | 0.00            | 5,053                   | 119.50              |
| 9.50            | 0.04            | 483                     | 119.05              | 35.50           | 0.00            | 5,053                   | 119.50              |
| 10.00           | 0.05            | 558                     | 119.06              | 36.00           | 0.00            | 5,053                   | 119.50              |
| 10.50           | 0.06            | 648                     | 119.07              |                 |                 |                         |                     |
| 11.00           | 0.09            | 777                     | 119.08              |                 |                 |                         |                     |
| 11.50           | 0.18            | 990                     | 119.10              |                 |                 |                         |                     |
| 12.00           | 1.00            | 1,692                   | 119.17              |                 |                 |                         |                     |
| 12.50           | 0.21            | 2,582                   | 119.26              |                 |                 |                         |                     |
| 13.00           | 0.16            | 2,912                   | 119.29              |                 |                 |                         |                     |
| 13.50           | 0.12            | 3,164                   | 119.32              |                 |                 |                         |                     |
| 14.00           | 0.10            | 3,352                   | 119.34              |                 |                 |                         |                     |
| 14.50           | 0.08            | 3,513                   | 119.35              |                 |                 |                         |                     |
| 15.00           | 0.07            | 3,651                   | 119.36              |                 |                 |                         |                     |
| 15.50           | 0.06            | 3,769                   | 119.38              |                 |                 |                         |                     |
| 16.00           | 0.06            | 3,877                   | 119.39              |                 |                 |                         |                     |
| 16.50           | 0.06            | 3,980                   | 119.40              |                 |                 |                         |                     |
| 17.00           | 0.05            | 4,076                   | 119.41              |                 |                 |                         |                     |
| 17.50           | 0.05            | 4,166                   | 119.41              |                 |                 |                         |                     |
| 18.00           | 0.04            | 4,247                   | 119.42              |                 |                 |                         |                     |
| 18.50           | 0.04            | 4,323                   | 119.43              |                 |                 |                         |                     |
| 19.00           | 0.04            | 4,395                   | 119.44              |                 |                 |                         |                     |
| 19.50           | 0.04            | 4,466                   | 119.44              |                 |                 |                         |                     |
| 20.00           | 0.04            | 4,536                   | 119.45              |                 |                 |                         |                     |
| 20.50           | 0.04            | 4,604                   | 119.46              |                 |                 |                         |                     |
| 21.00           | 0.04            | 4,670                   | 119.46              |                 |                 |                         |                     |
| 21.50           | 0.04            | 4,735                   | 119.47              |                 |                 |                         |                     |
| 22.00           | 0.03            | 4,797                   | 119.48              |                 |                 |                         |                     |
| 22.50           | 0.03            | 4,858                   | 119.48              |                 |                 |                         |                     |
| 23.00           | 0.03            | 4,917                   | 119.49              |                 |                 |                         |                     |
| 23.50           | 0.03            | 4,973                   | 119.49              |                 |                 |                         |                     |
| 24.00           | 0.03            | 5,029                   | 119.50              |                 |                 |                         |                     |
| 24.50           | 0.00            | 5,052                   | 119.50              |                 |                 |                         |                     |
| 25.00           | 0.00            | 5,053                   | 119.50              |                 |                 |                         |                     |
| 25.50           | 0.00            | 5,053                   | 119.50              |                 |                 |                         |                     |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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**Stage-Discharge for Pond 3P: Existing Pond Storage Volume POI-3**

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|
| 119.00              | 0.00               | 121.60              | 0.00               |
| 119.05              | 0.00               | 121.65              | 0.00               |
| 119.10              | 0.00               | 121.70              | 0.00               |
| 119.15              | 0.00               | 121.75              | 0.00               |
| 119.20              | 0.00               | 121.80              | 0.00               |
| 119.25              | 0.00               | 121.85              | 0.00               |
| 119.30              | 0.00               | 121.90              | 0.00               |
| 119.35              | 0.00               | 121.95              | 0.00               |
| 119.40              | 0.00               | 122.00              | 0.00               |
| 119.45              | 0.00               | 122.05              | 0.00               |
| 119.50              | 0.00               | 122.10              | 0.00               |
| 119.55              | 0.00               | 122.15              | 0.00               |
| 119.60              | 0.00               | 122.20              | 0.00               |
| 119.65              | 0.00               | 122.25              | 0.00               |
| 119.70              | 0.00               | 122.30              | 0.00               |
| 119.75              | 0.00               | 122.35              | 0.00               |
| 119.80              | 0.00               | 122.40              | 0.00               |
| 119.85              | 0.00               | 122.45              | 0.00               |
| 119.90              | 0.00               | 122.50              | 0.00               |
| 119.95              | 0.00               | 122.55              | 0.00               |
| 120.00              | 0.00               | 122.60              | 0.00               |
| 120.05              | 0.00               | 122.65              | 0.00               |
| 120.10              | 0.00               | 122.70              | 0.00               |
| 120.15              | 0.00               | 122.75              | 0.00               |
| 120.20              | 0.00               | 122.80              | 0.00               |
| 120.25              | 0.00               | 122.85              | 0.00               |
| 120.30              | 0.00               | 122.90              | 0.00               |
| 120.35              | 0.00               | 122.95              | 0.00               |
| 120.40              | 0.00               | 123.00              | 0.00               |
| 120.45              | 0.00               | 123.05              | 0.00               |
| 120.50              | 0.00               | 123.10              | 0.00               |
| 120.55              | 0.00               | 123.15              | 0.00               |
| 120.60              | 0.00               | 123.20              | 0.00               |
| 120.65              | 0.00               | 123.25              | 0.00               |
| 120.70              | 0.00               | 123.30              | 0.00               |
| 120.75              | 0.00               | 123.35              | 0.00               |
| 120.80              | 0.00               | 123.40              | 0.00               |
| 120.85              | 0.00               | 123.45              | 0.00               |
| 120.90              | 0.00               | 123.50              | 0.00               |
| 120.95              | 0.00               | 123.55              | 0.00               |
| 121.00              | 0.00               | 123.60              | 0.00               |
| 121.05              | 0.00               | 123.65              | 0.00               |
| 121.10              | 0.00               | 123.70              | 0.00               |
| 121.15              | 0.00               | 123.75              | 0.00               |
| 121.20              | 0.00               | 123.80              | 0.00               |
| 121.25              | 0.00               | 123.85              | 0.00               |
| 121.30              | 0.00               | 123.90              | 0.00               |
| 121.35              | 0.00               | 123.95              | 0.00               |
| 121.40              | 0.00               | 124.00              | 0.00               |
| 121.45              | 0.00               |                     |                    |
| 121.50              | 0.00               |                     |                    |
| 121.55              | 0.00               |                     |                    |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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**Stage-Area-Storage for Pond 3P: Existing Pond Storage Volume POI-3**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 119.00              | 9,792              | 0                       | 121.60              | 13,080             | 29,653                  |
| 119.05              | 9,853              | 491                     | 121.65              | 13,147             | 30,308                  |
| 119.10              | 9,913              | 985                     | 121.70              | 13,213             | 30,967                  |
| 119.15              | 9,974              | 1,482                   | 121.75              | 13,280             | 31,630                  |
| 119.20              | 10,035             | 1,983                   | 121.80              | 13,346             | 32,295                  |
| 119.25              | 10,096             | 2,486                   | 121.85              | 13,413             | 32,964                  |
| 119.30              | 10,156             | 2,992                   | 121.90              | 13,479             | 33,636                  |
| 119.35              | 10,217             | 3,502                   | 121.95              | 13,546             | 34,312                  |
| 119.40              | 10,278             | 4,014                   | 122.00              | 13,612             | 34,991                  |
| 119.45              | 10,338             | 4,529                   | 122.05              | 13,682             | 35,673                  |
| 119.50              | 10,399             | 5,048                   | 122.10              | 13,752             | 36,359                  |
| 119.55              | 10,460             | 5,569                   | 122.15              | 13,822             | 37,049                  |
| 119.60              | 10,520             | 6,094                   | 122.20              | 13,892             | 37,741                  |
| 119.65              | 10,581             | 6,621                   | 122.25              | 13,962             | 38,438                  |
| 119.70              | 10,642             | 7,152                   | 122.30              | 14,031             | 39,138                  |
| 119.75              | 10,703             | 7,685                   | 122.35              | 14,101             | 39,841                  |
| 119.80              | 10,763             | 8,222                   | 122.40              | 14,171             | 40,548                  |
| 119.85              | 10,824             | 8,762                   | 122.45              | 14,241             | 41,258                  |
| 119.90              | 10,885             | 9,304                   | 122.50              | 14,311             | 41,972                  |
| 119.95              | 10,945             | 9,850                   | 122.55              | 14,381             | 42,689                  |
| 120.00              | 11,006             | 10,399                  | 122.60              | 14,451             | 43,410                  |
| 120.05              | 11,070             | 10,951                  | 122.65              | 14,521             | 44,134                  |
| 120.10              | 11,134             | 11,506                  | 122.70              | 14,591             | 44,862                  |
| 120.15              | 11,198             | 12,064                  | 122.75              | 14,661             | 45,593                  |
| 120.20              | 11,261             | 12,626                  | 122.80              | 14,730             | 46,328                  |
| 120.25              | 11,325             | 13,190                  | 122.85              | 14,800             | 47,066                  |
| 120.30              | 11,389             | 13,758                  | 122.90              | 14,870             | 47,808                  |
| 120.35              | 11,453             | 14,329                  | 122.95              | 14,940             | 48,553                  |
| 120.40              | 11,517             | 14,904                  | 123.00              | 15,010             | 49,302                  |
| 120.45              | 11,581             | 15,481                  | 123.05              | 15,103             | 50,055                  |
| 120.50              | 11,645             | 16,062                  | 123.10              | 15,195             | 50,812                  |
| 120.55              | 11,708             | 16,645                  | 123.15              | 15,288             | 51,574                  |
| 120.60              | 11,772             | 17,232                  | 123.20              | 15,381             | 52,341                  |
| 120.65              | 11,836             | 17,823                  | 123.25              | 15,473             | 53,112                  |
| 120.70              | 11,900             | 18,416                  | 123.30              | 15,566             | 53,888                  |
| 120.75              | 11,964             | 19,013                  | 123.35              | 15,659             | 54,669                  |
| 120.80              | 12,028             | 19,612                  | 123.40              | 15,751             | 55,454                  |
| 120.85              | 12,091             | 20,215                  | 123.45              | 15,844             | 56,244                  |
| 120.90              | 12,155             | 20,822                  | 123.50              | 15,937             | 57,039                  |
| 120.95              | 12,219             | 21,431                  | 123.55              | 16,029             | 57,838                  |
| 121.00              | 12,283             | 22,044                  | 123.60              | 16,122             | 58,642                  |
| 121.05              | 12,349             | 22,659                  | 123.65              | 16,214             | 59,450                  |
| 121.10              | 12,416             | 23,278                  | 123.70              | 16,307             | 60,263                  |
| 121.15              | 12,482             | 23,901                  | 123.75              | 16,400             | 61,081                  |
| 121.20              | 12,549             | 24,527                  | 123.80              | 16,492             | 61,903                  |
| 121.25              | 12,615             | 25,156                  | 123.85              | 16,585             | 62,730                  |
| 121.30              | 12,682             | 25,788                  | 123.90              | 16,678             | 63,561                  |
| 121.35              | 12,748             | 26,424                  | 123.95              | 16,770             | 64,398                  |
| 121.40              | 12,815             | 27,063                  | 124.00              | <b>16,863</b>      | <b>65,239</b>           |
| 121.45              | 12,881             | 27,705                  |                     |                    |                         |
| 121.50              | 12,948             | 28,351                  |                     |                    |                         |
| 121.55              | 13,014             | 29,000                  |                     |                    |                         |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment1S: Ex. POI-3 Pervious** Runoff Area=67,666 sf 0.00% Impervious Runoff Depth=1.52"  
Flow Length=324' Tc=22.2 min CN=38 Runoff=1.41 cfs 8,569 cf

**Subcatchment2S: Ex. POI-3 Impervious** Runoff Area=8,729 sf 100.00% Impervious Runoff Depth=8.82"  
Tc=0.0 min CN=98 Runoff=2.13 cfs 6,416 cf

**Pond 3P: Existing Pond Storage Volume** Peak Elev=120.41' Storage=14,985 cf Inflow=2.31 cfs 14,985 cf  
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 76,395 sf Runoff Volume = 14,985 cf Average Runoff Depth = 2.35"**  
**88.57% Pervious = 67,666 sf 11.43% Impervious = 8,729 sf**



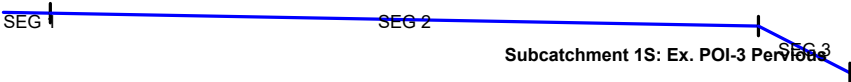
Summary for Subcatchment 1S: Ex. POI-3 Pervious

Runoff = 1.41 cfs @ 12.39 hrs, Volume= 8,569 cf, Depth= 1.52"  
Routed to Pond 3P : Existing Pond Storage Volume POI-3

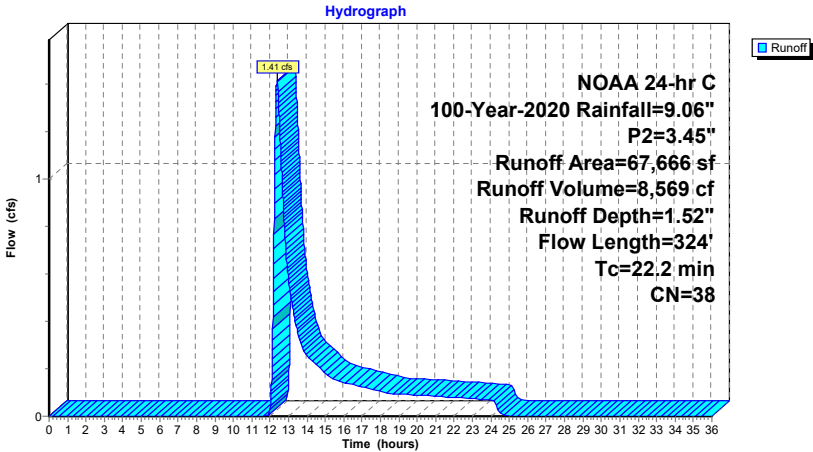
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description               |
|-----------|----|---------------------------|
| 218       | 30 | Meadow, non-grazed, HSG A |
| 2,760     | 58 | Meadow, non-grazed, HSG B |
| 44,993    | 30 | Woods, Good, HSG A        |
| 19,695    | 55 | Woods, Good, HSG B        |
| 67,666    | 38 | Weighted Average          |
| 67,666    |    | 100.00% Pervious Area     |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 9.1      | 18            | 0.0050        | 0.03              |                | Sheet Flow, SEG 1<br>Woods: Light underbrush n= 0.400 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 12.8     | 271           | 0.0050        | 0.35              |                | Shallow Concentrated Flow, SEG 2<br>Woodland Kv= 5.0 fps                                           |
| 0.3      | 35            | 0.1400        | 1.87              |                | Shallow Concentrated Flow, SEG 3<br>Woodland Kv= 5.0 fps                                           |
| 22.2     | 324           | Total         |                   |                |                                                                                                    |



Subcatchment 1S: Ex. POI-3 Pervious



**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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**Hydrograph for Subcatchment 1S: Ex. POI-3 Pervious**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 1.52               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 1.52               | 0.00            |
| 1.00            | 0.10                | 0.00               | 0.00            | 27.00           | 9.06                | 1.52               | 0.00            |
| 1.50            | 0.15                | 0.00               | 0.00            | 27.50           | 9.06                | 1.52               | 0.00            |
| 2.00            | 0.20                | 0.00               | 0.00            | 28.00           | 9.06                | 1.52               | 0.00            |
| 2.50            | 0.26                | 0.00               | 0.00            | 28.50           | 9.06                | 1.52               | 0.00            |
| 3.00            | 0.32                | 0.00               | 0.00            | 29.00           | 9.06                | 1.52               | 0.00            |
| 3.50            | 0.38                | 0.00               | 0.00            | 29.50           | 9.06                | 1.52               | 0.00            |
| 4.00            | 0.44                | 0.00               | 0.00            | 30.00           | 9.06                | 1.52               | 0.00            |
| 4.50            | 0.51                | 0.00               | 0.00            | 30.50           | 9.06                | 1.52               | 0.00            |
| 5.00            | 0.58                | 0.00               | 0.00            | 31.00           | 9.06                | 1.52               | 0.00            |
| 5.50            | 0.65                | 0.00               | 0.00            | 31.50           | 9.06                | 1.52               | 0.00            |
| 6.00            | 0.72                | 0.00               | 0.00            | 32.00           | 9.06                | 1.52               | 0.00            |
| 6.50            | 0.80                | 0.00               | 0.00            | 32.50           | 9.06                | 1.52               | 0.00            |
| 7.00            | 0.88                | 0.00               | 0.00            | 33.00           | 9.06                | 1.52               | 0.00            |
| 7.50            | 0.98                | 0.00               | 0.00            | 33.50           | 9.06                | 1.52               | 0.00            |
| 8.00            | 1.09                | 0.00               | 0.00            | 34.00           | 9.06                | 1.52               | 0.00            |
| 8.50            | 1.20                | 0.00               | 0.00            | 34.50           | 9.06                | 1.52               | 0.00            |
| 9.00            | 1.32                | 0.00               | 0.00            | 35.00           | 9.06                | 1.52               | 0.00            |
| 9.50            | 1.47                | 0.00               | 0.00            | 35.50           | 9.06                | 1.52               | 0.00            |
| 10.00           | 1.65                | 0.00               | 0.00            | 36.00           | 9.06                | 1.52               | 0.00            |
| 10.50           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.17                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 2.68                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 4.32                | 0.06               | 0.03            |                 |                     |                    |                 |
| 12.50           | 6.38                | 0.50               | 1.26            |                 |                     |                    |                 |
| 13.00           | 6.89                | 0.66               | 0.58            |                 |                     |                    |                 |
| 13.50           | 7.19                | 0.76               | 0.36            |                 |                     |                    |                 |
| 14.00           | 7.41                | 0.84               | 0.25            |                 |                     |                    |                 |
| 14.50           | 7.59                | 0.91               | 0.22            |                 |                     |                    |                 |
| 15.00           | 7.74                | 0.96               | 0.18            |                 |                     |                    |                 |
| 15.50           | 7.86                | 1.01               | 0.15            |                 |                     |                    |                 |
| 16.00           | 7.97                | 1.06               | 0.14            |                 |                     |                    |                 |
| 16.50           | 8.08                | 1.10               | 0.13            |                 |                     |                    |                 |
| 17.00           | 8.18                | 1.14               | 0.12            |                 |                     |                    |                 |
| 17.50           | 8.26                | 1.17               | 0.11            |                 |                     |                    |                 |
| 18.00           | 8.34                | 1.21               | 0.10            |                 |                     |                    |                 |
| 18.50           | 8.41                | 1.24               | 0.10            |                 |                     |                    |                 |
| 19.00           | 8.48                | 1.27               | 0.09            |                 |                     |                    |                 |
| 19.50           | 8.55                | 1.29               | 0.09            |                 |                     |                    |                 |
| 20.00           | 8.62                | 1.32               | 0.09            |                 |                     |                    |                 |
| 20.50           | 8.68                | 1.35               | 0.09            |                 |                     |                    |                 |
| 21.00           | 8.74                | 1.38               | 0.08            |                 |                     |                    |                 |
| 21.50           | 8.80                | 1.40               | 0.08            |                 |                     |                    |                 |
| 22.00           | 8.86                | 1.43               | 0.08            |                 |                     |                    |                 |
| 22.50           | 8.91                | 1.45               | 0.08            |                 |                     |                    |                 |
| 23.00           | 8.96                | 1.47               | 0.07            |                 |                     |                    |                 |
| 23.50           | 9.01                | 1.50               | 0.07            |                 |                     |                    |                 |
| 24.00           | 9.06                | 1.52               | 0.07            |                 |                     |                    |                 |
| 24.50           | 9.06                | 1.52               | 0.01            |                 |                     |                    |                 |
| 25.00           | 9.06                | 1.52               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 1.52               | 0.00            |                 |                     |                    |                 |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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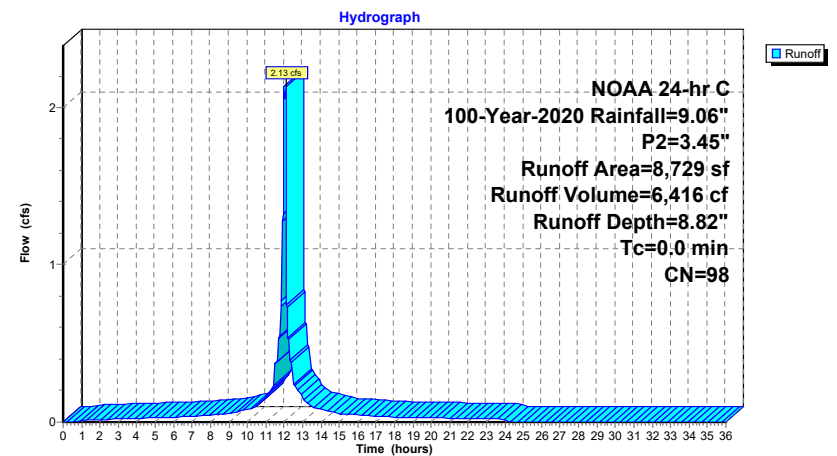
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**Summary for Subcatchment 2S: Ex. POI-3 Impervious (Pond)**

Runoff = 2.13 cfs @ 12.09 hrs, Volume= 6,416 cf, Depth= 8.82"  
Routed to Pond 3P : Existing Pond Storage Volume POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 8,729     | 98 | Water Surface, HSG B    |
| 8,729     |    | 100.00% Impervious Area |

**Subcatchment 2S: Ex. POI-3 Impervious (Pond)**

Hydrograph for Subcatchment 2S: Ex. POI-3 Impervious (Pond)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 8.82               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 8.82               | 0.00            |
| 1.00            | 0.10                | 0.01               | 0.01            | 27.00           | 9.06                | 8.82               | 0.00            |
| 1.50            | 0.15                | 0.04               | 0.01            | 27.50           | 9.06                | 8.82               | 0.00            |
| 2.00            | 0.20                | 0.07               | 0.02            | 28.00           | 9.06                | 8.82               | 0.00            |
| 2.50            | 0.26                | 0.11               | 0.02            | 28.50           | 9.06                | 8.82               | 0.00            |
| 3.00            | 0.32                | 0.16               | 0.02            | 29.00           | 9.06                | 8.82               | 0.00            |
| 3.50            | 0.38                | 0.21               | 0.02            | 29.50           | 9.06                | 8.82               | 0.00            |
| 4.00            | 0.44                | 0.27               | 0.02            | 30.00           | 9.06                | 8.82               | 0.00            |
| 4.50            | 0.51                | 0.33               | 0.02            | 30.50           | 9.06                | 8.82               | 0.00            |
| 5.00            | 0.58                | 0.39               | 0.03            | 31.00           | 9.06                | 8.82               | 0.00            |
| 5.50            | 0.65                | 0.45               | 0.03            | 31.50           | 9.06                | 8.82               | 0.00            |
| 6.00            | 0.72                | 0.52               | 0.03            | 32.00           | 9.06                | 8.82               | 0.00            |
| 6.50            | 0.80                | 0.59               | 0.03            | 32.50           | 9.06                | 8.82               | 0.00            |
| 7.00            | 0.88                | 0.68               | 0.04            | 33.00           | 9.06                | 8.82               | 0.00            |
| 7.50            | 0.98                | 0.77               | 0.04            | 33.50           | 9.06                | 8.82               | 0.00            |
| 8.00            | 1.09                | 0.87               | 0.04            | 34.00           | 9.06                | 8.82               | 0.00            |
| 8.50            | 1.20                | 0.99               | 0.05            | 34.50           | 9.06                | 8.82               | 0.00            |
| 9.00            | 1.32                | 1.11               | 0.05            | 35.00           | 9.06                | 8.82               | 0.00            |
| 9.50            | 1.47                | 1.25               | 0.07            | 35.50           | 9.06                | 8.82               | 0.00            |
| 10.00           | 1.65                | 1.43               | 0.08            | 36.00           | 9.06                | 8.82               | 0.00            |
| 10.50           | 1.87                | 1.64               | 0.10            |                 |                     |                    |                 |
| 11.00           | 2.17                | 1.95               | 0.15            |                 |                     |                    |                 |
| 11.50           | 2.68                | 2.45               | 0.30            |                 |                     |                    |                 |
| 12.00           | 4.32                | 4.08               | 1.70            |                 |                     |                    |                 |
| 12.50           | 6.38                | 6.14               | 0.30            |                 |                     |                    |                 |
| 13.00           | 6.89                | 6.65               | 0.15            |                 |                     |                    |                 |
| 13.50           | 7.19                | 6.95               | 0.10            |                 |                     |                    |                 |
| 14.00           | 7.41                | 7.17               | 0.08            |                 |                     |                    |                 |
| 14.50           | 7.59                | 7.35               | 0.07            |                 |                     |                    |                 |
| 15.00           | 7.74                | 7.50               | 0.05            |                 |                     |                    |                 |
| 15.50           | 7.86                | 7.62               | 0.05            |                 |                     |                    |                 |
| 16.00           | 7.97                | 7.73               | 0.04            |                 |                     |                    |                 |
| 16.50           | 8.08                | 7.84               | 0.04            |                 |                     |                    |                 |
| 17.00           | 8.18                | 7.94               | 0.04            |                 |                     |                    |                 |
| 17.50           | 8.26                | 8.02               | 0.03            |                 |                     |                    |                 |
| 18.00           | 8.34                | 8.10               | 0.03            |                 |                     |                    |                 |
| 18.50           | 8.41                | 8.17               | 0.03            |                 |                     |                    |                 |
| 19.00           | 8.48                | 8.24               | 0.03            |                 |                     |                    |                 |
| 19.50           | 8.55                | 8.31               | 0.03            |                 |                     |                    |                 |
| 20.00           | 8.62                | 8.38               | 0.03            |                 |                     |                    |                 |
| 20.50           | 8.68                | 8.44               | 0.03            |                 |                     |                    |                 |
| 21.00           | 8.74                | 8.50               | 0.02            |                 |                     |                    |                 |
| 21.50           | 8.80                | 8.56               | 0.02            |                 |                     |                    |                 |
| 22.00           | 8.86                | 8.61               | 0.02            |                 |                     |                    |                 |
| 22.50           | 8.91                | 8.67               | 0.02            |                 |                     |                    |                 |
| 23.00           | 8.96                | 8.72               | 0.02            |                 |                     |                    |                 |
| 23.50           | 9.01                | 8.77               | 0.02            |                 |                     |                    |                 |
| 24.00           | 9.06                | 8.82               | 0.01            |                 |                     |                    |                 |
| 24.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |

Summary for Pond 3P: Existing Pond Storage Volume POI-3

Inflow Area = 76,395 sf, 11.43% Impervious, Inflow Depth = 2.35" for 100-Year-2020 event  
Inflow = 2.31 cfs @ 12.09 hrs, Volume= 14,985 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

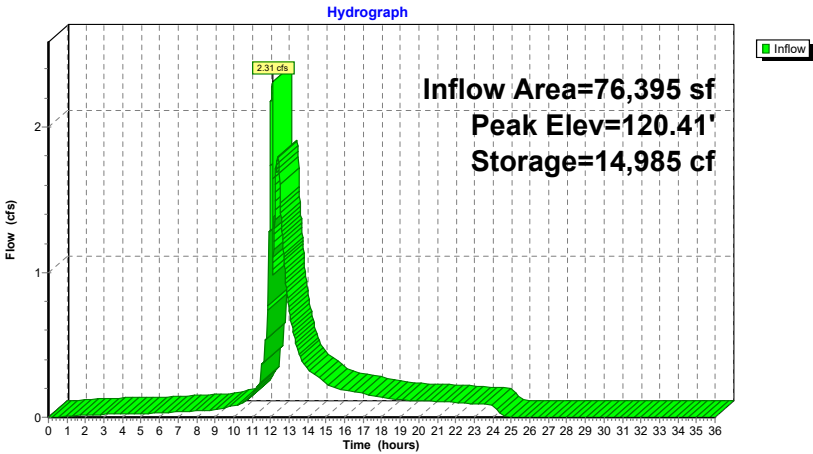
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 120.41' @ 25.27 hrs Surf.Area= 11,526 sf Storage= 14,985 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

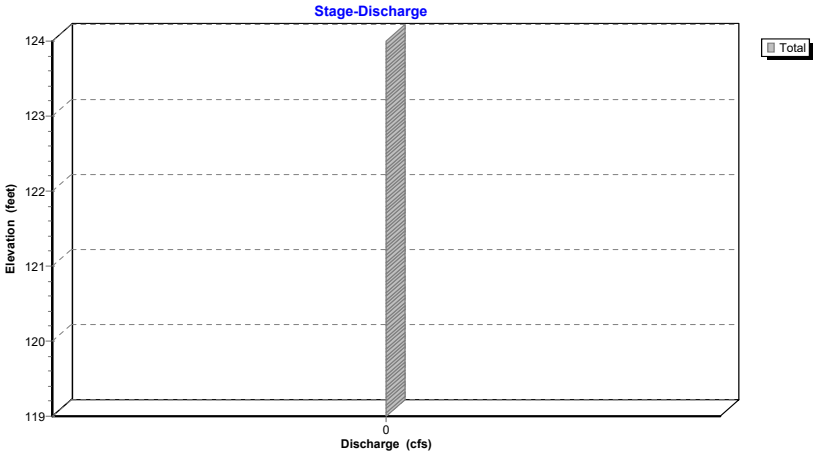
| Volume              | Invert               | Avail.Storage             | Storage Description                                 |
|---------------------|----------------------|---------------------------|-----------------------------------------------------|
| #1                  | 119.00'              | 65,239 cf                 | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                           |
| 119.00              | 9,792                | 0                         | 0                                                   |
| 120.00              | 11,006               | 10,399                    | 10,399                                              |
| 121.00              | 12,283               | 11,645                    | 22,044                                              |
| 122.00              | 13,612               | 12,948                    | 34,991                                              |
| 123.00              | 15,010               | 14,311                    | 49,302                                              |
| 124.00              | 16,863               | 15,937                    | 65,239                                              |

Pond 3P: Existing Pond Storage Volume POI-3

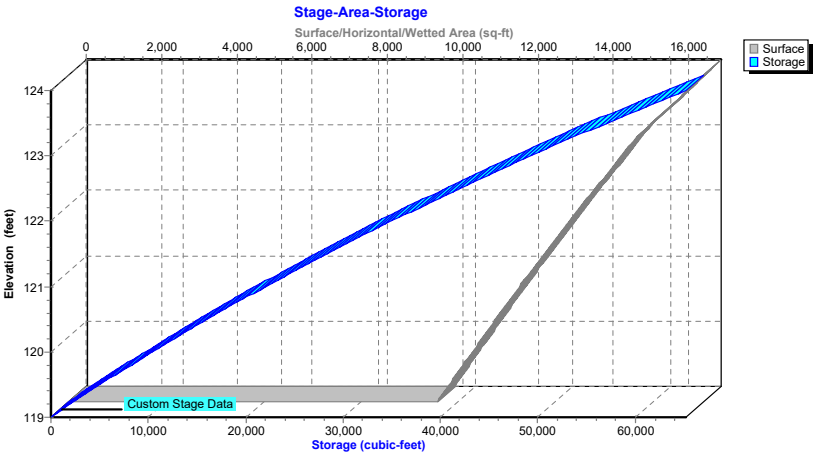
Pond 3P: Existing Pond Storage Volume POI-3



Pond 3P: Existing Pond Storage Volume POI-3



Pond 3P: Existing Pond Storage Volume POI-3



**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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**Hydrograph for Pond 3P: Existing Pond Storage Volume POI-3**

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) |
|-----------------|-----------------|-------------------------|---------------------|-----------------|-----------------|-------------------------|---------------------|
| 0.00            | 0.00            | 0                       | 119.00              | 26.00           | 0.00            | 14,985                  | 120.41              |
| 0.50            | 0.00            | 0                       | 119.00              | 26.50           | 0.00            | 14,985                  | 120.41              |
| 1.00            | 0.01            | 9                       | 119.00              | 27.00           | 0.00            | 14,985                  | 120.41              |
| 1.50            | 0.01            | 28                      | 119.00              | 27.50           | 0.00            | 14,985                  | 120.41              |
| 2.00            | 0.02            | 53                      | 119.01              | 28.00           | 0.00            | 14,985                  | 120.41              |
| 2.50            | 0.02            | 83                      | 119.01              | 28.50           | 0.00            | 14,985                  | 120.41              |
| 3.00            | 0.02            | 117                     | 119.01              | 29.00           | 0.00            | 14,985                  | 120.41              |
| 3.50            | 0.02            | 154                     | 119.02              | 29.50           | 0.00            | 14,985                  | 120.41              |
| 4.00            | 0.02            | 194                     | 119.02              | 30.00           | 0.00            | 14,985                  | 120.41              |
| 4.50            | 0.02            | 237                     | 119.02              | 30.50           | 0.00            | 14,985                  | 120.41              |
| 5.00            | 0.03            | 282                     | 119.03              | 31.00           | 0.00            | 14,985                  | 120.41              |
| 5.50            | 0.03            | 329                     | 119.03              | 31.50           | 0.00            | 14,985                  | 120.41              |
| 6.00            | 0.03            | 379                     | 119.04              | 32.00           | 0.00            | 14,985                  | 120.41              |
| 6.50            | 0.03            | 433                     | 119.04              | 32.50           | 0.00            | 14,985                  | 120.41              |
| 7.00            | 0.04            | 494                     | 119.05              | 33.00           | 0.00            | 14,985                  | 120.41              |
| 7.50            | 0.04            | 561                     | 119.06              | 33.50           | 0.00            | 14,985                  | 120.41              |
| 8.00            | 0.04            | 636                     | 119.06              | 34.00           | 0.00            | 14,985                  | 120.41              |
| 8.50            | 0.05            | 717                     | 119.07              | 34.50           | 0.00            | 14,985                  | 120.41              |
| 9.00            | 0.05            | 805                     | 119.08              | 35.00           | 0.00            | 14,985                  | 120.41              |
| 9.50            | 0.07            | 910                     | 119.09              | 35.50           | 0.00            | 14,985                  | 120.41              |
| 10.00           | 0.08            | 1,040                   | 119.11              | 36.00           | 0.00            | 14,985                  | 120.41              |
| 10.50           | 0.10            | 1,195                   | 119.12              |                 |                 |                         |                     |
| 11.00           | 0.15            | 1,417                   | 119.14              |                 |                 |                         |                     |
| 11.50           | 0.30            | 1,781                   | 119.18              |                 |                 |                         |                     |
| 12.00           | <b>1.74</b>     | 2,982                   | 119.30              |                 |                 |                         |                     |
| 12.50           | <b>1.56</b>     | 6,006                   | 119.59              |                 |                 |                         |                     |
| 13.00           | 0.73            | 7,927                   | 119.77              |                 |                 |                         |                     |
| 13.50           | 0.45            | 8,962                   | 119.87              |                 |                 |                         |                     |
| 14.00           | 0.33            | 9,651                   | 119.93              |                 |                 |                         |                     |
| 14.50           | 0.28            | 10,203                  | 119.98              |                 |                 |                         |                     |
| 15.00           | 0.23            | 10,669                  | 120.02              |                 |                 |                         |                     |
| 15.50           | 0.20            | 11,056                  | 120.06              |                 |                 |                         |                     |
| 16.00           | 0.19            | 11,405                  | 120.09              |                 |                 |                         |                     |
| 16.50           | 0.17            | 11,731                  | 120.12              |                 |                 |                         |                     |
| 17.00           | 0.16            | 12,034                  | 120.15              |                 |                 |                         |                     |
| 17.50           | 0.15            | 12,313                  | 120.17              |                 |                 |                         |                     |
| 18.00           | 0.13            | 12,567                  | 120.19              |                 |                 |                         |                     |
| 18.50           | 0.12            | 12,798                  | 120.22              |                 |                 |                         |                     |
| 19.00           | 0.12            | 13,018                  | 120.23              |                 |                 |                         |                     |
| 19.50           | 0.12            | 13,233                  | 120.25              |                 |                 |                         |                     |
| 20.00           | 0.11            | 13,442                  | 120.27              |                 |                 |                         |                     |
| 20.50           | 0.11            | 13,645                  | 120.29              |                 |                 |                         |                     |
| 21.00           | 0.11            | 13,843                  | 120.31              |                 |                 |                         |                     |
| 21.50           | 0.10            | 14,034                  | 120.32              |                 |                 |                         |                     |
| 22.00           | 0.10            | 14,219                  | 120.34              |                 |                 |                         |                     |
| 22.50           | 0.10            | 14,398                  | 120.36              |                 |                 |                         |                     |
| 23.00           | 0.09            | 14,570                  | 120.37              |                 |                 |                         |                     |
| 23.50           | 0.09            | 14,735                  | 120.39              |                 |                 |                         |                     |
| 24.00           | 0.08            | 14,896                  | 120.40              |                 |                 |                         |                     |
| 24.50           | 0.01            | 14,979                  | 120.41              |                 |                 |                         |                     |
| 25.00           | 0.00            | <b>14,984</b>           | <b>120.41</b>       |                 |                 |                         |                     |
| 25.50           | 0.00            | <b>14,985</b>           | <b>120.41</b>       |                 |                 |                         |                     |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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**Stage-Discharge for Pond 3P: Existing Pond Storage Volume POI-3**

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|
| 119.00              | <b>0.00</b>        | 121.60              | 0.00               |
| 119.05              | 0.00               | 121.65              | 0.00               |
| 119.10              | 0.00               | 121.70              | 0.00               |
| 119.15              | 0.00               | 121.75              | 0.00               |
| 119.20              | 0.00               | 121.80              | 0.00               |
| 119.25              | 0.00               | 121.85              | 0.00               |
| 119.30              | 0.00               | 121.90              | 0.00               |
| 119.35              | 0.00               | 121.95              | 0.00               |
| 119.40              | 0.00               | 122.00              | 0.00               |
| 119.45              | 0.00               | 122.05              | 0.00               |
| 119.50              | 0.00               | 122.10              | 0.00               |
| 119.55              | 0.00               | 122.15              | 0.00               |
| 119.60              | 0.00               | 122.20              | 0.00               |
| 119.65              | 0.00               | 122.25              | 0.00               |
| 119.70              | 0.00               | 122.30              | 0.00               |
| 119.75              | 0.00               | 122.35              | 0.00               |
| 119.80              | 0.00               | 122.40              | 0.00               |
| 119.85              | 0.00               | 122.45              | 0.00               |
| 119.90              | 0.00               | 122.50              | 0.00               |
| 119.95              | 0.00               | 122.55              | 0.00               |
| 120.00              | 0.00               | 122.60              | 0.00               |
| 120.05              | 0.00               | 122.65              | 0.00               |
| 120.10              | 0.00               | 122.70              | 0.00               |
| 120.15              | 0.00               | 122.75              | 0.00               |
| 120.20              | 0.00               | 122.80              | 0.00               |
| 120.25              | 0.00               | 122.85              | 0.00               |
| 120.30              | 0.00               | 122.90              | 0.00               |
| 120.35              | 0.00               | 122.95              | 0.00               |
| 120.40              | 0.00               | 123.00              | 0.00               |
| 120.45              | 0.00               | 123.05              | 0.00               |
| 120.50              | 0.00               | 123.10              | 0.00               |
| 120.55              | 0.00               | 123.15              | 0.00               |
| 120.60              | 0.00               | 123.20              | 0.00               |
| 120.65              | 0.00               | 123.25              | 0.00               |
| 120.70              | 0.00               | 123.30              | 0.00               |
| 120.75              | 0.00               | 123.35              | 0.00               |
| 120.80              | 0.00               | 123.40              | 0.00               |
| 120.85              | 0.00               | 123.45              | 0.00               |
| 120.90              | 0.00               | 123.50              | 0.00               |
| 120.95              | 0.00               | 123.55              | 0.00               |
| 121.00              | 0.00               | 123.60              | 0.00               |
| 121.05              | 0.00               | 123.65              | 0.00               |
| 121.10              | 0.00               | 123.70              | 0.00               |
| 121.15              | 0.00               | 123.75              | 0.00               |
| 121.20              | 0.00               | 123.80              | 0.00               |
| 121.25              | 0.00               | 123.85              | 0.00               |
| 121.30              | 0.00               | 123.90              | 0.00               |
| 121.35              | 0.00               | 123.95              | 0.00               |
| 121.40              | 0.00               | 124.00              | 0.00               |
| 121.45              | 0.00               |                     |                    |
| 121.50              | 0.00               |                     |                    |
| 121.55              | 0.00               |                     |                    |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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**Stage-Area-Storage for Pond 3P: Existing Pond Storage Volume POI-3**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 119.00              | 9,792              | 0                       | 121.60              | 13,080             | 29,653                  |
| 119.05              | 9,853              | 491                     | 121.65              | 13,147             | 30,308                  |
| 119.10              | 9,913              | 985                     | 121.70              | 13,213             | 30,967                  |
| 119.15              | 9,974              | 1,482                   | 121.75              | 13,280             | 31,630                  |
| 119.20              | 10,035             | 1,983                   | 121.80              | 13,346             | 32,295                  |
| 119.25              | 10,096             | 2,486                   | 121.85              | 13,413             | 32,964                  |
| 119.30              | 10,156             | 2,992                   | 121.90              | 13,479             | 33,636                  |
| 119.35              | 10,217             | 3,502                   | 121.95              | 13,546             | 34,312                  |
| 119.40              | 10,278             | 4,014                   | 122.00              | 13,612             | 34,991                  |
| 119.45              | 10,338             | 4,529                   | 122.05              | 13,682             | 35,673                  |
| 119.50              | 10,399             | 5,048                   | 122.10              | 13,752             | 36,359                  |
| 119.55              | 10,460             | 5,569                   | 122.15              | 13,822             | 37,049                  |
| 119.60              | 10,520             | 6,094                   | 122.20              | 13,892             | 37,741                  |
| 119.65              | 10,581             | 6,621                   | 122.25              | 13,962             | 38,438                  |
| 119.70              | 10,642             | 7,152                   | 122.30              | 14,031             | 39,138                  |
| 119.75              | 10,703             | 7,685                   | 122.35              | 14,101             | 39,841                  |
| 119.80              | 10,763             | 8,222                   | 122.40              | 14,171             | 40,548                  |
| 119.85              | 10,824             | 8,762                   | 122.45              | 14,241             | 41,258                  |
| 119.90              | 10,885             | 9,304                   | 122.50              | 14,311             | 41,972                  |
| 119.95              | 10,945             | 9,850                   | 122.55              | 14,381             | 42,689                  |
| 120.00              | 11,006             | 10,399                  | 122.60              | 14,451             | 43,410                  |
| 120.05              | 11,070             | 10,951                  | 122.65              | 14,521             | 44,134                  |
| 120.10              | 11,134             | 11,506                  | 122.70              | 14,591             | 44,862                  |
| 120.15              | 11,198             | 12,064                  | 122.75              | 14,661             | 45,593                  |
| 120.20              | 11,261             | 12,626                  | 122.80              | 14,730             | 46,328                  |
| 120.25              | 11,325             | 13,190                  | 122.85              | 14,800             | 47,066                  |
| 120.30              | 11,389             | 13,758                  | 122.90              | 14,870             | 47,808                  |
| 120.35              | 11,453             | 14,329                  | 122.95              | 14,940             | 48,553                  |
| 120.40              | 11,517             | 14,904                  | 123.00              | 15,010             | 49,302                  |
| 120.45              | 11,581             | 15,481                  | 123.05              | 15,103             | 50,055                  |
| 120.50              | 11,645             | 16,062                  | 123.10              | 15,195             | 50,812                  |
| 120.55              | 11,708             | 16,645                  | 123.15              | 15,288             | 51,574                  |
| 120.60              | 11,772             | 17,232                  | 123.20              | 15,381             | 52,341                  |
| 120.65              | 11,836             | 17,823                  | 123.25              | 15,473             | 53,112                  |
| 120.70              | 11,900             | 18,416                  | 123.30              | 15,566             | 53,888                  |
| 120.75              | 11,964             | 19,013                  | 123.35              | 15,659             | 54,669                  |
| 120.80              | 12,028             | 19,612                  | 123.40              | 15,751             | 55,454                  |
| 120.85              | 12,091             | 20,215                  | 123.45              | 15,844             | 56,244                  |
| 120.90              | 12,155             | 20,822                  | 123.50              | 15,937             | 57,039                  |
| 120.95              | 12,219             | 21,431                  | 123.55              | 16,029             | 57,838                  |
| 121.00              | 12,283             | 22,044                  | 123.60              | 16,122             | 58,642                  |
| 121.05              | 12,349             | 22,659                  | 123.65              | 16,214             | 59,450                  |
| 121.10              | 12,416             | 23,278                  | 123.70              | 16,307             | 60,263                  |
| 121.15              | 12,482             | 23,901                  | 123.75              | 16,400             | 61,081                  |
| 121.20              | 12,549             | 24,527                  | 123.80              | 16,492             | 61,903                  |
| 121.25              | 12,615             | 25,156                  | 123.85              | 16,585             | 62,730                  |
| 121.30              | 12,682             | 25,788                  | 123.90              | 16,678             | 63,561                  |
| 121.35              | 12,748             | 26,424                  | 123.95              | 16,770             | 64,398                  |
| 121.40              | 12,815             | 27,063                  | 124.00              | <b>16,863</b>      | <b>65,239</b>           |
| 121.45              | 12,881             | 27,705                  |                     |                    |                         |
| 121.50              | 12,948             | 28,351                  |                     |                    |                         |
| 121.55              | 13,014             | 29,000                  |                     |                    |                         |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment1S: Ex. POI-3 Pervious** Runoff Area=67,666 sf 0.00% Impervious Runoff Depth=0.03"  
Flow Length=324' Tc=21.7 min CN=38 Runoff=0.00 cfs 143 cf

**Subcatchment2S: Ex. POI-3 Impervious** Runoff Area=8,729 sf 100.00% Impervious Runoff Depth=3.69"  
Tc=0.0 min CN=98 Runoff=0.92 cfs 2,681 cf

**Pond 3P: Existing Pond Storage Volume** Peak Elev=119.28' Storage=2,824 cf Inflow=0.92 cfs 2,824 cf  
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 76,395 sf Runoff Volume = 2,824 cf Average Runoff Depth = 0.44"**  
**88.57% Pervious = 67,666 sf 11.43% Impervious = 8,729 sf**

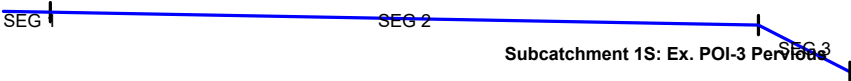
Summary for Subcatchment 1S: Ex. POI-3 Pervious

Runoff = 0.00 cfs @ 22.40 hrs, Volume= 143 cf, Depth= 0.03"  
Routed to Pond 3P : Existing Pond Storage Volume POI-3

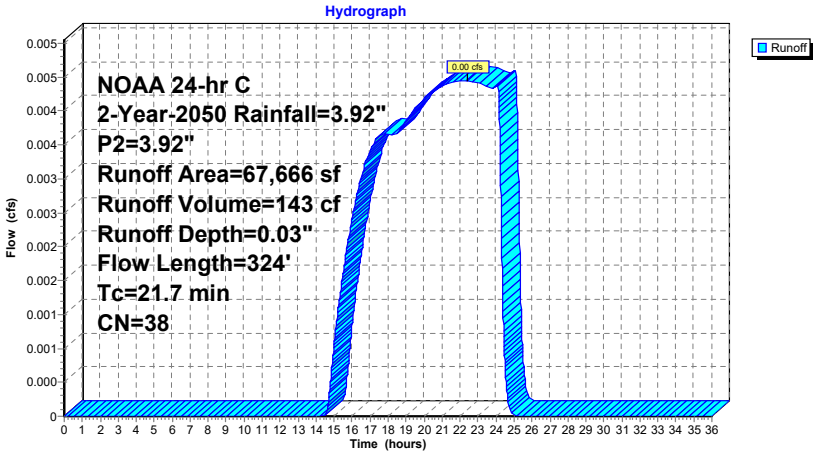
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description               |
|-----------|----|---------------------------|
| 218       | 30 | Meadow, non-grazed, HSG A |
| 2,760     | 58 | Meadow, non-grazed, HSG B |
| 44,993    | 30 | Woods, Good, HSG A        |
| 19,695    | 55 | Woods, Good, HSG B        |
| 67,666    | 38 | Weighted Average          |
| 67,666    |    | 100.00% Pervious Area     |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 8.6      | 18            | 0.0050        | 0.04              |                | Sheet Flow, SEG 1<br>Woods: Light underbrush n= 0.400 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 12.8     | 271           | 0.0050        | 0.35              |                | Shallow Concentrated Flow, SEG 2<br>Woodland Kv= 5.0 fps                                           |
| 0.3      | 35            | 0.1400        | 1.87              |                | Shallow Concentrated Flow, SEG 3<br>Woodland Kv= 5.0 fps                                           |
| 21.7     | 324           | Total         |                   |                |                                                                                                    |



Subcatchment 1S: Ex. POI-3 Pervious



Hydrograph for Subcatchment 1S: Ex. POI-3 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 0.03               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 0.03               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 0.03               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 0.03               | 0.00            |
| 2.00            | 0.09                | 0.00               | 0.00            | 28.00           | 3.92                | 0.03               | 0.00            |
| 2.50            | 0.11                | 0.00               | 0.00            | 28.50           | 3.92                | 0.03               | 0.00            |
| 3.00            | 0.14                | 0.00               | 0.00            | 29.00           | 3.92                | 0.03               | 0.00            |
| 3.50            | 0.16                | 0.00               | 0.00            | 29.50           | 3.92                | 0.03               | 0.00            |
| 4.00            | 0.19                | 0.00               | 0.00            | 30.00           | 3.92                | 0.03               | 0.00            |
| 4.50            | 0.22                | 0.00               | 0.00            | 30.50           | 3.92                | 0.03               | 0.00            |
| 5.00            | 0.25                | 0.00               | 0.00            | 31.00           | 3.92                | 0.03               | 0.00            |
| 5.50            | 0.28                | 0.00               | 0.00            | 31.50           | 3.92                | 0.03               | 0.00            |
| 6.00            | 0.31                | 0.00               | 0.00            | 32.00           | 3.92                | 0.03               | 0.00            |
| 6.50            | 0.34                | 0.00               | 0.00            | 32.50           | 3.92                | 0.03               | 0.00            |
| 7.00            | 0.38                | 0.00               | 0.00            | 33.00           | 3.92                | 0.03               | 0.00            |
| 7.50            | 0.42                | 0.00               | 0.00            | 33.50           | 3.92                | 0.03               | 0.00            |
| 8.00            | 0.47                | 0.00               | 0.00            | 34.00           | 3.92                | 0.03               | 0.00            |
| 8.50            | 0.52                | 0.00               | 0.00            | 34.50           | 3.92                | 0.03               | 0.00            |
| 9.00            | 0.57                | 0.00               | 0.00            | 35.00           | 3.92                | 0.03               | 0.00            |
| 9.50            | 0.64                | 0.00               | 0.00            | 35.50           | 3.92                | 0.03               | 0.00            |
| 10.00           | 0.71                | 0.00               | 0.00            | 36.00           | 3.92                | 0.03               | 0.00            |
| 10.50           | 0.81                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.76                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 2.98                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 3.11                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 3.21                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 3.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 3.35                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 3.40                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 3.45                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 3.50                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 3.54                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 3.58                | 0.01               | 0.00            |                 |                     |                    |                 |
| 18.00           | 3.61                | 0.01               | 0.00            |                 |                     |                    |                 |
| 18.50           | 3.64                | 0.01               | 0.00            |                 |                     |                    |                 |
| 19.00           | 3.67                | 0.01               | 0.00            |                 |                     |                    |                 |
| 19.50           | 3.70                | 0.01               | 0.00            |                 |                     |                    |                 |
| 20.00           | 3.73                | 0.01               | 0.00            |                 |                     |                    |                 |
| 20.50           | 3.76                | 0.01               | 0.00            |                 |                     |                    |                 |
| 21.00           | 3.78                | 0.02               | 0.00            |                 |                     |                    |                 |
| 21.50           | 3.81                | 0.02               | 0.00            |                 |                     |                    |                 |
| 22.00           | 3.83                | 0.02               | 0.00            |                 |                     |                    |                 |
| 22.50           | 3.85                | 0.02               | 0.00            |                 |                     |                    |                 |
| 23.00           | 3.88                | 0.02               | 0.00            |                 |                     |                    |                 |
| 23.50           | 3.90                | 0.02               | 0.00            |                 |                     |                    |                 |
| 24.00           | 3.92                | 0.03               | 0.00            |                 |                     |                    |                 |
| 24.50           | 3.92                | 0.03               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 0.03               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 0.03               | 0.00            |                 |                     |                    |                 |

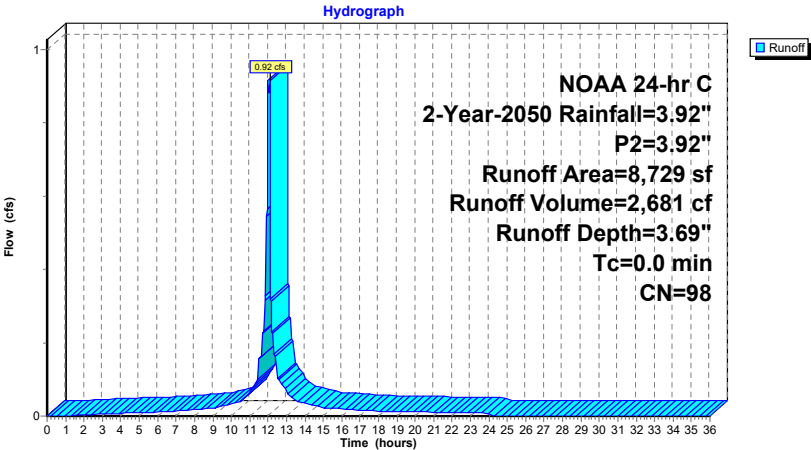
Summary for Subcatchment 2S: Ex. POI-3 Impervious (Pond)

Runoff = 0.92 cfs @ 12.09 hrs, Volume= 2,681 cf, Depth= 3.69"  
Routed to Pond 3P : Existing Pond Storage Volume POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 8,729     | 98 | Water Surface, HSG B    |
| 8,729     |    | 100.00% Impervious Area |

Subcatchment 2S: Ex. POI-3 Impervious (Pond)





**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

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**Hydrograph for Subcatchment 2S: Ex. POI-3 Impervious (Pond)**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 3.69               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 3.69               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 3.69               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 3.69               | 0.00            |
| 2.00            | 0.09                | 0.01               | 0.00            | 28.00           | 3.92                | 3.69               | 0.00            |
| 2.50            | 0.11                | 0.02               | 0.00            | 28.50           | 3.92                | 3.69               | 0.00            |
| 3.00            | 0.14                | 0.03               | 0.01            | 29.00           | 3.92                | 3.69               | 0.00            |
| 3.50            | 0.16                | 0.05               | 0.01            | 29.50           | 3.92                | 3.69               | 0.00            |
| 4.00            | 0.19                | 0.06               | 0.01            | 30.00           | 3.92                | 3.69               | 0.00            |
| 4.50            | 0.22                | 0.08               | 0.01            | 30.50           | 3.92                | 3.69               | 0.00            |
| 5.00            | 0.25                | 0.11               | 0.01            | 31.00           | 3.92                | 3.69               | 0.00            |
| 5.50            | 0.28                | 0.13               | 0.01            | 31.50           | 3.92                | 3.69               | 0.00            |
| 6.00            | 0.31                | 0.15               | 0.01            | 32.00           | 3.92                | 3.69               | 0.00            |
| 6.50            | 0.34                | 0.18               | 0.01            | 32.50           | 3.92                | 3.69               | 0.00            |
| 7.00            | 0.38                | 0.21               | 0.01            | 33.00           | 3.92                | 3.69               | 0.00            |
| 7.50            | 0.42                | 0.25               | 0.02            | 33.50           | 3.92                | 3.69               | 0.00            |
| 8.00            | 0.47                | 0.29               | 0.02            | 34.00           | 3.92                | 3.69               | 0.00            |
| 8.50            | 0.52                | 0.34               | 0.02            | 34.50           | 3.92                | 3.69               | 0.00            |
| 9.00            | 0.57                | 0.38               | 0.02            | 35.00           | 3.92                | 3.69               | 0.00            |
| 9.50            | 0.64                | 0.44               | 0.03            | 35.50           | 3.92                | 3.69               | 0.00            |
| 10.00           | 0.71                | 0.52               | 0.03            | 36.00           | 3.92                | 3.69               | 0.00            |
| 10.50           | 0.81                | 0.61               | 0.04            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.73               | 0.06            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.94               | 0.13            |                 |                     |                    |                 |
| 12.00           | 1.87                | 1.64               | <b>0.73</b>     |                 |                     |                    |                 |
| 12.50           | 2.76                | 2.53               | <b>0.13</b>     |                 |                     |                    |                 |
| 13.00           | 2.98                | 2.75               | 0.07            |                 |                     |                    |                 |
| 13.50           | 3.11                | 2.88               | 0.04            |                 |                     |                    |                 |
| 14.00           | 3.21                | 2.97               | 0.03            |                 |                     |                    |                 |
| 14.50           | 3.28                | 3.05               | 0.03            |                 |                     |                    |                 |
| 15.00           | 3.35                | 3.11               | 0.02            |                 |                     |                    |                 |
| 15.50           | 3.40                | 3.17               | 0.02            |                 |                     |                    |                 |
| 16.00           | 3.45                | 3.22               | 0.02            |                 |                     |                    |                 |
| 16.50           | 3.50                | 3.26               | 0.02            |                 |                     |                    |                 |
| 17.00           | 3.54                | 3.30               | 0.02            |                 |                     |                    |                 |
| 17.50           | 3.58                | 3.34               | 0.01            |                 |                     |                    |                 |
| 18.00           | 3.61                | 3.38               | 0.01            |                 |                     |                    |                 |
| 18.50           | 3.64                | 3.41               | 0.01            |                 |                     |                    |                 |
| 19.00           | 3.67                | 3.44               | 0.01            |                 |                     |                    |                 |
| 19.50           | 3.70                | 3.47               | 0.01            |                 |                     |                    |                 |
| 20.00           | 3.73                | 3.49               | 0.01            |                 |                     |                    |                 |
| 20.50           | 3.76                | 3.52               | 0.01            |                 |                     |                    |                 |
| 21.00           | 3.78                | 3.55               | 0.01            |                 |                     |                    |                 |
| 21.50           | 3.81                | 3.57               | 0.01            |                 |                     |                    |                 |
| 22.00           | 3.83                | 3.60               | 0.01            |                 |                     |                    |                 |
| 22.50           | 3.85                | 3.62               | 0.01            |                 |                     |                    |                 |
| 23.00           | 3.88                | 3.64               | 0.01            |                 |                     |                    |                 |
| 23.50           | 3.90                | 3.66               | 0.01            |                 |                     |                    |                 |
| 24.00           | <b>3.92</b>         | <b>3.69</b>        | 0.01            |                 |                     |                    |                 |
| 24.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

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**Summary for Pond 3P: Existing Pond Storage Volume POI-3**

Inflow Area = 76,395 sf, 11.43% Impervious, Inflow Depth = 0.44" for 2-Year-2050 event  
Inflow = 0.92 cfs @ 12.09 hrs, Volume= 2,824 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

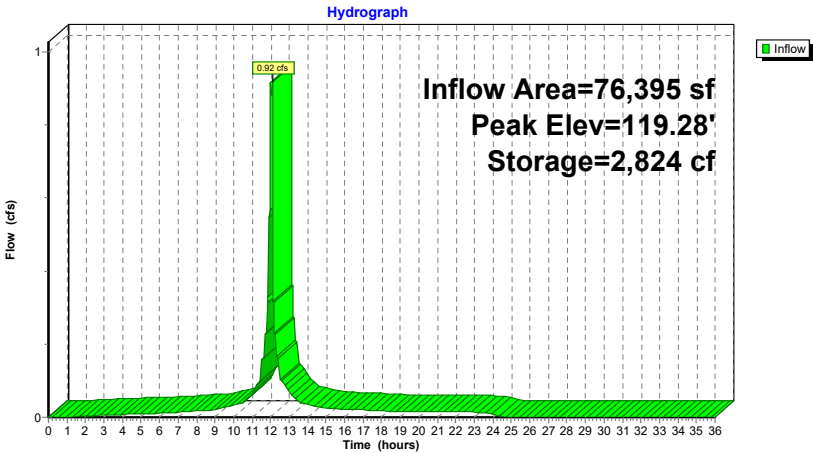
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 119.28' @ 25.23 hrs Surf.Area= 10,136 sf Storage= 2,824 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

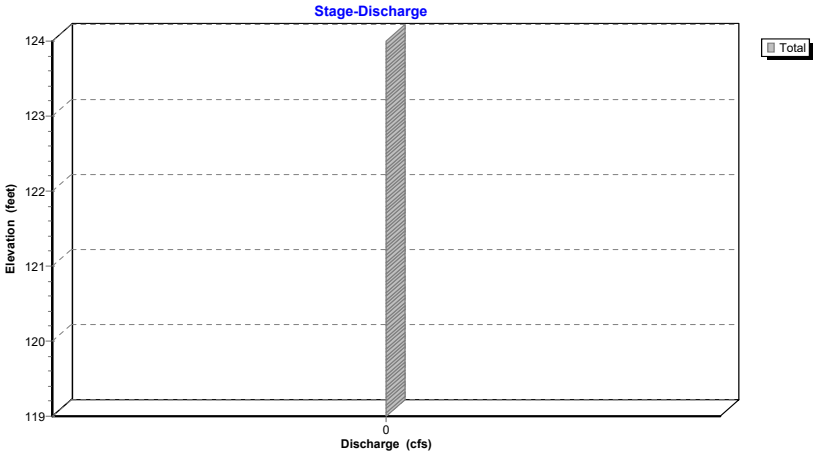
| Volume              | Invert               | Avail.Storage             | Storage Description                                        |
|---------------------|----------------------|---------------------------|------------------------------------------------------------|
| #1                  | 119.00'              | 65,239 cf                 | <b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                                  |
| 119.00              | 9,792                | 0                         | 0                                                          |
| 120.00              | 11,006               | 10,399                    | 10,399                                                     |
| 121.00              | 12,283               | 11,645                    | 22,044                                                     |
| 122.00              | 13,612               | 12,948                    | 34,991                                                     |
| 123.00              | 15,010               | 14,311                    | 49,302                                                     |
| 124.00              | 16,863               | 15,937                    | 65,239                                                     |

**Pond 3P: Existing Pond Storage Volume POI-3**

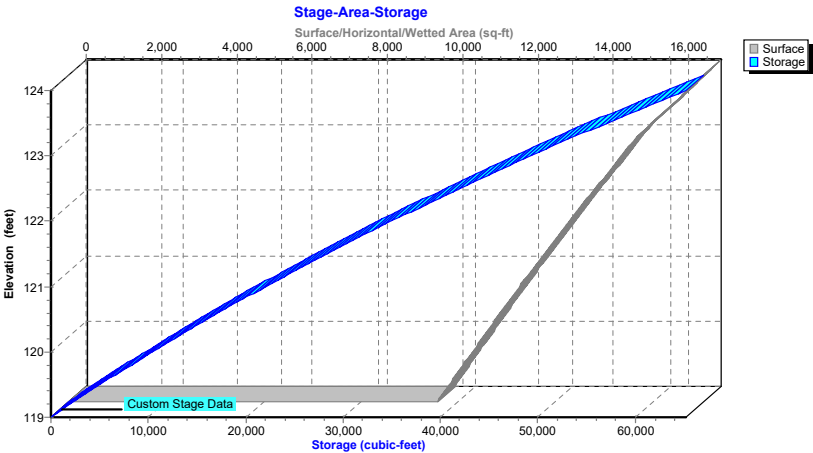
Pond 3P: Existing Pond Storage Volume POI-3



Pond 3P: Existing Pond Storage Volume POI-3



Pond 3P: Existing Pond Storage Volume POI-3



Hydrograph for Pond 3P: Existing Pond Storage Volume POI-3

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) |
|-----------------|-----------------|-------------------------|---------------------|-----------------|-----------------|-------------------------|---------------------|
| 0.00            | 0.00            | 0                       | 119.00              | 26.00           | 0.00            | 2,824                   | 119.28              |
| 0.50            | 0.00            | 0                       | 119.00              | 26.50           | 0.00            | 2,824                   | 119.28              |
| 1.00            | 0.00            | 0                       | 119.00              | 27.00           | 0.00            | 2,824                   | 119.28              |
| 1.50            | 0.00            | 2                       | 119.00              | 27.50           | 0.00            | 2,824                   | 119.28              |
| 2.00            | 0.00            | 7                       | 119.00              | 28.00           | 0.00            | 2,824                   | 119.28              |
| 2.50            | 0.00            | 14                      | 119.00              | 28.50           | 0.00            | 2,824                   | 119.28              |
| 3.00            | 0.01            | 23                      | 119.00              | 29.00           | 0.00            | 2,824                   | 119.28              |
| 3.50            | 0.01            | 34                      | 119.00              | 29.50           | 0.00            | 2,824                   | 119.28              |
| 4.00            | 0.01            | 47                      | 119.00              | 30.00           | 0.00            | 2,824                   | 119.28              |
| 4.50            | 0.01            | 61                      | 119.01              | 30.50           | 0.00            | 2,824                   | 119.28              |
| 5.00            | 0.01            | 77                      | 119.01              | 31.00           | 0.00            | 2,824                   | 119.28              |
| 5.50            | 0.01            | 94                      | 119.01              | 31.50           | 0.00            | 2,824                   | 119.28              |
| 6.00            | 0.01            | 112                     | 119.01              | 32.00           | 0.00            | 2,824                   | 119.28              |
| 6.50            | 0.01            | 132                     | 119.01              | 32.50           | 0.00            | 2,824                   | 119.28              |
| 7.00            | 0.01            | 156                     | 119.02              | 33.00           | 0.00            | 2,824                   | 119.28              |
| 7.50            | 0.02            | 182                     | 119.02              | 33.50           | 0.00            | 2,824                   | 119.28              |
| 8.00            | 0.02            | 211                     | 119.02              | 34.00           | 0.00            | 2,824                   | 119.28              |
| 8.50            | 0.02            | 244                     | 119.02              | 34.50           | 0.00            | 2,824                   | 119.28              |
| 9.00            | 0.02            | 279                     | 119.03              | 35.00           | 0.00            | 2,824                   | 119.28              |
| 9.50            | 0.03            | 323                     | 119.03              | 35.50           | 0.00            | 2,824                   | 119.28              |
| 10.00           | 0.03            | 376                     | 119.04              | 36.00           | 0.00            | 2,824                   | 119.28              |
| 10.50           | 0.04            | 441                     | 119.04              |                 |                 |                         |                     |
| 11.00           | 0.06            | 534                     | 119.05              |                 |                 |                         |                     |
| 11.50           | 0.13            | 688                     | 119.07              |                 |                 |                         |                     |
| 12.00           | 0.73            | 1,199                   | 119.12              |                 |                 |                         |                     |
| 12.50           | 0.13            | 1,841                   | 119.19              |                 |                 |                         |                     |
| 13.00           | 0.07            | 1,999                   | 119.20              |                 |                 |                         |                     |
| 13.50           | 0.04            | 2,095                   | 119.21              |                 |                 |                         |                     |
| 14.00           | 0.03            | 2,162                   | 119.22              |                 |                 |                         |                     |
| 14.50           | 0.03            | 2,219                   | 119.22              |                 |                 |                         |                     |
| 15.00           | 0.02            | 2,266                   | 119.23              |                 |                 |                         |                     |
| 15.50           | 0.02            | 2,308                   | 119.23              |                 |                 |                         |                     |
| 16.00           | 0.02            | 2,348                   | 119.24              |                 |                 |                         |                     |
| 16.50           | 0.02            | 2,387                   | 119.24              |                 |                 |                         |                     |
| 17.00           | 0.02            | 2,424                   | 119.24              |                 |                 |                         |                     |
| 17.50           | 0.02            | 2,459                   | 119.25              |                 |                 |                         |                     |
| 18.00           | 0.02            | 2,491                   | 119.25              |                 |                 |                         |                     |
| 18.50           | 0.02            | 2,521                   | 119.25              |                 |                 |                         |                     |
| 19.00           | 0.02            | 2,551                   | 119.26              |                 |                 |                         |                     |
| 19.50           | 0.02            | 2,580                   | 119.26              |                 |                 |                         |                     |
| 20.00           | 0.02            | 2,609                   | 119.26              |                 |                 |                         |                     |
| 20.50           | 0.02            | 2,637                   | 119.26              |                 |                 |                         |                     |
| 21.00           | 0.02            | 2,665                   | 119.27              |                 |                 |                         |                     |
| 21.50           | 0.01            | 2,692                   | 119.27              |                 |                 |                         |                     |
| 22.00           | 0.01            | 2,718                   | 119.27              |                 |                 |                         |                     |
| 22.50           | 0.01            | 2,744                   | 119.28              |                 |                 |                         |                     |
| 23.00           | 0.01            | 2,769                   | 119.28              |                 |                 |                         |                     |
| 23.50           | 0.01            | 2,794                   | 119.28              |                 |                 |                         |                     |
| 24.00           | 0.01            | 2,818                   | 119.28              |                 |                 |                         |                     |
| 24.50           | 0.00            | 2,824                   | 119.28              |                 |                 |                         |                     |
| 25.00           | 0.00            | 2,824                   | 119.28              |                 |                 |                         |                     |
| 25.50           | 0.00            | 2,824                   | 119.28              |                 |                 |                         |                     |

Stage-Discharge for Pond 3P: Existing Pond Storage Volume POI-3

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|
| 119.00              | 0.00               | 121.60              | 0.00               |
| 119.05              | 0.00               | 121.65              | 0.00               |
| 119.10              | 0.00               | 121.70              | 0.00               |
| 119.15              | 0.00               | 121.75              | 0.00               |
| 119.20              | 0.00               | 121.80              | 0.00               |
| 119.25              | 0.00               | 121.85              | 0.00               |
| 119.30              | 0.00               | 121.90              | 0.00               |
| 119.35              | 0.00               | 121.95              | 0.00               |
| 119.40              | 0.00               | 122.00              | 0.00               |
| 119.45              | 0.00               | 122.05              | 0.00               |
| 119.50              | 0.00               | 122.10              | 0.00               |
| 119.55              | 0.00               | 122.15              | 0.00               |
| 119.60              | 0.00               | 122.20              | 0.00               |
| 119.65              | 0.00               | 122.25              | 0.00               |
| 119.70              | 0.00               | 122.30              | 0.00               |
| 119.75              | 0.00               | 122.35              | 0.00               |
| 119.80              | 0.00               | 122.40              | 0.00               |
| 119.85              | 0.00               | 122.45              | 0.00               |
| 119.90              | 0.00               | 122.50              | 0.00               |
| 119.95              | 0.00               | 122.55              | 0.00               |
| 120.00              | 0.00               | 122.60              | 0.00               |
| 120.05              | 0.00               | 122.65              | 0.00               |
| 120.10              | 0.00               | 122.70              | 0.00               |
| 120.15              | 0.00               | 122.75              | 0.00               |
| 120.20              | 0.00               | 122.80              | 0.00               |
| 120.25              | 0.00               | 122.85              | 0.00               |
| 120.30              | 0.00               | 122.90              | 0.00               |
| 120.35              | 0.00               | 122.95              | 0.00               |
| 120.40              | 0.00               | 123.00              | 0.00               |
| 120.45              | 0.00               | 123.05              | 0.00               |
| 120.50              | 0.00               | 123.10              | 0.00               |
| 120.55              | 0.00               | 123.15              | 0.00               |
| 120.60              | 0.00               | 123.20              | 0.00               |
| 120.65              | 0.00               | 123.25              | 0.00               |
| 120.70              | 0.00               | 123.30              | 0.00               |
| 120.75              | 0.00               | 123.35              | 0.00               |
| 120.80              | 0.00               | 123.40              | 0.00               |
| 120.85              | 0.00               | 123.45              | 0.00               |
| 120.90              | 0.00               | 123.50              | 0.00               |
| 120.95              | 0.00               | 123.55              | 0.00               |
| 121.00              | 0.00               | 123.60              | 0.00               |
| 121.05              | 0.00               | 123.65              | 0.00               |
| 121.10              | 0.00               | 123.70              | 0.00               |
| 121.15              | 0.00               | 123.75              | 0.00               |
| 121.20              | 0.00               | 123.80              | 0.00               |
| 121.25              | 0.00               | 123.85              | 0.00               |
| 121.30              | 0.00               | 123.90              | 0.00               |
| 121.35              | 0.00               | 123.95              | 0.00               |
| 121.40              | 0.00               | 124.00              | 0.00               |
| 121.45              | 0.00               |                     |                    |
| 121.50              | 0.00               |                     |                    |
| 121.55              | 0.00               |                     |                    |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

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**Stage-Area-Storage for Pond 3P: Existing Pond Storage Volume POI-3**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 119.00              | 9,792              | 0                       | 121.60              | 13,080             | 29,653                  |
| 119.05              | 9,853              | 491                     | 121.65              | 13,147             | 30,308                  |
| 119.10              | 9,913              | 985                     | 121.70              | 13,213             | 30,967                  |
| 119.15              | 9,974              | 1,482                   | 121.75              | 13,280             | 31,630                  |
| 119.20              | 10,035             | 1,983                   | 121.80              | 13,346             | 32,295                  |
| 119.25              | 10,096             | 2,486                   | 121.85              | 13,413             | 32,964                  |
| 119.30              | 10,156             | 2,992                   | 121.90              | 13,479             | 33,636                  |
| 119.35              | 10,217             | 3,502                   | 121.95              | 13,546             | 34,312                  |
| 119.40              | 10,278             | 4,014                   | 122.00              | 13,612             | 34,991                  |
| 119.45              | 10,338             | 4,529                   | 122.05              | 13,682             | 35,673                  |
| 119.50              | 10,399             | 5,048                   | 122.10              | 13,752             | 36,359                  |
| 119.55              | 10,460             | 5,569                   | 122.15              | 13,822             | 37,049                  |
| 119.60              | 10,520             | 6,094                   | 122.20              | 13,892             | 37,741                  |
| 119.65              | 10,581             | 6,621                   | 122.25              | 13,962             | 38,438                  |
| 119.70              | 10,642             | 7,152                   | 122.30              | 14,031             | 39,138                  |
| 119.75              | 10,703             | 7,685                   | 122.35              | 14,101             | 39,841                  |
| 119.80              | 10,763             | 8,222                   | 122.40              | 14,171             | 40,548                  |
| 119.85              | 10,824             | 8,762                   | 122.45              | 14,241             | 41,258                  |
| 119.90              | 10,885             | 9,304                   | 122.50              | 14,311             | 41,972                  |
| 119.95              | 10,945             | 9,850                   | 122.55              | 14,381             | 42,689                  |
| 120.00              | 11,006             | 10,399                  | 122.60              | 14,451             | 43,410                  |
| 120.05              | 11,070             | 10,951                  | 122.65              | 14,521             | 44,134                  |
| 120.10              | 11,134             | 11,506                  | 122.70              | 14,591             | 44,862                  |
| 120.15              | 11,198             | 12,064                  | 122.75              | 14,661             | 45,593                  |
| 120.20              | 11,261             | 12,626                  | 122.80              | 14,730             | 46,328                  |
| 120.25              | 11,325             | 13,190                  | 122.85              | 14,800             | 47,066                  |
| 120.30              | 11,389             | 13,758                  | 122.90              | 14,870             | 47,808                  |
| 120.35              | 11,453             | 14,329                  | 122.95              | 14,940             | 48,553                  |
| 120.40              | 11,517             | 14,904                  | 123.00              | 15,010             | 49,302                  |
| 120.45              | 11,581             | 15,481                  | 123.05              | 15,103             | 50,055                  |
| 120.50              | 11,645             | 16,062                  | 123.10              | 15,195             | 50,812                  |
| 120.55              | 11,708             | 16,645                  | 123.15              | 15,288             | 51,574                  |
| 120.60              | 11,772             | 17,232                  | 123.20              | 15,381             | 52,341                  |
| 120.65              | 11,836             | 17,823                  | 123.25              | 15,473             | 53,112                  |
| 120.70              | 11,900             | 18,416                  | 123.30              | 15,566             | 53,888                  |
| 120.75              | 11,964             | 19,013                  | 123.35              | 15,659             | 54,669                  |
| 120.80              | 12,028             | 19,612                  | 123.40              | 15,751             | 55,454                  |
| 120.85              | 12,091             | 20,215                  | 123.45              | 15,844             | 56,244                  |
| 120.90              | 12,155             | 20,822                  | 123.50              | 15,937             | 57,039                  |
| 120.95              | 12,219             | 21,431                  | 123.55              | 16,029             | 57,838                  |
| 121.00              | 12,283             | 22,044                  | 123.60              | 16,122             | 58,642                  |
| 121.05              | 12,349             | 22,659                  | 123.65              | 16,214             | 59,450                  |
| 121.10              | 12,416             | 23,278                  | 123.70              | 16,307             | 60,263                  |
| 121.15              | 12,482             | 23,901                  | 123.75              | 16,400             | 61,081                  |
| 121.20              | 12,549             | 24,527                  | 123.80              | 16,492             | 61,903                  |
| 121.25              | 12,615             | 25,156                  | 123.85              | 16,585             | 62,730                  |
| 121.30              | 12,682             | 25,788                  | 123.90              | 16,678             | 63,561                  |
| 121.35              | 12,748             | 26,424                  | 123.95              | 16,770             | 64,398                  |
| 121.40              | 12,815             | 27,063                  | 124.00              | <b>16,863</b>      | <b>65,239</b>           |
| 121.45              | 12,881             | 27,705                  |                     |                    |                         |
| 121.50              | 12,948             | 28,351                  |                     |                    |                         |
| 121.55              | 13,014             | 29,000                  |                     |                    |                         |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment1S: Ex. POI-3 Pervious** Runoff Area=67,666 sf 0.00% Impervious Runoff Depth=0.45"  
Flow Length=324' Tc=21.7 min CN=38 Runoff=0.21 cfs 2,542 cf

**Subcatchment2S: Ex. POI-3 Impervious** Runoff Area=8,729 sf 100.00% Impervious Runoff Depth=5.97"  
Tc=0.0 min CN=98 Runoff=1.46 cfs 4,344 cf

**Pond 3P: Existing Pond Storage Volume** Peak Elev=119.67' Storage=6,886 cf Inflow=1.46 cfs 6,886 cf  
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 76,395 sf Runoff Volume = 6,886 cf Average Runoff Depth = 1.08"**  
**88.57% Pervious = 67,666 sf 11.43% Impervious = 8,729 sf**

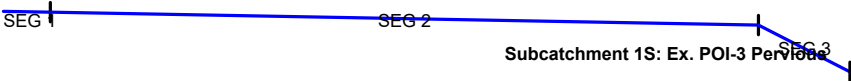
Summary for Subcatchment 1S: Ex. POI-3 Pervious

Runoff = 0.21 cfs @ 12.62 hrs, Volume= 2,542 cf, Depth= 0.45"  
Routed to Pond 3P : Existing Pond Storage Volume POI-3

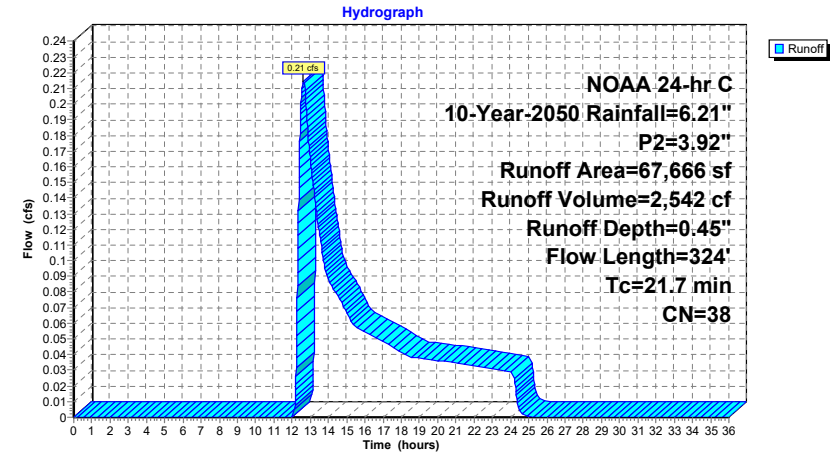
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description               |
|-----------|----|---------------------------|
| 218       | 30 | Meadow, non-grazed, HSG A |
| 2,760     | 58 | Meadow, non-grazed, HSG B |
| 44,993    | 30 | Woods, Good, HSG A        |
| 19,695    | 55 | Woods, Good, HSG B        |
| 67,666    | 38 | Weighted Average          |
| 67,666    |    | 100.00% Pervious Area     |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 8.6      | 18            | 0.0050        | 0.04              |                | Sheet Flow, SEG 1<br>Woods: Light underbrush n= 0.400 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 12.8     | 271           | 0.0050        | 0.35              |                | Shallow Concentrated Flow, SEG 2<br>Woodland Kv= 5.0 fps                                           |
| 0.3      | 35            | 0.1400        | 1.87              |                | Shallow Concentrated Flow, SEG 3<br>Woodland Kv= 5.0 fps                                           |
| 21.7     | 324           | Total         |                   |                |                                                                                                    |



Subcatchment 1S: Ex. POI-3 Pervious



**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

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**Hydrograph for Subcatchment 1S: Ex. POI-3 Pervious**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 0.45               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 0.45               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 0.45               | 0.00            |
| 1.50            | 0.10                | 0.00               | 0.00            | 27.50           | 6.21                | 0.45               | 0.00            |
| 2.00            | 0.14                | 0.00               | 0.00            | 28.00           | 6.21                | 0.45               | 0.00            |
| 2.50            | 0.18                | 0.00               | 0.00            | 28.50           | 6.21                | 0.45               | 0.00            |
| 3.00            | 0.22                | 0.00               | 0.00            | 29.00           | 6.21                | 0.45               | 0.00            |
| 3.50            | 0.26                | 0.00               | 0.00            | 29.50           | 6.21                | 0.45               | 0.00            |
| 4.00            | 0.30                | 0.00               | 0.00            | 30.00           | 6.21                | 0.45               | 0.00            |
| 4.50            | 0.35                | 0.00               | 0.00            | 30.50           | 6.21                | 0.45               | 0.00            |
| 5.00            | 0.39                | 0.00               | 0.00            | 31.00           | 6.21                | 0.45               | 0.00            |
| 5.50            | 0.44                | 0.00               | 0.00            | 31.50           | 6.21                | 0.45               | 0.00            |
| 6.00            | 0.49                | 0.00               | 0.00            | 32.00           | 6.21                | 0.45               | 0.00            |
| 6.50            | 0.55                | 0.00               | 0.00            | 32.50           | 6.21                | 0.45               | 0.00            |
| 7.00            | 0.61                | 0.00               | 0.00            | 33.00           | 6.21                | 0.45               | 0.00            |
| 7.50            | 0.67                | 0.00               | 0.00            | 33.50           | 6.21                | 0.45               | 0.00            |
| 8.00            | 0.74                | 0.00               | 0.00            | 34.00           | 6.21                | 0.45               | 0.00            |
| 8.50            | 0.82                | 0.00               | 0.00            | 34.50           | 6.21                | 0.45               | 0.00            |
| 9.00            | 0.91                | 0.00               | 0.00            | 35.00           | 6.21                | 0.45               | 0.00            |
| 9.50            | 1.01                | 0.00               | 0.00            | 35.50           | 6.21                | 0.45               | 0.00            |
| 10.00           | 1.13                | 0.00               | 0.00            | 36.00           | 6.21                | 0.45               | 0.00            |
| 10.50           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.84                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.96                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 4.37                | 0.07               | 0.20            |                 |                     |                    |                 |
| 13.00           | 4.72                | 0.12               | 0.17            |                 |                     |                    |                 |
| 13.50           | 4.93                | 0.15               | 0.12            |                 |                     |                    |                 |
| 14.00           | 5.08                | 0.18               | 0.09            |                 |                     |                    |                 |
| 14.50           | 5.20                | 0.21               | 0.08            |                 |                     |                    |                 |
| 15.00           | 5.30                | 0.23               | 0.07            |                 |                     |                    |                 |
| 15.50           | 5.39                | 0.24               | 0.06            |                 |                     |                    |                 |
| 16.00           | 5.47                | 0.26               | 0.05            |                 |                     |                    |                 |
| 16.50           | 5.54                | 0.28               | 0.05            |                 |                     |                    |                 |
| 17.00           | 5.60                | 0.29               | 0.05            |                 |                     |                    |                 |
| 17.50           | 5.66                | 0.31               | 0.05            |                 |                     |                    |                 |
| 18.00           | 5.72                | 0.32               | 0.04            |                 |                     |                    |                 |
| 18.50           | 5.77                | 0.33               | 0.04            |                 |                     |                    |                 |
| 19.00           | 5.82                | 0.35               | 0.04            |                 |                     |                    |                 |
| 19.50           | 5.86                | 0.36               | 0.04            |                 |                     |                    |                 |
| 20.00           | 5.91                | 0.37               | 0.04            |                 |                     |                    |                 |
| 20.50           | 5.95                | 0.38               | 0.04            |                 |                     |                    |                 |
| 21.00           | 5.99                | 0.39               | 0.03            |                 |                     |                    |                 |
| 21.50           | 6.03                | 0.40               | 0.03            |                 |                     |                    |                 |
| 22.00           | 6.07                | 0.41               | 0.03            |                 |                     |                    |                 |
| 22.50           | 6.11                | 0.42               | 0.03            |                 |                     |                    |                 |
| 23.00           | 6.14                | 0.43               | 0.03            |                 |                     |                    |                 |
| 23.50           | 6.18                | 0.44               | 0.03            |                 |                     |                    |                 |
| 24.00           | 6.21                | 0.45               | 0.03            |                 |                     |                    |                 |
| 24.50           | 6.21                | 0.45               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 0.45               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 0.45               | 0.00            |                 |                     |                    |                 |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

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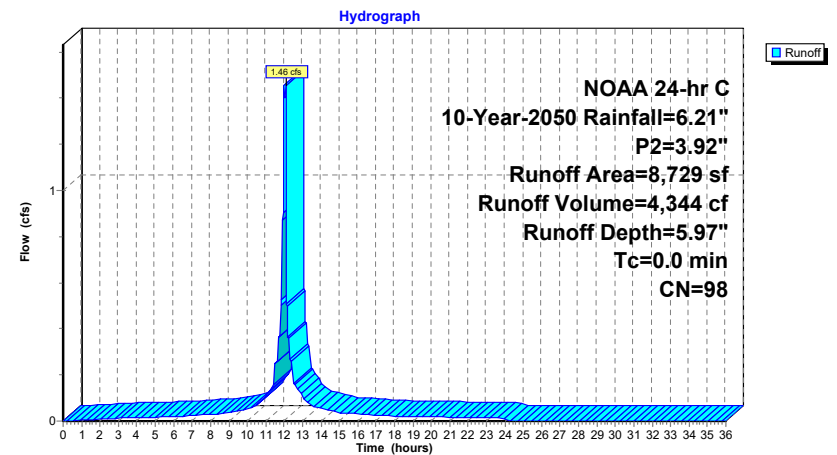
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**Summary for Subcatchment 2S: Ex. POI-3 Impervious (Pond)**

Runoff = 1.46 cfs @ 12.09 hrs, Volume= 4,344 cf, Depth= 5.97"  
Routed to Pond 3P : Existing Pond Storage Volume POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 8,729     | 98 | Water Surface, HSG B    |
| 8,729     |    | 100.00% Impervious Area |

**Subcatchment 2S: Ex. POI-3 Impervious (Pond)**

Hydrograph for Subcatchment 2S: Ex. POI-3 Impervious (Pond)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 5.97               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 5.97               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 5.97               | 0.00            |
| 1.50            | 0.10                | 0.01               | 0.01            | 27.50           | 6.21                | 5.97               | 0.00            |
| 2.00            | 0.14                | 0.03               | 0.01            | 28.00           | 6.21                | 5.97               | 0.00            |
| 2.50            | 0.18                | 0.06               | 0.01            | 28.50           | 6.21                | 5.97               | 0.00            |
| 3.00            | 0.22                | 0.08               | 0.01            | 29.00           | 6.21                | 5.97               | 0.00            |
| 3.50            | 0.26                | 0.11               | 0.01            | 29.50           | 6.21                | 5.97               | 0.00            |
| 4.00            | 0.30                | 0.15               | 0.01            | 30.00           | 6.21                | 5.97               | 0.00            |
| 4.50            | 0.35                | 0.19               | 0.02            | 30.50           | 6.21                | 5.97               | 0.00            |
| 5.00            | 0.39                | 0.22               | 0.02            | 31.00           | 6.21                | 5.97               | 0.00            |
| 5.50            | 0.44                | 0.27               | 0.02            | 31.50           | 6.21                | 5.97               | 0.00            |
| 6.00            | 0.49                | 0.31               | 0.02            | 32.00           | 6.21                | 5.97               | 0.00            |
| 6.50            | 0.55                | 0.36               | 0.02            | 32.50           | 6.21                | 5.97               | 0.00            |
| 7.00            | 0.61                | 0.41               | 0.02            | 33.00           | 6.21                | 5.97               | 0.00            |
| 7.50            | 0.67                | 0.48               | 0.03            | 33.50           | 6.21                | 5.97               | 0.00            |
| 8.00            | 0.74                | 0.55               | 0.03            | 34.00           | 6.21                | 5.97               | 0.00            |
| 8.50            | 0.82                | 0.62               | 0.03            | 34.50           | 6.21                | 5.97               | 0.00            |
| 9.00            | 0.91                | 0.70               | 0.03            | 35.00           | 6.21                | 5.97               | 0.00            |
| 9.50            | 1.01                | 0.80               | 0.04            | 35.50           | 6.21                | 5.97               | 0.00            |
| 10.00           | 1.13                | 0.92               | 0.05            | 36.00           | 6.21                | 5.97               | 0.00            |
| 10.50           | 1.28                | 1.06               | 0.07            |                 |                     |                    |                 |
| 11.00           | 1.49                | 1.27               | 0.10            |                 |                     |                    |                 |
| 11.50           | 1.84                | 1.61               | 0.21            |                 |                     |                    |                 |
| 12.00           | 2.96                | 2.73               | 1.17            |                 |                     |                    |                 |
| 12.50           | 4.37                | 4.14               | 0.21            |                 |                     |                    |                 |
| 13.00           | 4.72                | 4.48               | 0.11            |                 |                     |                    |                 |
| 13.50           | 4.93                | 4.69               | 0.07            |                 |                     |                    |                 |
| 14.00           | 5.08                | 4.84               | 0.05            |                 |                     |                    |                 |
| 14.50           | 5.20                | 4.96               | 0.05            |                 |                     |                    |                 |
| 15.00           | 5.30                | 5.07               | 0.04            |                 |                     |                    |                 |
| 15.50           | 5.39                | 5.15               | 0.03            |                 |                     |                    |                 |
| 16.00           | 5.47                | 5.23               | 0.03            |                 |                     |                    |                 |
| 16.50           | 5.54                | 5.30               | 0.03            |                 |                     |                    |                 |
| 17.00           | 5.60                | 5.37               | 0.03            |                 |                     |                    |                 |
| 17.50           | 5.66                | 5.43               | 0.02            |                 |                     |                    |                 |
| 18.00           | 5.72                | 5.48               | 0.02            |                 |                     |                    |                 |
| 18.50           | 5.77                | 5.53               | 0.02            |                 |                     |                    |                 |
| 19.00           | 5.82                | 5.58               | 0.02            |                 |                     |                    |                 |
| 19.50           | 5.86                | 5.62               | 0.02            |                 |                     |                    |                 |
| 20.00           | 5.91                | 5.67               | 0.02            |                 |                     |                    |                 |
| 20.50           | 5.95                | 5.71               | 0.02            |                 |                     |                    |                 |
| 21.00           | 5.99                | 5.75               | 0.02            |                 |                     |                    |                 |
| 21.50           | 6.03                | 5.79               | 0.02            |                 |                     |                    |                 |
| 22.00           | 6.07                | 5.83               | 0.02            |                 |                     |                    |                 |
| 22.50           | 6.11                | 5.87               | 0.01            |                 |                     |                    |                 |
| 23.00           | 6.14                | 5.90               | 0.01            |                 |                     |                    |                 |
| 23.50           | 6.18                | 5.94               | 0.01            |                 |                     |                    |                 |
| 24.00           | 6.21                | 5.97               | 0.01            |                 |                     |                    |                 |
| 24.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |

Summary for Pond 3P: Existing Pond Storage Volume POI-3

Inflow Area = 76,395 sf, 11.43% Impervious, Inflow Depth = 1.08" for 10-Year-2050 event  
Inflow = 1.46 cfs @ 12.09 hrs, Volume= 6,886 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

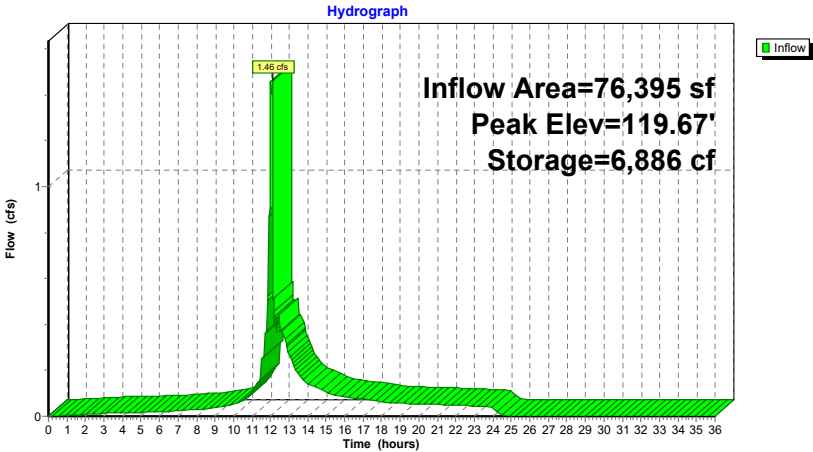
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 119.67' @ 25.23 hrs Surf.Area= 10,611 sf Storage= 6,886 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

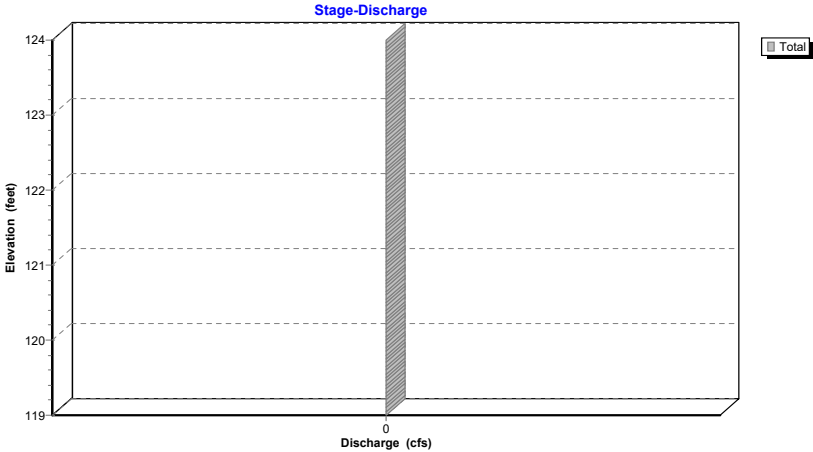
| Volume              | Invert               | Avail.Storage             | Storage Description                                |
|---------------------|----------------------|---------------------------|----------------------------------------------------|
| #1                  | 119.00'              | 65,239 cf                 | Custom Stage Data (Prismatic)Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                          |
| 119.00              | 9,792                | 0                         | 0                                                  |
| 120.00              | 11,006               | 10,399                    | 10,399                                             |
| 121.00              | 12,283               | 11,645                    | 22,044                                             |
| 122.00              | 13,612               | 12,948                    | 34,991                                             |
| 123.00              | 15,010               | 14,311                    | 49,302                                             |
| 124.00              | 16,863               | 15,937                    | 65,239                                             |

Pond 3P: Existing Pond Storage Volume POI-3

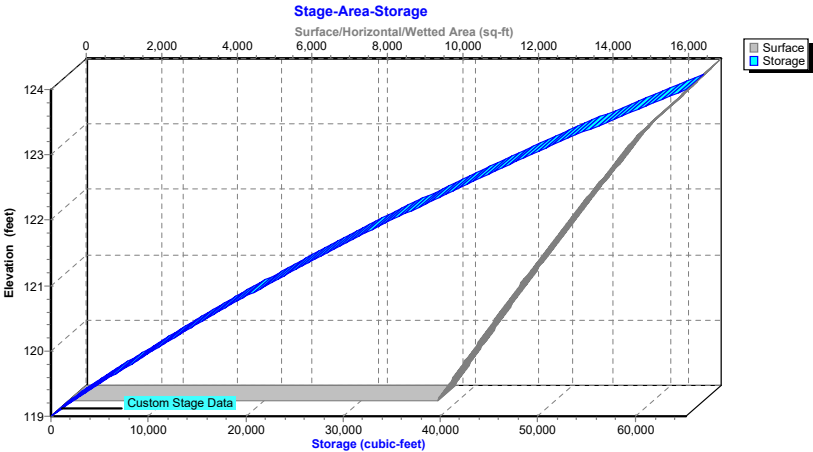
Pond 3P: Existing Pond Storage Volume POI-3



Pond 3P: Existing Pond Storage Volume POI-3



Pond 3P: Existing Pond Storage Volume POI-3





**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

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**Hydrograph for Pond 3P: Existing Pond Storage Volume POI-3**

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) |
|-----------------|-----------------|-------------------------|---------------------|-----------------|-----------------|-------------------------|---------------------|
| 0.00            | 0.00            | 0                       | 119.00              | 26.00           | 0.00            | 6,886                   | 119.67              |
| 0.50            | 0.00            | 0                       | 119.00              | 26.50           | 0.00            | 6,886                   | 119.67              |
| 1.00            | 0.00            | 2                       | 119.00              | 27.00           | 0.00            | 6,886                   | 119.67              |
| 1.50            | 0.01            | 11                      | 119.00              | 27.50           | 0.00            | 6,886                   | 119.67              |
| 2.00            | 0.01            | 24                      | 119.00              | 28.00           | 0.00            | 6,886                   | 119.67              |
| 2.50            | 0.01            | 41                      | 119.00              | 28.50           | 0.00            | 6,886                   | 119.67              |
| 3.00            | 0.01            | 60                      | 119.01              | 29.00           | 0.00            | 6,886                   | 119.67              |
| 3.50            | 0.01            | 83                      | 119.01              | 29.50           | 0.00            | 6,886                   | 119.67              |
| 4.00            | 0.01            | 108                     | 119.01              | 30.00           | 0.00            | 6,886                   | 119.67              |
| 4.50            | 0.02            | 135                     | 119.01              | 30.50           | 0.00            | 6,886                   | 119.67              |
| 5.00            | 0.02            | 163                     | 119.02              | 31.00           | 0.00            | 6,886                   | 119.67              |
| 5.50            | 0.02            | 194                     | 119.02              | 31.50           | 0.00            | 6,886                   | 119.67              |
| 6.00            | 0.02            | 226                     | 119.02              | 32.00           | 0.00            | 6,886                   | 119.67              |
| 6.50            | 0.02            | 262                     | 119.03              | 32.50           | 0.00            | 6,886                   | 119.67              |
| 7.00            | 0.02            | 302                     | 119.03              | 33.00           | 0.00            | 6,886                   | 119.67              |
| 7.50            | 0.03            | 347                     | 119.04              | 33.50           | 0.00            | 6,886                   | 119.67              |
| 8.00            | 0.03            | 396                     | 119.04              | 34.00           | 0.00            | 6,886                   | 119.67              |
| 8.50            | 0.03            | 451                     | 119.05              | 34.50           | 0.00            | 6,886                   | 119.67              |
| 9.00            | 0.03            | 510                     | 119.05              | 35.00           | 0.00            | 6,886                   | 119.67              |
| 9.50            | 0.04            | 581                     | 119.06              | 35.50           | 0.00            | 6,886                   | 119.67              |
| 10.00           | 0.05            | 669                     | 119.07              | 36.00           | 0.00            | 6,886                   | 119.67              |
| 10.50           | 0.07            | 774                     | 119.08              |                 |                 |                         |                     |
| 11.00           | 0.10            | 924                     | 119.09              |                 |                 |                         |                     |
| 11.50           | 0.21            | 1,173                   | 119.12              |                 |                 |                         |                     |
| 12.00           | 1.17            | 1,990                   | 119.20              |                 |                 |                         |                     |
| 12.50           | 0.41            | 3,147                   | 119.32              |                 |                 |                         |                     |
| 13.00           | 0.27            | 3,751                   | 119.37              |                 |                 |                         |                     |
| 13.50           | 0.18            | 4,155                   | 119.41              |                 |                 |                         |                     |
| 14.00           | 0.14            | 4,443                   | 119.44              |                 |                 |                         |                     |
| 14.50           | 0.12            | 4,682                   | 119.46              |                 |                 |                         |                     |
| 15.00           | 0.10            | 4,886                   | 119.48              |                 |                 |                         |                     |
| 15.50           | 0.09            | 5,058                   | 119.50              |                 |                 |                         |                     |
| 16.00           | 0.08            | 5,216                   | 119.52              |                 |                 |                         |                     |
| 16.50           | 0.08            | 5,364                   | 119.53              |                 |                 |                         |                     |
| 17.00           | 0.07            | 5,503                   | 119.54              |                 |                 |                         |                     |
| 17.50           | 0.07            | 5,631                   | 119.56              |                 |                 |                         |                     |
| 18.00           | 0.06            | 5,748                   | 119.57              |                 |                 |                         |                     |
| 18.50           | 0.06            | 5,855                   | 119.58              |                 |                 |                         |                     |
| 19.00           | 0.06            | 5,958                   | 119.59              |                 |                 |                         |                     |
| 19.50           | 0.06            | 6,059                   | 119.60              |                 |                 |                         |                     |
| 20.00           | 0.05            | 6,157                   | 119.61              |                 |                 |                         |                     |
| 20.50           | 0.05            | 6,253                   | 119.62              |                 |                 |                         |                     |
| 21.00           | 0.05            | 6,346                   | 119.62              |                 |                 |                         |                     |
| 21.50           | 0.05            | 6,437                   | 119.63              |                 |                 |                         |                     |
| 22.00           | 0.05            | 6,525                   | 119.64              |                 |                 |                         |                     |
| 22.50           | 0.05            | 6,610                   | 119.65              |                 |                 |                         |                     |
| 23.00           | 0.04            | 6,692                   | 119.66              |                 |                 |                         |                     |
| 23.50           | 0.04            | 6,772                   | 119.66              |                 |                 |                         |                     |
| 24.00           | 0.04            | 6,849                   | 119.67              |                 |                 |                         |                     |
| 24.50           | 0.00            | 6,884                   | 119.67              |                 |                 |                         |                     |
| 25.00           | 0.00            | 6,886                   | 119.67              |                 |                 |                         |                     |
| 25.50           | 0.00            | 6,886                   | 119.67              |                 |                 |                         |                     |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

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**Stage-Discharge for Pond 3P: Existing Pond Storage Volume POI-3**

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|
| 119.00              | 0.00               | 121.60              | 0.00               |
| 119.05              | 0.00               | 121.65              | 0.00               |
| 119.10              | 0.00               | 121.70              | 0.00               |
| 119.15              | 0.00               | 121.75              | 0.00               |
| 119.20              | 0.00               | 121.80              | 0.00               |
| 119.25              | 0.00               | 121.85              | 0.00               |
| 119.30              | 0.00               | 121.90              | 0.00               |
| 119.35              | 0.00               | 121.95              | 0.00               |
| 119.40              | 0.00               | 122.00              | 0.00               |
| 119.45              | 0.00               | 122.05              | 0.00               |
| 119.50              | 0.00               | 122.10              | 0.00               |
| 119.55              | 0.00               | 122.15              | 0.00               |
| 119.60              | 0.00               | 122.20              | 0.00               |
| 119.65              | 0.00               | 122.25              | 0.00               |
| 119.70              | 0.00               | 122.30              | 0.00               |
| 119.75              | 0.00               | 122.35              | 0.00               |
| 119.80              | 0.00               | 122.40              | 0.00               |
| 119.85              | 0.00               | 122.45              | 0.00               |
| 119.90              | 0.00               | 122.50              | 0.00               |
| 119.95              | 0.00               | 122.55              | 0.00               |
| 120.00              | 0.00               | 122.60              | 0.00               |
| 120.05              | 0.00               | 122.65              | 0.00               |
| 120.10              | 0.00               | 122.70              | 0.00               |
| 120.15              | 0.00               | 122.75              | 0.00               |
| 120.20              | 0.00               | 122.80              | 0.00               |
| 120.25              | 0.00               | 122.85              | 0.00               |
| 120.30              | 0.00               | 122.90              | 0.00               |
| 120.35              | 0.00               | 122.95              | 0.00               |
| 120.40              | 0.00               | 123.00              | 0.00               |
| 120.45              | 0.00               | 123.05              | 0.00               |
| 120.50              | 0.00               | 123.10              | 0.00               |
| 120.55              | 0.00               | 123.15              | 0.00               |
| 120.60              | 0.00               | 123.20              | 0.00               |
| 120.65              | 0.00               | 123.25              | 0.00               |
| 120.70              | 0.00               | 123.30              | 0.00               |
| 120.75              | 0.00               | 123.35              | 0.00               |
| 120.80              | 0.00               | 123.40              | 0.00               |
| 120.85              | 0.00               | 123.45              | 0.00               |
| 120.90              | 0.00               | 123.50              | 0.00               |
| 120.95              | 0.00               | 123.55              | 0.00               |
| 121.00              | 0.00               | 123.60              | 0.00               |
| 121.05              | 0.00               | 123.65              | 0.00               |
| 121.10              | 0.00               | 123.70              | 0.00               |
| 121.15              | 0.00               | 123.75              | 0.00               |
| 121.20              | 0.00               | 123.80              | 0.00               |
| 121.25              | 0.00               | 123.85              | 0.00               |
| 121.30              | 0.00               | 123.90              | 0.00               |
| 121.35              | 0.00               | 123.95              | 0.00               |
| 121.40              | 0.00               | 124.00              | 0.00               |
| 121.45              | 0.00               |                     |                    |
| 121.50              | 0.00               |                     |                    |
| 121.55              | 0.00               |                     |                    |

**Stage-Area-Storage for Pond 3P: Existing Pond Storage Volume POI-3**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 119.00              | 9,792              | 0                       | 121.60              | 13,080             | 29,653                  |
| 119.05              | 9,853              | 491                     | 121.65              | 13,147             | 30,308                  |
| 119.10              | 9,913              | 985                     | 121.70              | 13,213             | 30,967                  |
| 119.15              | 9,974              | 1,482                   | 121.75              | 13,280             | 31,630                  |
| 119.20              | 10,035             | 1,983                   | 121.80              | 13,346             | 32,295                  |
| 119.25              | 10,096             | 2,486                   | 121.85              | 13,413             | 32,964                  |
| 119.30              | 10,156             | 2,992                   | 121.90              | 13,479             | 33,636                  |
| 119.35              | 10,217             | 3,502                   | 121.95              | 13,546             | 34,312                  |
| 119.40              | 10,278             | 4,014                   | 122.00              | 13,612             | 34,991                  |
| 119.45              | 10,338             | 4,529                   | 122.05              | 13,682             | 35,673                  |
| 119.50              | 10,399             | 5,048                   | 122.10              | 13,752             | 36,359                  |
| 119.55              | 10,460             | 5,569                   | 122.15              | 13,822             | 37,049                  |
| 119.60              | 10,520             | 6,094                   | 122.20              | 13,892             | 37,741                  |
| 119.65              | 10,581             | 6,621                   | 122.25              | 13,962             | 38,438                  |
| 119.70              | 10,642             | 7,152                   | 122.30              | 14,031             | 39,138                  |
| 119.75              | 10,703             | 7,685                   | 122.35              | 14,101             | 39,841                  |
| 119.80              | 10,763             | 8,222                   | 122.40              | 14,171             | 40,548                  |
| 119.85              | 10,824             | 8,762                   | 122.45              | 14,241             | 41,258                  |
| 119.90              | 10,885             | 9,304                   | 122.50              | 14,311             | 41,972                  |
| 119.95              | 10,945             | 9,850                   | 122.55              | 14,381             | 42,689                  |
| 120.00              | 11,006             | 10,399                  | 122.60              | 14,451             | 43,410                  |
| 120.05              | 11,070             | 10,951                  | 122.65              | 14,521             | 44,134                  |
| 120.10              | 11,134             | 11,506                  | 122.70              | 14,591             | 44,862                  |
| 120.15              | 11,198             | 12,064                  | 122.75              | 14,661             | 45,593                  |
| 120.20              | 11,261             | 12,626                  | 122.80              | 14,730             | 46,328                  |
| 120.25              | 11,325             | 13,190                  | 122.85              | 14,800             | 47,066                  |
| 120.30              | 11,389             | 13,758                  | 122.90              | 14,870             | 47,808                  |
| 120.35              | 11,453             | 14,329                  | 122.95              | 14,940             | 48,553                  |
| 120.40              | 11,517             | 14,904                  | 123.00              | 15,010             | 49,302                  |
| 120.45              | 11,581             | 15,481                  | 123.05              | 15,103             | 50,055                  |
| 120.50              | 11,645             | 16,062                  | 123.10              | 15,195             | 50,812                  |
| 120.55              | 11,708             | 16,645                  | 123.15              | 15,288             | 51,574                  |
| 120.60              | 11,772             | 17,232                  | 123.20              | 15,381             | 52,341                  |
| 120.65              | 11,836             | 17,823                  | 123.25              | 15,473             | 53,112                  |
| 120.70              | 11,900             | 18,416                  | 123.30              | 15,566             | 53,888                  |
| 120.75              | 11,964             | 19,013                  | 123.35              | 15,659             | 54,669                  |
| 120.80              | 12,028             | 19,612                  | 123.40              | 15,751             | 55,454                  |
| 120.85              | 12,091             | 20,215                  | 123.45              | 15,844             | 56,244                  |
| 120.90              | 12,155             | 20,822                  | 123.50              | 15,937             | 57,039                  |
| 120.95              | 12,219             | 21,431                  | 123.55              | 16,029             | 57,838                  |
| 121.00              | 12,283             | 22,044                  | 123.60              | 16,122             | 58,642                  |
| 121.05              | 12,349             | 22,659                  | 123.65              | 16,214             | 59,450                  |
| 121.10              | 12,416             | 23,278                  | 123.70              | 16,307             | 60,263                  |
| 121.15              | 12,482             | 23,901                  | 123.75              | 16,400             | 61,081                  |
| 121.20              | 12,549             | 24,527                  | 123.80              | 16,492             | 61,903                  |
| 121.25              | 12,615             | 25,156                  | 123.85              | 16,585             | 62,730                  |
| 121.30              | 12,682             | 25,788                  | 123.90              | 16,678             | 63,561                  |
| 121.35              | 12,748             | 26,424                  | 123.95              | 16,770             | 64,398                  |
| 121.40              | 12,815             | 27,063                  | 124.00              | <b>16,863</b>      | <b>65,239</b>           |
| 121.45              | 12,881             | 27,705                  |                     |                    |                         |
| 121.50              | 12,948             | 28,351                  |                     |                    |                         |
| 121.55              | 13,014             | 29,000                  |                     |                    |                         |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment1S: Ex. POI-3 Pervious** Runoff Area=67,666 sf 0.00% Impervious Runoff Depth=3.08"  
 Flow Length=324' Tc=21.7 min CN=38 Runoff=3.49 cfs 17,376 cf

**Subcatchment2S: Ex. POI-3 Impervious** Runoff Area=8,729 sf 100.00% Impervious Runoff Depth=11.82"  
 Tc=0.0 min CN=98 Runoff=2.84 cfs 8,597 cf

**Pond 3P: Existing Pond Storage Volume** Peak Elev=121.31' Storage=25,973 cf Inflow=4.04 cfs 25,973 cf  
 Outflow=0.00 cfs 0 cf

**Total Runoff Area = 76,395 sf Runoff Volume = 25,973 cf Average Runoff Depth = 4.08"**  
**88.57% Pervious = 67,666 sf 11.43% Impervious = 8,729 sf**

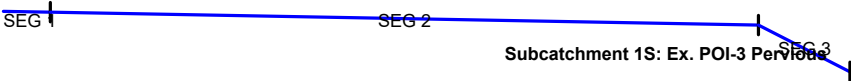
Summary for Subcatchment 1S: Ex. POI-3 Pervious

Runoff = 3.49 cfs @ 12.35 hrs, Volume= 17,376 cf, Depth= 3.08"  
Routed to Pond 3P : Existing Pond Storage Volume POI-3

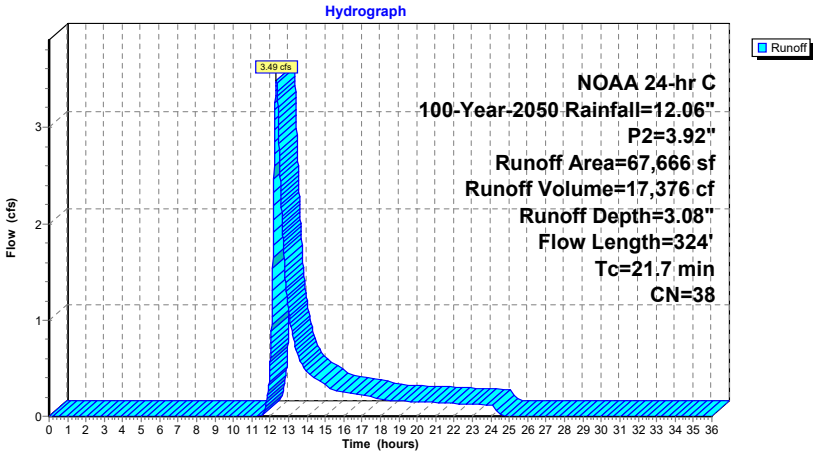
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description               |
|-----------|----|---------------------------|
| 218       | 30 | Meadow, non-grazed, HSG A |
| 2,760     | 58 | Meadow, non-grazed, HSG B |
| 44,993    | 30 | Woods, Good, HSG A        |
| 19,695    | 55 | Woods, Good, HSG B        |
| 67,666    | 38 | Weighted Average          |
| 67,666    |    | 100.00% Pervious Area     |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 8.6      | 18            | 0.0050        | 0.04              |                | Sheet Flow, SEG 1<br>Woods: Light underbrush n= 0.400 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 12.8     | 271           | 0.0050        | 0.35              |                | Shallow Concentrated Flow, SEG 2<br>Woodland Kv= 5.0 fps                                           |
| 0.3      | 35            | 0.1400        | 1.87              |                | Shallow Concentrated Flow, SEG 3<br>Woodland Kv= 5.0 fps                                           |
| 21.7     | 324           | Total         |                   |                |                                                                                                    |



Subcatchment 1S: Ex. POI-3 Pervious



**Hydrograph for Subcatchment 1S: Ex. POI-3 Pervious**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 3.08               | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.00            | 26.50           | 12.06               | 3.08               | 0.00            |
| 1.00            | 0.13                | 0.00               | 0.00            | 27.00           | 12.06               | 3.08               | 0.00            |
| 1.50            | 0.20                | 0.00               | 0.00            | 27.50           | 12.06               | 3.08               | 0.00            |
| 2.00            | 0.27                | 0.00               | 0.00            | 28.00           | 12.06               | 3.08               | 0.00            |
| 2.50            | 0.35                | 0.00               | 0.00            | 28.50           | 12.06               | 3.08               | 0.00            |
| 3.00            | 0.43                | 0.00               | 0.00            | 29.00           | 12.06               | 3.08               | 0.00            |
| 3.50            | 0.51                | 0.00               | 0.00            | 29.50           | 12.06               | 3.08               | 0.00            |
| 4.00            | 0.59                | 0.00               | 0.00            | 30.00           | 12.06               | 3.08               | 0.00            |
| 4.50            | 0.68                | 0.00               | 0.00            | 30.50           | 12.06               | 3.08               | 0.00            |
| 5.00            | 0.77                | 0.00               | 0.00            | 31.00           | 12.06               | 3.08               | 0.00            |
| 5.50            | 0.86                | 0.00               | 0.00            | 31.50           | 12.06               | 3.08               | 0.00            |
| 6.00            | 0.96                | 0.00               | 0.00            | 32.00           | 12.06               | 3.08               | 0.00            |
| 6.50            | 1.06                | 0.00               | 0.00            | 32.50           | 12.06               | 3.08               | 0.00            |
| 7.00            | 1.18                | 0.00               | 0.00            | 33.00           | 12.06               | 3.08               | 0.00            |
| 7.50            | 1.30                | 0.00               | 0.00            | 33.50           | 12.06               | 3.08               | 0.00            |
| 8.00            | 1.44                | 0.00               | 0.00            | 34.00           | 12.06               | 3.08               | 0.00            |
| 8.50            | 1.60                | 0.00               | 0.00            | 34.50           | 12.06               | 3.08               | 0.00            |
| 9.00            | 1.76                | 0.00               | 0.00            | 35.00           | 12.06               | 3.08               | 0.00            |
| 9.50            | 1.96                | 0.00               | 0.00            | 35.50           | 12.06               | 3.08               | 0.00            |
| 10.00           | 2.20                | 0.00               | 0.00            | 36.00           | 12.06               | 3.08               | 0.00            |
| 10.50           | 2.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.89                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 3.56                | 0.01               | 0.00            |                 |                     |                    |                 |
| 12.00           | 5.75                | 0.33               | 0.52            |                 |                     |                    |                 |
| 12.50           | 8.50                | 1.27               | 2.77            |                 |                     |                    |                 |
| 13.00           | 9.17                | 1.57               | 1.10            |                 |                     |                    |                 |
| 13.50           | 9.57                | 1.76               | 0.65            |                 |                     |                    |                 |
| 14.00           | 9.86                | 1.90               | 0.46            |                 |                     |                    |                 |
| 14.50           | 10.10               | 2.02               | 0.39            |                 |                     |                    |                 |
| 15.00           | 10.30               | 2.12               | 0.32            |                 |                     |                    |                 |
| 15.50           | 10.46               | 2.20               | 0.27            |                 |                     |                    |                 |
| 16.00           | 10.62               | 2.28               | 0.25            |                 |                     |                    |                 |
| 16.50           | 10.76               | 2.36               | 0.23            |                 |                     |                    |                 |
| 17.00           | 10.88               | 2.43               | 0.22            |                 |                     |                    |                 |
| 17.50           | 11.00               | 2.49               | 0.20            |                 |                     |                    |                 |
| 18.00           | 11.10               | 2.55               | 0.18            |                 |                     |                    |                 |
| 18.50           | 11.20               | 2.60               | 0.17            |                 |                     |                    |                 |
| 19.00           | 11.29               | 2.65               | 0.16            |                 |                     |                    |                 |
| 19.50           | 11.38               | 2.70               | 0.16            |                 |                     |                    |                 |
| 20.00           | 11.47               | 2.75               | 0.15            |                 |                     |                    |                 |
| 20.50           | 11.55               | 2.79               | 0.15            |                 |                     |                    |                 |
| 21.00           | 11.63               | 2.84               | 0.14            |                 |                     |                    |                 |
| 21.50           | 11.71               | 2.88               | 0.14            |                 |                     |                    |                 |
| 22.00           | 11.79               | 2.93               | 0.13            |                 |                     |                    |                 |
| 22.50           | 11.86               | 2.97               | 0.13            |                 |                     |                    |                 |
| 23.00           | 11.93               | 3.01               | 0.12            |                 |                     |                    |                 |
| 23.50           | 11.99               | 3.04               | 0.12            |                 |                     |                    |                 |
| 24.00           | 12.06               | 3.08               | 0.12            |                 |                     |                    |                 |
| 24.50           | 12.06               | 3.08               | 0.02            |                 |                     |                    |                 |
| 25.00           | 12.06               | 3.08               | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 3.08               | 0.00            |                 |                     |                    |                 |

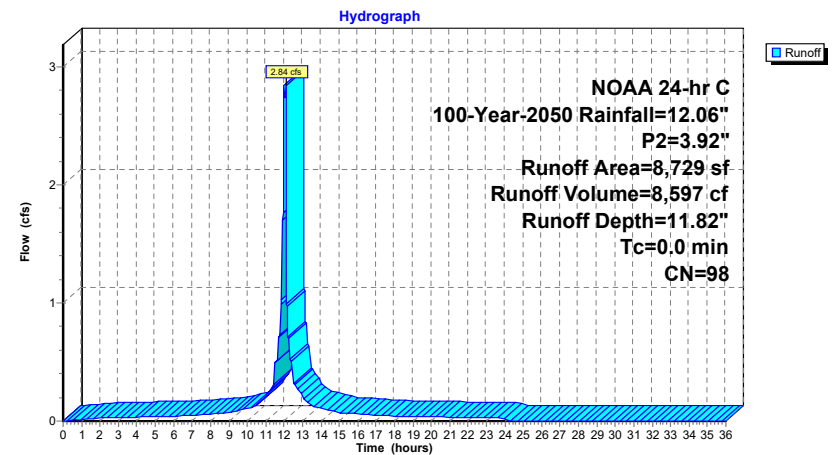
**Summary for Subcatchment 2S: Ex. POI-3 Impervious (Pond)**

Runoff = 2.84 cfs @ 12.09 hrs, Volume= 8,597 cf, Depth=11.82"  
 Routed to Pond 3P : Existing Pond Storage Volume POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 8,729     | 98 | Water Surface, HSG B    |
| 8,729     |    | 100.00% Impervious Area |

**Subcatchment 2S: Ex. POI-3 Impervious (Pond)**



Hydrograph for Subcatchment 2S: Ex. POI-3 Impervious (Pond)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 11.82              | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.01            | 26.50           | 12.06               | 11.82              | 0.00            |
| 1.00            | 0.13                | 0.03               | 0.01            | 27.00           | 12.06               | 11.82              | 0.00            |
| 1.50            | 0.20                | 0.07               | 0.02            | 27.50           | 12.06               | 11.82              | 0.00            |
| 2.00            | 0.27                | 0.12               | 0.02            | 28.00           | 12.06               | 11.82              | 0.00            |
| 2.50            | 0.35                | 0.18               | 0.03            | 28.50           | 12.06               | 11.82              | 0.00            |
| 3.00            | 0.43                | 0.25               | 0.03            | 29.00           | 12.06               | 11.82              | 0.00            |
| 3.50            | 0.51                | 0.32               | 0.03            | 29.50           | 12.06               | 11.82              | 0.00            |
| 4.00            | 0.59                | 0.40               | 0.03            | 30.00           | 12.06               | 11.82              | 0.00            |
| 4.50            | 0.68                | 0.48               | 0.03            | 30.50           | 12.06               | 11.82              | 0.00            |
| 5.00            | 0.77                | 0.57               | 0.04            | 31.00           | 12.06               | 11.82              | 0.00            |
| 5.50            | 0.86                | 0.66               | 0.04            | 31.50           | 12.06               | 11.82              | 0.00            |
| 6.00            | 0.96                | 0.75               | 0.04            | 32.00           | 12.06               | 11.82              | 0.00            |
| 6.50            | 1.06                | 0.85               | 0.04            | 32.50           | 12.06               | 11.82              | 0.00            |
| 7.00            | 1.18                | 0.96               | 0.05            | 33.00           | 12.06               | 11.82              | 0.00            |
| 7.50            | 1.30                | 1.09               | 0.05            | 33.50           | 12.06               | 11.82              | 0.00            |
| 8.00            | 1.44                | 1.23               | 0.06            | 34.00           | 12.06               | 11.82              | 0.00            |
| 8.50            | 1.60                | 1.38               | 0.06            | 34.50           | 12.06               | 11.82              | 0.00            |
| 9.00            | 1.76                | 1.54               | 0.07            | 35.00           | 12.06               | 11.82              | 0.00            |
| 9.50            | 1.96                | 1.73               | 0.09            | 35.50           | 12.06               | 11.82              | 0.00            |
| 10.00           | 2.20                | 1.97               | 0.11            | 36.00           | 12.06               | 11.82              | 0.00            |
| 10.50           | 2.49                | 2.26               | 0.13            |                 |                     |                    |                 |
| 11.00           | 2.89                | 2.66               | 0.21            |                 |                     |                    |                 |
| 11.50           | 3.56                | 3.33               | 0.40            |                 |                     |                    |                 |
| 12.00           | 5.75                | 5.51               | 2.27            |                 |                     |                    |                 |
| 12.50           | 8.50                | 8.26               | 0.41            |                 |                     |                    |                 |
| 13.00           | 9.17                | 8.93               | 0.21            |                 |                     |                    |                 |
| 13.50           | 9.57                | 9.33               | 0.13            |                 |                     |                    |                 |
| 14.00           | 9.86                | 9.62               | 0.11            |                 |                     |                    |                 |
| 14.50           | 10.10               | 9.86               | 0.09            |                 |                     |                    |                 |
| 15.00           | 10.30               | 10.06              | 0.07            |                 |                     |                    |                 |
| 15.50           | 10.46               | 10.22              | 0.06            |                 |                     |                    |                 |
| 16.00           | 10.62               | 10.37              | 0.06            |                 |                     |                    |                 |
| 16.50           | 10.76               | 10.51              | 0.05            |                 |                     |                    |                 |
| 17.00           | 10.88               | 10.64              | 0.05            |                 |                     |                    |                 |
| 17.50           | 11.00               | 10.76              | 0.04            |                 |                     |                    |                 |
| 18.00           | 11.10               | 10.86              | 0.04            |                 |                     |                    |                 |
| 18.50           | 11.20               | 10.96              | 0.04            |                 |                     |                    |                 |
| 19.00           | 11.29               | 11.05              | 0.04            |                 |                     |                    |                 |
| 19.50           | 11.38               | 11.14              | 0.04            |                 |                     |                    |                 |
| 20.00           | 11.47               | 11.23              | 0.03            |                 |                     |                    |                 |
| 20.50           | 11.55               | 11.31              | 0.03            |                 |                     |                    |                 |
| 21.00           | 11.63               | 11.39              | 0.03            |                 |                     |                    |                 |
| 21.50           | 11.71               | 11.47              | 0.03            |                 |                     |                    |                 |
| 22.00           | 11.79               | 11.55              | 0.03            |                 |                     |                    |                 |
| 22.50           | 11.86               | 11.62              | 0.03            |                 |                     |                    |                 |
| 23.00           | 11.93               | 11.69              | 0.03            |                 |                     |                    |                 |
| 23.50           | 11.99               | 11.75              | 0.03            |                 |                     |                    |                 |
| 24.00           | 12.06               | 11.82              | 0.02            |                 |                     |                    |                 |
| 24.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.00           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |

Summary for Pond 3P: Existing Pond Storage Volume POI-3

Inflow Area = 76,395 sf, 11.43% Impervious, Inflow Depth = 4.08" for 100-Year-2050 event  
Inflow = 4.04 cfs @ 12.29 hrs, Volume= 25,973 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

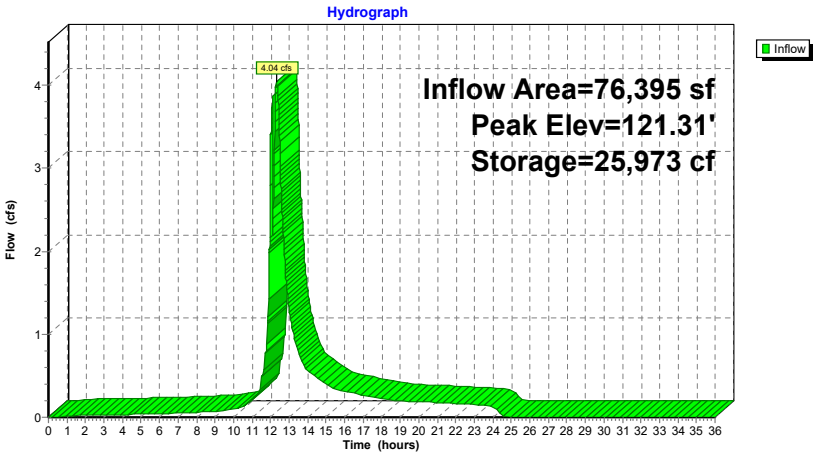
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 121.31' @ 25.23 hrs Surf.Area= 12,701 sf Storage= 25,973 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

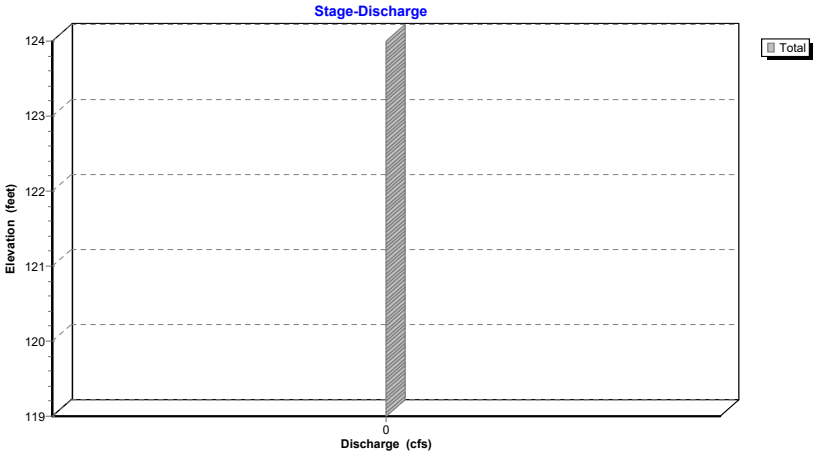
| Volume              | Invert               | Avail.Storage             | Storage Description                                 |
|---------------------|----------------------|---------------------------|-----------------------------------------------------|
| #1                  | 119.00'              | 65,239 cf                 | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                           |
| 119.00              | 9,792                | 0                         | 0                                                   |
| 120.00              | 11,006               | 10,399                    | 10,399                                              |
| 121.00              | 12,283               | 11,645                    | 22,044                                              |
| 122.00              | 13,612               | 12,948                    | 34,991                                              |
| 123.00              | 15,010               | 14,311                    | 49,302                                              |
| 124.00              | 16,863               | 15,937                    | 65,239                                              |

Pond 3P: Existing Pond Storage Volume POI-3

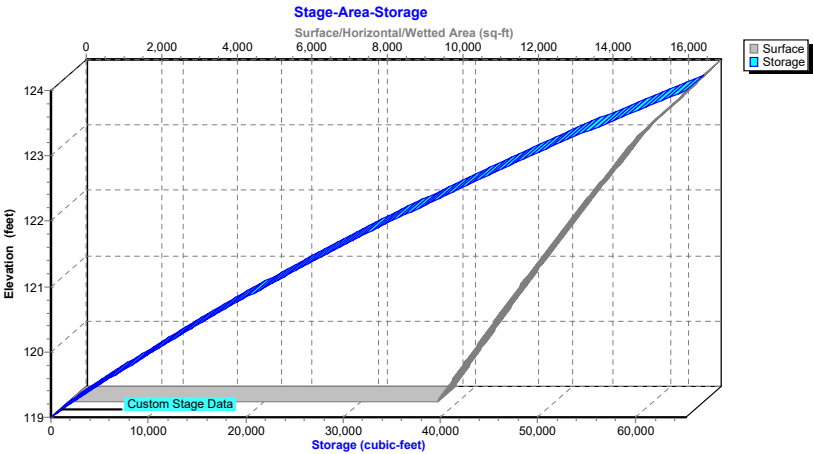
Pond 3P: Existing Pond Storage Volume POI-3



Pond 3P: Existing Pond Storage Volume POI-3



Pond 3P: Existing Pond Storage Volume POI-3



Hydrograph for Pond 3P: Existing Pond Storage Volume POI-3

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) |
|-----------------|-----------------|-------------------------|---------------------|-----------------|-----------------|-------------------------|---------------------|
| 0.00            | 0.00            | 0                       | 119.00              | 26.00           | 0.00            | 25,973                  | 121.31              |
| 0.50            | 0.01            | 2                       | 119.00              | 26.50           | 0.00            | 25,973                  | 121.31              |
| 1.00            | 0.01            | 20                      | 119.00              | 27.00           | 0.00            | 25,973                  | 121.31              |
| 1.50            | 0.02            | 51                      | 119.01              | 27.50           | 0.00            | 25,973                  | 121.31              |
| 2.00            | 0.02            | 90                      | 119.01              | 28.00           | 0.00            | 25,973                  | 121.31              |
| 2.50            | 0.03            | 134                     | 119.01              | 28.50           | 0.00            | 25,973                  | 121.31              |
| 3.00            | 0.03            | 183                     | 119.02              | 29.00           | 0.00            | 25,973                  | 121.31              |
| 3.50            | 0.03            | 235                     | 119.02              | 29.50           | 0.00            | 25,973                  | 121.31              |
| 4.00            | 0.03            | 291                     | 119.03              | 30.00           | 0.00            | 25,973                  | 121.31              |
| 4.50            | 0.03            | 350                     | 119.04              | 30.50           | 0.00            | 25,973                  | 121.31              |
| 5.00            | 0.04            | 412                     | 119.04              | 31.00           | 0.00            | 25,973                  | 121.31              |
| 5.50            | 0.04            | 477                     | 119.05              | 31.50           | 0.00            | 25,973                  | 121.31              |
| 6.00            | 0.04            | 544                     | 119.06              | 32.00           | 0.00            | 25,973                  | 121.31              |
| 6.50            | 0.04            | 618                     | 119.06              | 32.50           | 0.00            | 25,973                  | 121.31              |
| 7.00            | 0.05            | 700                     | 119.07              | 33.00           | 0.00            | 25,973                  | 121.31              |
| 7.50            | 0.05            | 792                     | 119.08              | 33.50           | 0.00            | 25,973                  | 121.31              |
| 8.00            | 0.06            | 892                     | 119.09              | 34.00           | 0.00            | 25,973                  | 121.31              |
| 8.50            | 0.06            | 1,001                   | 119.10              | 34.50           | 0.00            | 25,973                  | 121.31              |
| 9.00            | 0.07            | 1,119                   | 119.11              | 35.00           | 0.00            | 25,973                  | 121.31              |
| 9.50            | 0.09            | 1,260                   | 119.13              | 35.50           | 0.00            | 25,973                  | 121.31              |
| 10.00           | 0.11            | 1,434                   | 119.15              | 36.00           | 0.00            | 25,973                  | 121.31              |
| 10.50           | 0.13            | 1,641                   | 119.17              |                 |                 |                         |                     |
| 11.00           | 0.21            | 1,937                   | 119.20              |                 |                 |                         |                     |
| 11.50           | 0.41            | 2,424                   | 119.24              |                 |                 |                         |                     |
| 12.00           | 2.80            | 4,277                   | 119.43              |                 |                 |                         |                     |
| 12.50           | 3.17            | 10,556                  | 120.01              |                 |                 |                         |                     |
| 13.00           | 1.30            | 14,196                  | 120.34              |                 |                 |                         |                     |
| 13.50           | 0.78            | 16,006                  | 120.50              |                 |                 |                         |                     |
| 14.00           | 0.56            | 17,184                  | 120.60              |                 |                 |                         |                     |
| 14.50           | 0.48            | 18,116                  | 120.67              |                 |                 |                         |                     |
| 15.00           | 0.39            | 18,899                  | 120.74              |                 |                 |                         |                     |
| 15.50           | 0.33            | 19,546                  | 120.79              |                 |                 |                         |                     |
| 16.00           | 0.31            | 20,125                  | 120.84              |                 |                 |                         |                     |
| 16.50           | 0.29            | 20,665                  | 120.89              |                 |                 |                         |                     |
| 17.00           | 0.27            | 21,165                  | 120.93              |                 |                 |                         |                     |
| 17.50           | 0.24            | 21,624                  | 120.97              |                 |                 |                         |                     |
| 18.00           | 0.22            | 22,042                  | 121.00              |                 |                 |                         |                     |
| 18.50           | 0.20            | 22,420                  | 121.03              |                 |                 |                         |                     |
| 19.00           | 0.20            | 22,781                  | 121.06              |                 |                 |                         |                     |
| 19.50           | 0.19            | 23,131                  | 121.09              |                 |                 |                         |                     |
| 20.00           | 0.19            | 23,472                  | 121.12              |                 |                 |                         |                     |
| 20.50           | 0.18            | 23,803                  | 121.14              |                 |                 |                         |                     |
| 21.00           | 0.18            | 24,123                  | 121.17              |                 |                 |                         |                     |
| 21.50           | 0.17            | 24,433                  | 121.19              |                 |                 |                         |                     |
| 22.00           | 0.16            | 24,733                  | 121.22              |                 |                 |                         |                     |
| 22.50           | 0.16            | 25,022                  | 121.24              |                 |                 |                         |                     |
| 23.00           | 0.15            | 25,301                  | 121.26              |                 |                 |                         |                     |
| 23.50           | 0.15            | 25,568                  | 121.28              |                 |                 |                         |                     |
| 24.00           | 0.13            | 25,826                  | 121.30              |                 |                 |                         |                     |
| 24.50           | 0.02            | 25,964                  | 121.31              |                 |                 |                         |                     |
| 25.00           | 0.00            | 25,973                  | 121.31              |                 |                 |                         |                     |
| 25.50           | 0.00            | 25,973                  | 121.31              |                 |                 |                         |                     |

Stage-Discharge for Pond 3P: Existing Pond Storage Volume POI-3

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|
| 119.00              | 0.00               | 121.60              | 0.00               |
| 119.05              | 0.00               | 121.65              | 0.00               |
| 119.10              | 0.00               | 121.70              | 0.00               |
| 119.15              | 0.00               | 121.75              | 0.00               |
| 119.20              | 0.00               | 121.80              | 0.00               |
| 119.25              | 0.00               | 121.85              | 0.00               |
| 119.30              | 0.00               | 121.90              | 0.00               |
| 119.35              | 0.00               | 121.95              | 0.00               |
| 119.40              | 0.00               | 122.00              | 0.00               |
| 119.45              | 0.00               | 122.05              | 0.00               |
| 119.50              | 0.00               | 122.10              | 0.00               |
| 119.55              | 0.00               | 122.15              | 0.00               |
| 119.60              | 0.00               | 122.20              | 0.00               |
| 119.65              | 0.00               | 122.25              | 0.00               |
| 119.70              | 0.00               | 122.30              | 0.00               |
| 119.75              | 0.00               | 122.35              | 0.00               |
| 119.80              | 0.00               | 122.40              | 0.00               |
| 119.85              | 0.00               | 122.45              | 0.00               |
| 119.90              | 0.00               | 122.50              | 0.00               |
| 119.95              | 0.00               | 122.55              | 0.00               |
| 120.00              | 0.00               | 122.60              | 0.00               |
| 120.05              | 0.00               | 122.65              | 0.00               |
| 120.10              | 0.00               | 122.70              | 0.00               |
| 120.15              | 0.00               | 122.75              | 0.00               |
| 120.20              | 0.00               | 122.80              | 0.00               |
| 120.25              | 0.00               | 122.85              | 0.00               |
| 120.30              | 0.00               | 122.90              | 0.00               |
| 120.35              | 0.00               | 122.95              | 0.00               |
| 120.40              | 0.00               | 123.00              | 0.00               |
| 120.45              | 0.00               | 123.05              | 0.00               |
| 120.50              | 0.00               | 123.10              | 0.00               |
| 120.55              | 0.00               | 123.15              | 0.00               |
| 120.60              | 0.00               | 123.20              | 0.00               |
| 120.65              | 0.00               | 123.25              | 0.00               |
| 120.70              | 0.00               | 123.30              | 0.00               |
| 120.75              | 0.00               | 123.35              | 0.00               |
| 120.80              | 0.00               | 123.40              | 0.00               |
| 120.85              | 0.00               | 123.45              | 0.00               |
| 120.90              | 0.00               | 123.50              | 0.00               |
| 120.95              | 0.00               | 123.55              | 0.00               |
| 121.00              | 0.00               | 123.60              | 0.00               |
| 121.05              | 0.00               | 123.65              | 0.00               |
| 121.10              | 0.00               | 123.70              | 0.00               |
| 121.15              | 0.00               | 123.75              | 0.00               |
| 121.20              | 0.00               | 123.80              | 0.00               |
| 121.25              | 0.00               | 123.85              | 0.00               |
| 121.30              | 0.00               | 123.90              | 0.00               |
| 121.35              | 0.00               | 123.95              | 0.00               |
| 121.40              | 0.00               | 124.00              | 0.00               |
| 121.45              | 0.00               |                     |                    |
| 121.50              | 0.00               |                     |                    |
| 121.55              | 0.00               |                     |                    |

**Stage-Area-Storage for Pond 3P: Existing Pond Storage Volume POI-3**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 119.00              | 9,792              | 0                       | 121.60              | 13,080             | 29,653                  |
| 119.05              | 9,853              | 491                     | 121.65              | 13,147             | 30,308                  |
| 119.10              | 9,913              | 985                     | 121.70              | 13,213             | 30,967                  |
| 119.15              | 9,974              | 1,482                   | 121.75              | 13,280             | 31,630                  |
| 119.20              | 10,035             | 1,983                   | 121.80              | 13,346             | 32,295                  |
| 119.25              | 10,096             | 2,486                   | 121.85              | 13,413             | 32,964                  |
| 119.30              | 10,156             | 2,992                   | 121.90              | 13,479             | 33,636                  |
| 119.35              | 10,217             | 3,502                   | 121.95              | 13,546             | 34,312                  |
| 119.40              | 10,278             | 4,014                   | 122.00              | 13,612             | 34,991                  |
| 119.45              | 10,338             | 4,529                   | 122.05              | 13,682             | 35,673                  |
| 119.50              | 10,399             | 5,048                   | 122.10              | 13,752             | 36,359                  |
| 119.55              | 10,460             | 5,569                   | 122.15              | 13,822             | 37,049                  |
| 119.60              | 10,520             | 6,094                   | 122.20              | 13,892             | 37,741                  |
| 119.65              | 10,581             | 6,621                   | 122.25              | 13,962             | 38,438                  |
| 119.70              | 10,642             | 7,152                   | 122.30              | 14,031             | 39,138                  |
| 119.75              | 10,703             | 7,685                   | 122.35              | 14,101             | 39,841                  |
| 119.80              | 10,763             | 8,222                   | 122.40              | 14,171             | 40,548                  |
| 119.85              | 10,824             | 8,762                   | 122.45              | 14,241             | 41,258                  |
| 119.90              | 10,885             | 9,304                   | 122.50              | 14,311             | 41,972                  |
| 119.95              | 10,945             | 9,850                   | 122.55              | 14,381             | 42,689                  |
| 120.00              | 11,006             | 10,399                  | 122.60              | 14,451             | 43,410                  |
| 120.05              | 11,070             | 10,951                  | 122.65              | 14,521             | 44,134                  |
| 120.10              | 11,134             | 11,506                  | 122.70              | 14,591             | 44,862                  |
| 120.15              | 11,198             | 12,064                  | 122.75              | 14,661             | 45,593                  |
| 120.20              | 11,261             | 12,626                  | 122.80              | 14,730             | 46,328                  |
| 120.25              | 11,325             | 13,190                  | 122.85              | 14,800             | 47,066                  |
| 120.30              | 11,389             | 13,758                  | 122.90              | 14,870             | 47,808                  |
| 120.35              | 11,453             | 14,329                  | 122.95              | 14,940             | 48,553                  |
| 120.40              | 11,517             | 14,904                  | 123.00              | 15,010             | 49,302                  |
| 120.45              | 11,581             | 15,481                  | 123.05              | 15,103             | 50,055                  |
| 120.50              | 11,645             | 16,062                  | 123.10              | 15,195             | 50,812                  |
| 120.55              | 11,708             | 16,645                  | 123.15              | 15,288             | 51,574                  |
| 120.60              | 11,772             | 17,232                  | 123.20              | 15,381             | 52,341                  |
| 120.65              | 11,836             | 17,823                  | 123.25              | 15,473             | 53,112                  |
| 120.70              | 11,900             | 18,416                  | 123.30              | 15,566             | 53,888                  |
| 120.75              | 11,964             | 19,013                  | 123.35              | 15,659             | 54,669                  |
| 120.80              | 12,028             | 19,612                  | 123.40              | 15,751             | 55,454                  |
| 120.85              | 12,091             | 20,215                  | 123.45              | 15,844             | 56,244                  |
| 120.90              | 12,155             | 20,822                  | 123.50              | 15,937             | 57,039                  |
| 120.95              | 12,219             | 21,431                  | 123.55              | 16,029             | 57,838                  |
| 121.00              | 12,283             | 22,044                  | 123.60              | 16,122             | 58,642                  |
| 121.05              | 12,349             | 22,659                  | 123.65              | 16,214             | 59,450                  |
| 121.10              | 12,416             | 23,278                  | 123.70              | 16,307             | 60,263                  |
| 121.15              | 12,482             | 23,901                  | 123.75              | 16,400             | 61,081                  |
| 121.20              | 12,549             | 24,527                  | 123.80              | 16,492             | 61,903                  |
| 121.25              | 12,615             | 25,156                  | 123.85              | 16,585             | 62,730                  |
| 121.30              | 12,682             | 25,788                  | 123.90              | 16,678             | 63,561                  |
| 121.35              | 12,748             | 26,424                  | 123.95              | 16,770             | 64,398                  |
| 121.40              | 12,815             | 27,063                  | 124.00              | <b>16,863</b>      | <b>65,239</b>           |
| 121.45              | 12,881             | 27,705                  |                     |                    |                         |
| 121.50              | 12,948             | 28,351                  |                     |                    |                         |
| 121.55              | 13,014             | 29,000                  |                     |                    |                         |

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**10-Year-2050 Event**

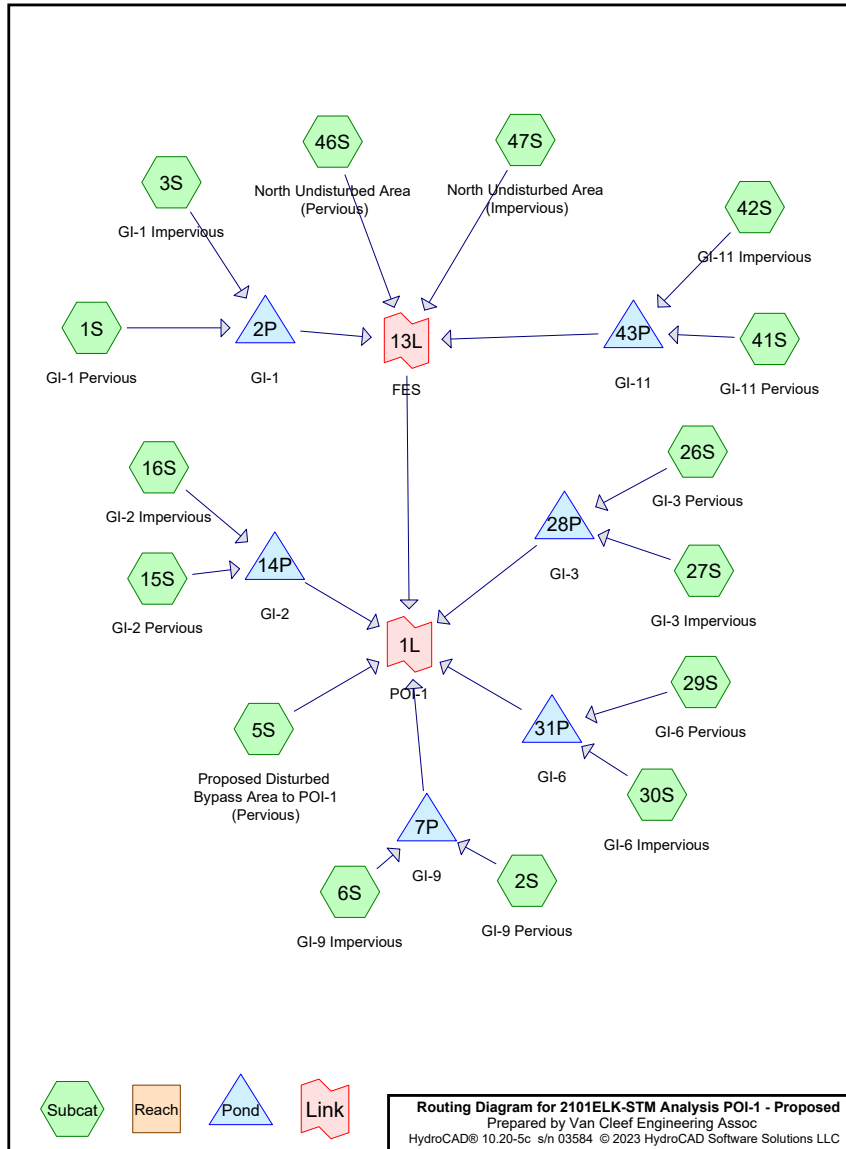
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**Proposed Conditions - Hydrograph Reports for  
Water Quality, 2yr, 10yr, 25yr & 100yr Storm Events**



## 2101ELK-STM Analysis POI-1 - Proposed

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### Rainfall Events Listing

| Event# | Event Name    | Storm Type  | Curve | Mode    | Duration (hours) | B/B | Depth (inches) | AMC | P2 (inches) |
|--------|---------------|-------------|-------|---------|------------------|-----|----------------|-----|-------------|
| 1      | 2-Year-2020   | NOAA 24-hr  | C     | Default | 24.00            | 1   | 3.45           | 2   | 3.45        |
| 2      | 10-Year-2020  | NOAA 24-hr  | C     | Default | 24.00            | 1   | 5.35           | 2   | 3.45        |
| 3      | 100-Year-2020 | NOAA 24-hr  | C     | Default | 24.00            | 1   | 9.06           | 2   | 3.45        |
| 4      | 2-Year-2050   | NOAA 24-hr  | C     | Default | 24.00            | 1   | 3.92           | 2   | 3.92        |
| 5      | 10-Year-2050  | NOAA 24-hr  | C     | Default | 24.00            | 1   | 6.21           | 2   | 3.92        |
| 6      | 100-Year-2050 | NOAA 24-hr  | C     | Default | 24.00            | 1   | 12.06          | 2   | 3.92        |
| 7      | WQ Storm      | NJ DEP 2-hr |       | Default | 2.00             | 1   | 1.25           | 2   | 3.92        |

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Area Listing (all nodes)

| Area<br>(sq-ft) | CN | Description<br>(subcatchment-numbers)                          |
|-----------------|----|----------------------------------------------------------------|
| 97,860          | 39 | >75% Grass cover, Good, HSG A (1S, 2S, 5S, 15S, 26S, 29S, 46S) |
| 145,294         | 61 | >75% Grass cover, Good, HSG B (2S, 5S, 26S, 29S, 41S, 46S)     |
| 8,142           | 86 | Fallow, bare soil, HSG B (46S)                                 |
| 205,231         | 98 | Paved parking, HSG A (3S, 6S, 16S, 27S, 30S, 42S)              |
| 4,000           | 98 | Roofs, HSG A (27S)                                             |
| 45,722          | 98 | Unconnected pavement, HSG A (47S)                              |
| 30,052          | 32 | Woods/grass comb., Good, HSG A (46S)                           |
| 22,227          | 58 | Woods/grass comb., Good, HSG B (46S)                           |
| 558,528         | 73 | TOTAL AREA                                                     |

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Soil Listing (all nodes)

| Area<br>(sq-ft) | Soil<br>Group | Subcatchment<br>Numbers                                         |
|-----------------|---------------|-----------------------------------------------------------------|
| 382,865         | HSG A         | 1S, 2S, 3S, 5S, 6S, 15S, 16S, 26S, 27S, 29S, 30S, 42S, 46S, 47S |
| 175,663         | HSG B         | 2S, 5S, 26S, 29S, 41S, 46S                                      |
| 0               | HSG C         |                                                                 |
| 0               | HSG D         |                                                                 |
| 0               | Other         |                                                                 |
| 558,528         |               | TOTAL AREA                                                      |

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| Ground Covers (all nodes) |                  |                  |                  |                  |                  |                            |
|---------------------------|------------------|------------------|------------------|------------------|------------------|----------------------------|
| HSG-A<br>(sq-ft)          | HSG-B<br>(sq-ft) | HSG-C<br>(sq-ft) | HSG-D<br>(sq-ft) | Other<br>(sq-ft) | Total<br>(sq-ft) | Ground<br>Cover            |
| 97,860                    | 145,294          | 0                | 0                | 0                | 243,154          | >75% Grass<br>cover, Good  |
| 0                         | 8,142            | 0                | 0                | 0                | 8,142            | Fallow, bare soil          |
| 205,231                   | 0                | 0                | 0                | 0                | 205,231          | Paved parking              |
| 4,000                     | 0                | 0                | 0                | 0                | 4,000            | Roofs                      |
| 45,722                    | 0                | 0                | 0                | 0                | 45,722           | Unconnected<br>pavement    |
| 30,052                    | 22,227           | 0                | 0                | 0                | 52,279           | Woods/grass<br>comb., Good |
| 382,865                   | 175,663          | 0                | 0                | 0                | 558,528          | TOTAL AREA                 |

S  
N

2101ELK-STM Analysis POI-1 - Proposed

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| Pipe Listing (all nodes) |                |                     |                      |                  |                  |       |                   |                         |                         |              |
|--------------------------|----------------|---------------------|----------------------|------------------|------------------|-------|-------------------|-------------------------|-------------------------|--------------|
| Line#                    | Node<br>Number | In-Invert<br>(feet) | Out-Invert<br>(feet) | Length<br>(feet) | Slope<br>(ft/ft) | n     | Width<br>(inches) | Diam/Height<br>(inches) | Inside-Fill<br>(inches) | Node<br>Name |
| 1                        | 16S            | 0.00                | 0.00                 | 23.0             | 0.0050           | 0.012 | 0.0               | 15.0                    | 0.0                     |              |
| 2                        | 16S            | 0.00                | 0.00                 | 20.0             | 0.0050           | 0.012 | 0.0               | 15.0                    | 0.0                     |              |
| 3                        | 27S            | 0.00                | 0.00                 | 55.0             | 0.0050           | 0.012 | 0.0               | 15.0                    | 0.0                     |              |
| 4                        | 30S            | 0.00                | 0.00                 | 26.0             | 0.0050           | 0.012 | 0.0               | 15.0                    | 0.0                     |              |
| 5                        | 46S            | 0.00                | 0.00                 | 228.0            | 0.0050           | 0.013 | 0.0               | 24.0                    | 0.0                     |              |
| 6                        | 47S            | 0.00                | 0.00                 | 228.0            | 0.0050           | 0.013 | 0.0               | 24.0                    | 0.0                     |              |

**2101ELK-STM Analysis POI-1 - ProposedVOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"**

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Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

|                                           |                                                                                                                                        |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Subcatchment1S: GI-1 Pervious</b>      | Runoff Area=18,062 sf 0.00% Impervious Runoff Depth=0.01"<br>Flow Length=68' Slope=0.0330 '/' Tc=8.3 min CN=39 Runoff=0.00 cfs 10 cf   |
| <b>Subcatchment2S: GI-9 Pervious</b>      | Runoff Area=16,032 sf 0.00% Impervious Runoff Depth=0.55"<br>Flow Length=17' Slope=0.0960 '/' Tc=1.8 min CN=61 Runoff=0.25 cfs 735 cf  |
| <b>Subcatchment3S: GI-1 Impervious</b>    | Runoff Area=21,060 sf 100.00% Impervious Runoff Depth=3.22"<br>Flow Length=400' Tc=2.7 min CN=98 Runoff=1.94 cfs 5,645 cf              |
| <b>Subcatchment5S: Proposed Disturbed</b> | Runoff Area=44,397 sf 0.00% Impervious Runoff Depth=0.11"<br>Flow Length=1,818' Tc=89.9 min CN=47 Runoff=0.01 cfs 423 cf               |
| <b>Subcatchment6S: GI-9 Impervious</b>    | Runoff Area=43,332 sf 100.00% Impervious Runoff Depth=3.22"<br>Flow Length=311' Tc=2.3 min CN=98 Runoff=4.04 cfs 11,615 cf             |
| <b>Subcatchment15S: GI-2 Pervious</b>     | Runoff Area=13,462 sf 0.00% Impervious Runoff Depth=0.01"<br>Flow Length=28' Slope=0.0400 '/' Tc=3.8 min CN=39 Runoff=0.00 cfs 7 cf    |
| <b>Subcatchment16S: GI-2 Impervious</b>   | Runoff Area=13,121 sf 100.00% Impervious Runoff Depth=3.22"<br>Flow Length=220' Tc=1.9 min CN=98 Runoff=1.23 cfs 3,517 cf              |
| <b>Subcatchment26S: GI-3 Pervious</b>     | Runoff Area=23,555 sf 0.00% Impervious Runoff Depth=0.33"<br>Flow Length=93' Slope=0.0130 '/' Tc=10.0 min CN=55 Runoff=0.09 cfs 646 cf |
| <b>Subcatchment27S: GI-3 Impervious</b>   | Runoff Area=60,594 sf 100.00% Impervious Runoff Depth=3.22"<br>Flow Length=433' Tc=3.4 min CN=98 Runoff=5.43 cfs 16,242 cf             |
| <b>Subcatchment29S: GI-6 Pervious</b>     | Runoff Area=27,344 sf 0.00% Impervious Runoff Depth=0.16"<br>Flow Length=60' Slope=0.0280 '/' Tc=8.0 min CN=49 Runoff=0.02 cfs 362 cf  |
| <b>Subcatchment30S: GI-6 Impervious</b>   | Runoff Area=57,688 sf 100.00% Impervious Runoff Depth=3.22"<br>Flow Length=401' Tc=3.3 min CN=98 Runoff=5.20 cfs 15,463 cf             |
| <b>Subcatchment41S: GI-11 Pervious</b>    | Runoff Area=3,638 sf 0.00% Impervious Runoff Depth=0.55"<br>Flow Length=123' Tc=3.6 min CN=61 Runoff=0.05 cfs 167 cf                   |
| <b>Subcatchment42S: GI-11 Impervious</b>  | Runoff Area=13,436 sf 100.00% Impervious Runoff Depth=3.22"<br>Flow Length=158' Tc=1.7 min CN=98 Runoff=1.23 cfs 3,602 cf              |
| <b>Subcatchment46S: North Undisturbed</b> | Runoff Area=157,085 sf 0.00% Impervious Runoff Depth=0.30"<br>Flow Length=690' Tc=22.7 min CN=54 Runoff=0.37 cfs 3,889 cf              |
| <b>Subcatchment47S: North Undisturbed</b> | Runoff Area=45,722 sf 100.00% Impervious Runoff Depth=3.22"<br>Flow Length=725' Tc=23.2 min CN=98 Runoff=2.37 cfs 12,256 cf            |
| <b>Pond 2P: GI-1</b>                      | Peak Elev=131.46' Storage=3,705 cf Inflow=1.94 cfs 5,655 cf<br>Outflow=0.16 cfs 3,621 cf                                               |

**2101ELK-STM Analysis POI-1 - ProposedVOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"**

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|                        |                                                                                            |
|------------------------|--------------------------------------------------------------------------------------------|
| <b>Pond 7P: GI-9</b>   | Peak Elev=128.84' Storage=7,719 cf Inflow=4.28 cfs 12,351 cf<br>Outflow=0.39 cfs 8,401 cf  |
| <b>Pond 14P: GI-2</b>  | Peak Elev=130.32' Storage=2,280 cf Inflow=1.23 cfs 3,524 cf<br>Outflow=0.11 cfs 2,252 cf   |
| <b>Pond 28P: GI-3</b>  | Peak Elev=131.20' Storage=13,163 cf Inflow=5.44 cfs 16,888 cf<br>Outflow=0.15 cfs 5,365 cf |
| <b>Pond 31P: GI-6</b>  | Peak Elev=130.58' Storage=11,579 cf Inflow=5.20 cfs 15,826 cf<br>Outflow=0.19 cfs 7,253 cf |
| <b>Pond 43P: GI-11</b> | Peak Elev=131.38' Storage=1,938 cf Inflow=1.30 cfs 3,768 cf<br>Outflow=0.42 cfs 2,581 cf   |
| <b>Link 1L: POI-1</b>  | Inflow=3.65 cfs 46,042 cf<br>Primary=3.65 cfs 46,042 cf                                    |
| <b>Link 13L: FES</b>   | Inflow=3.14 cfs 22,348 cf<br>Primary=3.14 cfs 22,348 cf                                    |

**Total Runoff Area = 558,528 sf Runoff Volume = 74,581 cf Average Runoff Depth = 1.60"**  
**54.35% Pervious = 303,575 sf 45.65% Impervious = 254,953 sf**

Summary for Subcatchment 1S: GI-1 Pervious

Runoff = 0.00 cfs @ 24.03 hrs, Volume= 10 cf, Depth= 0.01"  
Routed to Pond 2P : GI-1

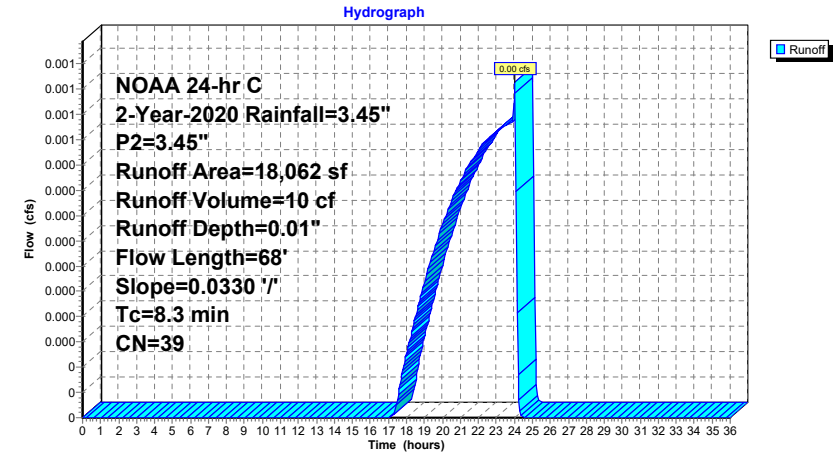
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 18,062    | 39 | >75% Grass cover, Good, HSG A |
| 18,062    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                          |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------|
| 8.3      | 68            | 0.0330        | 0.14              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.45" |



Subcatchment 1S: GI-1 Pervious



Hydrograph for Subcatchment 1S: GI-1 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 3.45             | 0.01            | 0.00         |
| 0.50         | 0.02             | 0.00            | 0.00         | 26.50        | 3.45             | 0.01            | 0.00         |
| 1.00         | 0.04             | 0.00            | 0.00         | 27.00        | 3.45             | 0.01            | 0.00         |
| 1.50         | 0.06             | 0.00            | 0.00         | 27.50        | 3.45             | 0.01            | 0.00         |
| 2.00         | 0.08             | 0.00            | 0.00         | 28.00        | 3.45             | 0.01            | 0.00         |
| 2.50         | 0.10             | 0.00            | 0.00         | 28.50        | 3.45             | 0.01            | 0.00         |
| 3.00         | 0.12             | 0.00            | 0.00         | 29.00        | 3.45             | 0.01            | 0.00         |
| 3.50         | 0.14             | 0.00            | 0.00         | 29.50        | 3.45             | 0.01            | 0.00         |
| 4.00         | 0.17             | 0.00            | 0.00         | 30.00        | 3.45             | 0.01            | 0.00         |
| 4.50         | 0.19             | 0.00            | 0.00         | 30.50        | 3.45             | 0.01            | 0.00         |
| 5.00         | 0.22             | 0.00            | 0.00         | 31.00        | 3.45             | 0.01            | 0.00         |
| 5.50         | 0.25             | 0.00            | 0.00         | 31.50        | 3.45             | 0.01            | 0.00         |
| 6.00         | 0.27             | 0.00            | 0.00         | 32.00        | 3.45             | 0.01            | 0.00         |
| 6.50         | 0.30             | 0.00            | 0.00         | 32.50        | 3.45             | 0.01            | 0.00         |
| 7.00         | 0.34             | 0.00            | 0.00         | 33.00        | 3.45             | 0.01            | 0.00         |
| 7.50         | 0.37             | 0.00            | 0.00         | 33.50        | 3.45             | 0.01            | 0.00         |
| 8.00         | 0.41             | 0.00            | 0.00         | 34.00        | 3.45             | 0.01            | 0.00         |
| 8.50         | 0.46             | 0.00            | 0.00         | 34.50        | 3.45             | 0.01            | 0.00         |
| 9.00         | 0.50             | 0.00            | 0.00         | 35.00        | 3.45             | 0.01            | 0.00         |
| 9.50         | 0.56             | 0.00            | 0.00         | 35.50        | 3.45             | 0.01            | 0.00         |
| 10.00        | 0.63             | 0.00            | 0.00         | 36.00        | 3.45             | 0.01            | 0.00         |
| 10.50        | 0.71             | 0.00            | 0.00         |              |                  |                 |              |
| 11.00        | 0.83             | 0.00            | 0.00         |              |                  |                 |              |
| 11.50        | 1.02             | 0.00            | 0.00         |              |                  |                 |              |
| 12.00        | 1.64             | 0.00            | 0.00         |              |                  |                 |              |
| 12.50        | 2.43             | 0.00            | 0.00         |              |                  |                 |              |
| 13.00        | 2.62             | 0.00            | 0.00         |              |                  |                 |              |
| 13.50        | 2.74             | 0.00            | 0.00         |              |                  |                 |              |
| 14.00        | 2.82             | 0.00            | 0.00         |              |                  |                 |              |
| 14.50        | 2.89             | 0.00            | 0.00         |              |                  |                 |              |
| 15.00        | 2.95             | 0.00            | 0.00         |              |                  |                 |              |
| 15.50        | 2.99             | 0.00            | 0.00         |              |                  |                 |              |
| 16.00        | 3.04             | 0.00            | 0.00         |              |                  |                 |              |
| 16.50        | 3.08             | 0.00            | 0.00         |              |                  |                 |              |
| 17.00        | 3.11             | 0.00            | 0.00         |              |                  |                 |              |
| 17.50        | 3.15             | 0.00            | 0.00         |              |                  |                 |              |
| 18.00        | 3.18             | 0.00            | 0.00         |              |                  |                 |              |
| 18.50        | 3.20             | 0.00            | 0.00         |              |                  |                 |              |
| 19.00        | 3.23             | 0.00            | 0.00         |              |                  |                 |              |
| 19.50        | 3.26             | 0.00            | 0.00         |              |                  |                 |              |
| 20.00        | 3.28             | 0.00            | 0.00         |              |                  |                 |              |
| 20.50        | 3.31             | 0.00            | 0.00         |              |                  |                 |              |
| 21.00        | 3.33             | 0.00            | 0.00         |              |                  |                 |              |
| 21.50        | 3.35             | 0.00            | 0.00         |              |                  |                 |              |
| 22.00        | 3.37             | 0.00            | 0.00         |              |                  |                 |              |
| 22.50        | 3.39             | 0.00            | 0.00         |              |                  |                 |              |
| 23.00        | 3.41             | 0.01            | 0.00         |              |                  |                 |              |
| 23.50        | 3.43             | 0.01            | 0.00         |              |                  |                 |              |
| 24.00        | 3.45             | 0.01            | 0.00         |              |                  |                 |              |
| 24.50        | 3.45             | 0.01            | 0.00         |              |                  |                 |              |
| 25.00        | 3.45             | 0.01            | 0.00         |              |                  |                 |              |
| 25.50        | 3.45             | 0.01            | 0.00         |              |                  |                 |              |

Summary for Subcatchment 2S: GI-9 Pervious

Runoff = 0.25 cfs @ 12.09 hrs, Volume= 735 cf, Depth= 0.55"  
Routed to Pond 7P : GI-9

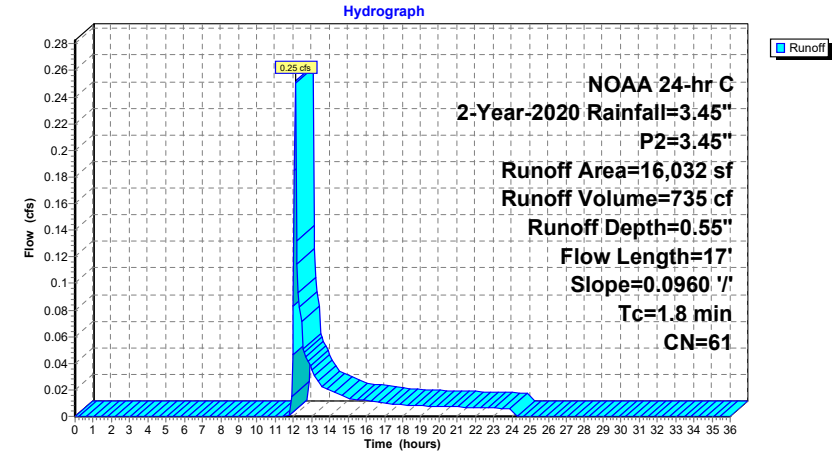
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 154       | 39 | >75% Grass cover, Good, HSG A |
| 15,878    | 61 | >75% Grass cover, Good, HSG B |
| 16,032    | 61 | Weighted Average              |
| 16,032    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                    |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------|
| 1.8      | 17            | 0.0960        | 0.16              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.45" |



Subcatchment 2S: GI-9 Pervious



Hydrograph for Subcatchment 2S: GI-9 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         |
| 0.50         | 0.02             | 0.00            | 0.00         |
| 1.00         | 0.04             | 0.00            | 0.00         |
| 1.50         | 0.06             | 0.00            | 0.00         |
| 2.00         | 0.08             | 0.00            | 0.00         |
| 2.50         | 0.10             | 0.00            | 0.00         |
| 3.00         | 0.12             | 0.00            | 0.00         |
| 3.50         | 0.14             | 0.00            | 0.00         |
| 4.00         | 0.17             | 0.00            | 0.00         |
| 4.50         | 0.19             | 0.00            | 0.00         |
| 5.00         | 0.22             | 0.00            | 0.00         |
| 5.50         | 0.25             | 0.00            | 0.00         |
| 6.00         | 0.27             | 0.00            | 0.00         |
| 6.50         | 0.30             | 0.00            | 0.00         |
| 7.00         | 0.34             | 0.00            | 0.00         |
| 7.50         | 0.37             | 0.00            | 0.00         |
| 8.00         | 0.41             | 0.00            | 0.00         |
| 8.50         | 0.46             | 0.00            | 0.00         |
| 9.00         | 0.50             | 0.00            | 0.00         |
| 9.50         | 0.56             | 0.00            | 0.00         |
| 10.00        | 0.63             | 0.00            | 0.00         |
| 10.50        | 0.71             | 0.00            | 0.00         |
| 11.00        | 0.83             | 0.00            | 0.00         |
| 11.50        | 1.02             | 0.00            | 0.00         |
| 12.00        | 1.64             | 0.02            | 0.08         |
| 12.50        | 2.43             | 0.18            | 0.07         |
| 13.00        | 2.62             | 0.23            | 0.04         |
| 13.50        | 2.74             | 0.27            | 0.02         |
| 14.00        | 2.82             | 0.30            | 0.02         |
| 14.50        | 2.89             | 0.32            | 0.02         |
| 15.00        | 2.95             | 0.34            | 0.01         |
| 15.50        | 2.99             | 0.36            | 0.01         |
| 16.00        | 3.04             | 0.38            | 0.01         |
| 16.50        | 3.08             | 0.39            | 0.01         |
| 17.00        | 3.11             | 0.41            | 0.01         |
| 17.50        | 3.15             | 0.42            | 0.01         |
| 18.00        | 3.18             | 0.43            | 0.01         |
| 18.50        | 3.20             | 0.45            | 0.01         |
| 19.00        | 3.23             | 0.46            | 0.01         |
| 19.50        | 3.26             | 0.47            | 0.01         |
| 20.00        | 3.28             | 0.48            | 0.01         |
| 20.50        | 3.31             | 0.49            | 0.01         |
| 21.00        | 3.33             | 0.50            | 0.01         |
| 21.50        | 3.35             | 0.51            | 0.01         |
| 22.00        | 3.37             | 0.52            | 0.01         |
| 22.50        | 3.39             | 0.53            | 0.01         |
| 23.00        | 3.41             | 0.53            | 0.01         |
| 23.50        | 3.43             | 0.54            | 0.01         |
| 24.00        | 3.45             | 0.55            | 0.01         |
| 24.50        | 3.45             | 0.55            | 0.00         |
| 25.00        | 3.45             | 0.55            | 0.00         |
| 25.50        | 3.45             | 0.55            | 0.00         |

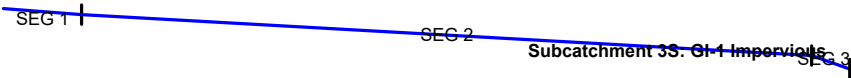
Summary for Subcatchment 3S: GI-1 Impervious

Runoff = 1.94 cfs @ 12.09 hrs, Volume= 5,645 cf, Depth= 3.22"  
Routed to Pond 2P : GI-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

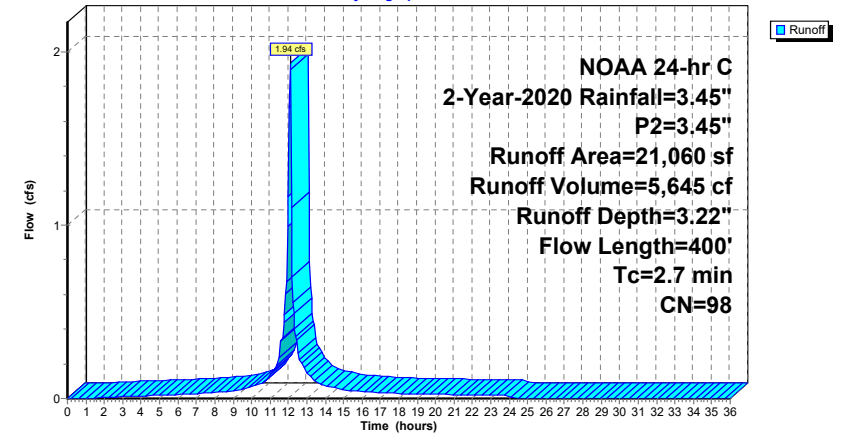
| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 21,060    | 98 | Paved parking, HSG A    |
| 21,060    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 0.6      | 37            | 0.0140        | 1.02              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.45"             |
| 1.9      | 345           | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2      | 18            | 0.0630        | 1.76              |                | Shallow Concentrated Flow, SEG 3<br>Short Grass Pasture Kv= 7.0 fps |
| 2.7      | 400           |               |                   |                | Total                                                               |



Subcatchment 3S: GI-1 Impervious

Hydrograph



Hydrograph for Subcatchment 3S: GI-1 Impervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         |
| 0.50         | 0.02             | 0.00            | 0.00         |
| 1.00         | 0.04             | 0.00            | 0.00         |
| 1.50         | 0.06             | 0.00            | 0.00         |
| 2.00         | 0.08             | 0.01            | 0.01         |
| 2.50         | 0.10             | 0.01            | 0.01         |
| 3.00         | 0.12             | 0.02            | 0.01         |
| 3.50         | 0.14             | 0.04            | 0.01         |
| 4.00         | 0.17             | 0.05            | 0.01         |
| 4.50         | 0.19             | 0.07            | 0.02         |
| 5.00         | 0.22             | 0.08            | 0.02         |
| 5.50         | 0.25             | 0.10            | 0.02         |
| 6.00         | 0.27             | 0.12            | 0.02         |
| 6.50         | 0.30             | 0.15            | 0.02         |
| 7.00         | 0.34             | 0.17            | 0.03         |
| 7.50         | 0.37             | 0.21            | 0.03         |
| 8.00         | 0.41             | 0.24            | 0.04         |
| 8.50         | 0.46             | 0.28            | 0.04         |
| 9.00         | 0.50             | 0.32            | 0.04         |
| 9.50         | 0.56             | 0.37            | 0.05         |
| 10.00        | 0.63             | 0.44            | 0.07         |
| 10.50        | 0.71             | 0.51            | 0.08         |
| 11.00        | 0.83             | 0.63            | 0.13         |
| 11.50        | 1.02             | 0.81            | 0.22         |
| 12.00        | 1.64             | 1.42            | 1.16         |
| 12.50        | 2.43             | 2.20            | 0.34         |
| 13.00        | 2.62             | 2.39            | 0.15         |
| 13.50        | 2.74             | 2.51            | 0.09         |
| 14.00        | 2.82             | 2.59            | 0.07         |
| 14.50        | 2.89             | 2.66            | 0.06         |
| 15.00        | 2.95             | 2.71            | 0.05         |
| 15.50        | 2.99             | 2.76            | 0.04         |
| 16.00        | 3.04             | 2.80            | 0.04         |
| 16.50        | 3.08             | 2.84            | 0.04         |
| 17.00        | 3.11             | 2.88            | 0.03         |
| 17.50        | 3.15             | 2.91            | 0.03         |
| 18.00        | 3.18             | 2.94            | 0.03         |
| 18.50        | 3.20             | 2.97            | 0.03         |
| 19.00        | 3.23             | 3.00            | 0.03         |
| 19.50        | 3.26             | 3.02            | 0.02         |
| 20.00        | 3.28             | 3.05            | 0.02         |
| 20.50        | 3.31             | 3.07            | 0.02         |
| 21.00        | 3.33             | 3.10            | 0.02         |
| 21.50        | 3.35             | 3.12            | 0.02         |
| 22.00        | 3.37             | 3.14            | 0.02         |
| 22.50        | 3.39             | 3.16            | 0.02         |
| 23.00        | 3.41             | 3.18            | 0.02         |
| 23.50        | 3.43             | 3.20            | 0.02         |
| 24.00        | 3.45             | 3.22            | 0.02         |
| 24.50        | 3.45             | 3.22            | 0.00         |
| 25.00        | 3.45             | 3.22            | 0.00         |
| 25.50        | 3.45             | 3.22            | 0.00         |



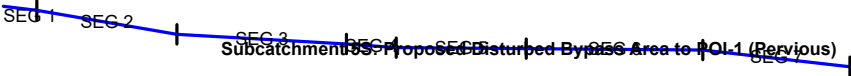
Summary for Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)

Runoff = 0.01 cfs @ 14.68 hrs, Volume= 423 cf, Depth= 0.11"  
Routed to Link 1L : POI-1

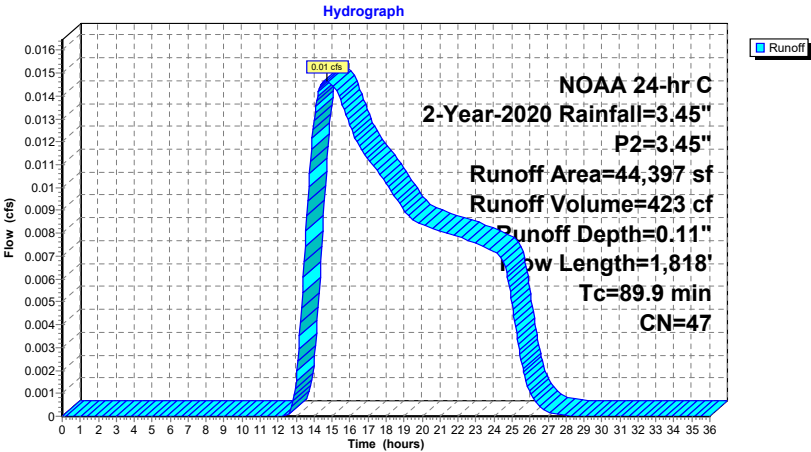
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 28,757    | 39 | >75% Grass cover, Good, HSG A |
| 15,640    | 61 | >75% Grass cover, Good, HSG B |
| 44,397    | 47 | Weighted Average              |
| 44,397    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                               |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------------------------------------|
| 9.0      | 72            | 0.0150        | 0.13              |                | <b>Sheet Flow, SEG 1</b><br>Cultivated: Residue>20% n= 0.170 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 3.8      | 301           | 0.0210        | 1.30              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 8.1      | 364           | 0.0070        | 0.75              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 3.8      | 107           | 0.0090        | 0.47              |                | <b>Shallow Concentrated Flow, SEG 4</b><br>Woodland Kv= 5.0 fps                                           |
| 16.3     | 279           | 0.0010        | 0.28              |                | <b>Shallow Concentrated Flow, SEG 5</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 40.0     | 379           | 0.0010        | 0.16              |                | <b>Shallow Concentrated Flow, SEG 6</b><br>Woodland Kv= 5.0 fps                                           |
| 8.9      | 316           | 0.0140        | 0.59              |                | <b>Shallow Concentrated Flow, SEG 7</b><br>Woodland Kv= 5.0 fps                                           |
| 89.9     | 1,818         | Total         |                   |                |                                                                                                           |



Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)



# 2101ELK-STM Analysis POI-1 - Propose

Prepared by Van Cleef Engineering Assoc

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## Hydrograph for Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 3.45             | 0.11            | 0.00         |
| 0.50         | 0.02             | 0.00            | 0.00         | 26.50        | 3.45             | 0.11            | 0.00         |
| 1.00         | 0.04             | 0.00            | 0.00         | 27.00        | 3.45             | 0.11            | 0.00         |
| 1.50         | 0.06             | 0.00            | 0.00         | 27.50        | 3.45             | 0.11            | 0.00         |
| 2.00         | 0.08             | 0.00            | 0.00         | 28.00        | 3.45             | 0.11            | 0.00         |
| 2.50         | 0.10             | 0.00            | 0.00         | 28.50        | 3.45             | 0.11            | 0.00         |
| 3.00         | 0.12             | 0.00            | 0.00         | 29.00        | 3.45             | 0.11            | 0.00         |
| 3.50         | 0.14             | 0.00            | 0.00         | 29.50        | 3.45             | 0.11            | 0.00         |
| 4.00         | 0.17             | 0.00            | 0.00         | 30.00        | 3.45             | 0.11            | 0.00         |
| 4.50         | 0.19             | 0.00            | 0.00         | 30.50        | 3.45             | 0.11            | 0.00         |
| 5.00         | 0.22             | 0.00            | 0.00         | 31.00        | 3.45             | 0.11            | 0.00         |
| 5.50         | 0.25             | 0.00            | 0.00         | 31.50        | 3.45             | 0.11            | 0.00         |
| 6.00         | 0.27             | 0.00            | 0.00         | 32.00        | 3.45             | 0.11            | 0.00         |
| 6.50         | 0.30             | 0.00            | 0.00         | 32.50        | 3.45             | 0.11            | 0.00         |
| 7.00         | 0.34             | 0.00            | 0.00         | 33.00        | 3.45             | 0.11            | 0.00         |
| 7.50         | 0.37             | 0.00            | 0.00         | 33.50        | 3.45             | 0.11            | 0.00         |
| 8.00         | 0.41             | 0.00            | 0.00         | 34.00        | 3.45             | 0.11            | 0.00         |
| 8.50         | 0.46             | 0.00            | 0.00         | 34.50        | 3.45             | 0.11            | 0.00         |
| 9.00         | 0.50             | 0.00            | 0.00         | 35.00        | 3.45             | 0.11            | 0.00         |
| 9.50         | 0.56             | 0.00            | 0.00         | 35.50        | 3.45             | 0.11            | 0.00         |
| 10.00        | 0.63             | 0.00            | 0.00         | 36.00        | 3.45             | 0.11            | 0.00         |
| 10.50        | 0.71             | 0.00            | 0.00         |              |                  |                 |              |
| 11.00        | 0.83             | 0.00            | 0.00         |              |                  |                 |              |
| 11.50        | 1.02             | 0.00            | 0.00         |              |                  |                 |              |
| 12.00        | 1.64             | 0.00            | 0.00         |              |                  |                 |              |
| 12.50        | 2.43             | 0.00            | 0.00         |              |                  |                 |              |
| 13.00        | 2.62             | 0.01            | 0.00         |              |                  |                 |              |
| 13.50        | 2.74             | 0.02            | 0.01         |              |                  |                 |              |
| 14.00        | 2.82             | 0.03            | 0.01         |              |                  |                 |              |
| 14.50        | 2.89             | 0.03            | 0.01         |              |                  |                 |              |
| 15.00        | 2.95             | 0.04            | 0.01         |              |                  |                 |              |
| 15.50        | 2.99             | 0.05            | 0.01         |              |                  |                 |              |
| 16.00        | 3.04             | 0.05            | 0.01         |              |                  |                 |              |
| 16.50        | 3.08             | 0.06            | 0.01         |              |                  |                 |              |
| 17.00        | 3.11             | 0.06            | 0.01         |              |                  |                 |              |
| 17.50        | 3.15             | 0.07            | 0.01         |              |                  |                 |              |
| 18.00        | 3.18             | 0.07            | 0.01         |              |                  |                 |              |
| 18.50        | 3.20             | 0.07            | 0.01         |              |                  |                 |              |
| 19.00        | 3.23             | 0.08            | 0.01         |              |                  |                 |              |
| 19.50        | 3.26             | 0.08            | 0.01         |              |                  |                 |              |
| 20.00        | 3.28             | 0.09            | 0.01         |              |                  |                 |              |
| 20.50        | 3.31             | 0.09            | 0.01         |              |                  |                 |              |
| 21.00        | 3.33             | 0.09            | 0.01         |              |                  |                 |              |
| 21.50        | 3.35             | 0.10            | 0.01         |              |                  |                 |              |
| 22.00        | 3.37             | 0.10            | 0.01         |              |                  |                 |              |
| 22.50        | 3.39             | 0.10            | 0.01         |              |                  |                 |              |
| 23.00        | 3.41             | 0.11            | 0.01         |              |                  |                 |              |
| 23.50        | 3.43             | 0.11            | 0.01         |              |                  |                 |              |
| 24.00        | 3.45             | 0.11            | 0.01         |              |                  |                 |              |
| 24.50        | 3.45             | 0.11            | 0.01         |              |                  |                 |              |
| 25.00        | 3.45             | 0.11            | 0.00         |              |                  |                 |              |
| 25.50        | 3.45             | 0.11            | 0.00         |              |                  |                 |              |

# 2101ELK-STM Analysis POI-1 - Propose

Prepared by Van Cleef Engineering Assoc

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## Summary for Subcatchment 6S: GI-9 Impervious

Runoff = 4.04 cfs @ 12.08 hrs, Volume= 11,615 cf, Depth= 3.22"  
Routed to Pond 7P : GI-9

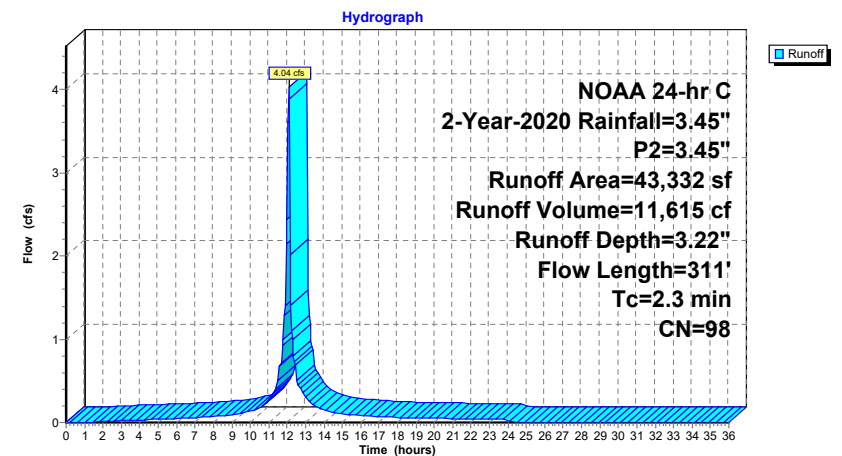
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 43,332    | 98 | Paved parking, HSG A    |
| 43,332    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 1.0      | 71            | 0.0140        | 1.16              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.45"             |
| 1.2      | 222           | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.1      | 18            | 0.0960        | 2.17              |                | Shallow Concentrated Flow, SEG 3<br>Short Grass Pasture Kv= 7.0 fps |
| 2.3      | 311           | Total         |                   |                |                                                                     |



## Subcatchment 6S: GI-9 Impervious



Hydrograph for Subcatchment 6S: GI-9 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 3.22               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 3.22               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 3.22               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.01            | 27.50           | 3.45                | 3.22               | 0.00            |
| 2.00            | 0.08                | 0.01               | 0.01            | 28.00           | 3.45                | 3.22               | 0.00            |
| 2.50            | 0.10                | 0.01               | 0.02            | 28.50           | 3.45                | 3.22               | 0.00            |
| 3.00            | 0.12                | 0.02               | 0.02            | 29.00           | 3.45                | 3.22               | 0.00            |
| 3.50            | 0.14                | 0.04               | 0.03            | 29.50           | 3.45                | 3.22               | 0.00            |
| 4.00            | 0.17                | 0.05               | 0.03            | 30.00           | 3.45                | 3.22               | 0.00            |
| 4.50            | 0.19                | 0.07               | 0.03            | 30.50           | 3.45                | 3.22               | 0.00            |
| 5.00            | 0.22                | 0.08               | 0.04            | 31.00           | 3.45                | 3.22               | 0.00            |
| 5.50            | 0.25                | 0.10               | 0.04            | 31.50           | 3.45                | 3.22               | 0.00            |
| 6.00            | 0.27                | 0.12               | 0.04            | 32.00           | 3.45                | 3.22               | 0.00            |
| 6.50            | 0.30                | 0.15               | 0.05            | 32.50           | 3.45                | 3.22               | 0.00            |
| 7.00            | 0.34                | 0.17               | 0.06            | 33.00           | 3.45                | 3.22               | 0.00            |
| 7.50            | 0.37                | 0.21               | 0.07            | 33.50           | 3.45                | 3.22               | 0.00            |
| 8.00            | 0.41                | 0.24               | 0.07            | 34.00           | 3.45                | 3.22               | 0.00            |
| 8.50            | 0.46                | 0.28               | 0.08            | 34.50           | 3.45                | 3.22               | 0.00            |
| 9.00            | 0.50                | 0.32               | 0.09            | 35.00           | 3.45                | 3.22               | 0.00            |
| 9.50            | 0.56                | 0.37               | 0.11            | 35.50           | 3.45                | 3.22               | 0.00            |
| 10.00           | 0.63                | 0.44               | 0.14            | 36.00           | 3.45                | 3.22               | 0.00            |
| 10.50           | 0.71                | 0.51               | 0.17            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.63               | 0.26            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.81               | 0.45            |                 |                     |                    |                 |
| 12.00           | 1.64                | 1.42               | 2.43            |                 |                     |                    |                 |
| 12.50           | 2.43                | 2.20               | 0.69            |                 |                     |                    |                 |
| 13.00           | 2.62                | 2.39               | 0.31            |                 |                     |                    |                 |
| 13.50           | 2.74                | 2.51               | 0.19            |                 |                     |                    |                 |
| 14.00           | 2.82                | 2.59               | 0.15            |                 |                     |                    |                 |
| 14.50           | 2.89                | 2.66               | 0.13            |                 |                     |                    |                 |
| 15.00           | 2.95                | 2.71               | 0.10            |                 |                     |                    |                 |
| 15.50           | 2.99                | 2.76               | 0.09            |                 |                     |                    |                 |
| 16.00           | 3.04                | 2.80               | 0.08            |                 |                     |                    |                 |
| 16.50           | 3.08                | 2.84               | 0.08            |                 |                     |                    |                 |
| 17.00           | 3.11                | 2.88               | 0.07            |                 |                     |                    |                 |
| 17.50           | 3.15                | 2.91               | 0.06            |                 |                     |                    |                 |
| 18.00           | 3.18                | 2.94               | 0.06            |                 |                     |                    |                 |
| 18.50           | 3.20                | 2.97               | 0.05            |                 |                     |                    |                 |
| 19.00           | 3.23                | 3.00               | 0.05            |                 |                     |                    |                 |
| 19.50           | 3.26                | 3.02               | 0.05            |                 |                     |                    |                 |
| 20.00           | 3.28                | 3.05               | 0.05            |                 |                     |                    |                 |
| 20.50           | 3.31                | 3.07               | 0.05            |                 |                     |                    |                 |
| 21.00           | 3.33                | 3.10               | 0.05            |                 |                     |                    |                 |
| 21.50           | 3.35                | 3.12               | 0.04            |                 |                     |                    |                 |
| 22.00           | 3.37                | 3.14               | 0.04            |                 |                     |                    |                 |
| 22.50           | 3.39                | 3.16               | 0.04            |                 |                     |                    |                 |
| 23.00           | 3.41                | 3.18               | 0.04            |                 |                     |                    |                 |
| 23.50           | 3.43                | 3.20               | 0.04            |                 |                     |                    |                 |
| 24.00           | 3.45                | 3.22               | 0.04            |                 |                     |                    |                 |
| 24.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 15S: GI-2 Pervious

Runoff = 0.00 cfs @ 23.98 hrs, Volume= 7 cf, Depth= 0.01"  
Routed to Pond 14P : GI-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

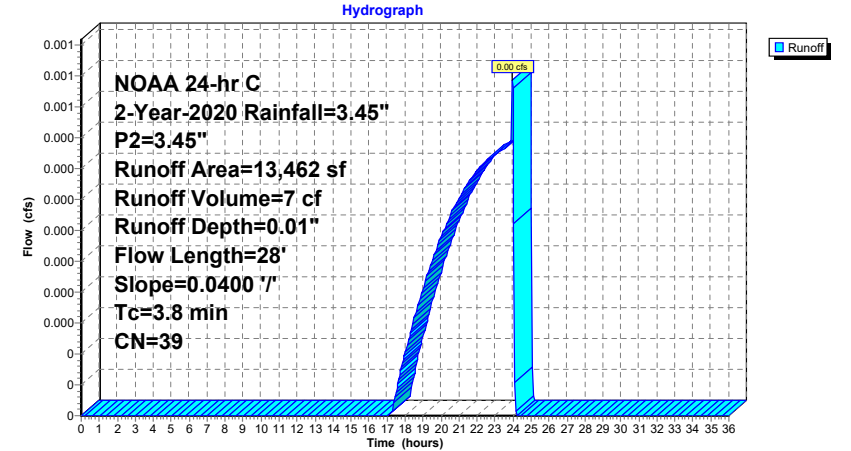
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 13,462    | 39 | >75% Grass cover, Good, HSG A |
| 13,462    |    | 100.00% Pervious Area         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|-------------|
| 3.8         | 28               | 0.0400           | 0.12                 |                   |             |

Sheet Flow, SEG 1  
Grass: Dense n= 0.240 P2= 3.45"



Subcatchment 15S: GI-2 Pervious



Hydrograph for Subcatchment 15S: GI-2 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 0.01               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 0.01               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 0.01               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 0.01               | 0.00            |
| 2.00            | 0.08                | 0.00               | 0.00            | 28.00           | 3.45                | 0.01               | 0.00            |
| 2.50            | 0.10                | 0.00               | 0.00            | 28.50           | 3.45                | 0.01               | 0.00            |
| 3.00            | 0.12                | 0.00               | 0.00            | 29.00           | 3.45                | 0.01               | 0.00            |
| 3.50            | 0.14                | 0.00               | 0.00            | 29.50           | 3.45                | 0.01               | 0.00            |
| 4.00            | 0.17                | 0.00               | 0.00            | 30.00           | 3.45                | 0.01               | 0.00            |
| 4.50            | 0.19                | 0.00               | 0.00            | 30.50           | 3.45                | 0.01               | 0.00            |
| 5.00            | 0.22                | 0.00               | 0.00            | 31.00           | 3.45                | 0.01               | 0.00            |
| 5.50            | 0.25                | 0.00               | 0.00            | 31.50           | 3.45                | 0.01               | 0.00            |
| 6.00            | 0.27                | 0.00               | 0.00            | 32.00           | 3.45                | 0.01               | 0.00            |
| 6.50            | 0.30                | 0.00               | 0.00            | 32.50           | 3.45                | 0.01               | 0.00            |
| 7.00            | 0.34                | 0.00               | 0.00            | 33.00           | 3.45                | 0.01               | 0.00            |
| 7.50            | 0.37                | 0.00               | 0.00            | 33.50           | 3.45                | 0.01               | 0.00            |
| 8.00            | 0.41                | 0.00               | 0.00            | 34.00           | 3.45                | 0.01               | 0.00            |
| 8.50            | 0.46                | 0.00               | 0.00            | 34.50           | 3.45                | 0.01               | 0.00            |
| 9.00            | 0.50                | 0.00               | 0.00            | 35.00           | 3.45                | 0.01               | 0.00            |
| 9.50            | 0.56                | 0.00               | 0.00            | 35.50           | 3.45                | 0.01               | 0.00            |
| 10.00           | 0.63                | 0.00               | 0.00            | 36.00           | 3.45                | 0.01               | 0.00            |
| 10.50           | 0.71                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.64                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.43                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 2.62                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 2.74                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 2.82                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 2.89                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 2.95                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 2.99                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 3.04                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 3.08                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 3.11                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 3.15                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.00           | 3.18                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.50           | 3.20                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.00           | 3.23                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.50           | 3.26                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.00           | 3.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.50           | 3.31                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.00           | 3.33                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.50           | 3.35                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.00           | 3.37                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.50           | 3.39                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.00           | 3.41                | 0.01               | 0.00            |                 |                     |                    |                 |
| 23.50           | 3.43                | 0.01               | 0.00            |                 |                     |                    |                 |
| 24.00           | 3.45                | 0.01               | 0.00            |                 |                     |                    |                 |
| 24.50           | 3.45                | 0.01               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 0.01               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 0.01               | 0.00            |                 |                     |                    |                 |

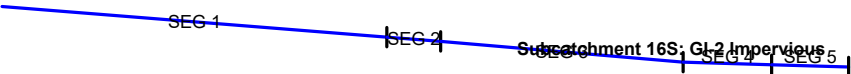
Summary for Subcatchment 16S: GI-2 Impervious

Runoff = 1.23 cfs @ 12.08 hrs, Volume= 3,517 cf, Depth= 3.22"  
Routed to Pond 14P : GI-2

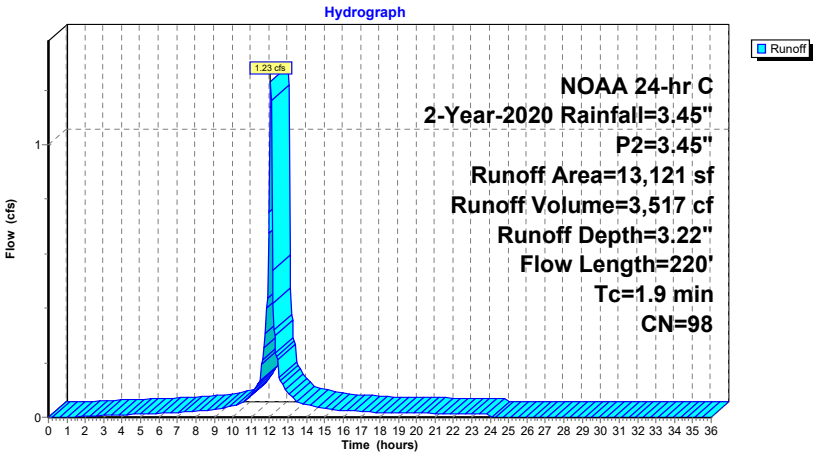
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 13,121    | 98 | Paved parking, HSG A    |
| 13,121    |    | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                     |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------|
| 1.3         | 100              | 0.0140           | 1.24                 |                   | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.45"                                                  |
| 0.1         | 14               | 0.0140           | 2.40                 |                   | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps                                                   |
| 0.3         | 63               | 0.0150           | 3.65                 | 0.73              | <b>Channel Flow, SEG 3</b><br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013                                        |
| 0.1         | 23               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 4</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 Concrete pipe, finished |
| 0.1         | 20               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 5</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012                         |
| 1.9         | 220              | Total            |                      |                   |                                                                                                                 |



Subcatchment 16S: GI-2 Impervious



Hydrograph for Subcatchment 16S: GI-2 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 3.22               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 3.22               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 3.22               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 3.22               | 0.00            |
| 2.00            | 0.08                | 0.01               | 0.00            | 28.00           | 3.45                | 3.22               | 0.00            |
| 2.50            | 0.10                | 0.01               | 0.01            | 28.50           | 3.45                | 3.22               | 0.00            |
| 3.00            | 0.12                | 0.02               | 0.01            | 29.00           | 3.45                | 3.22               | 0.00            |
| 3.50            | 0.14                | 0.04               | 0.01            | 29.50           | 3.45                | 3.22               | 0.00            |
| 4.00            | 0.17                | 0.05               | 0.01            | 30.00           | 3.45                | 3.22               | 0.00            |
| 4.50            | 0.19                | 0.07               | 0.01            | 30.50           | 3.45                | 3.22               | 0.00            |
| 5.00            | 0.22                | 0.08               | 0.01            | 31.00           | 3.45                | 3.22               | 0.00            |
| 5.50            | 0.25                | 0.10               | 0.01            | 31.50           | 3.45                | 3.22               | 0.00            |
| 6.00            | 0.27                | 0.12               | 0.01            | 32.00           | 3.45                | 3.22               | 0.00            |
| 6.50            | 0.30                | 0.15               | 0.02            | 32.50           | 3.45                | 3.22               | 0.00            |
| 7.00            | 0.34                | 0.17               | 0.02            | 33.00           | 3.45                | 3.22               | 0.00            |
| 7.50            | 0.37                | 0.21               | 0.02            | 33.50           | 3.45                | 3.22               | 0.00            |
| 8.00            | 0.41                | 0.24               | 0.02            | 34.00           | 3.45                | 3.22               | 0.00            |
| 8.50            | 0.46                | 0.28               | 0.02            | 34.50           | 3.45                | 3.22               | 0.00            |
| 9.00            | 0.50                | 0.32               | 0.03            | 35.00           | 3.45                | 3.22               | 0.00            |
| 9.50            | 0.56                | 0.37               | 0.03            | 35.50           | 3.45                | 3.22               | 0.00            |
| 10.00           | 0.63                | 0.44               | 0.04            | 36.00           | 3.45                | 3.22               | 0.00            |
| 10.50           | 0.71                | 0.51               | 0.05            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.63               | 0.08            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.81               | 0.14            |                 |                     |                    |                 |
| 12.00           | 1.64                | 1.42               | 0.75            |                 |                     |                    |                 |
| 12.50           | 2.43                | 2.20               | 0.21            |                 |                     |                    |                 |
| 13.00           | 2.62                | 2.39               | 0.09            |                 |                     |                    |                 |
| 13.50           | 2.74                | 2.51               | 0.06            |                 |                     |                    |                 |
| 14.00           | 2.82                | 2.59               | 0.05            |                 |                     |                    |                 |
| 14.50           | 2.89                | 2.66               | 0.04            |                 |                     |                    |                 |
| 15.00           | 2.95                | 2.71               | 0.03            |                 |                     |                    |                 |
| 15.50           | 2.99                | 2.76               | 0.03            |                 |                     |                    |                 |
| 16.00           | 3.04                | 2.80               | 0.03            |                 |                     |                    |                 |
| 16.50           | 3.08                | 2.84               | 0.02            |                 |                     |                    |                 |
| 17.00           | 3.11                | 2.88               | 0.02            |                 |                     |                    |                 |
| 17.50           | 3.15                | 2.91               | 0.02            |                 |                     |                    |                 |
| 18.00           | 3.18                | 2.94               | 0.02            |                 |                     |                    |                 |
| 18.50           | 3.20                | 2.97               | 0.02            |                 |                     |                    |                 |
| 19.00           | 3.23                | 3.00               | 0.02            |                 |                     |                    |                 |
| 19.50           | 3.26                | 3.02               | 0.02            |                 |                     |                    |                 |
| 20.00           | 3.28                | 3.05               | 0.01            |                 |                     |                    |                 |
| 20.50           | 3.31                | 3.07               | 0.01            |                 |                     |                    |                 |
| 21.00           | 3.33                | 3.10               | 0.01            |                 |                     |                    |                 |
| 21.50           | 3.35                | 3.12               | 0.01            |                 |                     |                    |                 |
| 22.00           | 3.37                | 3.14               | 0.01            |                 |                     |                    |                 |
| 22.50           | 3.39                | 3.16               | 0.01            |                 |                     |                    |                 |
| 23.00           | 3.41                | 3.18               | 0.01            |                 |                     |                    |                 |
| 23.50           | 3.43                | 3.20               | 0.01            |                 |                     |                    |                 |
| 24.00           | 3.45                | 3.22               | 0.01            |                 |                     |                    |                 |
| 24.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |

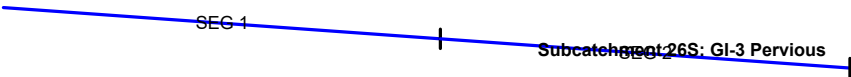
Summary for Subcatchment 26S: GI-3 Pervious

Runoff = 0.09 cfs @ 12.25 hrs, Volume= 646 cf, Depth= 0.33"  
Routed to Pond 28P : GI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

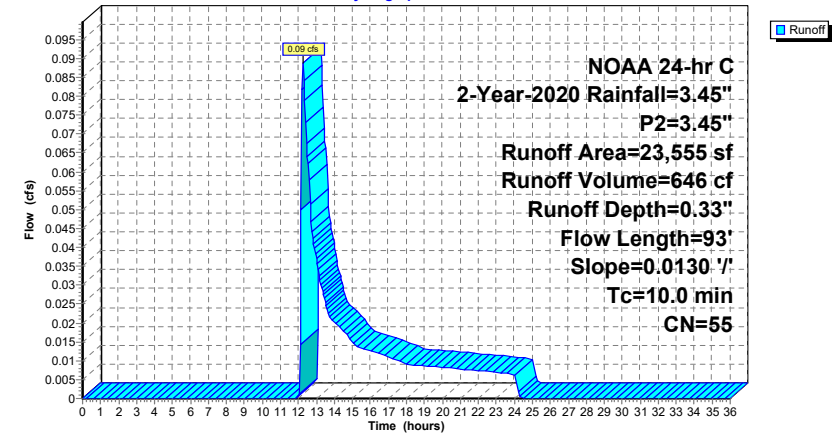
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 6,391     | 39 | >75% Grass cover, Good, HSG A |
| 17,164    | 61 | >75% Grass cover, Good, HSG B |
| 23,555    | 55 | Weighted Average              |
| 23,555    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 9.1      | 48            | 0.0130        | 0.09              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.45"                |
| 0.9      | 45            | 0.0130        | 0.80              |                | Shallow Concentrated Flow, SEG 2<br>Short Grass Pasture Kv= 7.0 fps |
| 10.0     | 93            | Total         |                   |                |                                                                     |



Subcatchment 26S: GI-3 Pervious

Hydrograph



Hydrograph for Subcatchment 26S: GI-3 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         |
| 0.50         | 0.02             | 0.00            | 0.00         |
| 1.00         | 0.04             | 0.00            | 0.00         |
| 1.50         | 0.06             | 0.00            | 0.00         |
| 2.00         | 0.08             | 0.00            | 0.00         |
| 2.50         | 0.10             | 0.00            | 0.00         |
| 3.00         | 0.12             | 0.00            | 0.00         |
| 3.50         | 0.14             | 0.00            | 0.00         |
| 4.00         | 0.17             | 0.00            | 0.00         |
| 4.50         | 0.19             | 0.00            | 0.00         |
| 5.00         | 0.22             | 0.00            | 0.00         |
| 5.50         | 0.25             | 0.00            | 0.00         |
| 6.00         | 0.27             | 0.00            | 0.00         |
| 6.50         | 0.30             | 0.00            | 0.00         |
| 7.00         | 0.34             | 0.00            | 0.00         |
| 7.50         | 0.37             | 0.00            | 0.00         |
| 8.00         | 0.41             | 0.00            | 0.00         |
| 8.50         | 0.46             | 0.00            | 0.00         |
| 9.00         | 0.50             | 0.00            | 0.00         |
| 9.50         | 0.56             | 0.00            | 0.00         |
| 10.00        | 0.63             | 0.00            | 0.00         |
| 10.50        | 0.71             | 0.00            | 0.00         |
| 11.00        | 0.83             | 0.00            | 0.00         |
| 11.50        | 1.02             | 0.00            | 0.00         |
| 12.00        | 1.64             | 0.00            | 0.00         |
| 12.25        | 2.43             | 0.07            | 0.06         |
| 13.00        | 2.62             | 0.11            | 0.04         |
| 13.50        | 2.74             | 0.13            | 0.03         |
| 14.00        | 2.82             | 0.15            | 0.02         |
| 14.50        | 2.89             | 0.17            | 0.02         |
| 15.00        | 2.95             | 0.18            | 0.01         |
| 15.50        | 2.99             | 0.19            | 0.01         |
| 16.00        | 3.04             | 0.20            | 0.01         |
| 16.50        | 3.08             | 0.22            | 0.01         |
| 17.00        | 3.11             | 0.23            | 0.01         |
| 17.50        | 3.15             | 0.24            | 0.01         |
| 18.00        | 3.18             | 0.24            | 0.01         |
| 18.50        | 3.20             | 0.25            | 0.01         |
| 19.00        | 3.23             | 0.26            | 0.01         |
| 19.50        | 3.26             | 0.27            | 0.01         |
| 20.00        | 3.28             | 0.28            | 0.01         |
| 20.50        | 3.31             | 0.28            | 0.01         |
| 21.00        | 3.33             | 0.29            | 0.01         |
| 21.50        | 3.35             | 0.30            | 0.01         |
| 22.00        | 3.37             | 0.30            | 0.01         |
| 22.50        | 3.39             | 0.31            | 0.01         |
| 23.00        | 3.41             | 0.32            | 0.01         |
| 23.50        | 3.43             | 0.32            | 0.01         |
| 24.00        | 3.45             | 0.33            | 0.01         |
| 24.50        | 3.45             | 0.33            | 0.00         |
| 25.00        | 3.45             | 0.33            | 0.00         |
| 25.50        | 3.45             | 0.33            | 0.00         |

Summary for Subcatchment 27S: GI-3 Impervious

Runoff = 5.43 cfs @ 12.09 hrs, Volume= 16,242 cf, Depth= 3.22"  
Routed to Pond 28P : GI-3

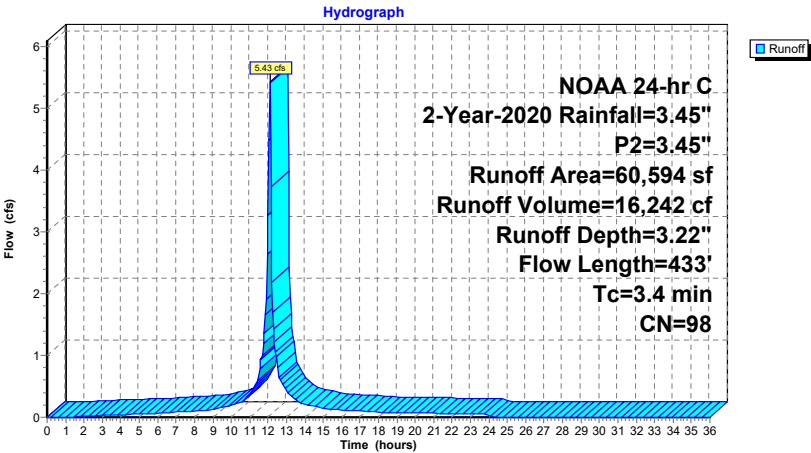
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 56,594    | 98 | Paved parking, HSG A    |
| 4,000     | 98 | Roofs, HSG A            |
| 60,594    | 98 | Weighted Average        |
| 60,594    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                           |
|----------|---------------|---------------|-------------------|----------------|-------------------------------------------------------------------------------------------------------|
| 1.3      | 100           | 0.0140        | 1.24              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.45"                                               |
| 1.9      | 270           | 0.0140        | 2.40              |                | Shallow Concentrated Flow, SEG 2<br>Paved Kv= 20.3 fps                                                |
| 0.0      | 8             | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 3<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013                                     |
| 0.2      | 55            | 0.0050        | 4.03              | 4.95           | Pipe Channel, SEG 4<br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished |
| 3.4      | 433           | Total         |                   |                |                                                                                                       |



Subcatchment 27S: GI-3 Impervious



Hydrograph for Subcatchment 27S: GI-3 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 3.22               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 3.22               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 3.22               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.01            | 27.50           | 3.45                | 3.22               | 0.00            |
| 2.00            | 0.08                | 0.01               | 0.02            | 28.00           | 3.45                | 3.22               | 0.00            |
| 2.50            | 0.10                | 0.01               | 0.02            | 28.50           | 3.45                | 3.22               | 0.00            |
| 3.00            | 0.12                | 0.02               | 0.03            | 29.00           | 3.45                | 3.22               | 0.00            |
| 3.50            | 0.14                | 0.04               | 0.04            | 29.50           | 3.45                | 3.22               | 0.00            |
| 4.00            | 0.17                | 0.05               | 0.04            | 30.00           | 3.45                | 3.22               | 0.00            |
| 4.50            | 0.19                | 0.07               | 0.05            | 30.50           | 3.45                | 3.22               | 0.00            |
| 5.00            | 0.22                | 0.08               | 0.05            | 31.00           | 3.45                | 3.22               | 0.00            |
| 5.50            | 0.25                | 0.10               | 0.06            | 31.50           | 3.45                | 3.22               | 0.00            |
| 6.00            | 0.27                | 0.12               | 0.06            | 32.00           | 3.45                | 3.22               | 0.00            |
| 6.50            | 0.30                | 0.15               | 0.07            | 32.50           | 3.45                | 3.22               | 0.00            |
| 7.00            | 0.34                | 0.17               | 0.08            | 33.00           | 3.45                | 3.22               | 0.00            |
| 7.50            | 0.37                | 0.21               | 0.09            | 33.50           | 3.45                | 3.22               | 0.00            |
| 8.00            | 0.41                | 0.24               | 0.10            | 34.00           | 3.45                | 3.22               | 0.00            |
| 8.50            | 0.46                | 0.28               | 0.11            | 34.50           | 3.45                | 3.22               | 0.00            |
| 9.00            | 0.50                | 0.32               | 0.12            | 35.00           | 3.45                | 3.22               | 0.00            |
| 9.50            | 0.56                | 0.37               | 0.16            | 35.50           | 3.45                | 3.22               | 0.00            |
| 10.00           | 0.63                | 0.44               | 0.19            | 36.00           | 3.45                | 3.22               | 0.00            |
| 10.50           | 0.71                | 0.51               | 0.23            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.63               | 0.37            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.81               | 0.61            |                 |                     |                    |                 |
| 12.00           | 1.64                | 1.42               | 3.27            |                 |                     |                    |                 |
| 12.50           | 2.43                | 2.20               | 0.97            |                 |                     |                    |                 |
| 13.00           | 2.62                | 2.39               | 0.44            |                 |                     |                    |                 |
| 13.50           | 2.74                | 2.51               | 0.27            |                 |                     |                    |                 |
| 14.00           | 2.82                | 2.59               | 0.21            |                 |                     |                    |                 |
| 14.50           | 2.89                | 2.66               | 0.18            |                 |                     |                    |                 |
| 15.00           | 2.95                | 2.71               | 0.14            |                 |                     |                    |                 |
| 15.50           | 2.99                | 2.76               | 0.13            |                 |                     |                    |                 |
| 16.00           | 3.04                | 2.80               | 0.12            |                 |                     |                    |                 |
| 16.50           | 3.08                | 2.84               | 0.11            |                 |                     |                    |                 |
| 17.00           | 3.11                | 2.88               | 0.10            |                 |                     |                    |                 |
| 17.50           | 3.15                | 2.91               | 0.09            |                 |                     |                    |                 |
| 18.00           | 3.18                | 2.94               | 0.08            |                 |                     |                    |                 |
| 18.50           | 3.20                | 2.97               | 0.08            |                 |                     |                    |                 |
| 19.00           | 3.23                | 3.00               | 0.07            |                 |                     |                    |                 |
| 19.50           | 3.26                | 3.02               | 0.07            |                 |                     |                    |                 |
| 20.00           | 3.28                | 3.05               | 0.07            |                 |                     |                    |                 |
| 20.50           | 3.31                | 3.07               | 0.07            |                 |                     |                    |                 |
| 21.00           | 3.33                | 3.10               | 0.06            |                 |                     |                    |                 |
| 21.50           | 3.35                | 3.12               | 0.06            |                 |                     |                    |                 |
| 22.00           | 3.37                | 3.14               | 0.06            |                 |                     |                    |                 |
| 22.50           | 3.39                | 3.16               | 0.06            |                 |                     |                    |                 |
| 23.00           | 3.41                | 3.18               | 0.05            |                 |                     |                    |                 |
| 23.50           | 3.43                | 3.20               | 0.05            |                 |                     |                    |                 |
| 24.00           | 3.45                | 3.22               | 0.06            |                 |                     |                    |                 |
| 24.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 29S: GI-6 Pervious

Runoff = 0.02 cfs @ 12.55 hrs, Volume= 362 cf, Depth= 0.16"  
Routed to Pond 31P : GI-6

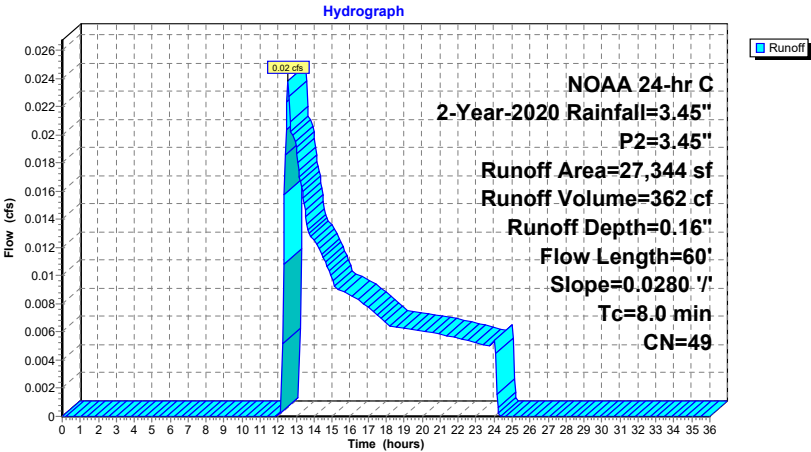
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 15,207    | 39 | >75% Grass cover, Good, HSG A |
| 12,137    | 61 | >75% Grass cover, Good, HSG B |
| 27,344    | 49 | Weighted Average              |
| 27,344    |    | 100.00% Pervious Area         |

| Tc (min)                        | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description       |
|---------------------------------|---------------|---------------|-------------------|----------------|-------------------|
| 8.0                             | 60            | 0.0280        | 0.13              |                | Sheet Flow, SEG 1 |
| Grass: Dense n= 0.240 P2= 3.45" |               |               |                   |                |                   |



Subcatchment 29S: GI-6 Pervious





Hydrograph for Subcatchment 29S: GI-6 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 0.16               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 0.16               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 0.16               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 0.16               | 0.00            |
| 2.00            | 0.08                | 0.00               | 0.00            | 28.00           | 3.45                | 0.16               | 0.00            |
| 2.50            | 0.10                | 0.00               | 0.00            | 28.50           | 3.45                | 0.16               | 0.00            |
| 3.00            | 0.12                | 0.00               | 0.00            | 29.00           | 3.45                | 0.16               | 0.00            |
| 3.50            | 0.14                | 0.00               | 0.00            | 29.50           | 3.45                | 0.16               | 0.00            |
| 4.00            | 0.17                | 0.00               | 0.00            | 30.00           | 3.45                | 0.16               | 0.00            |
| 4.50            | 0.19                | 0.00               | 0.00            | 30.50           | 3.45                | 0.16               | 0.00            |
| 5.00            | 0.22                | 0.00               | 0.00            | 31.00           | 3.45                | 0.16               | 0.00            |
| 5.50            | 0.25                | 0.00               | 0.00            | 31.50           | 3.45                | 0.16               | 0.00            |
| 6.00            | 0.27                | 0.00               | 0.00            | 32.00           | 3.45                | 0.16               | 0.00            |
| 6.50            | 0.30                | 0.00               | 0.00            | 32.50           | 3.45                | 0.16               | 0.00            |
| 7.00            | 0.34                | 0.00               | 0.00            | 33.00           | 3.45                | 0.16               | 0.00            |
| 7.50            | 0.37                | 0.00               | 0.00            | 33.50           | 3.45                | 0.16               | 0.00            |
| 8.00            | 0.41                | 0.00               | 0.00            | 34.00           | 3.45                | 0.16               | 0.00            |
| 8.50            | 0.46                | 0.00               | 0.00            | 34.50           | 3.45                | 0.16               | 0.00            |
| 9.00            | 0.50                | 0.00               | 0.00            | 35.00           | 3.45                | 0.16               | 0.00            |
| 9.50            | 0.56                | 0.00               | 0.00            | 35.50           | 3.45                | 0.16               | 0.00            |
| 10.00           | 0.63                | 0.00               | 0.00            | 36.00           | 3.45                | 0.16               | 0.00            |
| 10.50           | 0.71                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.64                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.43                | 0.01               | 0.02            |                 |                     |                    |                 |
| 13.00           | 2.62                | 0.03               | 0.02            |                 |                     |                    |                 |
| 13.50           | 2.74                | 0.04               | 0.01            |                 |                     |                    |                 |
| 14.00           | 2.82                | 0.05               | 0.01            |                 |                     |                    |                 |
| 14.50           | 2.89                | 0.06               | 0.01            |                 |                     |                    |                 |
| 15.00           | 2.95                | 0.07               | 0.01            |                 |                     |                    |                 |
| 15.50           | 2.99                | 0.07               | 0.01            |                 |                     |                    |                 |
| 16.00           | 3.04                | 0.08               | 0.01            |                 |                     |                    |                 |
| 16.50           | 3.08                | 0.09               | 0.01            |                 |                     |                    |                 |
| 17.00           | 3.11                | 0.09               | 0.01            |                 |                     |                    |                 |
| 17.50           | 3.15                | 0.10               | 0.01            |                 |                     |                    |                 |
| 18.00           | 3.18                | 0.10               | 0.01            |                 |                     |                    |                 |
| 18.50           | 3.20                | 0.11               | 0.01            |                 |                     |                    |                 |
| 19.00           | 3.23                | 0.11               | 0.01            |                 |                     |                    |                 |
| 19.50           | 3.26                | 0.12               | 0.01            |                 |                     |                    |                 |
| 20.00           | 3.28                | 0.12               | 0.01            |                 |                     |                    |                 |
| 20.50           | 3.31                | 0.13               | 0.01            |                 |                     |                    |                 |
| 21.00           | 3.33                | 0.13               | 0.01            |                 |                     |                    |                 |
| 21.50           | 3.35                | 0.14               | 0.01            |                 |                     |                    |                 |
| 22.00           | 3.37                | 0.14               | 0.01            |                 |                     |                    |                 |
| 22.50           | 3.39                | 0.15               | 0.01            |                 |                     |                    |                 |
| 23.00           | 3.41                | 0.15               | 0.01            |                 |                     |                    |                 |
| 23.50           | 3.43                | 0.15               | 0.01            |                 |                     |                    |                 |
| 24.00           | 3.45                | 0.16               | 0.01            |                 |                     |                    |                 |
| 24.50           | 3.45                | 0.16               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 0.16               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 0.16               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 30S: GI-6 Impervious

Runoff = 5.20 cfs @ 12.09 hrs, Volume= 15,463 cf, Depth= 3.22"  
Routed to Pond 31P : GI-6

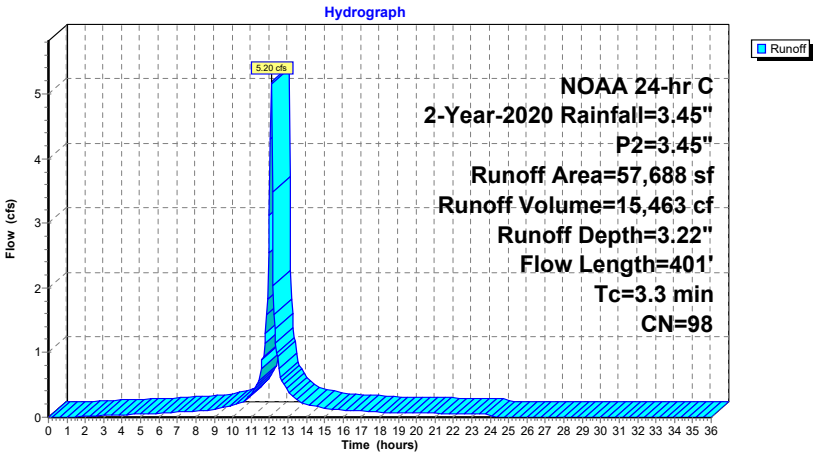
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 57,688    | 98 | Paved parking, HSG A    |
| 57,688    |    | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                             |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------|
| 1.3         | 100              | 0.0140           | 1.24                 |                   | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.45"                          |
| 1.9         | 275              | 0.0140           | 2.40                 |                   | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps                           |
| 0.1         | 26               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 3</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 |
| 3.3         | 401              | Total            |                      |                   |                                                                                         |



Subcatchment 30S: GI-6 Impervious



Hydrograph for Subcatchment 30S: GI-6 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 3.22               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 3.22               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 3.22               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.01            | 27.50           | 3.45                | 3.22               | 0.00            |
| 2.00            | 0.08                | 0.01               | 0.02            | 28.00           | 3.45                | 3.22               | 0.00            |
| 2.50            | 0.10                | 0.01               | 0.02            | 28.50           | 3.45                | 3.22               | 0.00            |
| 3.00            | 0.12                | 0.02               | 0.03            | 29.00           | 3.45                | 3.22               | 0.00            |
| 3.50            | 0.14                | 0.04               | 0.03            | 29.50           | 3.45                | 3.22               | 0.00            |
| 4.00            | 0.17                | 0.05               | 0.04            | 30.00           | 3.45                | 3.22               | 0.00            |
| 4.50            | 0.19                | 0.07               | 0.04            | 30.50           | 3.45                | 3.22               | 0.00            |
| 5.00            | 0.22                | 0.08               | 0.05            | 31.00           | 3.45                | 3.22               | 0.00            |
| 5.50            | 0.25                | 0.10               | 0.05            | 31.50           | 3.45                | 3.22               | 0.00            |
| 6.00            | 0.27                | 0.12               | 0.06            | 32.00           | 3.45                | 3.22               | 0.00            |
| 6.50            | 0.30                | 0.15               | 0.07            | 32.50           | 3.45                | 3.22               | 0.00            |
| 7.00            | 0.34                | 0.17               | 0.08            | 33.00           | 3.45                | 3.22               | 0.00            |
| 7.50            | 0.37                | 0.21               | 0.09            | 33.50           | 3.45                | 3.22               | 0.00            |
| 8.00            | 0.41                | 0.24               | 0.10            | 34.00           | 3.45                | 3.22               | 0.00            |
| 8.50            | 0.46                | 0.28               | 0.11            | 34.50           | 3.45                | 3.22               | 0.00            |
| 9.00            | 0.50                | 0.32               | 0.12            | 35.00           | 3.45                | 3.22               | 0.00            |
| 9.50            | 0.56                | 0.37               | 0.15            | 35.50           | 3.45                | 3.22               | 0.00            |
| 10.00           | 0.63                | 0.44               | 0.18            | 36.00           | 3.45                | 3.22               | 0.00            |
| 10.50           | 0.71                | 0.51               | 0.22            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.63               | 0.35            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.81               | 0.58            |                 |                     |                    |                 |
| 12.00           | 1.64                | 1.42               | 3.12            |                 |                     |                    |                 |
| 12.50           | 2.43                | 2.20               | 0.92            |                 |                     |                    |                 |
| 13.00           | 2.62                | 2.39               | 0.41            |                 |                     |                    |                 |
| 13.50           | 2.74                | 2.51               | 0.26            |                 |                     |                    |                 |
| 14.00           | 2.82                | 2.59               | 0.20            |                 |                     |                    |                 |
| 14.50           | 2.89                | 2.66               | 0.17            |                 |                     |                    |                 |
| 15.00           | 2.95                | 2.71               | 0.14            |                 |                     |                    |                 |
| 15.50           | 2.99                | 2.76               | 0.12            |                 |                     |                    |                 |
| 16.00           | 3.04                | 2.80               | 0.11            |                 |                     |                    |                 |
| 16.50           | 3.08                | 2.84               | 0.10            |                 |                     |                    |                 |
| 17.00           | 3.11                | 2.88               | 0.09            |                 |                     |                    |                 |
| 17.50           | 3.15                | 2.91               | 0.08            |                 |                     |                    |                 |
| 18.00           | 3.18                | 2.94               | 0.08            |                 |                     |                    |                 |
| 18.50           | 3.20                | 2.97               | 0.07            |                 |                     |                    |                 |
| 19.00           | 3.23                | 3.00               | 0.07            |                 |                     |                    |                 |
| 19.50           | 3.26                | 3.02               | 0.07            |                 |                     |                    |                 |
| 20.00           | 3.28                | 3.05               | 0.07            |                 |                     |                    |                 |
| 20.50           | 3.31                | 3.07               | 0.06            |                 |                     |                    |                 |
| 21.00           | 3.33                | 3.10               | 0.06            |                 |                     |                    |                 |
| 21.50           | 3.35                | 3.12               | 0.06            |                 |                     |                    |                 |
| 22.00           | 3.37                | 3.14               | 0.06            |                 |                     |                    |                 |
| 22.50           | 3.39                | 3.16               | 0.05            |                 |                     |                    |                 |
| 23.00           | 3.41                | 3.18               | 0.05            |                 |                     |                    |                 |
| 23.50           | 3.43                | 3.20               | 0.05            |                 |                     |                    |                 |
| 24.00           | 3.45                | 3.22               | 0.06            |                 |                     |                    |                 |
| 24.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 41S: GI-11 Pervious

Runoff = 0.05 cfs @ 12.11 hrs, Volume= 167 cf, Depth= 0.55"  
Routed to Pond 43P : GI-11

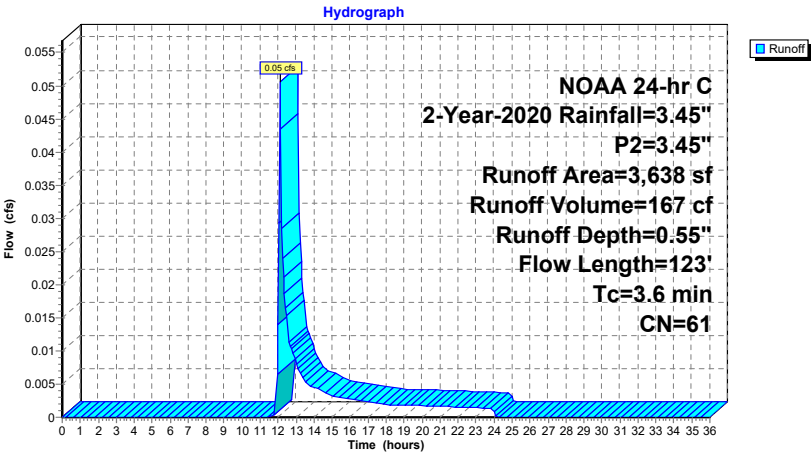
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 3,638     | 61 | >75% Grass cover, Good, HSG B |
| 3,638     |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                    |
|----------|---------------|---------------|-------------------|----------------|--------------------------------------------------------------------------------|
| 2.6      | 25            | 0.0833        | 0.16              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.45"                                 |
| 0.8      | 51            | 0.0130        | 1.05              |                | Sheet Flow,<br>Smooth surfaces n= 0.011 P2= 3.45"                              |
| 0.2      | 36            | 0.0100        | 2.98              | 0.60           | Channel Flow,<br>Area= 0.2 sf Perim= 1.5' r= 0.13'<br>n= 0.013 Asphalt, smooth |
| 0.0      | 11            | 0.3330        | 4.04              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                  |
| 3.6      | 123           | Total         |                   |                |                                                                                |



Subcatchment 41S: GI-11 Pervious



Hydrograph for Subcatchment 41S: GI-11 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 0.55               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 0.55               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 0.55               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 0.55               | 0.00            |
| 2.00            | 0.08                | 0.00               | 0.00            | 28.00           | 3.45                | 0.55               | 0.00            |
| 2.50            | 0.10                | 0.00               | 0.00            | 28.50           | 3.45                | 0.55               | 0.00            |
| 3.00            | 0.12                | 0.00               | 0.00            | 29.00           | 3.45                | 0.55               | 0.00            |
| 3.50            | 0.14                | 0.00               | 0.00            | 29.50           | 3.45                | 0.55               | 0.00            |
| 4.00            | 0.17                | 0.00               | 0.00            | 30.00           | 3.45                | 0.55               | 0.00            |
| 4.50            | 0.19                | 0.00               | 0.00            | 30.50           | 3.45                | 0.55               | 0.00            |
| 5.00            | 0.22                | 0.00               | 0.00            | 31.00           | 3.45                | 0.55               | 0.00            |
| 5.50            | 0.25                | 0.00               | 0.00            | 31.50           | 3.45                | 0.55               | 0.00            |
| 6.00            | 0.27                | 0.00               | 0.00            | 32.00           | 3.45                | 0.55               | 0.00            |
| 6.50            | 0.30                | 0.00               | 0.00            | 32.50           | 3.45                | 0.55               | 0.00            |
| 7.00            | 0.34                | 0.00               | 0.00            | 33.00           | 3.45                | 0.55               | 0.00            |
| 7.50            | 0.37                | 0.00               | 0.00            | 33.50           | 3.45                | 0.55               | 0.00            |
| 8.00            | 0.41                | 0.00               | 0.00            | 34.00           | 3.45                | 0.55               | 0.00            |
| 8.50            | 0.46                | 0.00               | 0.00            | 34.50           | 3.45                | 0.55               | 0.00            |
| 9.00            | 0.50                | 0.00               | 0.00            | 35.00           | 3.45                | 0.55               | 0.00            |
| 9.50            | 0.56                | 0.00               | 0.00            | 35.50           | 3.45                | 0.55               | 0.00            |
| 10.00           | 0.63                | 0.00               | 0.00            | 36.00           | 3.45                | 0.55               | 0.00            |
| 10.50           | 0.71                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.64                | 0.02               | 0.01            |                 |                     |                    |                 |
| 12.50           | 2.43                | 0.18               | 0.02            |                 |                     |                    |                 |
| 13.00           | 2.62                | 0.23               | 0.01            |                 |                     |                    |                 |
| 13.50           | 2.74                | 0.27               | 0.01            |                 |                     |                    |                 |
| 14.00           | 2.82                | 0.30               | 0.00            |                 |                     |                    |                 |
| 14.50           | 2.89                | 0.32               | 0.00            |                 |                     |                    |                 |
| 15.00           | 2.95                | 0.34               | 0.00            |                 |                     |                    |                 |
| 15.50           | 2.99                | 0.36               | 0.00            |                 |                     |                    |                 |
| 16.00           | 3.04                | 0.38               | 0.00            |                 |                     |                    |                 |
| 16.50           | 3.08                | 0.39               | 0.00            |                 |                     |                    |                 |
| 17.00           | 3.11                | 0.41               | 0.00            |                 |                     |                    |                 |
| 17.50           | 3.15                | 0.42               | 0.00            |                 |                     |                    |                 |
| 18.00           | 3.18                | 0.43               | 0.00            |                 |                     |                    |                 |
| 18.50           | 3.20                | 0.45               | 0.00            |                 |                     |                    |                 |
| 19.00           | 3.23                | 0.46               | 0.00            |                 |                     |                    |                 |
| 19.50           | 3.26                | 0.47               | 0.00            |                 |                     |                    |                 |
| 20.00           | 3.28                | 0.48               | 0.00            |                 |                     |                    |                 |
| 20.50           | 3.31                | 0.49               | 0.00            |                 |                     |                    |                 |
| 21.00           | 3.33                | 0.50               | 0.00            |                 |                     |                    |                 |
| 21.50           | 3.35                | 0.51               | 0.00            |                 |                     |                    |                 |
| 22.00           | 3.37                | 0.52               | 0.00            |                 |                     |                    |                 |
| 22.50           | 3.39                | 0.53               | 0.00            |                 |                     |                    |                 |
| 23.00           | 3.41                | 0.53               | 0.00            |                 |                     |                    |                 |
| 23.50           | 3.43                | 0.54               | 0.00            |                 |                     |                    |                 |
| 24.00           | 3.45                | 0.55               | 0.00            |                 |                     |                    |                 |
| 24.50           | 3.45                | 0.55               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 0.55               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 0.55               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 42S: GI-11 Impervious

Runoff = 1.23 cfs @ 12.07 hrs, Volume= 3,602 cf, Depth= 3.22"  
Routed to Pond 43P : GI-11

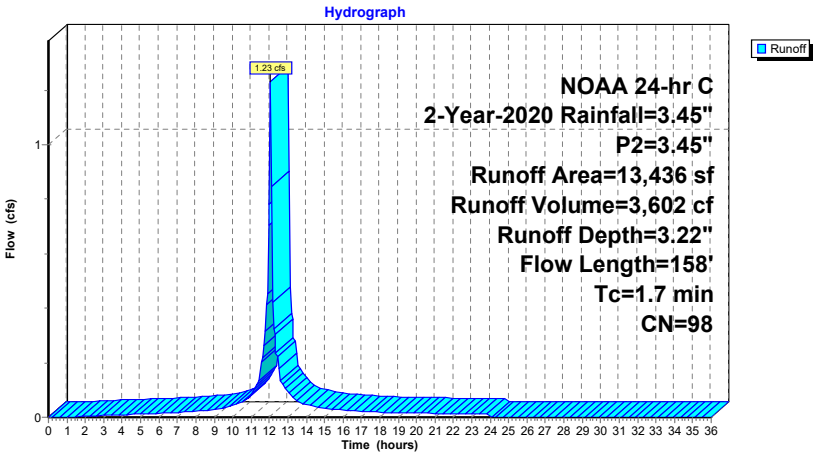
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 13,436    | 98 | Paved parking, HSG A    |
| 13,436    |    | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                           |
|-------------|------------------|------------------|----------------------|-------------------|---------------------------------------------------------------------------------------|
| 1.4         | 100              | 0.0130           | 1.20                 |                   | <b>Sheet Flow,</b><br>Smooth surfaces n= 0.011 P2= 3.45"                              |
| 0.3         | 39               | 0.0130           | 2.31                 |                   | <b>Shallow Concentrated Flow,</b><br>Paved Kv= 20.3 fps                               |
| 0.0         | 8                | 0.0100           | 6.21                 | 1.24              | <b>Channel Flow,</b><br>Area= 0.2 sf Perim= 0.5' r= 0.40'<br>n= 0.013 Asphalt, smooth |
| 0.0         | 11               | 0.3330           | 4.04                 |                   | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                  |
| 1.7         | 158              | Total            |                      |                   |                                                                                       |



Subcatchment 42S: GI-11 Impervious



Hydrograph for Subcatchment 42S: GI-11 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 3.22               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 3.22               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 3.22               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 3.22               | 0.00            |
| 2.00            | 0.08                | 0.01               | 0.00            | 28.00           | 3.45                | 3.22               | 0.00            |
| 2.50            | 0.10                | 0.01               | 0.01            | 28.50           | 3.45                | 3.22               | 0.00            |
| 3.00            | 0.12                | 0.02               | 0.01            | 29.00           | 3.45                | 3.22               | 0.00            |
| 3.50            | 0.14                | 0.04               | 0.01            | 29.50           | 3.45                | 3.22               | 0.00            |
| 4.00            | 0.17                | 0.05               | 0.01            | 30.00           | 3.45                | 3.22               | 0.00            |
| 4.50            | 0.19                | 0.07               | 0.01            | 30.50           | 3.45                | 3.22               | 0.00            |
| 5.00            | 0.22                | 0.08               | 0.01            | 31.00           | 3.45                | 3.22               | 0.00            |
| 5.50            | 0.25                | 0.10               | 0.01            | 31.50           | 3.45                | 3.22               | 0.00            |
| 6.00            | 0.27                | 0.12               | 0.01            | 32.00           | 3.45                | 3.22               | 0.00            |
| 6.50            | 0.30                | 0.15               | 0.02            | 32.50           | 3.45                | 3.22               | 0.00            |
| 7.00            | 0.34                | 0.17               | 0.02            | 33.00           | 3.45                | 3.22               | 0.00            |
| 7.50            | 0.37                | 0.21               | 0.02            | 33.50           | 3.45                | 3.22               | 0.00            |
| 8.00            | 0.41                | 0.24               | 0.02            | 34.00           | 3.45                | 3.22               | 0.00            |
| 8.50            | 0.46                | 0.28               | 0.02            | 34.50           | 3.45                | 3.22               | 0.00            |
| 9.00            | 0.50                | 0.32               | 0.03            | 35.00           | 3.45                | 3.22               | 0.00            |
| 9.50            | 0.56                | 0.37               | 0.04            | 35.50           | 3.45                | 3.22               | 0.00            |
| 10.00           | 0.63                | 0.44               | 0.04            | 36.00           | 3.45                | 3.22               | 0.00            |
| 10.50           | 0.71                | 0.51               | 0.05            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.63               | 0.08            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.81               | 0.14            |                 |                     |                    |                 |
| 12.00           | 1.64                | 1.42               | 0.78            |                 |                     |                    |                 |
| 12.50           | 2.43                | 2.20               | 0.21            |                 |                     |                    |                 |
| 13.00           | 2.62                | 2.39               | 0.10            |                 |                     |                    |                 |
| 13.50           | 2.74                | 2.51               | 0.06            |                 |                     |                    |                 |
| 14.00           | 2.82                | 2.59               | 0.05            |                 |                     |                    |                 |
| 14.50           | 2.89                | 2.66               | 0.04            |                 |                     |                    |                 |
| 15.00           | 2.95                | 2.71               | 0.03            |                 |                     |                    |                 |
| 15.50           | 2.99                | 2.76               | 0.03            |                 |                     |                    |                 |
| 16.00           | 3.04                | 2.80               | 0.03            |                 |                     |                    |                 |
| 16.50           | 3.08                | 2.84               | 0.02            |                 |                     |                    |                 |
| 17.00           | 3.11                | 2.88               | 0.02            |                 |                     |                    |                 |
| 17.50           | 3.15                | 2.91               | 0.02            |                 |                     |                    |                 |
| 18.00           | 3.18                | 2.94               | 0.02            |                 |                     |                    |                 |
| 18.50           | 3.20                | 2.97               | 0.02            |                 |                     |                    |                 |
| 19.00           | 3.23                | 3.00               | 0.02            |                 |                     |                    |                 |
| 19.50           | 3.26                | 3.02               | 0.02            |                 |                     |                    |                 |
| 20.00           | 3.28                | 3.05               | 0.02            |                 |                     |                    |                 |
| 20.50           | 3.31                | 3.07               | 0.01            |                 |                     |                    |                 |
| 21.00           | 3.33                | 3.10               | 0.01            |                 |                     |                    |                 |
| 21.50           | 3.35                | 3.12               | 0.01            |                 |                     |                    |                 |
| 22.00           | 3.37                | 3.14               | 0.01            |                 |                     |                    |                 |
| 22.50           | 3.39                | 3.16               | 0.01            |                 |                     |                    |                 |
| 23.00           | 3.41                | 3.18               | 0.01            |                 |                     |                    |                 |
| 23.50           | 3.43                | 3.20               | 0.01            |                 |                     |                    |                 |
| 24.00           | 3.45                | 3.22               | 0.01            |                 |                     |                    |                 |
| 24.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 46S: North Undisturbed Area (Pervious)

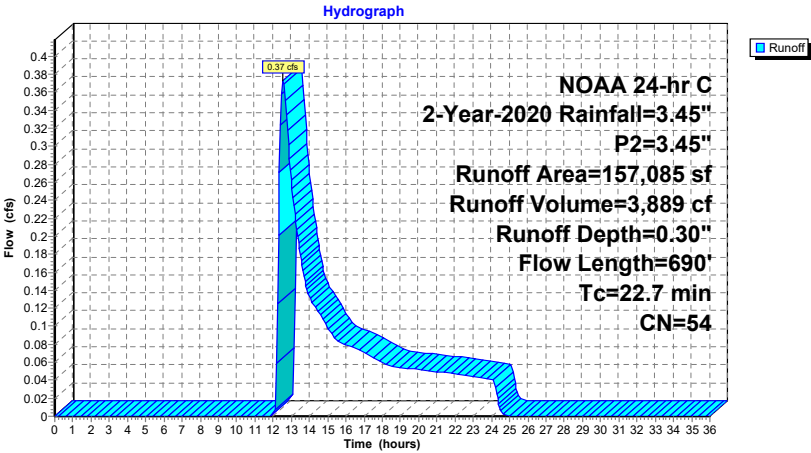
Runoff = 0.37 cfs @ 12.55 hrs, Volume= 3,889 cf, Depth= 0.30"  
Routed to Link 13L : FES

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN            | Description                    |                   |                |                                                                                                                      |
|-----------|---------------|--------------------------------|-------------------|----------------|----------------------------------------------------------------------------------------------------------------------|
| 15,827    | 39            | >75% Grass cover, Good, HSG A  |                   |                |                                                                                                                      |
| 80,837    | 61            | >75% Grass cover, Good, HSG B  |                   |                |                                                                                                                      |
| 30,052    | 32            | Woods/grass comb., Good, HSG A |                   |                |                                                                                                                      |
| 22,227    | 58            | Woods/grass comb., Good, HSG B |                   |                |                                                                                                                      |
| 8,142     | 86            | Fallow, bare soil, HSG B       |                   |                |                                                                                                                      |
| 157,085   | 54            | Weighted Average               |                   |                |                                                                                                                      |
| 157,085   |               | 100.00% Pervious Area          |                   |                |                                                                                                                      |
| Tc (min)  | Length (feet) | Slope (ft/ft)                  | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                          |
| 9.1       | 27            | 0.0120                         | 0.05              |                | <b>Sheet Flow,</b><br>Grass: Bermuda n= 0.410 P2= 3.45"<br>Using McCuen-Spiess flow length                           |
| 1.5       | 67            | 0.0120                         | 0.77              |                | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6      | 319           | 0.0100                         | 0.50              |                | <b>Shallow Concentrated Flow,</b><br>Woodland Kv= 5.0 fps                                                            |
| 0.8       | 49            | 0.0200                         | 0.99              |                | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7       | 228           | 0.0050                         | 5.09              | 16.00          | <b>Pipe Channel,</b><br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.7      | 690           | Total                          |                   |                |                                                                                                                      |



Subcatchment 46S: North Undisturbed Area (Pervious)



Hydrograph for Subcatchment 46S: North Undisturbed Area (Pervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 0.30               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 0.30               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 0.30               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 0.30               | 0.00            |
| 2.00            | 0.08                | 0.00               | 0.00            | 28.00           | 3.45                | 0.30               | 0.00            |
| 2.50            | 0.10                | 0.00               | 0.00            | 28.50           | 3.45                | 0.30               | 0.00            |
| 3.00            | 0.12                | 0.00               | 0.00            | 29.00           | 3.45                | 0.30               | 0.00            |
| 3.50            | 0.14                | 0.00               | 0.00            | 29.50           | 3.45                | 0.30               | 0.00            |
| 4.00            | 0.17                | 0.00               | 0.00            | 30.00           | 3.45                | 0.30               | 0.00            |
| 4.50            | 0.19                | 0.00               | 0.00            | 30.50           | 3.45                | 0.30               | 0.00            |
| 5.00            | 0.22                | 0.00               | 0.00            | 31.00           | 3.45                | 0.30               | 0.00            |
| 5.50            | 0.25                | 0.00               | 0.00            | 31.50           | 3.45                | 0.30               | 0.00            |
| 6.00            | 0.27                | 0.00               | 0.00            | 32.00           | 3.45                | 0.30               | 0.00            |
| 6.50            | 0.30                | 0.00               | 0.00            | 32.50           | 3.45                | 0.30               | 0.00            |
| 7.00            | 0.34                | 0.00               | 0.00            | 33.00           | 3.45                | 0.30               | 0.00            |
| 7.50            | 0.37                | 0.00               | 0.00            | 33.50           | 3.45                | 0.30               | 0.00            |
| 8.00            | 0.41                | 0.00               | 0.00            | 34.00           | 3.45                | 0.30               | 0.00            |
| 8.50            | 0.46                | 0.00               | 0.00            | 34.50           | 3.45                | 0.30               | 0.00            |
| 9.00            | 0.50                | 0.00               | 0.00            | 35.00           | 3.45                | 0.30               | 0.00            |
| 9.50            | 0.56                | 0.00               | 0.00            | 35.50           | 3.45                | 0.30               | 0.00            |
| 10.00           | 0.63                | 0.00               | 0.00            | 36.00           | 3.45                | 0.30               | 0.00            |
| 10.50           | 0.71                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.64                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.43                | 0.06               | 0.37            |                 |                     |                    |                 |
| 13.00           | 2.62                | 0.09               | 0.26            |                 |                     |                    |                 |
| 13.50           | 2.74                | 0.11               | 0.18            |                 |                     |                    |                 |
| 14.00           | 2.82                | 0.13               | 0.13            |                 |                     |                    |                 |
| 14.50           | 2.89                | 0.15               | 0.12            |                 |                     |                    |                 |
| 15.00           | 2.95                | 0.16               | 0.10            |                 |                     |                    |                 |
| 15.50           | 2.99                | 0.17               | 0.08            |                 |                     |                    |                 |
| 16.00           | 3.04                | 0.18               | 0.08            |                 |                     |                    |                 |
| 16.50           | 3.08                | 0.19               | 0.08            |                 |                     |                    |                 |
| 17.00           | 3.11                | 0.20               | 0.07            |                 |                     |                    |                 |
| 17.50           | 3.15                | 0.21               | 0.07            |                 |                     |                    |                 |
| 18.00           | 3.18                | 0.22               | 0.06            |                 |                     |                    |                 |
| 18.50           | 3.20                | 0.22               | 0.06            |                 |                     |                    |                 |
| 19.00           | 3.23                | 0.23               | 0.05            |                 |                     |                    |                 |
| 19.50           | 3.26                | 0.24               | 0.05            |                 |                     |                    |                 |
| 20.00           | 3.28                | 0.25               | 0.05            |                 |                     |                    |                 |
| 20.50           | 3.31                | 0.25               | 0.05            |                 |                     |                    |                 |
| 21.00           | 3.33                | 0.26               | 0.05            |                 |                     |                    |                 |
| 21.50           | 3.35                | 0.27               | 0.05            |                 |                     |                    |                 |
| 22.00           | 3.37                | 0.27               | 0.05            |                 |                     |                    |                 |
| 22.50           | 3.39                | 0.28               | 0.05            |                 |                     |                    |                 |
| 23.00           | 3.41                | 0.29               | 0.04            |                 |                     |                    |                 |
| 23.50           | 3.43                | 0.29               | 0.04            |                 |                     |                    |                 |
| 24.00           | 3.45                | 0.30               | 0.04            |                 |                     |                    |                 |
| 24.50           | 3.45                | 0.30               | 0.01            |                 |                     |                    |                 |
| 25.00           | 3.45                | 0.30               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 0.30               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 47S: North Undisturbed Area (Impervious)

Runoff = 2.37 cfs @ 12.32 hrs, Volume= 12,256 cf, Depth= 3.22"  
Routed to Link 13L : FES

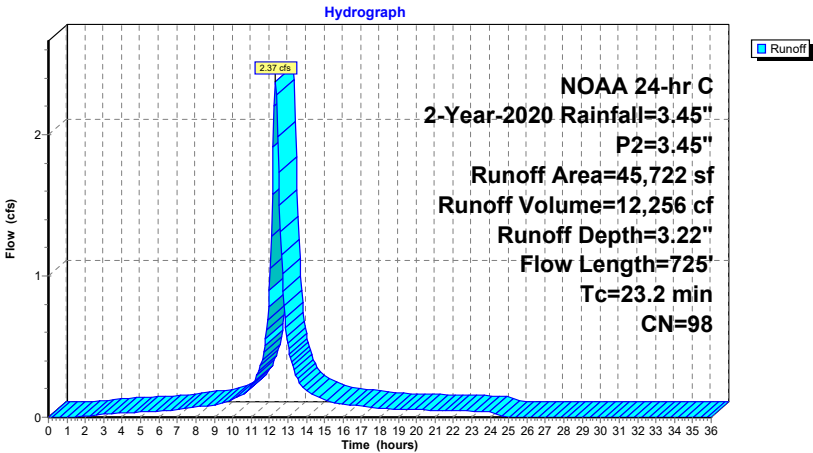
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description                 |
|-----------|----|-----------------------------|
| 45,722    | 98 | Unconnected pavement, HSG A |
| 45,722    |    | 100.00% Impervious Area     |
| 45,722    |    | 100.00% Unconnected         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                           |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------|
| 0.5         | 35               | 0.0200           | 1.16                 |                   | <b>Sheet Flow</b> ,<br>Smooth surfaces n= 0.011 P2= 3.45"                                                             |
| 9.1         | 27               | 0.0120           | 0.05                 |                   | <b>Sheet Flow</b> ,<br>Grass: Bermuda n= 0.410 P2= 3.45"<br>Using McCuen-Spiess flow length                           |
| 1.5         | 67               | 0.0120           | 0.77                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6        | 319              | 0.0100           | 0.50                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8         | 49               | 0.0200           | 0.99                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7         | 228              | 0.0050           | 5.09                 | 16.00             | <b>Pipe Channel</b> ,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 23.2        | 725              | Total            |                      |                   |                                                                                                                       |



Subcatchment 47S: North Undisturbed Area (Impervious)



Hydrograph for Subcatchment 47S: North Undisturbed Area (Impervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 3.22               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 3.22               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 3.22               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 3.22               | 0.00            |
| 2.00            | 0.08                | 0.01               | 0.01            | 28.00           | 3.45                | 3.22               | 0.00            |
| 2.50            | 0.10                | 0.01               | 0.01            | 28.50           | 3.45                | 3.22               | 0.00            |
| 3.00            | 0.12                | 0.02               | 0.02            | 29.00           | 3.45                | 3.22               | 0.00            |
| 3.50            | 0.14                | 0.04               | 0.02            | 29.50           | 3.45                | 3.22               | 0.00            |
| 4.00            | 0.17                | 0.05               | 0.03            | 30.00           | 3.45                | 3.22               | 0.00            |
| 4.50            | 0.19                | 0.07               | 0.03            | 30.50           | 3.45                | 3.22               | 0.00            |
| 5.00            | 0.22                | 0.08               | 0.04            | 31.00           | 3.45                | 3.22               | 0.00            |
| 5.50            | 0.25                | 0.10               | 0.04            | 31.50           | 3.45                | 3.22               | 0.00            |
| 6.00            | 0.27                | 0.12               | 0.04            | 32.00           | 3.45                | 3.22               | 0.00            |
| 6.50            | 0.30                | 0.15               | 0.05            | 32.50           | 3.45                | 3.22               | 0.00            |
| 7.00            | 0.34                | 0.17               | 0.06            | 33.00           | 3.45                | 3.22               | 0.00            |
| 7.50            | 0.37                | 0.21               | 0.06            | 33.50           | 3.45                | 3.22               | 0.00            |
| 8.00            | 0.41                | 0.24               | 0.07            | 34.00           | 3.45                | 3.22               | 0.00            |
| 8.50            | 0.46                | 0.28               | 0.08            | 34.50           | 3.45                | 3.22               | 0.00            |
| 9.00            | 0.50                | 0.32               | 0.09            | 35.00           | 3.45                | 3.22               | 0.00            |
| 9.50            | 0.56                | 0.37               | 0.10            | 35.50           | 3.45                | 3.22               | 0.00            |
| 10.00           | 0.63                | 0.44               | 0.13            | 36.00           | 3.45                | 3.22               | 0.00            |
| 10.50           | 0.71                | 0.51               | 0.16            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.63               | 0.22            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.81               | 0.35            |                 |                     |                    |                 |
| 12.00           | 1.64                | 1.42               | 0.90            |                 |                     |                    |                 |
| 12.50           | 2.43                | 2.20               | 1.73            |                 |                     |                    |                 |
| 13.00           | 2.62                | 2.39               | 0.52            |                 |                     |                    |                 |
| 13.50           | 2.74                | 2.51               | 0.28            |                 |                     |                    |                 |
| 14.00           | 2.82                | 2.59               | 0.18            |                 |                     |                    |                 |
| 14.50           | 2.89                | 2.66               | 0.15            |                 |                     |                    |                 |
| 15.00           | 2.95                | 2.71               | 0.12            |                 |                     |                    |                 |
| 15.50           | 2.99                | 2.76               | 0.10            |                 |                     |                    |                 |
| 16.00           | 3.04                | 2.80               | 0.09            |                 |                     |                    |                 |
| 16.50           | 3.08                | 2.84               | 0.09            |                 |                     |                    |                 |
| 17.00           | 3.11                | 2.88               | 0.08            |                 |                     |                    |                 |
| 17.50           | 3.15                | 2.91               | 0.07            |                 |                     |                    |                 |
| 18.00           | 3.18                | 2.94               | 0.06            |                 |                     |                    |                 |
| 18.50           | 3.20                | 2.97               | 0.06            |                 |                     |                    |                 |
| 19.00           | 3.23                | 3.00               | 0.06            |                 |                     |                    |                 |
| 19.50           | 3.26                | 3.02               | 0.05            |                 |                     |                    |                 |
| 20.00           | 3.28                | 3.05               | 0.05            |                 |                     |                    |                 |
| 20.50           | 3.31                | 3.07               | 0.05            |                 |                     |                    |                 |
| 21.00           | 3.33                | 3.10               | 0.05            |                 |                     |                    |                 |
| 21.50           | 3.35                | 3.12               | 0.05            |                 |                     |                    |                 |
| 22.00           | 3.37                | 3.14               | 0.05            |                 |                     |                    |                 |
| 22.50           | 3.39                | 3.16               | 0.04            |                 |                     |                    |                 |
| 23.00           | 3.41                | 3.18               | 0.04            |                 |                     |                    |                 |
| 23.50           | 3.43                | 3.20               | 0.04            |                 |                     |                    |                 |
| 24.00           | 3.45                | 3.22               | 0.04            |                 |                     |                    |                 |
| 24.50           | 3.45                | 3.22               | 0.01            |                 |                     |                    |                 |
| 25.00           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |



Summary for Pond 2P: GI-1

Inflow Area = 39,122 sf, 53.83% Impervious, Inflow Depth = 1.73" for 2-Year-2020 event  
Inflow = 1.94 cfs @ 12.09 hrs, Volume= 5,655 cf  
Outflow = 0.16 cfs @ 12.95 hrs, Volume= 3,621 cf, Atten= 92%, Lag= 51.9 min  
Primary = 0.16 cfs @ 12.95 hrs, Volume= 3,621 cf  
Routed to Link 13L : FES

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.46' @ 12.95 hrs Surf.Area= 7,982 sf Storage= 3,705 cf

Plug-Flow detention time= 405.0 min calculated for 3,621 cf (64% of inflow)  
Center-of-Mass det. time= 299.9 min ( 1,053.7 - 753.8 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 131.00' | 15,964 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

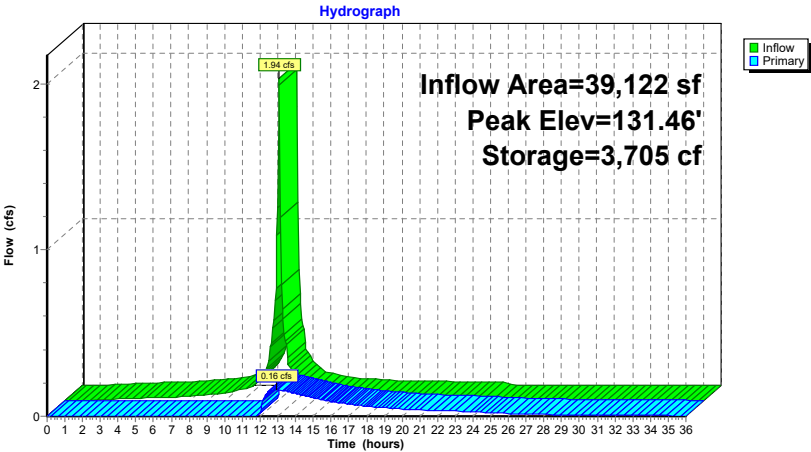
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 131.00           | 7,982             | 0                      | 0                      |
| 132.00           | 7,982             | 7,982                  | 7,982                  |
| 133.00           | 7,982             | 7,982                  | 15,964                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 132.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 131.24' | 0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

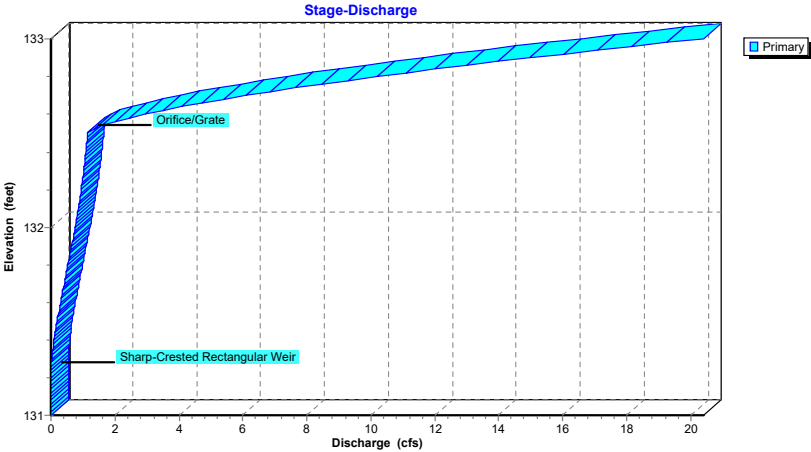
Primary OutFlow Max=0.16 cfs @ 12.95 hrs HW=131.46' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate ( Controls 0.00 cfs)  
2=Sharp-Crested Rectangular Weir(Weir Controls 0.16 cfs @ 1.55 fps)



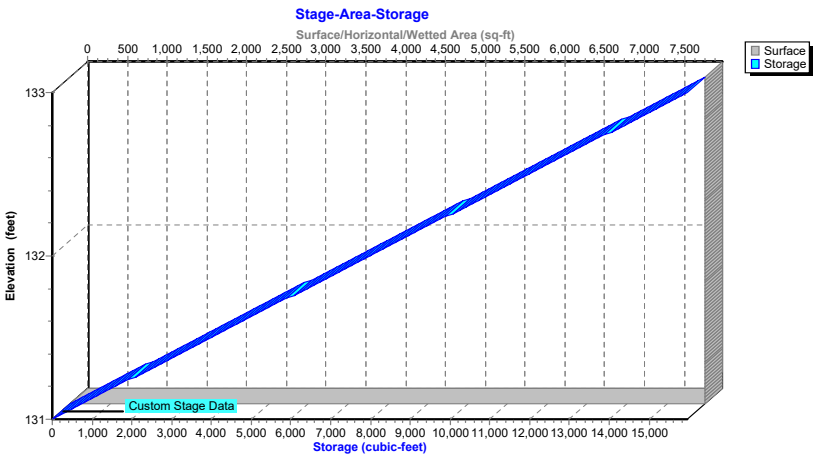
Pond 2P: GI-1



Pond 2P: GI-1



Pond 2P: GI-1



Hydrograph for Pond 2P: GI-1

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 131.00           | 0.00          |
| 1.00         | 0.00         | 0                    | 131.00           | 0.00          |
| 2.00         | 0.01         | 9                    | 131.00           | 0.00          |
| 3.00         | 0.01         | 39                   | 131.00           | 0.00          |
| 4.00         | 0.01         | 84                   | 131.01           | 0.00          |
| 5.00         | 0.02         | 144                  | 131.02           | 0.00          |
| 6.00         | 0.02         | 214                  | 131.03           | 0.00          |
| 7.00         | 0.03         | 303                  | 131.04           | 0.00          |
| 8.00         | 0.04         | 417                  | 131.05           | 0.00          |
| 9.00         | 0.04         | 558                  | 131.07           | 0.00          |
| 10.00        | 0.07         | 756                  | 131.09           | 0.00          |
| 11.00        | 0.13         | 1,078                | 131.14           | 0.00          |
| 12.00        | 1.16         | 2,322                | 131.29           | 0.02          |
| 13.00        | 0.15         | 3,704                | 131.46           | 0.16          |
| 14.00        | 0.07         | 3,527                | 131.44           | 0.14          |
| 15.00        | 0.05         | 3,306                | 131.41           | 0.11          |
| 16.00        | 0.04         | 3,108                | 131.39           | 0.09          |
| 17.00        | 0.03         | 2,954                | 131.37           | 0.07          |
| 18.00        | 0.03         | 2,827                | 131.35           | 0.06          |
| 19.00        | 0.03         | 2,724                | 131.34           | 0.05          |
| 20.00        | 0.02         | 2,645                | 131.33           | 0.04          |
| 21.00        | 0.02         | 2,583                | 131.32           | 0.04          |
| 22.00        | 0.02         | 2,532                | 131.32           | 0.03          |
| 23.00        | 0.02         | 2,489                | 131.31           | 0.03          |
| 24.00        | 0.02         | 2,452                | 131.31           | 0.03          |
| 25.00        | 0.00         | 2,367                | 131.30           | 0.02          |
| 26.00        | 0.00         | 2,298                | 131.29           | 0.02          |
| 27.00        | 0.00         | 2,244                | 131.28           | 0.01          |
| 28.00        | 0.00         | 2,201                | 131.28           | 0.01          |
| 29.00        | 0.00         | 2,165                | 131.27           | 0.01          |
| 30.00        | 0.00         | 2,136                | 131.27           | 0.01          |
| 31.00        | 0.00         | 2,111                | 131.26           | 0.01          |
| 32.00        | 0.00         | 2,091                | 131.26           | 0.01          |
| 33.00        | 0.00         | 2,073                | 131.26           | 0.00          |
| 34.00        | 0.00         | 2,058                | 131.26           | 0.00          |
| 35.00        | 0.00         | 2,045                | 131.26           | 0.00          |
| 36.00        | 0.00         | 2,034                | 131.25           | 0.00          |

**2101ELK-STM Analysis POI-1 - Propose**VOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 2P: GI-1**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 131.00              | 0.00             | 131.52              | 0.22             | 132.04              | 0.80             | 132.56              | 2.01             |
| 131.01              | 0.00             | 131.53              | 0.23             | 132.05              | 0.81             | 132.57              | 2.22             |
| 131.02              | 0.00             | 131.54              | 0.24             | 132.06              | 0.82             | 132.58              | 2.45             |
| 131.03              | 0.00             | 131.55              | 0.25             | 132.07              | 0.83             | 132.59              | 2.69             |
| 131.04              | 0.00             | 131.56              | 0.26             | 132.08              | 0.84             | 132.60              | 2.95             |
| 131.05              | 0.00             | 131.57              | 0.27             | 132.09              | 0.85             | 132.61              | 3.22             |
| 131.06              | 0.00             | 131.58              | 0.28             | 132.10              | 0.86             | 132.62              | 3.50             |
| 131.07              | 0.00             | 131.59              | 0.29             | 132.11              | 0.87             | 132.63              | 3.79             |
| 131.08              | 0.00             | 131.60              | 0.30             | 132.12              | 0.87             | 132.64              | 4.09             |
| 131.09              | 0.00             | 131.61              | 0.31             | 132.13              | 0.88             | 132.65              | 4.41             |
| 131.10              | 0.00             | 131.62              | 0.32             | 132.14              | 0.89             | 132.66              | 4.73             |
| 131.11              | 0.00             | 131.63              | 0.34             | 132.15              | 0.90             | 132.67              | 5.07             |
| 131.12              | 0.00             | 131.64              | 0.35             | 132.16              | 0.91             | 132.68              | 5.41             |
| 131.13              | 0.00             | 131.65              | 0.36             | 132.17              | 0.92             | 132.69              | 5.76             |
| 131.14              | 0.00             | 131.66              | 0.37             | 132.18              | 0.93             | 132.70              | 6.12             |
| 131.15              | 0.00             | 131.67              | 0.38             | 132.19              | 0.94             | 132.71              | 6.49             |
| 131.16              | 0.00             | 131.68              | 0.39             | 132.20              | 0.95             | 132.72              | 6.87             |
| 131.17              | 0.00             | 131.69              | 0.40             | 132.21              | 0.96             | 132.73              | 7.26             |
| 131.18              | 0.00             | 131.70              | 0.42             | 132.22              | 0.96             | 132.74              | 7.65             |
| 131.19              | 0.00             | 131.71              | 0.43             | 132.23              | 0.97             | 132.75              | 8.06             |
| 131.20              | 0.00             | 131.72              | 0.44             | 132.24              | 0.98             | 132.76              | 8.47             |
| 131.21              | 0.00             | 131.73              | 0.45             | 132.25              | 0.99             | 132.77              | 8.89             |
| 131.22              | 0.00             | 131.74              | 0.46             | 132.26              | 1.00             | 132.78              | 9.31             |
| 131.23              | 0.00             | 131.75              | 0.47             | 132.27              | 1.00             | 132.79              | 9.75             |
| 131.24              | 0.00             | 131.76              | 0.49             | 132.28              | 1.01             | 132.80              | 10.19            |
| 131.25              | 0.00             | 131.77              | 0.50             | 132.29              | 1.02             | 132.81              | 10.64            |
| 131.26              | 0.00             | 131.78              | 0.51             | 132.30              | 1.03             | 132.82              | 11.09            |
| 131.27              | 0.01             | 131.79              | 0.52             | 132.31              | 1.04             | 132.83              | 11.56            |
| 131.28              | 0.01             | 131.80              | 0.53             | 132.32              | 1.04             | 132.84              | 12.03            |
| 131.29              | 0.02             | 131.81              | 0.54             | 132.33              | 1.05             | 132.85              | 12.50            |
| 131.30              | 0.02             | 131.82              | 0.55             | 132.34              | 1.06             | 132.86              | 12.99            |
| 131.31              | 0.03             | 131.83              | 0.57             | 132.35              | 1.06             | 132.87              | 13.48            |
| 131.32              | 0.04             | 131.84              | 0.58             | 132.36              | 1.07             | 132.88              | 13.97            |
| 131.33              | 0.04             | 131.85              | 0.59             | 132.37              | 1.08             | 132.89              | 14.48            |
| 131.34              | 0.05             | 131.86              | 0.60             | 132.38              | 1.08             | 132.90              | 14.98            |
| 131.35              | 0.06             | 131.87              | 0.61             | 132.39              | 1.09             | 132.91              | 15.50            |
| 131.36              | 0.06             | 131.88              | 0.62             | 132.40              | 1.09             | 132.92              | 16.02            |
| 131.37              | 0.07             | 131.89              | 0.63             | 132.41              | 1.10             | 132.93              | 16.55            |
| 131.38              | 0.08             | 131.90              | 0.65             | 132.42              | 1.11             | 132.94              | 17.08            |
| 131.39              | 0.09             | 131.91              | 0.66             | 132.43              | 1.11             | 132.95              | 17.62            |
| 131.40              | 0.10             | 131.92              | 0.67             | 132.44              | 1.12             | 132.96              | 18.17            |
| 131.41              | 0.11             | 131.93              | 0.68             | 132.45              | 1.12             | 132.97              | 18.72            |
| 131.42              | 0.12             | 131.94              | 0.69             | 132.46              | 1.13             | 132.98              | 19.28            |
| 131.43              | 0.13             | 131.95              | 0.70             | 132.47              | 1.13             | 132.99              | 19.84            |
| 131.44              | 0.13             | 131.96              | 0.71             | 132.48              | 1.14             | 133.00              | <b>20.41</b>     |
| 131.45              | 0.14             | 131.97              | 0.72             | 132.49              | 1.14             |                     |                  |
| 131.46              | 0.15             | 131.98              | 0.73             | 132.50              | 1.16             |                     |                  |
| 131.47              | 0.16             | 131.99              | 0.74             | 132.51              | 1.22             |                     |                  |
| 131.48              | 0.17             | 132.00              | 0.75             | 132.52              | 1.33             |                     |                  |
| 131.49              | 0.18             | 132.01              | 0.76             | 132.53              | 1.47             |                     |                  |
| 131.50              | 0.19             | 132.02              | 0.77             | 132.54              | 1.63             |                     |                  |
| 131.51              | 0.20             | 132.03              | 0.79             | 132.55              | 1.81             |                     |                  |

**2101ELK-STM Analysis POI-1 - Propose**VOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 2P: GI-1**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 131.00              | <b>7,982</b>       | 0                       | 132.04              | 7,982              | 8,301                   |
| 131.02              | 7,982              | 160                     | 132.06              | 7,982              | 8,461                   |
| 131.04              | 7,982              | 319                     | 132.08              | 7,982              | 8,621                   |
| 131.06              | 7,982              | 479                     | 132.10              | 7,982              | 8,780                   |
| 131.08              | 7,982              | 639                     | 132.12              | 7,982              | 8,940                   |
| 131.10              | 7,982              | 798                     | 132.14              | 7,982              | 9,099                   |
| 131.12              | 7,982              | 958                     | 132.16              | 7,982              | 9,259                   |
| 131.14              | 7,982              | 1,117                   | 132.18              | 7,982              | 9,419                   |
| 131.16              | 7,982              | 1,277                   | 132.20              | 7,982              | 9,578                   |
| 131.18              | 7,982              | 1,437                   | 132.22              | 7,982              | 9,738                   |
| 131.20              | 7,982              | 1,596                   | 132.24              | 7,982              | 9,898                   |
| 131.22              | 7,982              | 1,756                   | 132.26              | 7,982              | 10,057                  |
| 131.24              | 7,982              | 1,916                   | 132.28              | 7,982              | 10,217                  |
| 131.26              | 7,982              | 2,075                   | 132.30              | 7,982              | 10,377                  |
| 131.28              | 7,982              | 2,235                   | 132.32              | 7,982              | 10,536                  |
| 131.30              | 7,982              | 2,395                   | 132.34              | 7,982              | 10,696                  |
| 131.32              | 7,982              | 2,554                   | 132.36              | 7,982              | 10,856                  |
| 131.34              | 7,982              | 2,714                   | 132.38              | 7,982              | 11,015                  |
| 131.36              | 7,982              | 2,874                   | 132.40              | 7,982              | 11,175                  |
| 131.38              | 7,982              | 3,033                   | 132.42              | 7,982              | 11,334                  |
| 131.40              | 7,982              | 3,193                   | 132.44              | 7,982              | 11,494                  |
| 131.42              | 7,982              | 3,352                   | 132.46              | 7,982              | 11,654                  |
| 131.44              | 7,982              | 3,512                   | 132.48              | 7,982              | 11,813                  |
| 131.46              | 7,982              | 3,672                   | 132.50              | 7,982              | 11,973                  |
| 131.48              | 7,982              | 3,831                   | 132.52              | 7,982              | 12,133                  |
| 131.50              | 7,982              | 3,991                   | 132.54              | 7,982              | 12,292                  |
| 131.52              | 7,982              | 4,151                   | 132.56              | 7,982              | 12,452                  |
| 131.54              | 7,982              | 4,310                   | 132.58              | 7,982              | 12,612                  |
| 131.56              | 7,982              | 4,470                   | 132.60              | 7,982              | 12,771                  |
| 131.58              | 7,982              | 4,630                   | 132.62              | 7,982              | 12,931                  |
| 131.60              | 7,982              | 4,789                   | 132.64              | 7,982              | 13,090                  |
| 131.62              | 7,982              | 4,949                   | 132.66              | 7,982              | 13,250                  |
| 131.64              | 7,982              | 5,108                   | 132.68              | 7,982              | 13,410                  |
| 131.66              | 7,982              | 5,268                   | 132.70              | 7,982              | 13,569                  |
| 131.68              | 7,982              | 5,428                   | 132.72              | 7,982              | 13,729                  |
| 131.70              | 7,982              | 5,587                   | 132.74              | 7,982              | 13,889                  |
| 131.72              | 7,982              | 5,747                   | 132.76              | 7,982              | 14,048                  |
| 131.74              | 7,982              | 5,907                   | 132.78              | 7,982              | 14,208                  |
| 131.76              | 7,982              | 6,066                   | 132.80              | 7,982              | 14,368                  |
| 131.78              | 7,982              | 6,226                   | 132.82              | 7,982              | 14,527                  |
| 131.80              | 7,982              | 6,386                   | 132.84              | 7,982              | 14,687                  |
| 131.82              | 7,982              | 6,545                   | 132.86              | 7,982              | 14,847                  |
| 131.84              | 7,982              | 6,705                   | 132.88              | 7,982              | 15,006                  |
| 131.86              | 7,982              | 6,865                   | 132.90              | 7,982              | 15,166                  |
| 131.88              | 7,982              | 7,024                   | 132.92              | 7,982              | 15,325                  |
| 131.90              | 7,982              | 7,184                   | 132.94              | 7,982              | 15,485                  |
| 131.92              | 7,982              | 7,343                   | 132.96              | 7,982              | 15,645                  |
| 131.94              | 7,982              | 7,503                   | 132.98              | 7,982              | 15,804                  |
| 131.96              | 7,982              | 7,663                   | 133.00              | 7,982              | <b>15,964</b>           |
| 131.98              | 7,982              | 7,822                   |                     |                    |                         |
| 132.00              | 7,982              | 7,982                   |                     |                    |                         |
| 132.02              | 7,982              | 8,142                   |                     |                    |                         |

Summary for Pond 7P: GI-9

Inflow Area = 59,364 sf, 72.99% Impervious, Inflow Depth = 2.50" for 2-Year-2020 event  
Inflow = 4.28 cfs @ 12.08 hrs, Volume= 12,351 cf  
Outflow = 0.39 cfs @ 12.88 hrs, Volume= 8,401 cf, Atten= 91%, Lag= 48.1 min  
Primary = 0.39 cfs @ 12.88 hrs, Volume= 8,401 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 128.84' @ 12.88 hrs Surf.Area= 9,141 sf Storage= 7,719 cf

Plug-Flow detention time= 375.7 min calculated for 8,389 cf (68% of inflow)  
Center-of-Mass det. time= 274.7 min ( 1,036.4 - 761.7 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 128.00' | 27,423 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

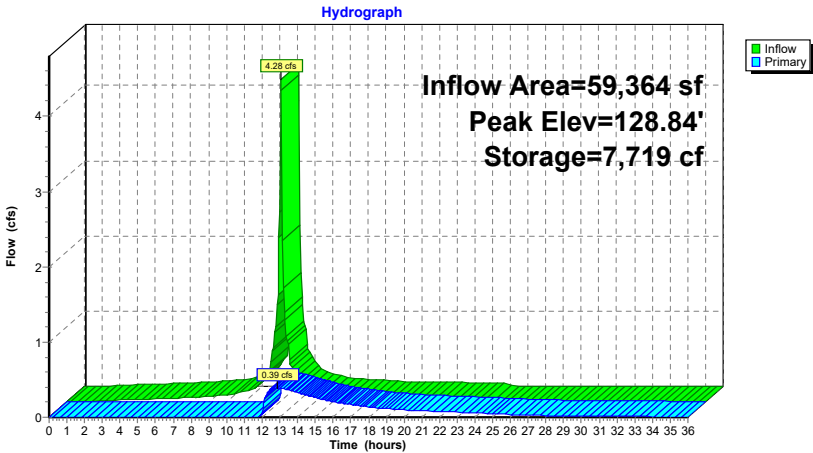
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 128.00           | 9,141             | 0                      | 0                      |
| 131.00           | 9,141             | 27,423                 | 27,423                 |

| Device | Routing | Invert  | Outlet Devices                                                |
|--------|---------|---------|---------------------------------------------------------------|
| #1     | Primary | 128.41' | 0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

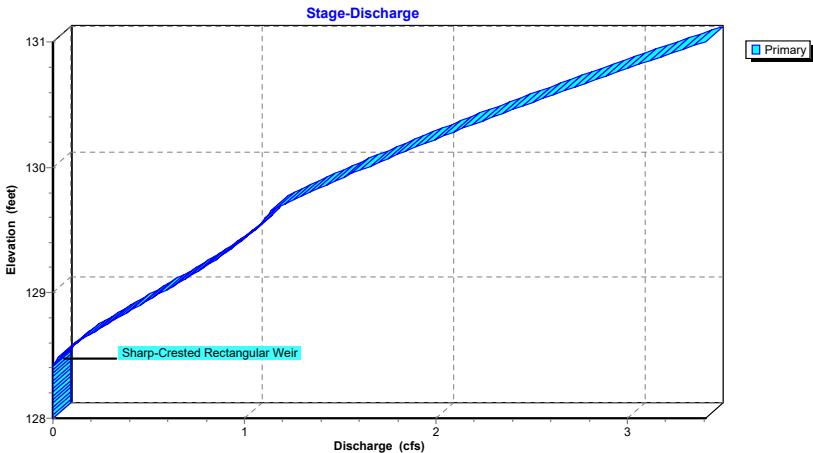
Primary OutFlow Max=0.39 cfs @ 12.88 hrs HW=128.84' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir(Weir Controls 0.39 cfs @ 2.16 fps)



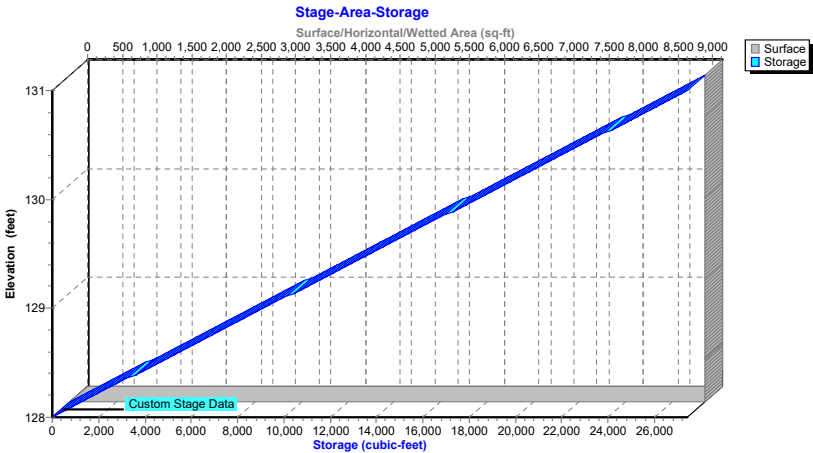
Pond 7P: GI-9



Pond 7P: GI-9



Pond 7P: GI-9



Hydrograph for Pond 7P: GI-9

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Primary<br>(cfs) |
|-----------------|-----------------|-------------------------|---------------------|------------------|
| 0.00            | 0.00            | 0                       | 128.00              | 0.00             |
| 1.00            | 0.00            | 0                       | 128.00              | 0.00             |
| 2.00            | 0.01            | 19                      | 128.00              | 0.00             |
| 3.00            | 0.02            | 80                      | 128.01              | 0.00             |
| 4.00            | 0.03            | 174                     | 128.02              | 0.00             |
| 5.00            | 0.04            | 296                     | 128.03              | 0.00             |
| 6.00            | 0.04            | 442                     | 128.05              | 0.00             |
| 7.00            | 0.06            | 624                     | 128.07              | 0.00             |
| 8.00            | 0.07            | 860                     | 128.09              | 0.00             |
| 9.00            | 0.09            | 1,149                   | 128.13              | 0.00             |
| 10.00           | 0.14            | 1,559                   | 128.17              | 0.00             |
| 11.00           | 0.26            | 2,224                   | 128.24              | 0.00             |
| 12.00           | 2.52            | 4,842                   | 128.53              | 0.06             |
| 13.00           | 0.34            | 7,709                   | 128.84              | 0.39             |
| 14.00           | 0.17            | 7,239                   | 128.79              | 0.33             |
| 15.00           | 0.12            | 6,699                   | 128.73              | 0.26             |
| 16.00           | 0.10            | 6,236                   | 128.68              | 0.21             |
| 17.00           | 0.08            | 5,884                   | 128.64              | 0.17             |
| 18.00           | 0.07            | 5,601                   | 128.61              | 0.14             |
| 19.00           | 0.06            | 5,375                   | 128.59              | 0.11             |
| 20.00           | 0.06            | 5,206                   | 128.57              | 0.10             |
| 21.00           | 0.05            | 5,075                   | 128.56              | 0.09             |
| 22.00           | 0.05            | 4,969                   | 128.54              | 0.08             |
| 23.00           | 0.05            | 4,881                   | 128.53              | 0.07             |
| 24.00           | 0.05            | 4,806                   | 128.53              | 0.06             |
| 25.00           | 0.00            | 4,619                   | 128.51              | 0.05             |
| 26.00           | 0.00            | 4,473                   | 128.49              | 0.04             |
| 27.00           | 0.00            | 4,361                   | 128.48              | 0.03             |
| 28.00           | 0.00            | 4,272                   | 128.47              | 0.02             |
| 29.00           | 0.00            | 4,201                   | 128.46              | 0.02             |
| 30.00           | 0.00            | 4,143                   | 128.45              | 0.01             |
| 31.00           | 0.00            | 4,096                   | 128.45              | 0.01             |
| 32.00           | 0.00            | 4,057                   | 128.44              | 0.01             |
| 33.00           | 0.00            | 4,023                   | 128.44              | 0.01             |
| 34.00           | 0.00            | 3,995                   | 128.44              | 0.01             |
| 35.00           | 0.00            | 3,971                   | 128.43              | 0.01             |
| 36.00           | 0.00            | 3,951                   | 128.43              | 0.01             |

Stage-Discharge for Pond 7P: GI-9

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 128.00              | 0.00             | 129.04              | 0.61             | 130.08              | 1.76             |
| 128.02              | 0.00             | 129.06              | 0.63             | 130.10              | 1.80             |
| 128.04              | 0.00             | 129.08              | 0.66             | 130.12              | 1.83             |
| 128.06              | 0.00             | 129.10              | 0.68             | 130.14              | 1.86             |
| 128.08              | 0.00             | 129.12              | 0.70             | 130.16              | 1.89             |
| 128.10              | 0.00             | 129.14              | 0.72             | 130.18              | 1.93             |
| 128.12              | 0.00             | 129.16              | 0.74             | 130.20              | 1.96             |
| 128.14              | 0.00             | 129.18              | 0.76             | 130.22              | 1.99             |
| 128.16              | 0.00             | 129.20              | 0.79             | 130.24              | 2.02             |
| 128.18              | 0.00             | 129.22              | 0.81             | 130.26              | 2.06             |
| 128.20              | 0.00             | 129.24              | 0.83             | 130.28              | 2.09             |
| 128.22              | 0.00             | 129.26              | 0.85             | 130.30              | 2.12             |
| 128.24              | 0.00             | 129.28              | 0.87             | 130.32              | 2.16             |
| 128.26              | 0.00             | 129.30              | 0.88             | 130.34              | 2.19             |
| 128.28              | 0.00             | 129.32              | 0.90             | 130.36              | 2.23             |
| 128.30              | 0.00             | 129.34              | 0.92             | 130.38              | 2.26             |
| 128.32              | 0.00             | 129.36              | 0.94             | 130.40              | 2.29             |
| 128.34              | 0.00             | 129.38              | 0.96             | 130.42              | 2.33             |
| 128.36              | 0.00             | 129.40              | 0.97             | 130.44              | 2.36             |
| 128.38              | 0.00             | 129.42              | 0.99             | 130.46              | 2.40             |
| 128.40              | 0.00             | 129.44              | 1.00             | 130.48              | 2.43             |
| 128.42              | 0.00             | 129.46              | 1.02             | 130.50              | 2.47             |
| 128.44              | 0.01             | 129.48              | 1.04             | 130.52              | 2.51             |
| 128.46              | 0.02             | 129.50              | 1.05             | 130.54              | 2.54             |
| 128.48              | 0.03             | 129.52              | 1.06             | 130.56              | 2.58             |
| 128.50              | 0.04             | 129.54              | 1.08             | 130.58              | 2.61             |
| 128.52              | 0.06             | 129.56              | 1.09             | 130.60              | 2.65             |
| 128.54              | 0.07             | 129.58              | 1.10             | 130.62              | 2.69             |
| 128.56              | 0.09             | 129.60              | 1.11             | 130.64              | 2.72             |
| 128.58              | 0.11             | 129.62              | 1.12             | 130.66              | 2.76             |
| 128.60              | 0.13             | 129.64              | 1.13             | 130.68              | 2.80             |
| 128.62              | 0.14             | 129.66              | 1.14             | 130.70              | 2.83             |
| 128.64              | 0.16             | 129.68              | 1.17             | 130.72              | 2.87             |
| 128.66              | 0.18             | 129.70              | 1.20             | 130.74              | 2.91             |
| 128.68              | 0.20             | 129.72              | 1.23             | 130.76              | 2.95             |
| 128.70              | 0.23             | 129.74              | 1.25             | 130.78              | 2.98             |
| 128.72              | 0.25             | 129.76              | 1.28             | 130.80              | 3.02             |
| 128.74              | 0.27             | 129.78              | 1.31             | 130.82              | 3.06             |
| 128.76              | 0.29             | 129.80              | 1.34             | 130.84              | 3.10             |
| 128.78              | 0.31             | 129.82              | 1.37             | 130.86              | 3.13             |
| 128.80              | 0.34             | 129.84              | 1.40             | 130.88              | 3.17             |
| 128.82              | 0.36             | 129.86              | 1.43             | 130.90              | 3.21             |
| 128.84              | 0.38             | 129.88              | 1.46             | 130.92              | 3.25             |
| 128.86              | 0.40             | 129.90              | 1.49             | 130.94              | 3.29             |
| 128.88              | 0.43             | 129.92              | 1.52             | 130.96              | 3.33             |
| 128.90              | 0.45             | 129.94              | 1.55             | 130.98              | 3.37             |
| 128.92              | 0.47             | 129.96              | 1.58             | 131.00              | 3.41             |
| 128.94              | 0.50             | 129.98              | 1.61             |                     |                  |
| 128.96              | 0.52             | 130.00              | 1.64             |                     |                  |
| 128.98              | 0.54             | 130.02              | 1.67             |                     |                  |
| 129.00              | 0.57             | 130.04              | 1.70             |                     |                  |
| 129.02              | 0.59             | 130.06              | 1.73             |                     |                  |

Stage-Area-Storage for Pond 7P: GI-9

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 128.00              | 9,141              | 0                       | 130.60              | 9,141              | 23,767                  |
| 128.05              | 9,141              | 457                     | 130.65              | 9,141              | 24,224                  |
| 128.10              | 9,141              | 914                     | 130.70              | 9,141              | 24,681                  |
| 128.15              | 9,141              | 1,371                   | 130.75              | 9,141              | 25,138                  |
| 128.20              | 9,141              | 1,828                   | 130.80              | 9,141              | 25,595                  |
| 128.25              | 9,141              | 2,285                   | 130.85              | 9,141              | 26,052                  |
| 128.30              | 9,141              | 2,742                   | 130.90              | 9,141              | 26,509                  |
| 128.35              | 9,141              | 3,199                   | 130.95              | 9,141              | 26,966                  |
| 128.40              | 9,141              | 3,656                   | 131.00              | 9,141              | 27,423                  |
| 128.45              | 9,141              | 4,113                   |                     |                    |                         |
| 128.50              | 9,141              | 4,571                   |                     |                    |                         |
| 128.55              | 9,141              | 5,028                   |                     |                    |                         |
| 128.60              | 9,141              | 5,485                   |                     |                    |                         |
| 128.65              | 9,141              | 5,942                   |                     |                    |                         |
| 128.70              | 9,141              | 6,399                   |                     |                    |                         |
| 128.75              | 9,141              | 6,856                   |                     |                    |                         |
| 128.80              | 9,141              | 7,313                   |                     |                    |                         |
| 128.85              | 9,141              | 7,770                   |                     |                    |                         |
| 128.90              | 9,141              | 8,227                   |                     |                    |                         |
| 128.95              | 9,141              | 8,684                   |                     |                    |                         |
| 129.00              | 9,141              | 9,141                   |                     |                    |                         |
| 129.05              | 9,141              | 9,598                   |                     |                    |                         |
| 129.10              | 9,141              | 10,055                  |                     |                    |                         |
| 129.15              | 9,141              | 10,512                  |                     |                    |                         |
| 129.20              | 9,141              | 10,969                  |                     |                    |                         |
| 129.25              | 9,141              | 11,426                  |                     |                    |                         |
| 129.30              | 9,141              | 11,883                  |                     |                    |                         |
| 129.35              | 9,141              | 12,340                  |                     |                    |                         |
| 129.40              | 9,141              | 12,797                  |                     |                    |                         |
| 129.45              | 9,141              | 13,254                  |                     |                    |                         |
| 129.50              | 9,141              | 13,712                  |                     |                    |                         |
| 129.55              | 9,141              | 14,169                  |                     |                    |                         |
| 129.60              | 9,141              | 14,626                  |                     |                    |                         |
| 129.65              | 9,141              | 15,083                  |                     |                    |                         |
| 129.70              | 9,141              | 15,540                  |                     |                    |                         |
| 129.75              | 9,141              | 15,997                  |                     |                    |                         |
| 129.80              | 9,141              | 16,454                  |                     |                    |                         |
| 129.85              | 9,141              | 16,911                  |                     |                    |                         |
| 129.90              | 9,141              | 17,368                  |                     |                    |                         |
| 129.95              | 9,141              | 17,825                  |                     |                    |                         |
| 130.00              | 9,141              | 18,282                  |                     |                    |                         |
| 130.05              | 9,141              | 18,739                  |                     |                    |                         |
| 130.10              | 9,141              | 19,196                  |                     |                    |                         |
| 130.15              | 9,141              | 19,653                  |                     |                    |                         |
| 130.20              | 9,141              | 20,110                  |                     |                    |                         |
| 130.25              | 9,141              | 20,567                  |                     |                    |                         |
| 130.30              | 9,141              | 21,024                  |                     |                    |                         |
| 130.35              | 9,141              | 21,481                  |                     |                    |                         |
| 130.40              | 9,141              | 21,938                  |                     |                    |                         |
| 130.45              | 9,141              | 22,395                  |                     |                    |                         |
| 130.50              | 9,141              | 22,853                  |                     |                    |                         |
| 130.55              | 9,141              | 23,310                  |                     |                    |                         |

Summary for Pond 14P: GI-2

Inflow Area = 26,583 sf, 49.36% Impervious, Inflow Depth = 1.59" for 2-Year-2020 event  
Inflow = 1.23 cfs @ 12.08 hrs, Volume= 3,524 cf  
Outflow = 0.11 cfs @ 12.85 hrs, Volume= 2,252 cf, Atten= 91%, Lag= 46.5 min  
Primary = 0.11 cfs @ 12.85 hrs, Volume= 2,252 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 130.32' @ 12.85 hrs Surf.Area= 7,126 sf Storage= 2,280 cf

Plug-Flow detention time= 387.0 min calculated for 2,249 cf (64% of inflow)  
Center-of-Mass det. time= 282.9 min ( 1,036.1 - 753.2 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 14,252 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

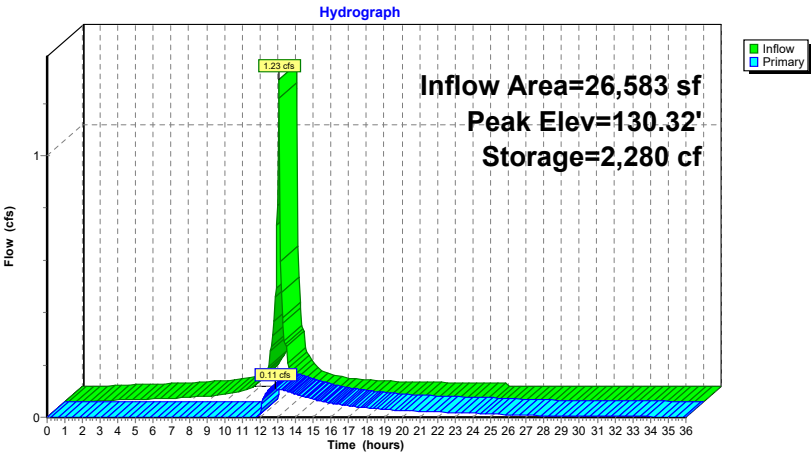
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 7,126             | 0                      | 0                      |
| 131.00           | 7,126             | 7,126                  | 7,126                  |
| 132.00           | 7,126             | 7,126                  | 14,252                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 130.17' | 0.6' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |
| #2     | Primary | 131.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |

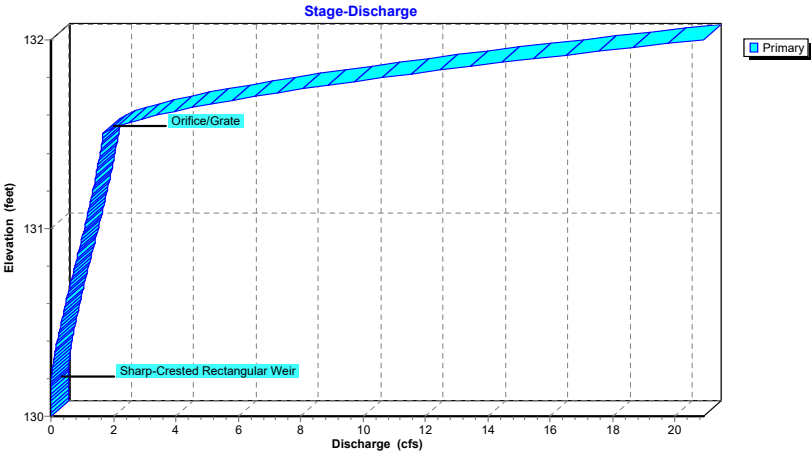
Primary OutFlow Max=0.11 cfs @ 12.85 hrs HW=130.32' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir (Weir Controls 0.11 cfs @ 1.27 fps)  
2=Orifice/Grate ( Controls 0.00 cfs)



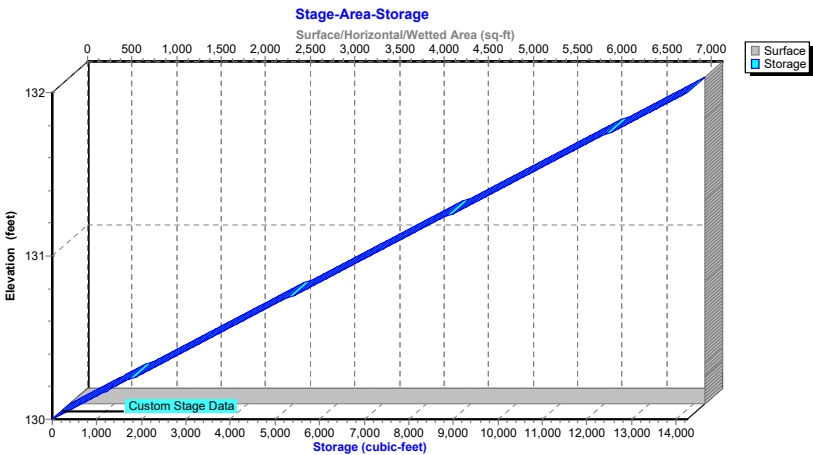
Pond 14P: GI-2



Pond 14P: GI-2



Pond 14P: GI-2



Hydrograph for Pond 14P: GI-2

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 2.00         | 0.00         | 6                    | 130.00           | 0.00          |
| 3.00         | 0.01         | 24                   | 130.00           | 0.00          |
| 4.00         | 0.01         | 53                   | 130.01           | 0.00          |
| 5.00         | 0.01         | 90                   | 130.01           | 0.00          |
| 6.00         | 0.01         | 134                  | 130.02           | 0.00          |
| 7.00         | 0.02         | 189                  | 130.03           | 0.00          |
| 8.00         | 0.02         | 261                  | 130.04           | 0.00          |
| 9.00         | 0.03         | 349                  | 130.05           | 0.00          |
| 10.00        | 0.04         | 473                  | 130.07           | 0.00          |
| 11.00        | 0.08         | 675                  | 130.09           | 0.00          |
| 12.00        | 0.75         | 1,479                | 130.21           | 0.01          |
| 13.00        | 0.09         | 2,275                | 130.32           | 0.11          |
| 14.00        | 0.05         | 2,141                | 130.30           | 0.09          |
| 15.00        | 0.03         | 1,996                | 130.28           | 0.07          |
| 16.00        | 0.03         | 1,875                | 130.26           | 0.05          |
| 17.00        | 0.02         | 1,785                | 130.25           | 0.04          |
| 18.00        | 0.02         | 1,712                | 130.24           | 0.04          |
| 19.00        | 0.02         | 1,654                | 130.23           | 0.03          |
| 20.00        | 0.02         | 1,611                | 130.23           | 0.03          |
| 21.00        | 0.01         | 1,578                | 130.22           | 0.02          |
| 22.00        | 0.01         | 1,550                | 130.22           | 0.02          |
| 23.00        | 0.01         | 1,527                | 130.21           | 0.02          |
| 24.00        | 0.01         | 1,508                | 130.21           | 0.02          |
| 25.00        | 0.00         | 1,458                | 130.20           | 0.01          |
| 26.00        | 0.00         | 1,418                | 130.20           | 0.01          |
| 27.00        | 0.00         | 1,388                | 130.19           | 0.01          |
| 28.00        | 0.00         | 1,363                | 130.19           | 0.01          |
| 29.00        | 0.00         | 1,344                | 130.19           | 0.00          |
| 30.00        | 0.00         | 1,327                | 130.19           | 0.00          |
| 31.00        | 0.00         | 1,314                | 130.18           | 0.00          |
| 32.00        | 0.00         | 1,303                | 130.18           | 0.00          |
| 33.00        | 0.00         | 1,294                | 130.18           | 0.00          |
| 34.00        | 0.00         | 1,285                | 130.18           | 0.00          |
| 35.00        | 0.00         | 1,279                | 130.18           | 0.00          |
| 36.00        | 0.00         | 1,273                | 130.18           | 0.00          |



**2101ELK-STM Analysis POI-1 - Propose**VOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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**Stage-Discharge for Pond 14P: GI-2**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.36             | 131.04              | 1.13             | 131.56              | 2.49             |
| 130.01              | 0.00             | 130.53              | 0.37             | 131.05              | 1.14             | 131.57              | 2.70             |
| 130.02              | 0.00             | 130.54              | 0.39             | 131.06              | 1.16             | 131.58              | 2.92             |
| 130.03              | 0.00             | 130.55              | 0.40             | 131.07              | 1.17             | 131.59              | 3.16             |
| 130.04              | 0.00             | 130.56              | 0.42             | 131.08              | 1.19             | 131.60              | 3.41             |
| 130.05              | 0.00             | 130.57              | 0.43             | 131.09              | 1.20             | 131.61              | 3.67             |
| 130.06              | 0.00             | 130.58              | 0.44             | 131.10              | 1.21             | 131.62              | 3.94             |
| 130.07              | 0.00             | 130.59              | 0.46             | 131.11              | 1.23             | 131.63              | 4.23             |
| 130.08              | 0.00             | 130.60              | 0.47             | 131.12              | 1.24             | 131.64              | 4.52             |
| 130.09              | 0.00             | 130.61              | 0.49             | 131.13              | 1.25             | 131.65              | 4.83             |
| 130.10              | 0.00             | 130.62              | 0.50             | 131.14              | 1.27             | 131.66              | 5.14             |
| 130.11              | 0.00             | 130.63              | 0.52             | 131.15              | 1.28             | 131.67              | 5.47             |
| 130.12              | 0.00             | 130.64              | 0.53             | 131.16              | 1.29             | 131.68              | 5.82             |
| 130.13              | 0.00             | 130.65              | 0.55             | 131.17              | 1.31             | 131.69              | 6.17             |
| 130.14              | 0.00             | 130.66              | 0.56             | 131.18              | 1.32             | 131.70              | 6.54             |
| 130.15              | 0.00             | 130.67              | 0.58             | 131.19              | 1.33             | 131.71              | 6.91             |
| 130.16              | 0.00             | 130.68              | 0.59             | 131.20              | 1.35             | 131.72              | 7.29             |
| 130.17              | 0.00             | 130.69              | 0.61             | 131.21              | 1.36             | 131.73              | 7.68             |
| 130.18              | 0.00             | 130.70              | 0.62             | 131.22              | 1.37             | 131.74              | 8.08             |
| 130.19              | 0.01             | 130.71              | 0.64             | 131.23              | 1.38             | 131.75              | 8.49             |
| 130.20              | 0.01             | 130.72              | 0.65             | 131.24              | 1.40             | 131.76              | 8.90             |
| 130.21              | 0.02             | 130.73              | 0.67             | 131.25              | 1.41             | 131.77              | 9.33             |
| 130.22              | 0.02             | 130.74              | 0.68             | 131.26              | 1.42             | 131.78              | 9.76             |
| 130.23              | 0.03             | 130.75              | 0.70             | 131.27              | 1.43             | 131.79              | 10.19            |
| 130.24              | 0.04             | 130.76              | 0.71             | 131.28              | 1.45             | 131.80              | 10.64            |
| 130.25              | 0.04             | 130.77              | 0.73             | 131.29              | 1.46             | 131.81              | 11.09            |
| 130.26              | 0.05             | 130.78              | 0.74             | 131.30              | 1.47             | 131.82              | 11.55            |
| 130.27              | 0.06             | 130.79              | 0.76             | 131.31              | 1.48             | 131.83              | 12.02            |
| 130.28              | 0.07             | 130.80              | 0.78             | 131.32              | 1.49             | 131.84              | 12.49            |
| 130.29              | 0.08             | 130.81              | 0.79             | 131.33              | 1.50             | 131.85              | 12.97            |
| 130.30              | 0.09             | 130.82              | 0.81             | 131.34              | 1.51             | 131.86              | 13.46            |
| 130.31              | 0.10             | 130.83              | 0.82             | 131.35              | 1.53             | 131.87              | 13.95            |
| 130.32              | 0.11             | 130.84              | 0.84             | 131.36              | 1.54             | 131.88              | 14.45            |
| 130.33              | 0.12             | 130.85              | 0.85             | 131.37              | 1.55             | 131.89              | 14.96            |
| 130.34              | 0.13             | 130.86              | 0.87             | 131.38              | 1.56             | 131.90              | 15.47            |
| 130.35              | 0.14             | 130.87              | 0.88             | 131.39              | 1.57             | 131.91              | 15.99            |
| 130.36              | 0.15             | 130.88              | 0.90             | 131.40              | 1.58             | 131.92              | 16.51            |
| 130.37              | 0.16             | 130.89              | 0.91             | 131.41              | 1.59             | 131.93              | 17.04            |
| 130.38              | 0.18             | 130.90              | 0.93             | 131.42              | 1.60             | 131.94              | 17.58            |
| 130.39              | 0.19             | 130.91              | 0.94             | 131.43              | 1.61             | 131.95              | 18.12            |
| 130.40              | 0.20             | 130.92              | 0.96             | 131.44              | 1.62             | 131.96              | 18.67            |
| 130.41              | 0.21             | 130.93              | 0.97             | 131.45              | 1.63             | 131.97              | 19.23            |
| 130.42              | 0.22             | 130.94              | 0.99             | 131.46              | 1.64             | 131.98              | 19.79            |
| 130.43              | 0.24             | 130.95              | 1.00             | 131.47              | 1.65             | 131.99              | 20.35            |
| 130.44              | 0.25             | 130.96              | 1.01             | 131.48              | 1.66             | 132.00              | <b>20.93</b>     |
| 130.45              | 0.26             | 130.97              | 1.03             | 131.49              | 1.67             |                     |                  |
| 130.46              | 0.28             | 130.98              | 1.04             | 131.50              | 1.68             |                     |                  |
| 130.47              | 0.29             | 130.99              | 1.06             | 131.51              | 1.74             |                     |                  |
| 130.48              | 0.30             | 131.00              | 1.07             | 131.52              | 1.84             |                     |                  |
| 130.49              | 0.32             | 131.01              | 1.09             | 131.53              | 1.97             |                     |                  |
| 130.50              | 0.33             | 131.02              | 1.10             | 131.54              | 2.13             |                     |                  |
| 130.51              | 0.34             | 131.03              | 1.12             | 131.55              | 2.30             |                     |                  |

**2101ELK-STM Analysis POI-1 - Propose**VOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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**Stage-Area-Storage for Pond 14P: GI-2**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | <b>7,126</b>       | 0                       | 131.04              | 7,126              | 7,411                   |
| 130.02              | 7,126              | 143                     | 131.06              | 7,126              | 7,554                   |
| 130.04              | 7,126              | 285                     | 131.08              | 7,126              | 7,696                   |
| 130.06              | 7,126              | 428                     | 131.10              | 7,126              | 7,839                   |
| 130.08              | 7,126              | 570                     | 131.12              | 7,126              | 7,981                   |
| 130.10              | 7,126              | 713                     | 131.14              | 7,126              | 8,124                   |
| 130.12              | 7,126              | 855                     | 131.16              | 7,126              | 8,266                   |
| 130.14              | 7,126              | 998                     | 131.18              | 7,126              | 8,409                   |
| 130.16              | 7,126              | 1,140                   | 131.20              | 7,126              | 8,551                   |
| 130.18              | 7,126              | 1,283                   | 131.22              | 7,126              | 8,694                   |
| 130.20              | 7,126              | 1,425                   | 131.24              | 7,126              | 8,836                   |
| 130.22              | 7,126              | 1,568                   | 131.26              | 7,126              | 8,979                   |
| 130.24              | 7,126              | 1,710                   | 131.28              | 7,126              | 9,121                   |
| 130.26              | 7,126              | 1,853                   | 131.30              | 7,126              | 9,264                   |
| 130.28              | 7,126              | 1,995                   | 131.32              | 7,126              | 9,406                   |
| 130.30              | 7,126              | 2,138                   | 131.34              | 7,126              | 9,549                   |
| 130.32              | 7,126              | 2,280                   | 131.36              | 7,126              | 9,691                   |
| 130.34              | 7,126              | 2,423                   | 131.38              | 7,126              | 9,834                   |
| 130.36              | 7,126              | 2,565                   | 131.40              | 7,126              | 9,976                   |
| 130.38              | 7,126              | 2,708                   | 131.42              | 7,126              | 10,119                  |
| 130.40              | 7,126              | 2,850                   | 131.44              | 7,126              | 10,261                  |
| 130.42              | 7,126              | 2,993                   | 131.46              | 7,126              | 10,404                  |
| 130.44              | 7,126              | 3,135                   | 131.48              | 7,126              | 10,546                  |
| 130.46              | 7,126              | 3,278                   | 131.50              | 7,126              | 10,689                  |
| 130.48              | 7,126              | 3,420                   | 131.52              | 7,126              | 10,832                  |
| 130.50              | 7,126              | 3,563                   | 131.54              | 7,126              | 10,974                  |
| 130.52              | 7,126              | 3,706                   | 131.56              | 7,126              | 11,117                  |
| 130.54              | 7,126              | 3,848                   | 131.58              | 7,126              | 11,259                  |
| 130.56              | 7,126              | 3,991                   | 131.60              | 7,126              | 11,402                  |
| 130.58              | 7,126              | 4,133                   | 131.62              | 7,126              | 11,544                  |
| 130.60              | 7,126              | 4,276                   | 131.64              | 7,126              | 11,687                  |
| 130.62              | 7,126              | 4,418                   | 131.66              | 7,126              | 11,829                  |
| 130.64              | 7,126              | 4,561                   | 131.68              | 7,126              | 11,972                  |
| 130.66              | 7,126              | 4,703                   | 131.70              | 7,126              | 12,114                  |
| 130.68              | 7,126              | 4,846                   | 131.72              | 7,126              | 12,257                  |
| 130.70              | 7,126              | 4,988                   | 131.74              | 7,126              | 12,399                  |
| 130.72              | 7,126              | 5,131                   | 131.76              | 7,126              | 12,542                  |
| 130.74              | 7,126              | 5,273                   | 131.78              | 7,126              | 12,684                  |
| 130.76              | 7,126              | 5,416                   | 131.80              | 7,126              | 12,827                  |
| 130.78              | 7,126              | 5,558                   | 131.82              | 7,126              | 12,969                  |
| 130.80              | 7,126              | 5,701                   | 131.84              | 7,126              | 13,112                  |
| 130.82              | 7,126              | 5,843                   | 131.86              | 7,126              | 13,254                  |
| 130.84              | 7,126              | 5,986                   | 131.88              | 7,126              | 13,397                  |
| 130.86              | 7,126              | 6,128                   | 131.90              | 7,126              | 13,539                  |
| 130.88              | 7,126              | 6,271                   | 131.92              | 7,126              | 13,682                  |
| 130.90              | 7,126              | 6,413                   | 131.94              | 7,126              | 13,824                  |
| 130.92              | 7,126              | 6,556                   | 131.96              | 7,126              | 13,967                  |
| 130.94              | 7,126              | 6,698                   | 131.98              | 7,126              | 14,109                  |
| 130.96              | 7,126              | 6,841                   | 132.00              | 7,126              | <b>14,252</b>           |
| 130.98              | 7,126              | 6,983                   |                     |                    |                         |
| 131.00              | 7,126              | 7,126                   |                     |                    |                         |
| 131.02              | 7,126              | 7,269                   |                     |                    |                         |

Summary for Pond 28P: GI-3

Inflow Area = 84,149 sf, 72.01% Impervious, Inflow Depth = 2.41" for 2-Year-2020 event  
Inflow = 5.44 cfs @ 12.09 hrs, Volume= 16,888 cf  
Outflow = 0.15 cfs @ 15.15 hrs, Volume= 5,365 cf, Atten= 97%, Lag= 183.5 min  
Primary = 0.15 cfs @ 15.15 hrs, Volume= 5,365 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.20' @ 15.15 hrs Surf.Area= 11,000 sf Storage= 13,163 cf

Plug-Flow detention time= 602.6 min calculated for 5,365 cf (32% of inflow)  
Center-of-Mass det. time= 418.8 min ( 1,179.8 - 761.1 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 22,000 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

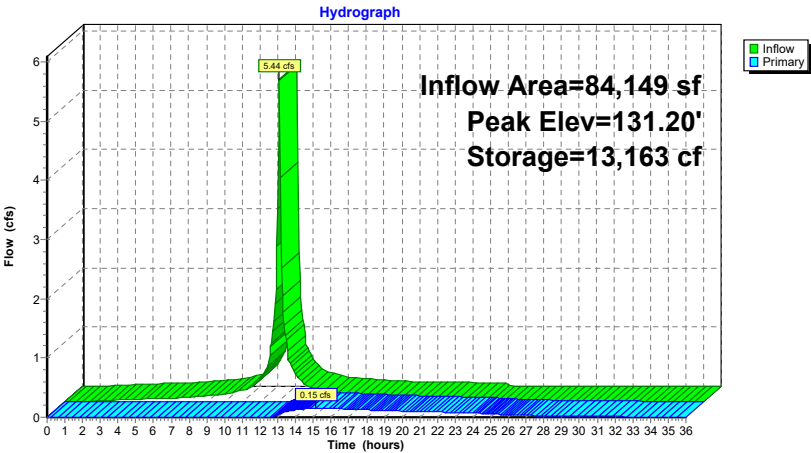
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 11,000            | 0                      | 0                      |
| 131.00           | 11,000            | 11,000                 | 11,000                 |
| 132.00           | 11,000            | 11,000                 | 22,000                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 131.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 131.03' | 0.7' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

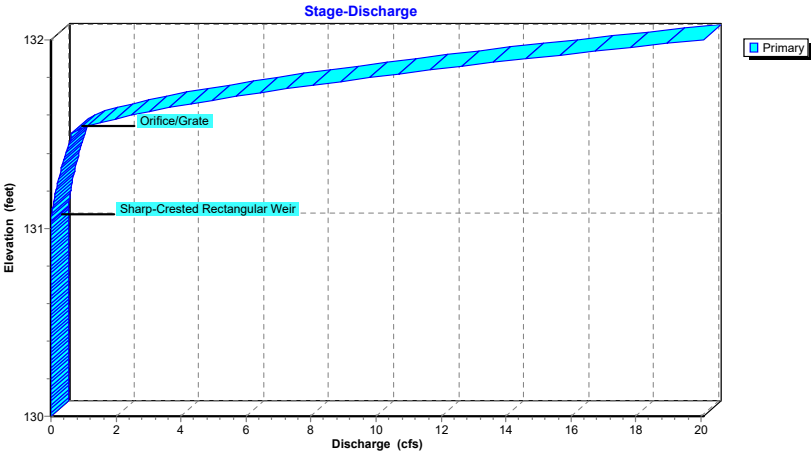
Primary OutFlow Max=0.15 cfs @ 15.15 hrs HW=131.20' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate ( Controls 0.00 cfs)  
2=Sharp-Crested Rectangular Weir(Weir Controls 0.15 cfs @ 1.33 fps)



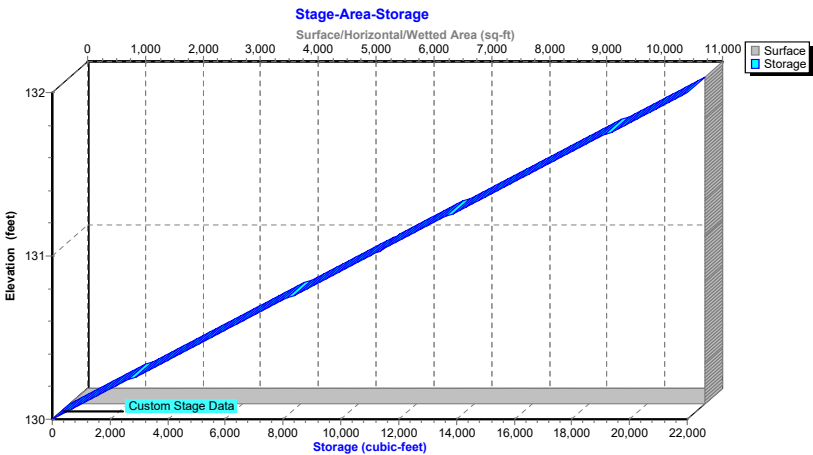
Pond 28P: GI-3



Pond 28P: GI-3



Pond 28P: GI-3



Hydrograph for Pond 28P: GI-3

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 2.00         | 0.02         | 26                   | 130.00           | 0.00          |
| 3.00         | 0.03         | 110                  | 130.01           | 0.00          |
| 4.00         | 0.04         | 241                  | 130.02           | 0.00          |
| 5.00         | 0.05         | 411                  | 130.04           | 0.00          |
| 6.00         | 0.06         | 614                  | 130.06           | 0.00          |
| 7.00         | 0.08         | 868                  | 130.08           | 0.00          |
| 8.00         | 0.10         | 1,196                | 130.11           | 0.00          |
| 9.00         | 0.12         | 1,600                | 130.15           | 0.00          |
| 10.00        | 0.19         | 2,168                | 130.20           | 0.00          |
| 11.00        | 0.37         | 3,087                | 130.28           | 0.00          |
| 12.00        | 3.27         | 6,563                | 130.60           | 0.00          |
| 13.00        | 0.47         | 12,155               | 131.10           | 0.05          |
| 14.00        | 0.23         | 12,957               | 131.18           | 0.12          |
| 15.00        | 0.16         | 13,161               | 131.20           | 0.15          |
| 16.00        | 0.13         | 13,138               | 131.19           | 0.15          |
| 17.00        | 0.11         | 13,062               | 131.19           | 0.14          |
| 18.00        | 0.09         | 12,950               | 131.18           | 0.12          |
| 19.00        | 0.08         | 12,832               | 131.17           | 0.11          |
| 20.00        | 0.08         | 12,737               | 131.16           | 0.10          |
| 21.00        | 0.07         | 12,656               | 131.15           | 0.09          |
| 22.00        | 0.07         | 12,585               | 131.14           | 0.09          |
| 23.00        | 0.06         | 12,519               | 131.14           | 0.08          |
| 24.00        | 0.07         | 12,458               | 131.13           | 0.07          |
| 25.00        | 0.00         | 12,246               | 131.11           | 0.05          |
| 26.00        | 0.00         | 12,079               | 131.10           | 0.04          |
| 27.00        | 0.00         | 11,954               | 131.09           | 0.03          |
| 28.00        | 0.00         | 11,857               | 131.08           | 0.02          |
| 29.00        | 0.00         | 11,781               | 131.07           | 0.02          |
| 30.00        | 0.00         | 11,720               | 131.07           | 0.02          |
| 31.00        | 0.00         | 11,671               | 131.06           | 0.01          |
| 32.00        | 0.00         | 11,630               | 131.06           | 0.01          |
| 33.00        | 0.00         | 11,597               | 131.05           | 0.01          |
| 34.00        | 0.00         | 11,568               | 131.05           | 0.01          |
| 35.00        | 0.00         | 11,544               | 131.05           | 0.01          |
| 36.00        | 0.00         | 11,523               | 131.05           | 0.01          |

**2101ELK-STM Analysis POI-1 - Propose**NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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**Stage-Discharge for Pond 28P: GI-3**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.00             | 131.04              | 0.00             | 131.56              | 1.52             |
| 130.01              | 0.00             | 130.53              | 0.00             | 131.05              | 0.01             | 131.57              | 1.74             |
| 130.02              | 0.00             | 130.54              | 0.00             | 131.06              | 0.01             | 131.58              | 1.97             |
| 130.03              | 0.00             | 130.55              | 0.00             | 131.07              | 0.02             | 131.59              | 2.22             |
| 130.04              | 0.00             | 130.56              | 0.00             | 131.08              | 0.03             | 131.60              | 2.48             |
| 130.05              | 0.00             | 130.57              | 0.00             | 131.09              | 0.03             | 131.61              | 2.75             |
| 130.06              | 0.00             | 130.58              | 0.00             | 131.10              | 0.04             | 131.62              | 3.04             |
| 130.07              | 0.00             | 130.59              | 0.00             | 131.11              | 0.05             | 131.63              | 3.33             |
| 130.08              | 0.00             | 130.60              | 0.00             | 131.12              | 0.06             | 131.64              | 3.64             |
| 130.09              | 0.00             | 130.61              | 0.00             | 131.13              | 0.07             | 131.65              | 3.96             |
| 130.10              | 0.00             | 130.62              | 0.00             | 131.14              | 0.08             | 131.66              | 4.29             |
| 130.11              | 0.00             | 130.63              | 0.00             | 131.15              | 0.09             | 131.67              | 4.62             |
| 130.12              | 0.00             | 130.64              | 0.00             | 131.16              | 0.10             | 131.68              | 4.97             |
| 130.13              | 0.00             | 130.65              | 0.00             | 131.17              | 0.12             | 131.69              | 5.33             |
| 130.14              | 0.00             | 130.66              | 0.00             | 131.18              | 0.13             | 131.70              | 5.69             |
| 130.15              | 0.00             | 130.67              | 0.00             | 131.19              | 0.14             | 131.71              | 6.07             |
| 130.16              | 0.00             | 130.68              | 0.00             | 131.20              | 0.15             | 131.72              | 6.45             |
| 130.17              | 0.00             | 130.69              | 0.00             | 131.21              | 0.17             | 131.73              | 6.84             |
| 130.18              | 0.00             | 130.70              | 0.00             | 131.22              | 0.18             | 131.74              | 7.24             |
| 130.19              | 0.00             | 130.71              | 0.00             | 131.23              | 0.19             | 131.75              | 7.65             |
| 130.20              | 0.00             | 130.72              | 0.00             | 131.24              | 0.21             | 131.76              | 8.07             |
| 130.21              | 0.00             | 130.73              | 0.00             | 131.25              | 0.22             | 131.77              | 8.49             |
| 130.22              | 0.00             | 130.74              | 0.00             | 131.26              | 0.24             | 131.78              | 8.92             |
| 130.23              | 0.00             | 130.75              | 0.00             | 131.27              | 0.25             | 131.79              | 9.36             |
| 130.24              | 0.00             | 130.76              | 0.00             | 131.28              | 0.27             | 131.80              | 9.80             |
| 130.25              | 0.00             | 130.77              | 0.00             | 131.29              | 0.28             | 131.81              | 10.26            |
| 130.26              | 0.00             | 130.78              | 0.00             | 131.30              | 0.30             | 131.82              | 10.72            |
| 130.27              | 0.00             | 130.79              | 0.00             | 131.31              | 0.31             | 131.83              | 11.18            |
| 130.28              | 0.00             | 130.80              | 0.00             | 131.32              | 0.33             | 131.84              | 11.66            |
| 130.29              | 0.00             | 130.81              | 0.00             | 131.33              | 0.34             | 131.85              | 12.13            |
| 130.30              | 0.00             | 130.82              | 0.00             | 131.34              | 0.36             | 131.86              | 12.62            |
| 130.31              | 0.00             | 130.83              | 0.00             | 131.35              | 0.38             | 131.87              | 13.11            |
| 130.32              | 0.00             | 130.84              | 0.00             | 131.36              | 0.39             | 131.88              | 13.61            |
| 130.33              | 0.00             | 130.85              | 0.00             | 131.37              | 0.41             | 131.89              | 14.12            |
| 130.34              | 0.00             | 130.86              | 0.00             | 131.38              | 0.43             | 131.90              | 14.63            |
| 130.35              | 0.00             | 130.87              | 0.00             | 131.39              | 0.44             | 131.91              | 15.15            |
| 130.36              | 0.00             | 130.88              | 0.00             | 131.40              | 0.46             | 131.92              | 15.67            |
| 130.37              | 0.00             | 130.89              | 0.00             | 131.41              | 0.48             | 131.93              | 16.20            |
| 130.38              | 0.00             | 130.90              | 0.00             | 131.42              | 0.50             | 131.94              | 16.74            |
| 130.39              | 0.00             | 130.91              | 0.00             | 131.43              | 0.51             | 131.95              | 17.28            |
| 130.40              | 0.00             | 130.92              | 0.00             | 131.44              | 0.53             | 131.96              | 17.83            |
| 130.41              | 0.00             | 130.93              | 0.00             | 131.45              | 0.55             | 131.97              | 18.38            |
| 130.42              | 0.00             | 130.94              | 0.00             | 131.46              | 0.57             | 131.98              | 18.94            |
| 130.43              | 0.00             | 130.95              | 0.00             | 131.47              | 0.58             | 131.99              | 19.51            |
| 130.44              | 0.00             | 130.96              | 0.00             | 131.48              | 0.60             | 132.00              | 20.08            |
| 130.45              | 0.00             | 130.97              | 0.00             | 131.49              | 0.62             |                     |                  |
| 130.46              | 0.00             | 130.98              | 0.00             | 131.50              | 0.64             |                     |                  |
| 130.47              | 0.00             | 130.99              | 0.00             | 131.51              | 0.71             |                     |                  |
| 130.48              | 0.00             | 131.00              | 0.00             | 131.52              | 0.82             |                     |                  |
| 130.49              | 0.00             | 131.01              | 0.00             | 131.53              | 0.97             |                     |                  |
| 130.50              | 0.00             | 131.02              | 0.00             | 131.54              | 1.13             |                     |                  |
| 130.51              | 0.00             | 131.03              | 0.00             | 131.55              | 1.32             |                     |                  |

**2101ELK-STM Analysis POI-1 - Propose**NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 28P: GI-3**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | 11,000             | 0                       | 131.04              | 11,000             | 11,440                  |
| 130.02              | 11,000             | 220                     | 131.06              | 11,000             | 11,660                  |
| 130.04              | 11,000             | 440                     | 131.08              | 11,000             | 11,880                  |
| 130.06              | 11,000             | 660                     | 131.10              | 11,000             | 12,100                  |
| 130.08              | 11,000             | 880                     | 131.12              | 11,000             | 12,320                  |
| 130.10              | 11,000             | 1,100                   | 131.14              | 11,000             | 12,540                  |
| 130.12              | 11,000             | 1,320                   | 131.16              | 11,000             | 12,760                  |
| 130.14              | 11,000             | 1,540                   | 131.18              | 11,000             | 12,980                  |
| 130.16              | 11,000             | 1,760                   | 131.20              | 11,000             | 13,200                  |
| 130.18              | 11,000             | 1,980                   | 131.22              | 11,000             | 13,420                  |
| 130.20              | 11,000             | 2,200                   | 131.24              | 11,000             | 13,640                  |
| 130.22              | 11,000             | 2,420                   | 131.26              | 11,000             | 13,860                  |
| 130.24              | 11,000             | 2,640                   | 131.28              | 11,000             | 14,080                  |
| 130.26              | 11,000             | 2,860                   | 131.30              | 11,000             | 14,300                  |
| 130.28              | 11,000             | 3,080                   | 131.32              | 11,000             | 14,520                  |
| 130.30              | 11,000             | 3,300                   | 131.34              | 11,000             | 14,740                  |
| 130.32              | 11,000             | 3,520                   | 131.36              | 11,000             | 14,960                  |
| 130.34              | 11,000             | 3,740                   | 131.38              | 11,000             | 15,180                  |
| 130.36              | 11,000             | 3,960                   | 131.40              | 11,000             | 15,400                  |
| 130.38              | 11,000             | 4,180                   | 131.42              | 11,000             | 15,620                  |
| 130.40              | 11,000             | 4,400                   | 131.44              | 11,000             | 15,840                  |
| 130.42              | 11,000             | 4,620                   | 131.46              | 11,000             | 16,060                  |
| 130.44              | 11,000             | 4,840                   | 131.48              | 11,000             | 16,280                  |
| 130.46              | 11,000             | 5,060                   | 131.50              | 11,000             | 16,500                  |
| 130.48              | 11,000             | 5,280                   | 131.52              | 11,000             | 16,720                  |
| 130.50              | 11,000             | 5,500                   | 131.54              | 11,000             | 16,940                  |
| 130.52              | 11,000             | 5,720                   | 131.56              | 11,000             | 17,160                  |
| 130.54              | 11,000             | 5,940                   | 131.58              | 11,000             | 17,380                  |
| 130.56              | 11,000             | 6,160                   | 131.60              | 11,000             | 17,600                  |
| 130.58              | 11,000             | 6,380                   | 131.62              | 11,000             | 17,820                  |
| 130.60              | 11,000             | 6,600                   | 131.64              | 11,000             | 18,040                  |
| 130.62              | 11,000             | 6,820                   | 131.66              | 11,000             | 18,260                  |
| 130.64              | 11,000             | 7,040                   | 131.68              | 11,000             | 18,480                  |
| 130.66              | 11,000             | 7,260                   | 131.70              | 11,000             | 18,700                  |
| 130.68              | 11,000             | 7,480                   | 131.72              | 11,000             | 18,920                  |
| 130.70              | 11,000             | 7,700                   | 131.74              | 11,000             | 19,140                  |
| 130.72              | 11,000             | 7,920                   | 131.76              | 11,000             | 19,360                  |
| 130.74              | 11,000             | 8,140                   | 131.78              | 11,000             | 19,580                  |
| 130.76              | 11,000             | 8,360                   | 131.80              | 11,000             | 19,800                  |
| 130.78              | 11,000             | 8,580                   | 131.82              | 11,000             | 20,020                  |
| 130.80              | 11,000             | 8,800                   | 131.84              | 11,000             | 20,240                  |
| 130.82              | 11,000             | 9,020                   | 131.86              | 11,000             | 20,460                  |
| 130.84              | 11,000             | 9,240                   | 131.88              | 11,000             | 20,680                  |
| 130.86              | 11,000             | 9,460                   | 131.90              | 11,000             | 20,900                  |
| 130.88              | 11,000             | 9,680                   | 131.92              | 11,000             | 21,120                  |
| 130.90              | 11,000             | 9,900                   | 131.94              | 11,000             | 21,340                  |
| 130.92              | 11,000             | 10,120                  | 131.96              | 11,000             | 21,560                  |
| 130.94              | 11,000             | 10,340                  | 131.98              | 11,000             | 21,780                  |
| 130.96              | 11,000             | 10,560                  | 132.00              | 11,000             | 22,000                  |
| 130.98              | 11,000             | 10,780                  |                     |                    |                         |
| 131.00              | 11,000             | 11,000                  |                     |                    |                         |
| 131.02              | 11,000             | 11,220                  |                     |                    |                         |

Summary for Pond 31P: GI-6

Inflow Area = 85,032 sf, 67.84% Impervious, Inflow Depth = 2.23" for 2-Year-2020 event  
Inflow = 5.20 cfs @ 12.09 hrs, Volume= 15,826 cf  
Outflow = 0.19 cfs @ 14.39 hrs, Volume= 7,253 cf, Atten= 96%, Lag= 137.8 min  
Primary = 0.19 cfs @ 14.39 hrs, Volume= 7,253 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 130.58' @ 14.39 hrs Surf.Area= 20,000 sf Storage= 11,579 cf

Plug-Flow detention time= 556.9 min calculated for 7,243 cf (46% of inflow)  
Center-of-Mass det. time= 418.0 min ( 1,177.3 - 759.3 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 40,000 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

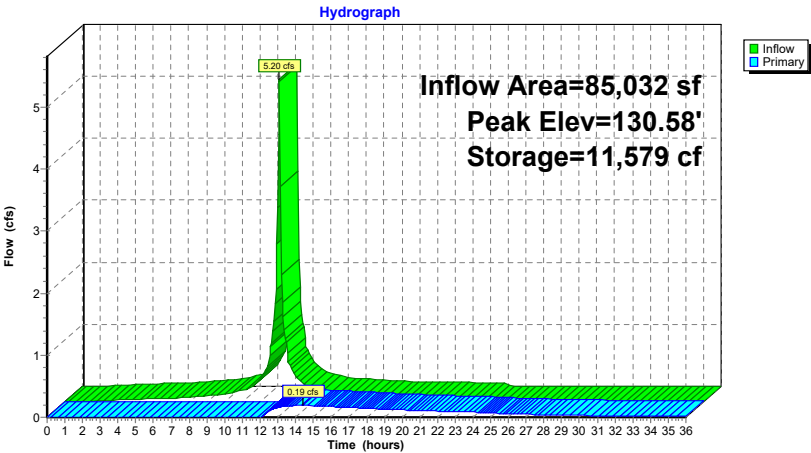
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 20,000            | 0                      | 0                      |
| 131.00           | 20,000            | 20,000                 | 20,000                 |
| 132.00           | 20,000            | 20,000                 | 40,000                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 131.80' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 130.40' | 0.8' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

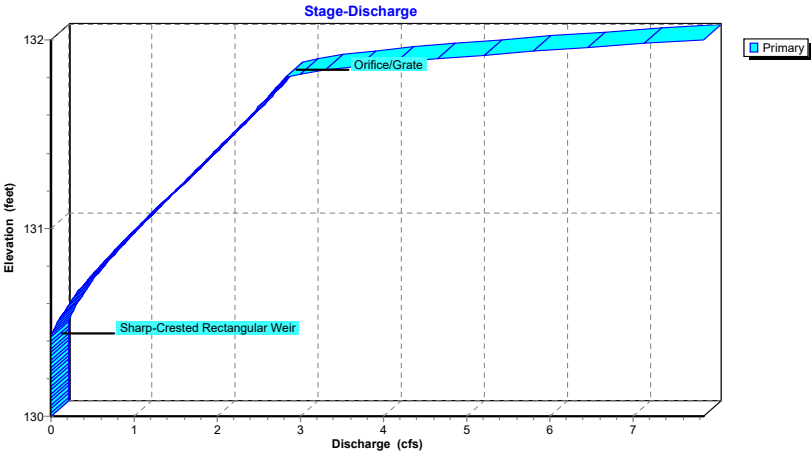
Primary OutFlow Max=0.19 cfs @ 14.39 hrs HW=130.58' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate ( Controls 0.00 cfs)  
2=Sharp-Crested Rectangular Weir(Weir Controls 0.19 cfs @ 1.38 fps)

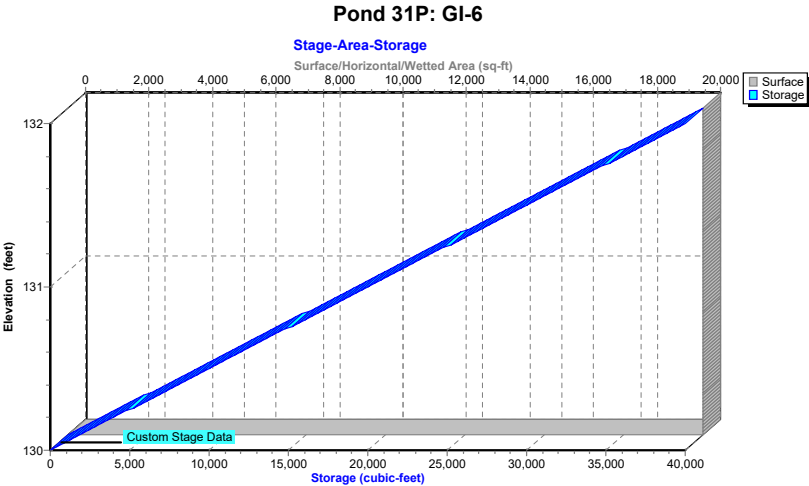


Pond 31P: GI-6



Pond 31P: GI-6





Hydrograph for Pond 31P: GI-6

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 2.00         | 0.02         | 25                   | 130.00           | 0.00          |
| 3.00         | 0.03         | 105                  | 130.01           | 0.00          |
| 4.00         | 0.04         | 230                  | 130.01           | 0.00          |
| 5.00         | 0.05         | 392                  | 130.02           | 0.00          |
| 6.00         | 0.06         | 585                  | 130.03           | 0.00          |
| 7.00         | 0.08         | 827                  | 130.04           | 0.00          |
| 8.00         | 0.10         | 1,139                | 130.06           | 0.00          |
| 9.00         | 0.12         | 1,524                | 130.08           | 0.00          |
| 10.00        | 0.18         | 2,066                | 130.10           | 0.00          |
| 11.00        | 0.35         | 2,941                | 130.15           | 0.00          |
| 12.00        | 3.12         | 6,265                | 130.31           | 0.00          |
| 13.00        | 0.43         | 11,155               | 130.56           | 0.16          |
| 14.00        | 0.22         | 11,559               | 130.58           | 0.19          |
| 15.00        | 0.15         | 11,533               | 130.58           | 0.19          |
| 16.00        | 0.12         | 11,358               | 130.57           | 0.17          |
| 17.00        | 0.10         | 11,164               | 130.56           | 0.16          |
| 18.00        | 0.08         | 10,953               | 130.55           | 0.14          |
| 19.00        | 0.08         | 10,748               | 130.54           | 0.13          |
| 20.00        | 0.07         | 10,572               | 130.53           | 0.12          |
| 21.00        | 0.07         | 10,418               | 130.52           | 0.11          |
| 22.00        | 0.06         | 10,281               | 130.51           | 0.10          |
| 23.00        | 0.06         | 10,157               | 130.51           | 0.09          |
| 24.00        | 0.06         | 10,043               | 130.50           | 0.08          |
| 25.00        | 0.00         | 9,784                | 130.49           | 0.07          |
| 26.00        | 0.00         | 9,561                | 130.48           | 0.06          |
| 27.00        | 0.00         | 9,378                | 130.47           | 0.05          |
| 28.00        | 0.00         | 9,224                | 130.46           | 0.04          |
| 29.00        | 0.00         | 9,095                | 130.45           | 0.03          |
| 30.00        | 0.00         | 8,985                | 130.45           | 0.03          |
| 31.00        | 0.00         | 8,891                | 130.44           | 0.02          |
| 32.00        | 0.00         | 8,809                | 130.44           | 0.02          |
| 33.00        | 0.00         | 8,738                | 130.44           | 0.02          |
| 34.00        | 0.00         | 8,676                | 130.43           | 0.02          |
| 35.00        | 0.00         | 8,622                | 130.43           | 0.01          |
| 36.00        | 0.00         | 8,573                | 130.43           | 0.01          |

**2101ELK-STM Analysis POI-1 - Propose**VOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 31P: GI-6**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.11             | 131.04              | 1.13             | 131.56              | 2.32             |
| 130.01              | 0.00             | 130.53              | 0.12             | 131.05              | 1.15             | 131.57              | 2.34             |
| 130.02              | 0.00             | 130.54              | 0.13             | 131.06              | 1.17             | 131.58              | 2.36             |
| 130.03              | 0.00             | 130.55              | 0.15             | 131.07              | 1.19             | 131.59              | 2.39             |
| 130.04              | 0.00             | 130.56              | 0.16             | 131.08              | 1.22             | 131.60              | 2.41             |
| 130.05              | 0.00             | 130.57              | 0.18             | 131.09              | 1.24             | 131.61              | 2.43             |
| 130.06              | 0.00             | 130.58              | 0.19             | 131.10              | 1.26             | 131.62              | 2.45             |
| 130.07              | 0.00             | 130.59              | 0.21             | 131.11              | 1.29             | 131.63              | 2.47             |
| 130.08              | 0.00             | 130.60              | 0.22             | 131.12              | 1.31             | 131.64              | 2.49             |
| 130.09              | 0.00             | 130.61              | 0.24             | 131.13              | 1.33             | 131.65              | 2.51             |
| 130.10              | 0.00             | 130.62              | 0.26             | 131.14              | 1.36             | 131.66              | 2.53             |
| 130.11              | 0.00             | 130.63              | 0.27             | 131.15              | 1.38             | 131.67              | 2.56             |
| 130.12              | 0.00             | 130.64              | 0.29             | 131.16              | 1.40             | 131.68              | 2.58             |
| 130.13              | 0.00             | 130.65              | 0.31             | 131.17              | 1.43             | 131.69              | 2.60             |
| 130.14              | 0.00             | 130.66              | 0.32             | 131.18              | 1.45             | 131.70              | 2.62             |
| 130.15              | 0.00             | 130.67              | 0.34             | 131.19              | 1.47             | 131.71              | 2.64             |
| 130.16              | 0.00             | 130.68              | 0.36             | 131.20              | 1.50             | 131.72              | 2.66             |
| 130.17              | 0.00             | 130.69              | 0.38             | 131.21              | 1.52             | 131.73              | 2.68             |
| 130.18              | 0.00             | 130.70              | 0.40             | 131.22              | 1.54             | 131.74              | 2.70             |
| 130.19              | 0.00             | 130.71              | 0.42             | 131.23              | 1.57             | 131.75              | 2.72             |
| 130.20              | 0.00             | 130.72              | 0.44             | 131.24              | 1.59             | 131.76              | 2.74             |
| 130.21              | 0.00             | 130.73              | 0.46             | 131.25              | 1.61             | 131.77              | 2.76             |
| 130.22              | 0.00             | 130.74              | 0.47             | 131.26              | 1.64             | 131.78              | 2.78             |
| 130.23              | 0.00             | 130.75              | 0.49             | 131.27              | 1.66             | 131.79              | 2.80             |
| 130.24              | 0.00             | 130.76              | 0.51             | 131.28              | 1.68             | 131.80              | 2.82             |
| 130.25              | 0.00             | 130.77              | 0.53             | 131.29              | 1.71             | 131.81              | 2.89             |
| 130.26              | 0.00             | 130.78              | 0.55             | 131.30              | 1.73             | 131.82              | 3.00             |
| 130.27              | 0.00             | 130.79              | 0.58             | 131.31              | 1.75             | 131.83              | 3.15             |
| 130.28              | 0.00             | 130.80              | 0.60             | 131.32              | 1.78             | 131.84              | 3.31             |
| 130.29              | 0.00             | 130.81              | 0.62             | 131.33              | 1.80             | 131.85              | 3.50             |
| 130.30              | 0.00             | 130.82              | 0.64             | 131.34              | 1.82             | 131.86              | 3.70             |
| 130.31              | 0.00             | 130.83              | 0.66             | 131.35              | 1.85             | 131.87              | 3.92             |
| 130.32              | 0.00             | 130.84              | 0.68             | 131.36              | 1.87             | 131.88              | 4.15             |
| 130.33              | 0.00             | 130.85              | 0.70             | 131.37              | 1.89             | 131.89              | 4.40             |
| 130.34              | 0.00             | 130.86              | 0.72             | 131.38              | 1.92             | 131.90              | 4.66             |
| 130.35              | 0.00             | 130.87              | 0.74             | 131.39              | 1.94             | 131.91              | 4.93             |
| 130.36              | 0.00             | 130.88              | 0.77             | 131.40              | 1.96             | 131.92              | 5.21             |
| 130.37              | 0.00             | 130.89              | 0.79             | 131.41              | 1.98             | 131.93              | 5.51             |
| 130.38              | 0.00             | 130.90              | 0.81             | 131.42              | 2.01             | 131.94              | 5.82             |
| 130.39              | 0.00             | 130.91              | 0.83             | 131.43              | 2.03             | 131.95              | 6.13             |
| 130.40              | 0.00             | 130.92              | 0.85             | 131.44              | 2.05             | 131.96              | 6.46             |
| 130.41              | 0.00             | 130.93              | 0.88             | 131.45              | 2.08             | 131.97              | 6.79             |
| 130.42              | 0.01             | 130.94              | 0.90             | 131.46              | 2.10             | 131.98              | 7.14             |
| 130.43              | 0.01             | 130.95              | 0.92             | 131.47              | 2.12             | 131.99              | 7.49             |
| 130.44              | 0.02             | 130.96              | 0.94             | 131.48              | 2.14             | 132.00              | <b>7.86</b>      |
| 130.45              | 0.03             | 130.97              | 0.97             | 131.49              | 2.17             |                     |                  |
| 130.46              | 0.04             | 130.98              | 0.99             | 131.50              | 2.19             |                     |                  |
| 130.47              | 0.05             | 130.99              | 1.01             | 131.51              | 2.21             |                     |                  |
| 130.48              | 0.06             | 131.00              | 1.03             | 131.52              | 2.23             |                     |                  |
| 130.49              | 0.07             | 131.01              | 1.06             | 131.53              | 2.25             |                     |                  |
| 130.50              | 0.08             | 131.02              | 1.08             | 131.54              | 2.28             |                     |                  |
| 130.51              | 0.09             | 131.03              | 1.10             | 131.55              | 2.30             |                     |                  |

**2101ELK-STM Analysis POI-1 - Propose**VOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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**Stage-Area-Storage for Pond 31P: GI-6**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | <b>20,000</b>      | 0                       | 131.04              | 20,000             | 20,800                  |
| 130.02              | 20,000             | 400                     | 131.06              | 20,000             | 21,200                  |
| 130.04              | 20,000             | 800                     | 131.08              | 20,000             | 21,600                  |
| 130.06              | 20,000             | 1,200                   | 131.10              | 20,000             | 22,000                  |
| 130.08              | 20,000             | 1,600                   | 131.12              | 20,000             | 22,400                  |
| 130.10              | 20,000             | 2,000                   | 131.14              | 20,000             | 22,800                  |
| 130.12              | 20,000             | 2,400                   | 131.16              | 20,000             | 23,200                  |
| 130.14              | 20,000             | 2,800                   | 131.18              | 20,000             | 23,600                  |
| 130.16              | 20,000             | 3,200                   | 131.20              | 20,000             | 24,000                  |
| 130.18              | 20,000             | 3,600                   | 131.22              | 20,000             | 24,400                  |
| 130.20              | 20,000             | 4,000                   | 131.24              | 20,000             | 24,800                  |
| 130.22              | 20,000             | 4,400                   | 131.26              | 20,000             | 25,200                  |
| 130.24              | 20,000             | 4,800                   | 131.28              | 20,000             | 25,600                  |
| 130.26              | 20,000             | 5,200                   | 131.30              | 20,000             | 26,000                  |
| 130.28              | 20,000             | 5,600                   | 131.32              | 20,000             | 26,400                  |
| 130.30              | 20,000             | 6,000                   | 131.34              | 20,000             | 26,800                  |
| 130.32              | 20,000             | 6,400                   | 131.36              | 20,000             | 27,200                  |
| 130.34              | 20,000             | 6,800                   | 131.38              | 20,000             | 27,600                  |
| 130.36              | 20,000             | 7,200                   | 131.40              | 20,000             | 28,000                  |
| 130.38              | 20,000             | 7,600                   | 131.42              | 20,000             | 28,400                  |
| 130.40              | 20,000             | 8,000                   | 131.44              | 20,000             | 28,800                  |
| 130.42              | 20,000             | 8,400                   | 131.46              | 20,000             | 29,200                  |
| 130.44              | 20,000             | 8,800                   | 131.48              | 20,000             | 29,600                  |
| 130.46              | 20,000             | 9,200                   | 131.50              | 20,000             | 30,000                  |
| 130.48              | 20,000             | 9,600                   | 131.52              | 20,000             | 30,400                  |
| 130.50              | 20,000             | 10,000                  | 131.54              | 20,000             | 30,800                  |
| 130.52              | 20,000             | 10,400                  | 131.56              | 20,000             | 31,200                  |
| 130.54              | 20,000             | 10,800                  | 131.58              | 20,000             | 31,600                  |
| 130.56              | 20,000             | 11,200                  | 131.60              | 20,000             | 32,000                  |
| 130.58              | 20,000             | 11,600                  | 131.62              | 20,000             | 32,400                  |
| 130.60              | 20,000             | 12,000                  | 131.64              | 20,000             | 32,800                  |
| 130.62              | 20,000             | 12,400                  | 131.66              | 20,000             | 33,200                  |
| 130.64              | 20,000             | 12,800                  | 131.68              | 20,000             | 33,600                  |
| 130.66              | 20,000             | 13,200                  | 131.70              | 20,000             | 34,000                  |
| 130.68              | 20,000             | 13,600                  | 131.72              | 20,000             | 34,400                  |
| 130.70              | 20,000             | 14,000                  | 131.74              | 20,000             | 34,800                  |
| 130.72              | 20,000             | 14,400                  | 131.76              | 20,000             | 35,200                  |
| 130.74              | 20,000             | 14,800                  | 131.78              | 20,000             | 35,600                  |
| 130.76              | 20,000             | 15,200                  | 131.80              | 20,000             | 36,000                  |
| 130.78              | 20,000             | 15,600                  | 131.82              | 20,000             | 36,400                  |
| 130.80              | 20,000             | 16,000                  | 131.84              | 20,000             | 36,800                  |
| 130.82              | 20,000             | 16,400                  | 131.86              | 20,000             | 37,200                  |
| 130.84              | 20,000             | 16,800                  | 131.88              | 20,000             | 37,600                  |
| 130.86              | 20,000             | 17,200                  | 131.90              | 20,000             | 38,000                  |
| 130.88              | 20,000             | 17,600                  | 131.92              | 20,000             | 38,400                  |
| 130.90              | 20,000             | 18,000                  | 131.94              | 20,000             | 38,800                  |
| 130.92              | 20,000             | 18,400                  | 131.96              | 20,000             | 39,200                  |
| 130.94              | 20,000             | 18,800                  | 131.98              | 20,000             | 39,600                  |
| 130.96              | 20,000             | 19,200                  | 132.00              | 20,000             | <b>40,000</b>           |
| 130.98              | 20,000             | 19,600                  |                     |                    |                         |
| 131.00              | 20,000             | 20,000                  |                     |                    |                         |
| 131.02              | 20,000             | 20,400                  |                     |                    |                         |

Summary for Pond 43P: GI-11

Inflow Area = 17,074 sf, 78.69% Impervious, Inflow Depth = 2.65" for 2-Year-2020 event  
Inflow = 1.30 cfs @ 12.08 hrs, Volume= 3,768 cf  
Outflow = 0.42 cfs @ 12.22 hrs, Volume= 2,581 cf, Atten= 68%, Lag= 8.6 min  
Primary = 0.42 cfs @ 12.22 hrs, Volume= 2,581 cf  
Routed to Link 13L : FES

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.38' @ 12.22 hrs Surf.Area= 2,193 sf Storage= 1,938 cf

Plug-Flow detention time= 235.4 min calculated for 2,581 cf (69% of inflow)  
Center-of-Mass det. time= 134.5 min ( 893.4 - 758.9 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.50' | 4,386 cf      | Custom Stage Data (Prismatic) Listed below (Recalc) |

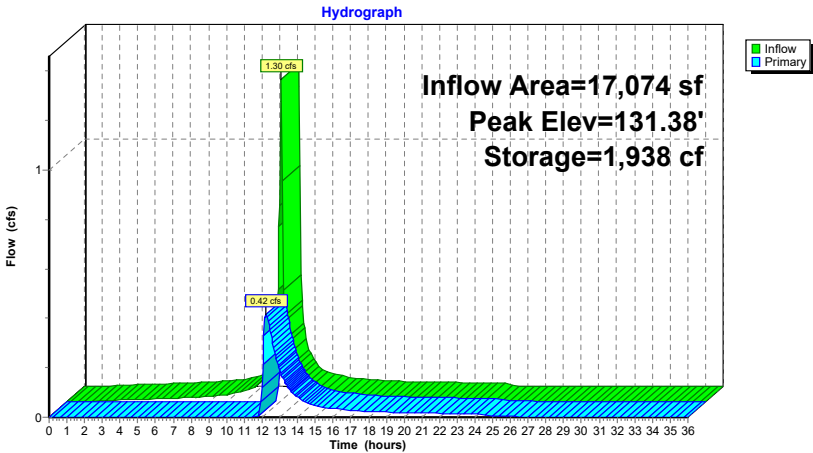
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.50           | 2,193             | 0                      | 0                      |
| 132.50           | 2,193             | 4,386                  | 4,386                  |

| Device | Routing | Invert  | Outlet Devices                                                |
|--------|---------|---------|---------------------------------------------------------------|
| #1     | Primary | 131.04' | 0.7' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

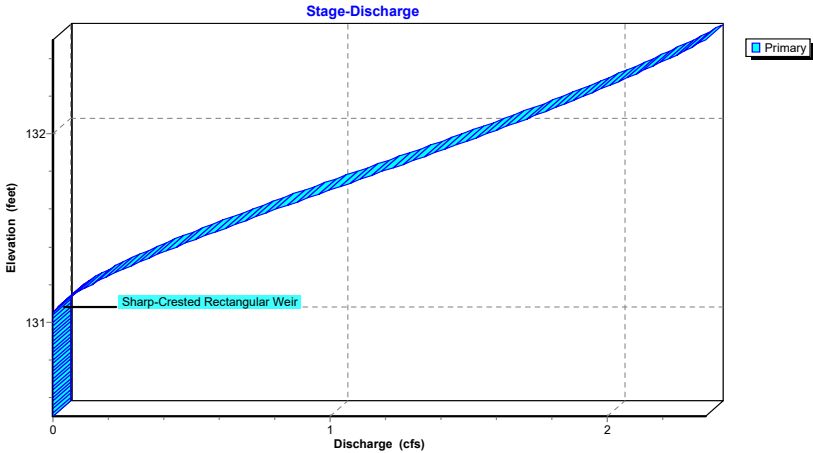
Primary OutFlow Max=0.41 cfs @ 12.22 hrs HW=131.38' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir(Weir Controls 0.41 cfs @ 1.91 fps)



Pond 43P: GI-11

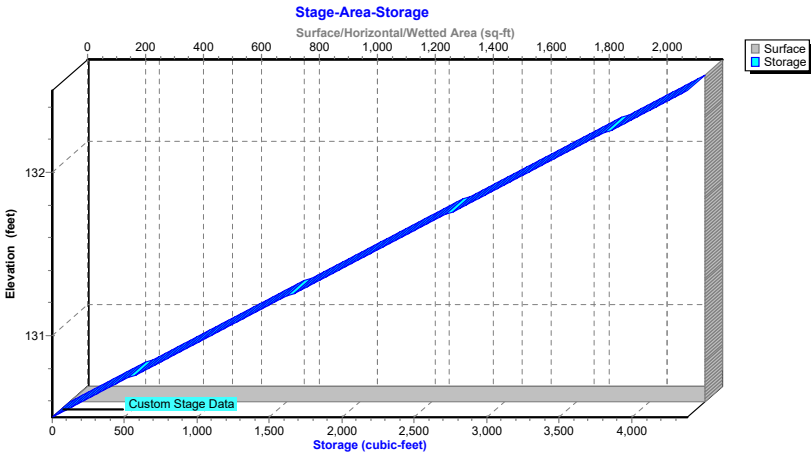


Pond 43P: GI-11





Pond 43P: GI-11



Hydrograph for Pond 43P: GI-11

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.50           | 0.00          |
| 1.00         | 0.00         | 0                    | 130.50           | 0.00          |
| 2.00         | 0.00         | 6                    | 130.50           | 0.00          |
| 3.00         | 0.01         | 25                   | 130.51           | 0.00          |
| 4.00         | 0.01         | 54                   | 130.52           | 0.00          |
| 5.00         | 0.01         | 92                   | 130.54           | 0.00          |
| 6.00         | 0.01         | 137                  | 130.56           | 0.00          |
| 7.00         | 0.02         | 194                  | 130.59           | 0.00          |
| 8.00         | 0.02         | 267                  | 130.62           | 0.00          |
| 9.00         | 0.03         | 357                  | 130.66           | 0.00          |
| 10.00        | 0.04         | 485                  | 130.72           | 0.00          |
| 11.00        | 0.08         | 692                  | 130.82           | 0.00          |
| 12.00        | 0.79         | 1,503                | 131.19           | 0.12          |
| 13.00        | 0.10         | 1,619                | 131.24           | 0.19          |
| 14.00        | 0.05         | 1,423                | 131.15           | 0.08          |
| 15.00        | 0.03         | 1,355                | 131.12           | 0.05          |
| 16.00        | 0.03         | 1,321                | 131.10           | 0.03          |
| 17.00        | 0.02         | 1,303                | 131.09           | 0.03          |
| 18.00        | 0.02         | 1,288                | 131.09           | 0.02          |
| 19.00        | 0.02         | 1,278                | 131.08           | 0.02          |
| 20.00        | 0.02         | 1,272                | 131.08           | 0.02          |
| 21.00        | 0.02         | 1,268                | 131.08           | 0.02          |
| 22.00        | 0.01         | 1,264                | 131.08           | 0.02          |
| 23.00        | 0.01         | 1,260                | 131.07           | 0.01          |
| 24.00        | 0.01         | 1,256                | 131.07           | 0.01          |
| 25.00        | 0.00         | 1,225                | 131.06           | 0.01          |
| 26.00        | 0.00         | 1,210                | 131.05           | 0.00          |
| 27.00        | 0.00         | 1,202                | 131.05           | 0.00          |
| 28.00        | 0.00         | 1,197                | 131.05           | 0.00          |
| 29.00        | 0.00         | 1,194                | 131.04           | 0.00          |
| 30.00        | 0.00         | 1,192                | 131.04           | 0.00          |
| 31.00        | 0.00         | 1,191                | 131.04           | 0.00          |
| 32.00        | 0.00         | 1,189                | 131.04           | 0.00          |
| 33.00        | 0.00         | 1,189                | 131.04           | 0.00          |
| 34.00        | 0.00         | 1,188                | 131.04           | 0.00          |
| 35.00        | 0.00         | 1,187                | 131.04           | 0.00          |
| 36.00        | 0.00         | 1,187                | 131.04           | 0.00          |

**2101ELK-STM Analysis POI-1 - Propose**NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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**Stage-Discharge for Pond 43P: GI-11**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.50              | 0.00             | 131.02              | 0.00             | 131.54              | 0.69             | 132.06              | 1.67             |
| 130.51              | 0.00             | 131.03              | 0.00             | 131.55              | 0.71             | 132.07              | 1.69             |
| 130.52              | 0.00             | 131.04              | 0.00             | 131.56              | 0.73             | 132.08              | 1.71             |
| 130.53              | 0.00             | 131.05              | 0.00             | 131.57              | 0.75             | 132.09              | 1.72             |
| 130.54              | 0.00             | 131.06              | 0.01             | 131.58              | 0.77             | 132.10              | 1.74             |
| 130.55              | 0.00             | 131.07              | 0.01             | 131.59              | 0.79             | 132.11              | 1.76             |
| 130.56              | 0.00             | 131.08              | 0.02             | 131.60              | 0.81             | 132.12              | 1.78             |
| 130.57              | 0.00             | 131.09              | 0.03             | 131.61              | 0.82             | 132.13              | 1.79             |
| 130.58              | 0.00             | 131.10              | 0.03             | 131.62              | 0.84             | 132.14              | 1.81             |
| 130.59              | 0.00             | 131.11              | 0.04             | 131.63              | 0.86             | 132.15              | 1.83             |
| 130.60              | 0.00             | 131.12              | 0.05             | 131.64              | 0.88             | 132.16              | 1.84             |
| 130.61              | 0.00             | 131.13              | 0.06             | 131.65              | 0.90             | 132.17              | 1.86             |
| 130.62              | 0.00             | 131.14              | 0.07             | 131.66              | 0.92             | 132.18              | 1.88             |
| 130.63              | 0.00             | 131.15              | 0.08             | 131.67              | 0.94             | 132.19              | 1.90             |
| 130.64              | 0.00             | 131.16              | 0.09             | 131.68              | 0.96             | 132.20              | 1.91             |
| 130.65              | 0.00             | 131.17              | 0.10             | 131.69              | 0.98             | 132.21              | 1.93             |
| 130.66              | 0.00             | 131.18              | 0.12             | 131.70              | 1.00             | 132.22              | 1.94             |
| 130.67              | 0.00             | 131.19              | 0.13             | 131.71              | 1.02             | 132.23              | 1.96             |
| 130.68              | 0.00             | 131.20              | 0.14             | 131.72              | 1.03             | 132.24              | 1.98             |
| 130.69              | 0.00             | 131.21              | 0.15             | 131.73              | 1.05             | 132.25              | 1.99             |
| 130.70              | 0.00             | 131.22              | 0.17             | 131.74              | 1.07             | 132.26              | 2.01             |
| 130.71              | 0.00             | 131.23              | 0.18             | 131.75              | 1.09             | 132.27              | 2.03             |
| 130.72              | 0.00             | 131.24              | 0.19             | 131.76              | 1.11             | 132.28              | 2.04             |
| 130.73              | 0.00             | 131.25              | 0.21             | 131.77              | 1.13             | 132.29              | 2.06             |
| 130.74              | 0.00             | 131.26              | 0.22             | 131.78              | 1.15             | 132.30              | 2.07             |
| 130.75              | 0.00             | 131.27              | 0.24             | 131.79              | 1.17             | 132.31              | 2.09             |
| 130.76              | 0.00             | 131.28              | 0.25             | 131.80              | 1.19             | 132.32              | 2.10             |
| 130.77              | 0.00             | 131.29              | 0.27             | 131.81              | 1.21             | 132.33              | 2.12             |
| 130.78              | 0.00             | 131.30              | 0.28             | 131.82              | 1.23             | 132.34              | 2.13             |
| 130.79              | 0.00             | 131.31              | 0.30             | 131.83              | 1.24             | 132.35              | 2.15             |
| 130.80              | 0.00             | 131.32              | 0.31             | 131.84              | 1.26             | 132.36              | 2.16             |
| 130.81              | 0.00             | 131.33              | 0.33             | 131.85              | 1.28             | 132.37              | 2.18             |
| 130.82              | 0.00             | 131.34              | 0.34             | 131.86              | 1.30             | 132.38              | 2.19             |
| 130.83              | 0.00             | 131.35              | 0.36             | 131.87              | 1.32             | 132.39              | 2.21             |
| 130.84              | 0.00             | 131.36              | 0.38             | 131.88              | 1.34             | 132.40              | 2.22             |
| 130.85              | 0.00             | 131.37              | 0.39             | 131.89              | 1.36             | 132.41              | 2.23             |
| 130.86              | 0.00             | 131.38              | 0.41             | 131.90              | 1.38             | 132.42              | 2.25             |
| 130.87              | 0.00             | 131.39              | 0.43             | 131.91              | 1.40             | 132.43              | 2.26             |
| 130.88              | 0.00             | 131.40              | 0.44             | 131.92              | 1.41             | 132.44              | 2.28             |
| 130.89              | 0.00             | 131.41              | 0.46             | 131.93              | 1.43             | 132.45              | 2.29             |
| 130.90              | 0.00             | 131.42              | 0.48             | 131.94              | 1.45             | 132.46              | 2.30             |
| 130.91              | 0.00             | 131.43              | 0.50             | 131.95              | 1.47             | 132.47              | 2.32             |
| 130.92              | 0.00             | 131.44              | 0.51             | 131.96              | 1.49             | 132.48              | 2.33             |
| 130.93              | 0.00             | 131.45              | 0.53             | 131.97              | 1.51             | 132.49              | 2.34             |
| 130.94              | 0.00             | 131.46              | 0.55             | 131.98              | 1.53             | 132.50              | 2.35             |
| 130.95              | 0.00             | 131.47              | 0.57             | 131.99              | 1.54             |                     |                  |
| 130.96              | 0.00             | 131.48              | 0.58             | 132.00              | 1.56             |                     |                  |
| 130.97              | 0.00             | 131.49              | 0.60             | 132.01              | 1.58             |                     |                  |
| 130.98              | 0.00             | 131.50              | 0.62             | 132.02              | 1.60             |                     |                  |
| 130.99              | 0.00             | 131.51              | 0.64             | 132.03              | 1.62             |                     |                  |
| 131.00              | 0.00             | 131.52              | 0.66             | 132.04              | 1.64             |                     |                  |
| 131.01              | 0.00             | 131.53              | 0.68             | 132.05              | 1.65             |                     |                  |

**2101ELK-STM Analysis POI-1 - Propose**NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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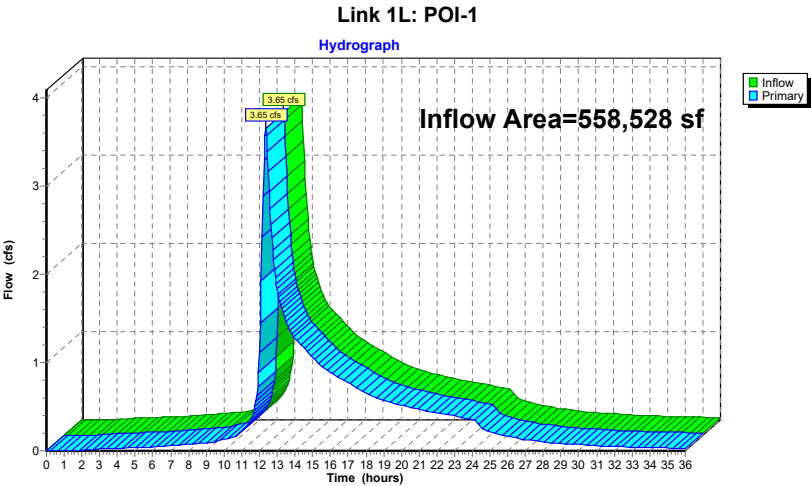
**Stage-Area-Storage for Pond 43P: GI-11**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.50              | 2,193              | 0                       | 131.54              | 2,193              | 2,281                   |
| 130.52              | 2,193              | 44                      | 131.56              | 2,193              | 2,325                   |
| 130.54              | 2,193              | 88                      | 131.58              | 2,193              | 2,368                   |
| 130.56              | 2,193              | 132                     | 131.60              | 2,193              | 2,412                   |
| 130.58              | 2,193              | 175                     | 131.62              | 2,193              | 2,456                   |
| 130.60              | 2,193              | 219                     | 131.64              | 2,193              | 2,500                   |
| 130.62              | 2,193              | 263                     | 131.66              | 2,193              | 2,544                   |
| 130.64              | 2,193              | 307                     | 131.68              | 2,193              | 2,588                   |
| 130.66              | 2,193              | 351                     | 131.70              | 2,193              | 2,632                   |
| 130.68              | 2,193              | 395                     | 131.72              | 2,193              | 2,675                   |
| 130.70              | 2,193              | 439                     | 131.74              | 2,193              | 2,719                   |
| 130.72              | 2,193              | 482                     | 131.76              | 2,193              | 2,763                   |
| 130.74              | 2,193              | 526                     | 131.78              | 2,193              | 2,807                   |
| 130.76              | 2,193              | 570                     | 131.80              | 2,193              | 2,851                   |
| 130.78              | 2,193              | 614                     | 131.82              | 2,193              | 2,895                   |
| 130.80              | 2,193              | 658                     | 131.84              | 2,193              | 2,939                   |
| 130.82              | 2,193              | 702                     | 131.86              | 2,193              | 2,982                   |
| 130.84              | 2,193              | 746                     | 131.88              | 2,193              | 3,026                   |
| 130.86              | 2,193              | 789                     | 131.90              | 2,193              | 3,070                   |
| 130.88              | 2,193              | 833                     | 131.92              | 2,193              | 3,114                   |
| 130.90              | 2,193              | 877                     | 131.94              | 2,193              | 3,158                   |
| 130.92              | 2,193              | 921                     | 131.96              | 2,193              | 3,202                   |
| 130.94              | 2,193              | 965                     | 131.98              | 2,193              | 3,246                   |
| 130.96              | 2,193              | 1,009                   | 132.00              | 2,193              | 3,290                   |
| 130.98              | 2,193              | 1,053                   | 132.02              | 2,193              | 3,333                   |
| 131.00              | 2,193              | 1,097                   | 132.04              | 2,193              | 3,377                   |
| 131.02              | 2,193              | 1,140                   | 132.06              | 2,193              | 3,421                   |
| 131.04              | 2,193              | 1,184                   | 132.08              | 2,193              | 3,465                   |
| 131.06              | 2,193              | 1,228                   | 132.10              | 2,193              | 3,509                   |
| 131.08              | 2,193              | 1,272                   | 132.12              | 2,193              | 3,553                   |
| 131.10              | 2,193              | 1,316                   | 132.14              | 2,193              | 3,597                   |
| 131.12              | 2,193              | 1,360                   | 132.16              | 2,193              | 3,640                   |
| 131.14              | 2,193              | 1,404                   | 132.18              | 2,193              | 3,684                   |
| 131.16              | 2,193              | 1,447                   | 132.20              | 2,193              | 3,728                   |
| 131.18              | 2,193              | 1,491                   | 132.22              | 2,193              | 3,772                   |
| 131.20              | 2,193              | 1,535                   | 132.24              | 2,193              | 3,816                   |
| 131.22              | 2,193              | 1,579                   | 132.26              | 2,193              | 3,860                   |
| 131.24              | 2,193              | 1,623                   | 132.28              | 2,193              | 3,904                   |
| 131.26              | 2,193              | 1,667                   | 132.30              | 2,193              | 3,947                   |
| 131.28              | 2,193              | 1,711                   | 132.32              | 2,193              | 3,991                   |
| 131.30              | 2,193              | 1,754                   | 132.34              | 2,193              | 4,035                   |
| 131.32              | 2,193              | 1,798                   | 132.36              | 2,193              | 4,079                   |
| 131.34              | 2,193              | 1,842                   | 132.38              | 2,193              | 4,123                   |
| 131.36              | 2,193              | 1,886                   | 132.40              | 2,193              | 4,167                   |
| 131.38              | 2,193              | 1,930                   | 132.42              | 2,193              | 4,211                   |
| 131.40              | 2,193              | 1,974                   | 132.44              | 2,193              | 4,254                   |
| 131.42              | 2,193              | 2,018                   | 132.46              | 2,193              | 4,298                   |
| 131.44              | 2,193              | 2,061                   | 132.48              | 2,193              | 4,342                   |
| 131.46              | 2,193              | 2,105                   | 132.50              | 2,193              | 4,386                   |
| 131.48              | 2,193              | 2,149                   |                     |                    |                         |
| 131.50              | 2,193              | 2,193                   |                     |                    |                         |
| 131.52              | 2,193              | 2,237                   |                     |                    |                         |

Summary for Link 1L: POI-1

Inflow Area = 558,528 sf, 45.65% Impervious, Inflow Depth > 0.99" for 2-Year-2020 event  
Inflow = 3.65 cfs @ 12.35 hrs, Volume= 46,042 cf  
Primary = 3.65 cfs @ 12.35 hrs, Volume= 46,042 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs



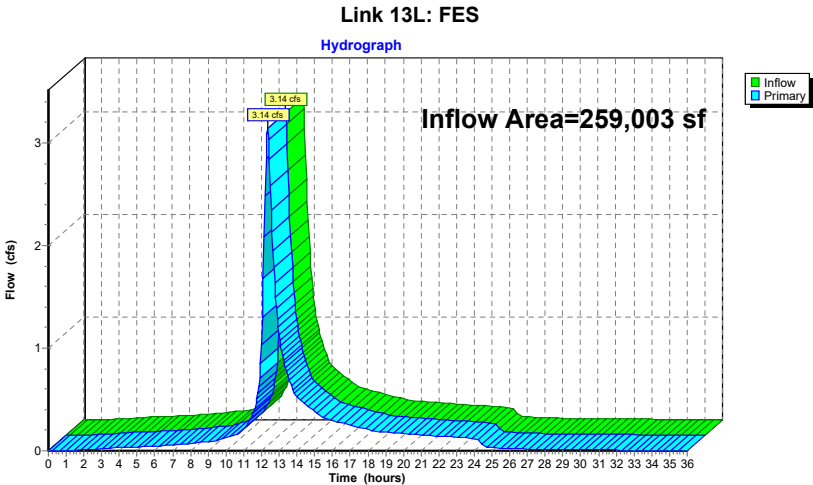
Hydrograph for Link 1L: POI-1

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.16         | 0.00             | 0.16          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.14         | 0.00             | 0.14          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.13         | 0.00             | 0.13          |
| 1.50         | 0.00         | 0.00             | 0.00          | 27.50        | 0.11         | 0.00             | 0.11          |
| 2.00         | 0.01         | 0.00             | 0.01          | 28.00        | 0.10         | 0.00             | 0.10          |
| 2.50         | 0.01         | 0.00             | 0.01          | 28.50        | 0.09         | 0.00             | 0.09          |
| 3.00         | 0.02         | 0.00             | 0.02          | 29.00        | 0.08         | 0.00             | 0.08          |
| 3.50         | 0.02         | 0.00             | 0.02          | 29.50        | 0.08         | 0.00             | 0.08          |
| 4.00         | 0.03         | 0.00             | 0.03          | 30.00        | 0.07         | 0.00             | 0.07          |
| 4.50         | 0.03         | 0.00             | 0.03          | 30.50        | 0.06         | 0.00             | 0.06          |
| 5.00         | 0.04         | 0.00             | 0.04          | 31.00        | 0.06         | 0.00             | 0.06          |
| 5.50         | 0.04         | 0.00             | 0.04          | 31.50        | 0.05         | 0.00             | 0.05          |
| 6.00         | 0.04         | 0.00             | 0.04          | 32.00        | 0.05         | 0.00             | 0.05          |
| 6.50         | 0.05         | 0.00             | 0.05          | 32.50        | 0.05         | 0.00             | 0.05          |
| 7.00         | 0.06         | 0.00             | 0.06          | 33.00        | 0.04         | 0.00             | 0.04          |
| 7.50         | 0.06         | 0.00             | 0.06          | 33.50        | 0.04         | 0.00             | 0.04          |
| 8.00         | 0.07         | 0.00             | 0.07          | 34.00        | 0.04         | 0.00             | 0.04          |
| 8.50         | 0.08         | 0.00             | 0.08          | 34.50        | 0.03         | 0.00             | 0.03          |
| 9.00         | 0.09         | 0.00             | 0.09          | 35.00        | 0.03         | 0.00             | 0.03          |
| 9.50         | 0.10         | 0.00             | 0.10          | 35.50        | 0.03         | 0.00             | 0.03          |
| 10.00        | 0.13         | 0.00             | 0.13          | 36.00        | 0.03         | 0.00             | 0.03          |
| 10.50        | 0.16         | 0.00             | 0.16          |              |              |                  |               |
| 11.00        | 0.22         | 0.00             | 0.22          |              |              |                  |               |
| 11.50        | 0.35         | 0.00             | 0.35          |              |              |                  |               |
| 12.00        | 1.11         | 0.00             | 1.11          |              |              |                  |               |
| 12.50        | 3.16         | 0.00             | 3.16          |              |              |                  |               |
| 13.00        | 1.83         | 0.00             | 1.83          |              |              |                  |               |
| 13.50        | 1.47         | 0.00             | 1.47          |              |              |                  |               |
| 14.00        | 1.27         | 0.00             | 1.27          |              |              |                  |               |
| 14.50        | 1.17         | 0.00             | 1.17          |              |              |                  |               |
| 15.00        | 1.06         | 0.00             | 1.06          |              |              |                  |               |
| 15.50        | 0.96         | 0.00             | 0.96          |              |              |                  |               |
| 16.00        | 0.89         | 0.00             | 0.89          |              |              |                  |               |
| 16.50        | 0.83         | 0.00             | 0.83          |              |              |                  |               |
| 17.00        | 0.77         | 0.00             | 0.77          |              |              |                  |               |
| 17.50        | 0.71         | 0.00             | 0.71          |              |              |                  |               |
| 18.00        | 0.66         | 0.00             | 0.66          |              |              |                  |               |
| 18.50        | 0.61         | 0.00             | 0.61          |              |              |                  |               |
| 19.00        | 0.57         | 0.00             | 0.57          |              |              |                  |               |
| 19.50        | 0.54         | 0.00             | 0.54          |              |              |                  |               |
| 20.00        | 0.52         | 0.00             | 0.52          |              |              |                  |               |
| 20.50        | 0.49         | 0.00             | 0.49          |              |              |                  |               |
| 21.00        | 0.47         | 0.00             | 0.47          |              |              |                  |               |
| 21.50        | 0.45         | 0.00             | 0.45          |              |              |                  |               |
| 22.00        | 0.43         | 0.00             | 0.43          |              |              |                  |               |
| 22.50        | 0.41         | 0.00             | 0.41          |              |              |                  |               |
| 23.00        | 0.39         | 0.00             | 0.39          |              |              |                  |               |
| 23.50        | 0.38         | 0.00             | 0.38          |              |              |                  |               |
| 24.00        | 0.36         | 0.00             | 0.36          |              |              |                  |               |
| 24.50        | 0.26         | 0.00             | 0.26          |              |              |                  |               |
| 25.00        | 0.21         | 0.00             | 0.21          |              |              |                  |               |
| 25.50        | 0.18         | 0.00             | 0.18          |              |              |                  |               |

Summary for Link 13L: FES

Inflow Area = 259,003 sf, 30.97% Impervious, Inflow Depth > 1.04" for 2-Year-2020 event  
Inflow = 3.14 cfs @ 12.34 hrs, Volume= 22,348 cf  
Primary = 3.14 cfs @ 12.34 hrs, Volume= 22,348 cf, Atten= 0%, Lag= 0.0 min  
Routed to Link 1L : POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs



Hydrograph for Link 13L: FES

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.02         | 0.00             | 0.02          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.02         | 0.00             | 0.02          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.02         | 0.00             | 0.02          |
| 1.50         | 0.00         | 0.00             | 0.00          | 27.50        | 0.01         | 0.00             | 0.01          |
| 2.00         | 0.01         | 0.00             | 0.01          | 28.00        | 0.01         | 0.00             | 0.01          |
| 2.50         | 0.01         | 0.00             | 0.01          | 28.50        | 0.01         | 0.00             | 0.01          |
| 3.00         | 0.02         | 0.00             | 0.02          | 29.00        | 0.01         | 0.00             | 0.01          |
| 3.50         | 0.02         | 0.00             | 0.02          | 29.50        | 0.01         | 0.00             | 0.01          |
| 4.00         | 0.03         | 0.00             | 0.03          | 30.00        | 0.01         | 0.00             | 0.01          |
| 4.50         | 0.03         | 0.00             | 0.03          | 30.50        | 0.01         | 0.00             | 0.01          |
| 5.00         | 0.04         | 0.00             | 0.04          | 31.00        | 0.01         | 0.00             | 0.01          |
| 5.50         | 0.04         | 0.00             | 0.04          | 31.50        | 0.01         | 0.00             | 0.01          |
| 6.00         | 0.04         | 0.00             | 0.04          | 32.00        | 0.01         | 0.00             | 0.01          |
| 6.50         | 0.05         | 0.00             | 0.05          | 32.50        | 0.01         | 0.00             | 0.01          |
| 7.00         | 0.06         | 0.00             | 0.06          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.06         | 0.00             | 0.06          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.07         | 0.00             | 0.07          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.08         | 0.00             | 0.08          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.09         | 0.00             | 0.09          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.10         | 0.00             | 0.10          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.13         | 0.00             | 0.13          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.16         | 0.00             | 0.16          |              |              |                  |               |
| 11.00        | 0.22         | 0.00             | 0.22          |              |              |                  |               |
| 11.50        | 0.35         | 0.00             | 0.35          |              |              |                  |               |
| 12.00        | 1.04         | 0.00             | 1.04          |              |              |                  |               |
| 12.50        | 2.59         | 0.00             | 2.59          |              |              |                  |               |
| 13.00        | 1.13         | 0.00             | 1.13          |              |              |                  |               |
| 13.50        | 0.72         | 0.00             | 0.72          |              |              |                  |               |
| 14.00        | 0.53         | 0.00             | 0.53          |              |              |                  |               |
| 14.50        | 0.45         | 0.00             | 0.45          |              |              |                  |               |
| 15.00        | 0.38         | 0.00             | 0.38          |              |              |                  |               |
| 15.50        | 0.33         | 0.00             | 0.33          |              |              |                  |               |
| 16.00        | 0.30         | 0.00             | 0.30          |              |              |                  |               |
| 16.50        | 0.27         | 0.00             | 0.27          |              |              |                  |               |
| 17.00        | 0.25         | 0.00             | 0.25          |              |              |                  |               |
| 17.50        | 0.23         | 0.00             | 0.23          |              |              |                  |               |
| 18.00        | 0.21         | 0.00             | 0.21          |              |              |                  |               |
| 18.50        | 0.19         | 0.00             | 0.19          |              |              |                  |               |
| 19.00        | 0.18         | 0.00             | 0.18          |              |              |                  |               |
| 19.50        | 0.17         | 0.00             | 0.17          |              |              |                  |               |
| 20.00        | 0.17         | 0.00             | 0.17          |              |              |                  |               |
| 20.50        | 0.16         | 0.00             | 0.16          |              |              |                  |               |
| 21.00        | 0.15         | 0.00             | 0.15          |              |              |                  |               |
| 21.50        | 0.15         | 0.00             | 0.15          |              |              |                  |               |
| 22.00        | 0.14         | 0.00             | 0.14          |              |              |                  |               |
| 22.50        | 0.14         | 0.00             | 0.14          |              |              |                  |               |
| 23.00        | 0.13         | 0.00             | 0.13          |              |              |                  |               |
| 23.50        | 0.13         | 0.00             | 0.13          |              |              |                  |               |
| 24.00        | 0.12         | 0.00             | 0.12          |              |              |                  |               |
| 24.50        | 0.05         | 0.00             | 0.05          |              |              |                  |               |
| 25.00        | 0.03         | 0.00             | 0.03          |              |              |                  |               |
| 25.50        | 0.02         | 0.00             | 0.02          |              |              |                  |               |

**2101ELK-STM Analysis POI-1 - Proposed NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"**

Prepared by Van Cleef Engineering Assoc

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Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

|                                           |                                                                                                                                          |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Subcatchment1S: GI-1 Pervious</b>      | Runoff Area=18,062 sf 0.00% Impervious Runoff Depth=0.28"<br>Flow Length=68' Slope=0.0330 '/' Tc=8.3 min CN=39 Runoff=0.03 cfs 416 cf    |
| <b>Subcatchment2S: GI-9 Pervious</b>      | Runoff Area=16,032 sf 0.00% Impervious Runoff Depth=1.58"<br>Flow Length=17' Slope=0.0960 '/' Tc=1.8 min CN=61 Runoff=0.86 cfs 2,116 cf  |
| <b>Subcatchment3S: GI-1 Impervious</b>    | Runoff Area=21,060 sf 100.00% Impervious Runoff Depth=5.11"<br>Flow Length=400' Tc=2.7 min CN=98 Runoff=3.02 cfs 8,973 cf                |
| <b>Subcatchment5S: Proposed Disturbed</b> | Runoff Area=44,397 sf 0.00% Impervious Runoff Depth=0.67"<br>Flow Length=1,818' Tc=89.9 min CN=47 Runoff=0.17 cfs 2,466 cf               |
| <b>Subcatchment6S: GI-9 Impervious</b>    | Runoff Area=43,332 sf 100.00% Impervious Runoff Depth=5.11"<br>Flow Length=311' Tc=2.3 min CN=98 Runoff=6.29 cfs 18,462 cf               |
| <b>Subcatchment15S: GI-2 Pervious</b>     | Runoff Area=13,462 sf 0.00% Impervious Runoff Depth=0.28"<br>Flow Length=28' Slope=0.0400 '/' Tc=3.8 min CN=39 Runoff=0.02 cfs 310 cf    |
| <b>Subcatchment16S: GI-2 Impervious</b>   | Runoff Area=13,121 sf 100.00% Impervious Runoff Depth=5.11"<br>Flow Length=220' Tc=1.9 min CN=98 Runoff=1.92 cfs 5,590 cf                |
| <b>Subcatchment26S: GI-3 Pervious</b>     | Runoff Area=23,555 sf 0.00% Impervious Runoff Depth=1.16"<br>Flow Length=93' Slope=0.0130 '/' Tc=10.0 min CN=55 Runoff=0.61 cfs 2,276 cf |
| <b>Subcatchment27S: GI-3 Impervious</b>   | Runoff Area=60,594 sf 100.00% Impervious Runoff Depth=5.11"<br>Flow Length=433' Tc=3.4 min CN=98 Runoff=8.47 cfs 25,816 cf               |
| <b>Subcatchment29S: GI-6 Pervious</b>     | Runoff Area=27,344 sf 0.00% Impervious Runoff Depth=0.78"<br>Flow Length=60' Slope=0.0280 '/' Tc=8.0 min CN=49 Runoff=0.41 cfs 1,780 cf  |
| <b>Subcatchment30S: GI-6 Impervious</b>   | Runoff Area=57,688 sf 100.00% Impervious Runoff Depth=5.11"<br>Flow Length=401' Tc=3.3 min CN=98 Runoff=8.11 cfs 24,578 cf               |
| <b>Subcatchment41S: GI-11 Pervious</b>    | Runoff Area=3,638 sf 0.00% Impervious Runoff Depth=1.58"<br>Flow Length=123' Tc=3.6 min CN=61 Runoff=0.18 cfs 480 cf                     |
| <b>Subcatchment42S: GI-11 Impervious</b>  | Runoff Area=13,436 sf 100.00% Impervious Runoff Depth=5.11"<br>Flow Length=158' Tc=1.7 min CN=98 Runoff=1.92 cfs 5,724 cf                |
| <b>Subcatchment46S: North Undisturbed</b> | Runoff Area=157,085 sf 0.00% Impervious Runoff Depth=1.09"<br>Flow Length=690' Tc=22.7 min CN=54 Runoff=2.58 cfs 14,307 cf               |
| <b>Subcatchment47S: North Undisturbed</b> | Runoff Area=45,722 sf 100.00% Impervious Runoff Depth=5.11"<br>Flow Length=725' Tc=23.2 min CN=98 Runoff=3.71 cfs 19,480 cf              |
| <b>Pond 2P: GI-1</b>                      | Peak Elev=131.68' Storage=5,452 cf Inflow=3.02 cfs 9,389 cf<br>Outflow=0.40 cfs 7,334 cf                                                 |

**2101ELK-STM Analysis POI-1 - Proposed NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"**

Prepared by Van Cleef Engineering Assoc

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|                        |                                                                                             |
|------------------------|---------------------------------------------------------------------------------------------|
| <b>Pond 7P: GI-9</b>   | Peak Elev=129.30' Storage=11,865 cf Inflow=7.15 cfs 20,578 cf<br>Outflow=0.88 cfs 16,597 cf |
| <b>Pond 14P: GI-2</b>  | Peak Elev=130.47' Storage=3,329 cf Inflow=1.92 cfs 5,900 cf<br>Outflow=0.29 cfs 4,617 cf    |
| <b>Pond 28P: GI-3</b>  | Peak Elev=131.56' Storage=17,163 cf Inflow=8.83 cfs 28,092 cf<br>Outflow=1.52 cfs 16,541 cf |
| <b>Pond 31P: GI-6</b>  | Peak Elev=130.85' Storage=16,946 cf Inflow=8.33 cfs 26,358 cf<br>Outflow=0.70 cfs 17,664 cf |
| <b>Pond 43P: GI-11</b> | Peak Elev=131.68' Storage=2,584 cf Inflow=2.13 cfs 6,205 cf<br>Outflow=0.95 cfs 5,017 cf    |
| <b>Link 1L: POI-1</b>  | Inflow=10.08 cfs 104,023 cf<br>Primary=10.08 cfs 104,023 cf                                 |
| <b>Link 13L: FES</b>   | Inflow=7.40 cfs 46,139 cf<br>Primary=7.40 cfs 46,139 cf                                     |

**Total Runoff Area = 558,528 sf Runoff Volume = 132,774 cf Average Runoff Depth = 2.85"**  
**54.35% Pervious = 303,575 sf 45.65% Impervious = 254,953 sf**

Summary for Subcatchment 1S: GI-1 Pervious

Runoff = 0.03 cfs @ 12.55 hrs, Volume= 416 cf, Depth= 0.28"  
Routed to Pond 2P : GI-1

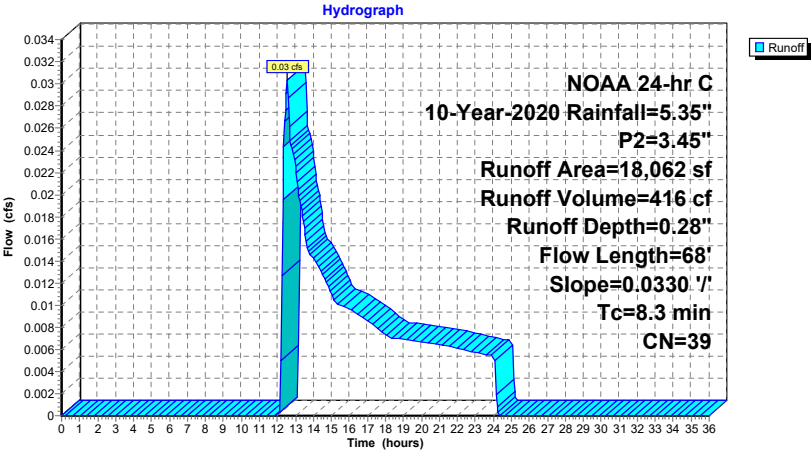
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 18,062    | 39 | >75% Grass cover, Good, HSG A |
| 18,062    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                          |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------|
| 8.3      | 68            | 0.0330        | 0.14              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.45" |



Subcatchment 1S: GI-1 Pervious



Hydrograph for Subcatchment 1S: GI-1 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 5.35             | 0.28            | 0.00         |
| 0.50         | 0.03             | 0.00            | 0.00         | 26.50        | 5.35             | 0.28            | 0.00         |
| 1.00         | 0.06             | 0.00            | 0.00         | 27.00        | 5.35             | 0.28            | 0.00         |
| 1.50         | 0.09             | 0.00            | 0.00         | 27.50        | 5.35             | 0.28            | 0.00         |
| 2.00         | 0.12             | 0.00            | 0.00         | 28.00        | 5.35             | 0.28            | 0.00         |
| 2.50         | 0.15             | 0.00            | 0.00         | 28.50        | 5.35             | 0.28            | 0.00         |
| 3.00         | 0.19             | 0.00            | 0.00         | 29.00        | 5.35             | 0.28            | 0.00         |
| 3.50         | 0.22             | 0.00            | 0.00         | 29.50        | 5.35             | 0.28            | 0.00         |
| 4.00         | 0.26             | 0.00            | 0.00         | 30.00        | 5.35             | 0.28            | 0.00         |
| 4.50         | 0.30             | 0.00            | 0.00         | 30.50        | 5.35             | 0.28            | 0.00         |
| 5.00         | 0.34             | 0.00            | 0.00         | 31.00        | 5.35             | 0.28            | 0.00         |
| 5.50         | 0.38             | 0.00            | 0.00         | 31.50        | 5.35             | 0.28            | 0.00         |
| 6.00         | 0.42             | 0.00            | 0.00         | 32.00        | 5.35             | 0.28            | 0.00         |
| 6.50         | 0.47             | 0.00            | 0.00         | 32.50        | 5.35             | 0.28            | 0.00         |
| 7.00         | 0.52             | 0.00            | 0.00         | 33.00        | 5.35             | 0.28            | 0.00         |
| 7.50         | 0.58             | 0.00            | 0.00         | 33.50        | 5.35             | 0.28            | 0.00         |
| 8.00         | 0.64             | 0.00            | 0.00         | 34.00        | 5.35             | 0.28            | 0.00         |
| 8.50         | 0.71             | 0.00            | 0.00         | 34.50        | 5.35             | 0.28            | 0.00         |
| 9.00         | 0.78             | 0.00            | 0.00         | 35.00        | 5.35             | 0.28            | 0.00         |
| 9.50         | 0.87             | 0.00            | 0.00         | 35.50        | 5.35             | 0.28            | 0.00         |
| 10.00        | 0.98             | 0.00            | 0.00         | 36.00        | 5.35             | 0.28            | 0.00         |
| 10.50        | 1.10             | 0.00            | 0.00         |              |                  |                 |              |
| 11.00        | 1.28             | 0.00            | 0.00         |              |                  |                 |              |
| 11.50        | 1.58             | 0.00            | 0.00         |              |                  |                 |              |
| 12.00        | 2.55             | 0.00            | 0.00         |              |                  |                 |              |
| 12.50        | 3.77             | 0.03            | 0.03         |              |                  |                 |              |
| 13.00        | 4.07             | 0.05            | 0.02         |              |                  |                 |              |
| 13.50        | 4.25             | 0.07            | 0.01         |              |                  |                 |              |
| 14.00        | 4.37             | 0.09            | 0.01         |              |                  |                 |              |
| 14.50        | 4.48             | 0.11            | 0.01         |              |                  |                 |              |
| 15.00        | 4.57             | 0.12            | 0.01         |              |                  |                 |              |
| 15.50        | 4.64             | 0.13            | 0.01         |              |                  |                 |              |
| 16.00        | 4.71             | 0.15            | 0.01         |              |                  |                 |              |
| 16.50        | 4.77             | 0.16            | 0.01         |              |                  |                 |              |
| 17.00        | 4.83             | 0.17            | 0.01         |              |                  |                 |              |
| 17.50        | 4.88             | 0.18            | 0.01         |              |                  |                 |              |
| 18.00        | 4.93             | 0.19            | 0.01         |              |                  |                 |              |
| 18.50        | 4.97             | 0.19            | 0.01         |              |                  |                 |              |
| 19.00        | 5.01             | 0.20            | 0.01         |              |                  |                 |              |
| 19.50        | 5.05             | 0.21            | 0.01         |              |                  |                 |              |
| 20.00        | 5.09             | 0.22            | 0.01         |              |                  |                 |              |
| 20.50        | 5.13             | 0.23            | 0.01         |              |                  |                 |              |
| 21.00        | 5.16             | 0.23            | 0.01         |              |                  |                 |              |
| 21.50        | 5.20             | 0.24            | 0.01         |              |                  |                 |              |
| 22.00        | 5.23             | 0.25            | 0.01         |              |                  |                 |              |
| 22.50        | 5.26             | 0.26            | 0.01         |              |                  |                 |              |
| 23.00        | 5.29             | 0.26            | 0.01         |              |                  |                 |              |
| 23.50        | 5.32             | 0.27            | 0.01         |              |                  |                 |              |
| 24.00        | 5.35             | 0.28            | 0.01         |              |                  |                 |              |
| 24.50        | 5.35             | 0.28            | 0.00         |              |                  |                 |              |
| 25.00        | 5.35             | 0.28            | 0.00         |              |                  |                 |              |
| 25.50        | 5.35             | 0.28            | 0.00         |              |                  |                 |              |

Summary for Subcatchment 2S: GI-9 Pervious

Runoff = 0.86 cfs @ 12.08 hrs, Volume= 2,116 cf, Depth= 1.58"  
Routed to Pond 7P : GI-9

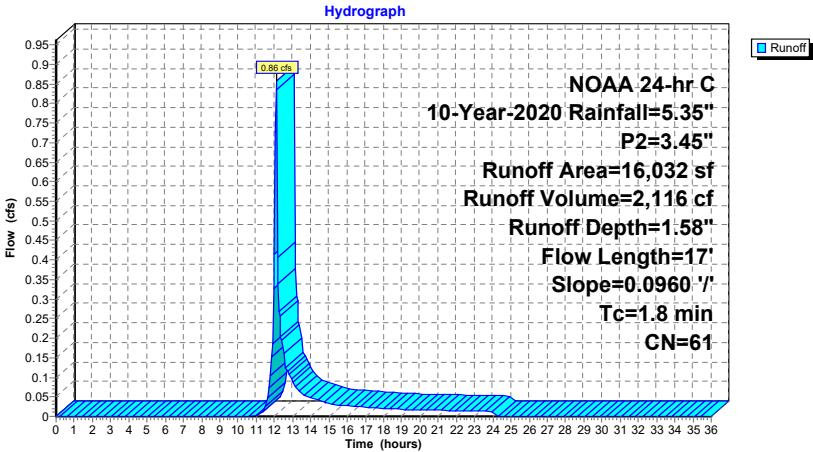
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 154       | 39 | >75% Grass cover, Good, HSG A |
| 15,878    | 61 | >75% Grass cover, Good, HSG B |
| 16,032    | 61 | Weighted Average              |
| 16,032    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                    |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------|
| 1.8      | 17            | 0.0960        | 0.16              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.45" |



Subcatchment 2S: GI-9 Pervious



Hydrograph for Subcatchment 2S: GI-9 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 5.35             | 1.58            | 0.00         |
| 0.50         | 0.03             | 0.00            | 0.00         | 26.50        | 5.35             | 1.58            | 0.00         |
| 1.00         | 0.06             | 0.00            | 0.00         | 27.00        | 5.35             | 1.58            | 0.00         |
| 1.50         | 0.09             | 0.00            | 0.00         | 27.50        | 5.35             | 1.58            | 0.00         |
| 2.00         | 0.12             | 0.00            | 0.00         | 28.00        | 5.35             | 1.58            | 0.00         |
| 2.50         | 0.15             | 0.00            | 0.00         | 28.50        | 5.35             | 1.58            | 0.00         |
| 3.00         | 0.19             | 0.00            | 0.00         | 29.00        | 5.35             | 1.58            | 0.00         |
| 3.50         | 0.22             | 0.00            | 0.00         | 29.50        | 5.35             | 1.58            | 0.00         |
| 4.00         | 0.26             | 0.00            | 0.00         | 30.00        | 5.35             | 1.58            | 0.00         |
| 4.50         | 0.30             | 0.00            | 0.00         | 30.50        | 5.35             | 1.58            | 0.00         |
| 5.00         | 0.34             | 0.00            | 0.00         | 31.00        | 5.35             | 1.58            | 0.00         |
| 5.50         | 0.38             | 0.00            | 0.00         | 31.50        | 5.35             | 1.58            | 0.00         |
| 6.00         | 0.42             | 0.00            | 0.00         | 32.00        | 5.35             | 1.58            | 0.00         |
| 6.50         | 0.47             | 0.00            | 0.00         | 32.50        | 5.35             | 1.58            | 0.00         |
| 7.00         | 0.52             | 0.00            | 0.00         | 33.00        | 5.35             | 1.58            | 0.00         |
| 7.50         | 0.58             | 0.00            | 0.00         | 33.50        | 5.35             | 1.58            | 0.00         |
| 8.00         | 0.64             | 0.00            | 0.00         | 34.00        | 5.35             | 1.58            | 0.00         |
| 8.50         | 0.71             | 0.00            | 0.00         | 34.50        | 5.35             | 1.58            | 0.00         |
| 9.00         | 0.78             | 0.00            | 0.00         | 35.00        | 5.35             | 1.58            | 0.00         |
| 9.50         | 0.87             | 0.00            | 0.00         | 35.50        | 5.35             | 1.58            | 0.00         |
| 10.00        | 0.98             | 0.00            | 0.00         | 36.00        | 5.35             | 1.58            | 0.00         |
| 10.50        | 1.10             | 0.00            | 0.00         |              |                  |                 |              |
| 11.00        | 1.28             | 0.00            | 0.00         |              |                  |                 |              |
| 11.50        | 1.58             | 0.01            | 0.02         |              |                  |                 |              |
| 12.00        | 2.55             | 0.21            | 0.42         |              |                  |                 |              |
| 12.50        | 3.77             | 0.70            | 0.19         |              |                  |                 |              |
| 13.00        | 4.07             | 0.85            | 0.09         |              |                  |                 |              |
| 13.50        | 4.25             | 0.94            | 0.06         |              |                  |                 |              |
| 14.00        | 4.37             | 1.01            | 0.05         |              |                  |                 |              |
| 14.50        | 4.48             | 1.07            | 0.04         |              |                  |                 |              |
| 15.00        | 4.57             | 1.12            | 0.03         |              |                  |                 |              |
| 15.50        | 4.64             | 1.16            | 0.03         |              |                  |                 |              |
| 16.00        | 4.71             | 1.20            | 0.03         |              |                  |                 |              |
| 16.50        | 4.77             | 1.23            | 0.03         |              |                  |                 |              |
| 17.00        | 4.83             | 1.27            | 0.02         |              |                  |                 |              |
| 17.50        | 4.88             | 1.30            | 0.02         |              |                  |                 |              |
| 18.00        | 4.93             | 1.32            | 0.02         |              |                  |                 |              |
| 18.50        | 4.97             | 1.35            | 0.02         |              |                  |                 |              |
| 19.00        | 5.01             | 1.37            | 0.02         |              |                  |                 |              |
| 19.50        | 5.05             | 1.40            | 0.02         |              |                  |                 |              |
| 20.00        | 5.09             | 1.42            | 0.02         |              |                  |                 |              |
| 20.50        | 5.13             | 1.44            | 0.02         |              |                  |                 |              |
| 21.00        | 5.16             | 1.47            | 0.02         |              |                  |                 |              |
| 21.50        | 5.20             | 1.49            | 0.02         |              |                  |                 |              |
| 22.00        | 5.23             | 1.51            | 0.01         |              |                  |                 |              |
| 22.50        | 5.26             | 1.53            | 0.01         |              |                  |                 |              |
| 23.00        | 5.29             | 1.55            | 0.01         |              |                  |                 |              |
| 23.50        | 5.32             | 1.57            | 0.01         |              |                  |                 |              |
| 24.00        | 5.35             | 1.58            | 0.01         |              |                  |                 |              |
| 24.50        | 5.35             | 1.58            | 0.00         |              |                  |                 |              |
| 25.00        | 5.35             | 1.58            | 0.00         |              |                  |                 |              |
| 25.50        | 5.35             | 1.58            | 0.00         |              |                  |                 |              |

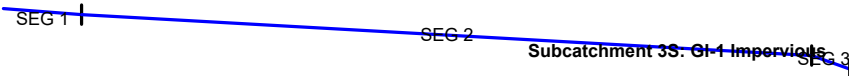
Summary for Subcatchment 3S: GI-1 Impervious

Runoff = 3.02 cfs @ 12.09 hrs, Volume= 8,973 cf, Depth= 5.11"  
Routed to Pond 2P : GI-1

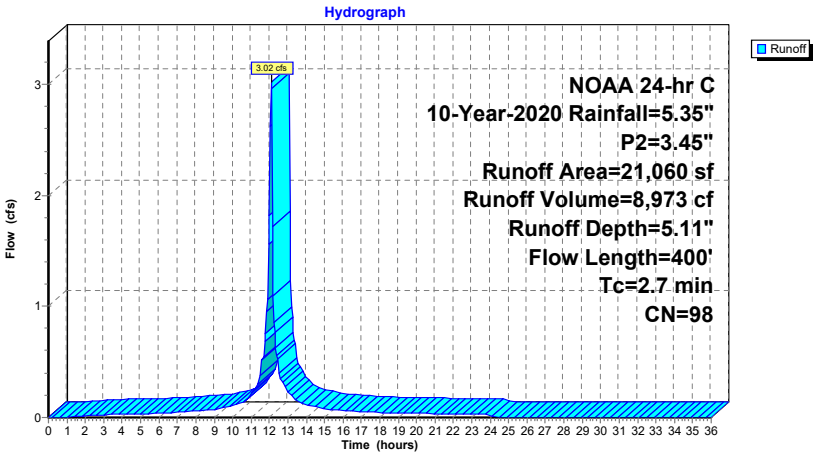
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 21,060    | 98 | Paved parking, HSG A    |
| 21,060    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 0.6      | 37            | 0.0140        | 1.02              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.45"             |
| 1.9      | 345           | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2      | 18            | 0.0630        | 1.76              |                | Shallow Concentrated Flow, SEG 3<br>Short Grass Pasture Kv= 7.0 fps |
| 2.7      | 400           |               |                   |                | Total                                                               |



Subcatchment 3S: GI-1 Impervious



Hydrograph for Subcatchment 3S: GI-1 Impervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         |
| 0.50         | 0.03             | 0.00            | 0.00         |
| 1.00         | 0.06             | 0.00            | 0.00         |
| 1.50         | 0.09             | 0.01            | 0.01         |
| 2.00         | 0.12             | 0.02            | 0.01         |
| 2.50         | 0.15             | 0.04            | 0.02         |
| 3.00         | 0.19             | 0.06            | 0.02         |
| 3.50         | 0.22             | 0.09            | 0.03         |
| 4.00         | 0.26             | 0.11            | 0.03         |
| 4.50         | 0.30             | 0.15            | 0.03         |
| 5.00         | 0.34             | 0.18            | 0.03         |
| 5.50         | 0.38             | 0.21            | 0.03         |
| 6.00         | 0.42             | 0.25            | 0.04         |
| 6.50         | 0.47             | 0.29            | 0.04         |
| 7.00         | 0.52             | 0.34            | 0.05         |
| 7.50         | 0.58             | 0.39            | 0.05         |
| 8.00         | 0.64             | 0.45            | 0.06         |
| 8.50         | 0.71             | 0.51            | 0.06         |
| 9.00         | 0.78             | 0.58            | 0.07         |
| 9.50         | 0.87             | 0.66            | 0.09         |
| 10.00        | 0.98             | 0.77            | 0.11         |
| 10.50        | 1.10             | 0.89            | 0.13         |
| 11.00        | 1.28             | 1.07            | 0.20         |
| 11.50        | 1.58             | 1.36            | 0.34         |
| 12.00        | 2.55             | 2.32            | 1.82         |
| 12.50        | 3.77             | 3.53            | 0.52         |
| 13.00        | 4.07             | 3.83            | 0.23         |
| 13.50        | 4.25             | 4.01            | 0.15         |
| 14.00        | 4.37             | 4.14            | 0.12         |
| 14.50        | 4.48             | 4.25            | 0.10         |
| 15.00        | 4.57             | 4.33            | 0.08         |
| 15.50        | 4.64             | 4.41            | 0.07         |
| 16.00        | 4.71             | 4.47            | 0.06         |
| 16.50        | 4.77             | 4.53            | 0.06         |
| 17.00        | 4.83             | 4.59            | 0.05         |
| 17.50        | 4.88             | 4.64            | 0.05         |
| 18.00        | 4.93             | 4.69            | 0.04         |
| 18.50        | 4.97             | 4.73            | 0.04         |
| 19.00        | 5.01             | 4.77            | 0.04         |
| 19.50        | 5.05             | 4.81            | 0.04         |
| 20.00        | 5.09             | 4.85            | 0.04         |
| 20.50        | 5.13             | 4.89            | 0.04         |
| 21.00        | 5.16             | 4.92            | 0.03         |
| 21.50        | 5.20             | 4.96            | 0.03         |
| 22.00        | 5.23             | 4.99            | 0.03         |
| 22.50        | 5.26             | 5.02            | 0.03         |
| 23.00        | 5.29             | 5.05            | 0.03         |
| 23.50        | 5.32             | 5.08            | 0.03         |
| 24.00        | 5.35             | 5.11            | 0.03         |
| 24.50        | 5.35             | 5.11            | 0.00         |
| 25.00        | 5.35             | 5.11            | 0.00         |
| 25.50        | 5.35             | 5.11            | 0.00         |



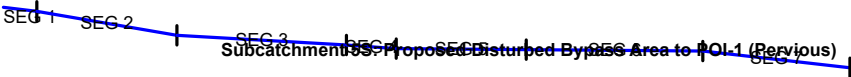
Summary for Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)

Runoff = 0.17 cfs @ 13.58 hrs, Volume= 2,466 cf, Depth= 0.67"  
Routed to Link 1L : POI-1

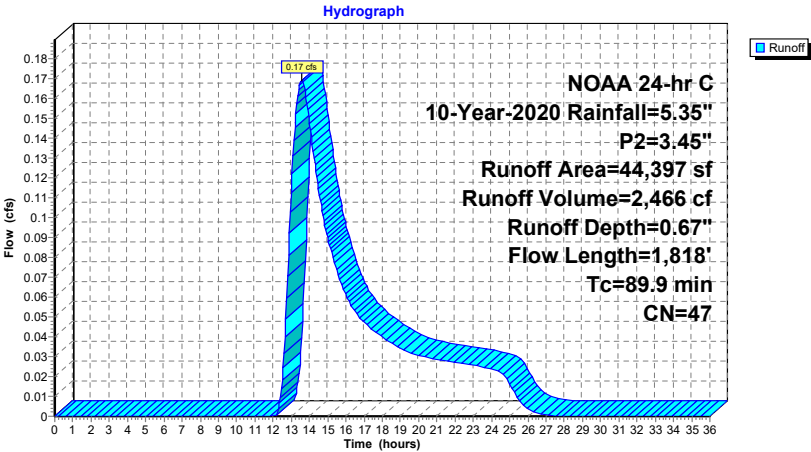
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 28,757    | 39 | >75% Grass cover, Good, HSG A |
| 15,640    | 61 | >75% Grass cover, Good, HSG B |
| 44,397    | 47 | Weighted Average              |
| 44,397    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 9.0      | 72            | 0.0150        | 0.13              |                | Sheet Flow, SEG 1<br>Cultivated: Residue>20% n= 0.170 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 3.8      | 301           | 0.0210        | 1.30              |                | Shallow Concentrated Flow, SEG 2<br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 8.1      | 364           | 0.0070        | 0.75              |                | Shallow Concentrated Flow, SEG 3<br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 3.8      | 107           | 0.0090        | 0.47              |                | Shallow Concentrated Flow, SEG 4<br>Woodland Kv= 5.0 fps                                           |
| 16.3     | 279           | 0.0010        | 0.28              |                | Shallow Concentrated Flow, SEG 5<br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 40.0     | 379           | 0.0010        | 0.16              |                | Shallow Concentrated Flow, SEG 6<br>Woodland Kv= 5.0 fps                                           |
| 8.9      | 316           | 0.0140        | 0.59              |                | Shallow Concentrated Flow, SEG 7<br>Woodland Kv= 5.0 fps                                           |
| 89.9     | 1,818         | Total         |                   |                |                                                                                                    |



Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)



# 2101ELK-STM Analysis POI-1 - Proposed NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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## Hydrograph for Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 5.35             | 0.67            | 0.00         |
| 0.50         | 0.03             | 0.00            | 0.00         | 26.50        | 5.35             | 0.67            | 0.00         |
| 1.00         | 0.06             | 0.00            | 0.00         | 27.00        | 5.35             | 0.67            | 0.00         |
| 1.50         | 0.09             | 0.00            | 0.00         | 27.50        | 5.35             | 0.67            | 0.00         |
| 2.00         | 0.12             | 0.00            | 0.00         | 28.00        | 5.35             | 0.67            | 0.00         |
| 2.50         | 0.15             | 0.00            | 0.00         | 28.50        | 5.35             | 0.67            | 0.00         |
| 3.00         | 0.19             | 0.00            | 0.00         | 29.00        | 5.35             | 0.67            | 0.00         |
| 3.50         | 0.22             | 0.00            | 0.00         | 29.50        | 5.35             | 0.67            | 0.00         |
| 4.00         | 0.26             | 0.00            | 0.00         | 30.00        | 5.35             | 0.67            | 0.00         |
| 4.50         | 0.30             | 0.00            | 0.00         | 30.50        | 5.35             | 0.67            | 0.00         |
| 5.00         | 0.34             | 0.00            | 0.00         | 31.00        | 5.35             | 0.67            | 0.00         |
| 5.50         | 0.38             | 0.00            | 0.00         | 31.50        | 5.35             | 0.67            | 0.00         |
| 6.00         | 0.42             | 0.00            | 0.00         | 32.00        | 5.35             | 0.67            | 0.00         |
| 6.50         | 0.47             | 0.00            | 0.00         | 32.50        | 5.35             | 0.67            | 0.00         |
| 7.00         | 0.52             | 0.00            | 0.00         | 33.00        | 5.35             | 0.67            | 0.00         |
| 7.50         | 0.58             | 0.00            | 0.00         | 33.50        | 5.35             | 0.67            | 0.00         |
| 8.00         | 0.64             | 0.00            | 0.00         | 34.00        | 5.35             | 0.67            | 0.00         |
| 8.50         | 0.71             | 0.00            | 0.00         | 34.50        | 5.35             | 0.67            | 0.00         |
| 9.00         | 0.78             | 0.00            | 0.00         | 35.00        | 5.35             | 0.67            | 0.00         |
| 9.50         | 0.87             | 0.00            | 0.00         | 35.50        | 5.35             | 0.67            | 0.00         |
| 10.00        | 0.98             | 0.00            | 0.00         | 36.00        | 5.35             | 0.67            | 0.00         |
| 10.50        | 1.10             | 0.00            | 0.00         |              |                  |                 |              |
| 11.00        | 1.28             | 0.00            | 0.00         |              |                  |                 |              |
| 11.50        | 1.58             | 0.00            | 0.00         |              |                  |                 |              |
| 12.00        | 2.55             | 0.01            | 0.00         |              |                  |                 |              |
| 12.50        | 3.77             | 0.18            | 0.02         |              |                  |                 |              |
| 13.00        | 4.07             | 0.25            | 0.11         |              |                  |                 |              |
| 13.50        | 4.25             | 0.30            | 0.17         |              |                  |                 |              |
| 14.00        | 4.37             | 0.34            | 0.15         |              |                  |                 |              |
| 14.50        | 4.48             | 0.37            | 0.11         |              |                  |                 |              |
| 15.00        | 4.57             | 0.39            | 0.09         |              |                  |                 |              |
| 15.50        | 4.64             | 0.42            | 0.07         |              |                  |                 |              |
| 16.00        | 4.71             | 0.44            | 0.06         |              |                  |                 |              |
| 16.50        | 4.77             | 0.46            | 0.05         |              |                  |                 |              |
| 17.00        | 4.83             | 0.48            | 0.05         |              |                  |                 |              |
| 17.50        | 4.88             | 0.50            | 0.04         |              |                  |                 |              |
| 18.00        | 4.93             | 0.51            | 0.04         |              |                  |                 |              |
| 18.50        | 4.97             | 0.53            | 0.04         |              |                  |                 |              |
| 19.00        | 5.01             | 0.54            | 0.03         |              |                  |                 |              |
| 19.50        | 5.05             | 0.55            | 0.03         |              |                  |                 |              |
| 20.00        | 5.09             | 0.57            | 0.03         |              |                  |                 |              |
| 20.50        | 5.13             | 0.58            | 0.03         |              |                  |                 |              |
| 21.00        | 5.16             | 0.60            | 0.03         |              |                  |                 |              |
| 21.50        | 5.20             | 0.61            | 0.03         |              |                  |                 |              |
| 22.00        | 5.23             | 0.62            | 0.03         |              |                  |                 |              |
| 22.50        | 5.26             | 0.63            | 0.03         |              |                  |                 |              |
| 23.00        | 5.29             | 0.64            | 0.03         |              |                  |                 |              |
| 23.50        | 5.32             | 0.66            | 0.02         |              |                  |                 |              |
| 24.00        | 5.35             | 0.67            | 0.02         |              |                  |                 |              |
| 24.50        | 5.35             | 0.67            | 0.02         |              |                  |                 |              |
| 25.00        | 5.35             | 0.67            | 0.02         |              |                  |                 |              |
| 25.50        | 5.35             | 0.67            | 0.01         |              |                  |                 |              |

# 2101ELK-STM Analysis POI-1 - Proposed NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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## Summary for Subcatchment 6S: GI-9 Impervious

Runoff = 6.29 cfs @ 12.08 hrs, Volume= 18,462 cf, Depth= 5.11"  
Routed to Pond 7P : GI-9

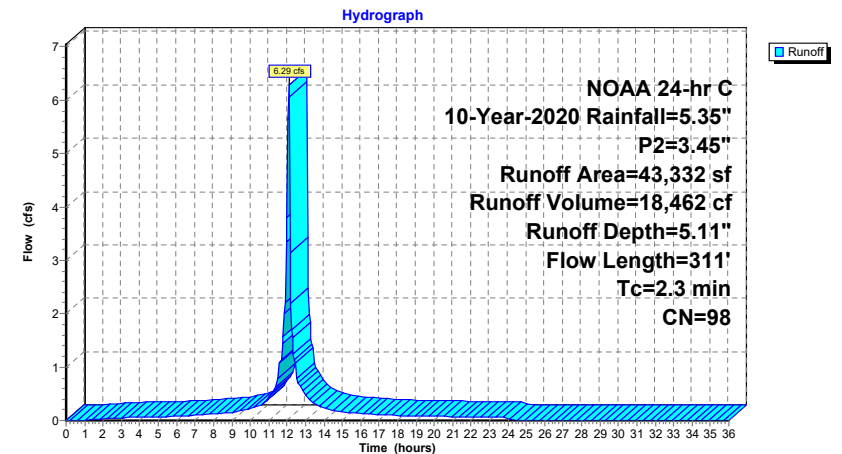
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 43,332    | 98 | Paved parking, HSG A    |
| 43,332    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 1.0      | 71            | 0.0140        | 1.16              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.45"             |
| 1.2      | 222           | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.1      | 18            | 0.0960        | 2.17              |                | Shallow Concentrated Flow, SEG 3<br>Short Grass Pasture Kv= 7.0 fps |
| 2.3      | 311           | Total         |                   |                |                                                                     |



## Subcatchment 6S: GI-9 Impervious



**Hydrograph for Subcatchment 6S: GI-9 Impervious**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 5.11               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 5.11               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.01            | 27.00           | 5.35                | 5.11               | 0.00            |
| 1.50            | 0.09                | 0.01               | 0.02            | 27.50           | 5.35                | 5.11               | 0.00            |
| 2.00            | 0.12                | 0.02               | 0.03            | 28.00           | 5.35                | 5.11               | 0.00            |
| 2.50            | 0.15                | 0.04               | 0.04            | 28.50           | 5.35                | 5.11               | 0.00            |
| 3.00            | 0.19                | 0.06               | 0.05            | 29.00           | 5.35                | 5.11               | 0.00            |
| 3.50            | 0.22                | 0.09               | 0.05            | 29.50           | 5.35                | 5.11               | 0.00            |
| 4.00            | 0.26                | 0.11               | 0.06            | 30.00           | 5.35                | 5.11               | 0.00            |
| 4.50            | 0.30                | 0.15               | 0.06            | 30.50           | 5.35                | 5.11               | 0.00            |
| 5.00            | 0.34                | 0.18               | 0.07            | 31.00           | 5.35                | 5.11               | 0.00            |
| 5.50            | 0.38                | 0.21               | 0.07            | 31.50           | 5.35                | 5.11               | 0.00            |
| 6.00            | 0.42                | 0.25               | 0.08            | 32.00           | 5.35                | 5.11               | 0.00            |
| 6.50            | 0.47                | 0.29               | 0.09            | 32.50           | 5.35                | 5.11               | 0.00            |
| 7.00            | 0.52                | 0.34               | 0.10            | 33.00           | 5.35                | 5.11               | 0.00            |
| 7.50            | 0.58                | 0.39               | 0.11            | 33.50           | 5.35                | 5.11               | 0.00            |
| 8.00            | 0.64                | 0.45               | 0.12            | 34.00           | 5.35                | 5.11               | 0.00            |
| 8.50            | 0.71                | 0.51               | 0.13            | 34.50           | 5.35                | 5.11               | 0.00            |
| 9.00            | 0.78                | 0.58               | 0.14            | 35.00           | 5.35                | 5.11               | 0.00            |
| 9.50            | 0.87                | 0.66               | 0.18            | 35.50           | 5.35                | 5.11               | 0.00            |
| 10.00           | 0.98                | 0.77               | 0.22            | 36.00           | 5.35                | 5.11               | 0.00            |
| 10.50           | 1.10                | 0.89               | 0.27            |                 |                     |                    |                 |
| 11.00           | 1.28                | 1.07               | 0.42            |                 |                     |                    |                 |
| 11.50           | 1.58                | 1.36               | 0.70            |                 |                     |                    |                 |
| 12.00           | 2.55                | 2.32               | <b>3.80</b>     |                 |                     |                    |                 |
| 12.50           | 3.77                | 3.53               | <b>1.07</b>     |                 |                     |                    |                 |
| 13.00           | 4.07                | 3.83               | 0.48            |                 |                     |                    |                 |
| 13.50           | 4.25                | 4.01               | 0.30            |                 |                     |                    |                 |
| 14.00           | 4.37                | 4.14               | 0.24            |                 |                     |                    |                 |
| 14.50           | 4.48                | 4.25               | 0.20            |                 |                     |                    |                 |
| 15.00           | 4.57                | 4.33               | 0.16            |                 |                     |                    |                 |
| 15.50           | 4.64                | 4.41               | 0.14            |                 |                     |                    |                 |
| 16.00           | 4.71                | 4.47               | 0.13            |                 |                     |                    |                 |
| 16.50           | 4.77                | 4.53               | 0.12            |                 |                     |                    |                 |
| 17.00           | 4.83                | 4.59               | 0.11            |                 |                     |                    |                 |
| 17.50           | 4.88                | 4.64               | 0.10            |                 |                     |                    |                 |
| 18.00           | 4.93                | 4.69               | 0.09            |                 |                     |                    |                 |
| 18.50           | 4.97                | 4.73               | 0.08            |                 |                     |                    |                 |
| 19.00           | 5.01                | 4.77               | 0.08            |                 |                     |                    |                 |
| 19.50           | 5.05                | 4.81               | 0.08            |                 |                     |                    |                 |
| 20.00           | 5.09                | 4.85               | 0.08            |                 |                     |                    |                 |
| 20.50           | 5.13                | 4.89               | 0.07            |                 |                     |                    |                 |
| 21.00           | 5.16                | 4.92               | 0.07            |                 |                     |                    |                 |
| 21.50           | 5.20                | 4.96               | 0.07            |                 |                     |                    |                 |
| 22.00           | 5.23                | 4.99               | 0.07            |                 |                     |                    |                 |
| 22.50           | 5.26                | 5.02               | 0.06            |                 |                     |                    |                 |
| 23.00           | 5.29                | 5.05               | 0.06            |                 |                     |                    |                 |
| 23.50           | 5.32                | 5.08               | 0.06            |                 |                     |                    |                 |
| 24.00           | <b>5.35</b>         | <b>5.11</b>        | 0.07            |                 |                     |                    |                 |
| 24.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |

**Summary for Subcatchment 15S: GI-2 Pervious**

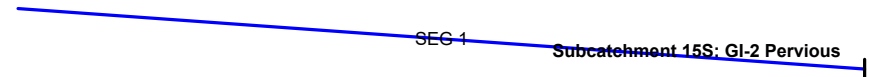
Runoff = 0.02 cfs @ 12.50 hrs, Volume= 310 cf, Depth= 0.28"  
 Routed to Pond 14P : GI-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

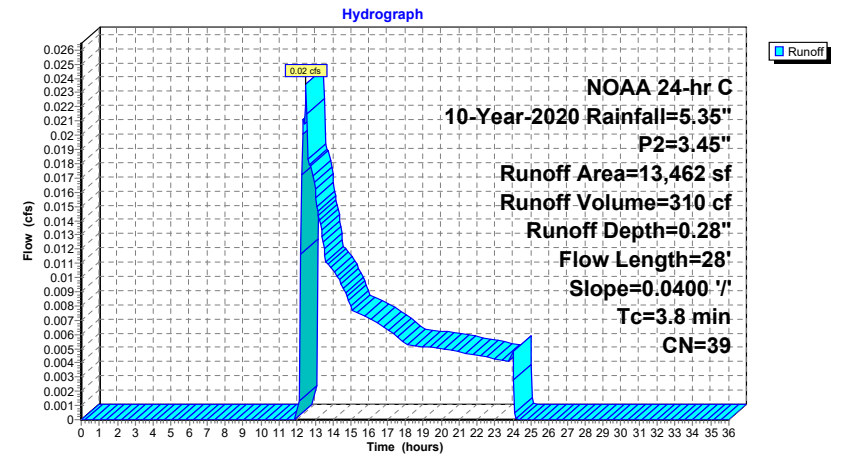
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 13,462    | 39 | >75% Grass cover, Good, HSG A |
| 13,462    |    | 100.00% Pervious Area         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|-------------|
| 3.8         | 28               | 0.0400           | 0.12                 |                   |             |

**Sheet Flow, SEG 1**  
 Grass: Dense n= 0.240 P2= 3.45"



**Subcatchment 15S: GI-2 Pervious**



Hydrograph for Subcatchment 15S: GI-2 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 0.28               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 0.28               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 0.28               | 0.00            |
| 1.50            | 0.09                | 0.00               | 0.00            | 27.50           | 5.35                | 0.28               | 0.00            |
| 2.00            | 0.12                | 0.00               | 0.00            | 28.00           | 5.35                | 0.28               | 0.00            |
| 2.50            | 0.15                | 0.00               | 0.00            | 28.50           | 5.35                | 0.28               | 0.00            |
| 3.00            | 0.19                | 0.00               | 0.00            | 29.00           | 5.35                | 0.28               | 0.00            |
| 3.50            | 0.22                | 0.00               | 0.00            | 29.50           | 5.35                | 0.28               | 0.00            |
| 4.00            | 0.26                | 0.00               | 0.00            | 30.00           | 5.35                | 0.28               | 0.00            |
| 4.50            | 0.30                | 0.00               | 0.00            | 30.50           | 5.35                | 0.28               | 0.00            |
| 5.00            | 0.34                | 0.00               | 0.00            | 31.00           | 5.35                | 0.28               | 0.00            |
| 5.50            | 0.38                | 0.00               | 0.00            | 31.50           | 5.35                | 0.28               | 0.00            |
| 6.00            | 0.42                | 0.00               | 0.00            | 32.00           | 5.35                | 0.28               | 0.00            |
| 6.50            | 0.47                | 0.00               | 0.00            | 32.50           | 5.35                | 0.28               | 0.00            |
| 7.00            | 0.52                | 0.00               | 0.00            | 33.00           | 5.35                | 0.28               | 0.00            |
| 7.50            | 0.58                | 0.00               | 0.00            | 33.50           | 5.35                | 0.28               | 0.00            |
| 8.00            | 0.64                | 0.00               | 0.00            | 34.00           | 5.35                | 0.28               | 0.00            |
| 8.50            | 0.71                | 0.00               | 0.00            | 34.50           | 5.35                | 0.28               | 0.00            |
| 9.00            | 0.78                | 0.00               | 0.00            | 35.00           | 5.35                | 0.28               | 0.00            |
| 9.50            | 0.87                | 0.00               | 0.00            | 35.50           | 5.35                | 0.28               | 0.00            |
| 10.00           | 0.98                | 0.00               | 0.00            | 36.00           | 5.35                | 0.28               | 0.00            |
| 10.50           | 1.10                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.58                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.55                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 3.77                | 0.03               | 0.02            |                 |                     |                    |                 |
| 13.00           | 4.07                | 0.05               | 0.02            |                 |                     |                    |                 |
| 13.50           | 4.25                | 0.07               | 0.01            |                 |                     |                    |                 |
| 14.00           | 4.37                | 0.09               | 0.01            |                 |                     |                    |                 |
| 14.50           | 4.48                | 0.11               | 0.01            |                 |                     |                    |                 |
| 15.00           | 4.57                | 0.12               | 0.01            |                 |                     |                    |                 |
| 15.50           | 4.64                | 0.13               | 0.01            |                 |                     |                    |                 |
| 16.00           | 4.71                | 0.15               | 0.01            |                 |                     |                    |                 |
| 16.50           | 4.77                | 0.16               | 0.01            |                 |                     |                    |                 |
| 17.00           | 4.83                | 0.17               | 0.01            |                 |                     |                    |                 |
| 17.50           | 4.88                | 0.18               | 0.01            |                 |                     |                    |                 |
| 18.00           | 4.93                | 0.19               | 0.01            |                 |                     |                    |                 |
| 18.50           | 4.97                | 0.19               | 0.01            |                 |                     |                    |                 |
| 19.00           | 5.01                | 0.20               | 0.01            |                 |                     |                    |                 |
| 19.50           | 5.05                | 0.21               | 0.01            |                 |                     |                    |                 |
| 20.00           | 5.09                | 0.22               | 0.00            |                 |                     |                    |                 |
| 20.50           | 5.13                | 0.23               | 0.00            |                 |                     |                    |                 |
| 21.00           | 5.16                | 0.23               | 0.00            |                 |                     |                    |                 |
| 21.50           | 5.20                | 0.24               | 0.00            |                 |                     |                    |                 |
| 22.00           | 5.23                | 0.25               | 0.00            |                 |                     |                    |                 |
| 22.50           | 5.26                | 0.26               | 0.00            |                 |                     |                    |                 |
| 23.00           | 5.29                | 0.26               | 0.00            |                 |                     |                    |                 |
| 23.50           | 5.32                | 0.27               | 0.00            |                 |                     |                    |                 |
| 24.00           | 5.35                | 0.28               | 0.00            |                 |                     |                    |                 |
| 24.50           | 5.35                | 0.28               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 0.28               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 0.28               | 0.00            |                 |                     |                    |                 |

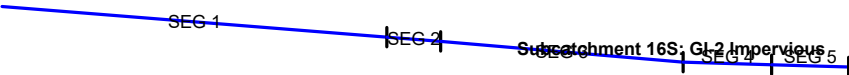
Summary for Subcatchment 16S: GI-2 Impervious

Runoff = 1.92 cfs @ 12.08 hrs, Volume= 5,590 cf, Depth= 5.11"  
Routed to Pond 14P : GI-2

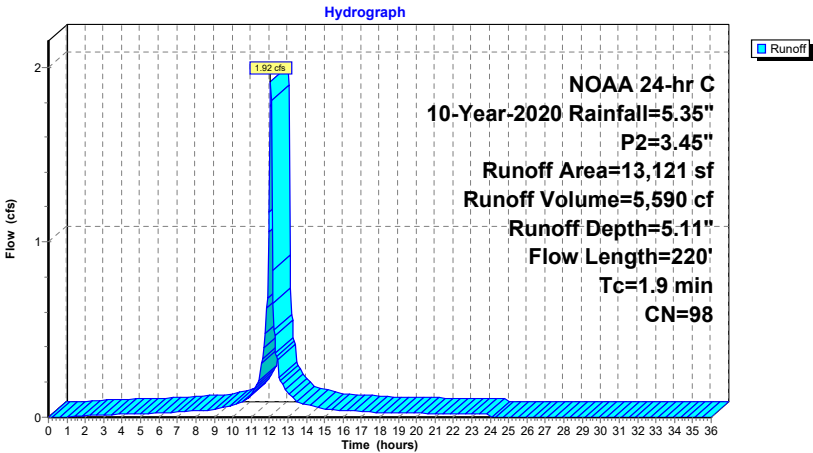
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 13,121    | 98 | Paved parking, HSG A    |
| 13,121    |    | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                     |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------|
| 1.3         | 100              | 0.0140           | 1.24                 |                   | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.45"                                                  |
| 0.1         | 14               | 0.0140           | 2.40                 |                   | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps                                                   |
| 0.3         | 63               | 0.0150           | 3.65                 | 0.73              | <b>Channel Flow, SEG 3</b><br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013                                        |
| 0.1         | 23               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 4</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 Concrete pipe, finished |
| 0.1         | 20               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 5</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012                         |
| 1.9         | 220              | Total            |                      |                   |                                                                                                                 |



Subcatchment 16S: GI-2 Impervious



Hydrograph for Subcatchment 16S: GI-2 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 5.11               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 5.11               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 5.11               | 0.00            |
| 1.50            | 0.09                | 0.01               | 0.01            | 27.50           | 5.35                | 5.11               | 0.00            |
| 2.00            | 0.12                | 0.02               | 0.01            | 28.00           | 5.35                | 5.11               | 0.00            |
| 2.50            | 0.15                | 0.04               | 0.01            | 28.50           | 5.35                | 5.11               | 0.00            |
| 3.00            | 0.19                | 0.06               | 0.01            | 29.00           | 5.35                | 5.11               | 0.00            |
| 3.50            | 0.22                | 0.09               | 0.02            | 29.50           | 5.35                | 5.11               | 0.00            |
| 4.00            | 0.26                | 0.11               | 0.02            | 30.00           | 5.35                | 5.11               | 0.00            |
| 4.50            | 0.30                | 0.15               | 0.02            | 30.50           | 5.35                | 5.11               | 0.00            |
| 5.00            | 0.34                | 0.18               | 0.02            | 31.00           | 5.35                | 5.11               | 0.00            |
| 5.50            | 0.38                | 0.21               | 0.02            | 31.50           | 5.35                | 5.11               | 0.00            |
| 6.00            | 0.42                | 0.25               | 0.02            | 32.00           | 5.35                | 5.11               | 0.00            |
| 6.50            | 0.47                | 0.29               | 0.03            | 32.50           | 5.35                | 5.11               | 0.00            |
| 7.00            | 0.52                | 0.34               | 0.03            | 33.00           | 5.35                | 5.11               | 0.00            |
| 7.50            | 0.58                | 0.39               | 0.03            | 33.50           | 5.35                | 5.11               | 0.00            |
| 8.00            | 0.64                | 0.45               | 0.04            | 34.00           | 5.35                | 5.11               | 0.00            |
| 8.50            | 0.71                | 0.51               | 0.04            | 34.50           | 5.35                | 5.11               | 0.00            |
| 9.00            | 0.78                | 0.58               | 0.04            | 35.00           | 5.35                | 5.11               | 0.00            |
| 9.50            | 0.87                | 0.66               | 0.06            | 35.50           | 5.35                | 5.11               | 0.00            |
| 10.00           | 0.98                | 0.77               | 0.07            | 36.00           | 5.35                | 5.11               | 0.00            |
| 10.50           | 1.10                | 0.89               | 0.08            |                 |                     |                    |                 |
| 11.00           | 1.28                | 1.07               | 0.13            |                 |                     |                    |                 |
| 11.50           | 1.58                | 1.36               | 0.22            |                 |                     |                    |                 |
| 12.00           | 2.55                | 2.32               | 1.17            |                 |                     |                    |                 |
| 12.50           | 3.77                | 3.53               | 0.32            |                 |                     |                    |                 |
| 13.00           | 4.07                | 3.83               | 0.14            |                 |                     |                    |                 |
| 13.50           | 4.25                | 4.01               | 0.09            |                 |                     |                    |                 |
| 14.00           | 4.37                | 4.14               | 0.07            |                 |                     |                    |                 |
| 14.50           | 4.48                | 4.25               | 0.06            |                 |                     |                    |                 |
| 15.00           | 4.57                | 4.33               | 0.05            |                 |                     |                    |                 |
| 15.50           | 4.64                | 4.41               | 0.04            |                 |                     |                    |                 |
| 16.00           | 4.71                | 4.47               | 0.04            |                 |                     |                    |                 |
| 16.50           | 4.77                | 4.53               | 0.04            |                 |                     |                    |                 |
| 17.00           | 4.83                | 4.59               | 0.03            |                 |                     |                    |                 |
| 17.50           | 4.88                | 4.64               | 0.03            |                 |                     |                    |                 |
| 18.00           | 4.93                | 4.69               | 0.03            |                 |                     |                    |                 |
| 18.50           | 4.97                | 4.73               | 0.03            |                 |                     |                    |                 |
| 19.00           | 5.01                | 4.77               | 0.02            |                 |                     |                    |                 |
| 19.50           | 5.05                | 4.81               | 0.02            |                 |                     |                    |                 |
| 20.00           | 5.09                | 4.85               | 0.02            |                 |                     |                    |                 |
| 20.50           | 5.13                | 4.89               | 0.02            |                 |                     |                    |                 |
| 21.00           | 5.16                | 4.92               | 0.02            |                 |                     |                    |                 |
| 21.50           | 5.20                | 4.96               | 0.02            |                 |                     |                    |                 |
| 22.00           | 5.23                | 4.99               | 0.02            |                 |                     |                    |                 |
| 22.50           | 5.26                | 5.02               | 0.02            |                 |                     |                    |                 |
| 23.00           | 5.29                | 5.05               | 0.02            |                 |                     |                    |                 |
| 23.50           | 5.32                | 5.08               | 0.02            |                 |                     |                    |                 |
| 24.00           | 5.35                | 5.11               | 0.02            |                 |                     |                    |                 |
| 24.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |

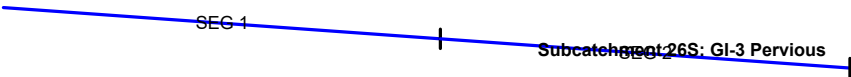
Summary for Subcatchment 26S: GI-3 Pervious

Runoff = 0.61 cfs @ 12.20 hrs, Volume= 2,276 cf, Depth= 1.16"  
Routed to Pond 28P : GI-3

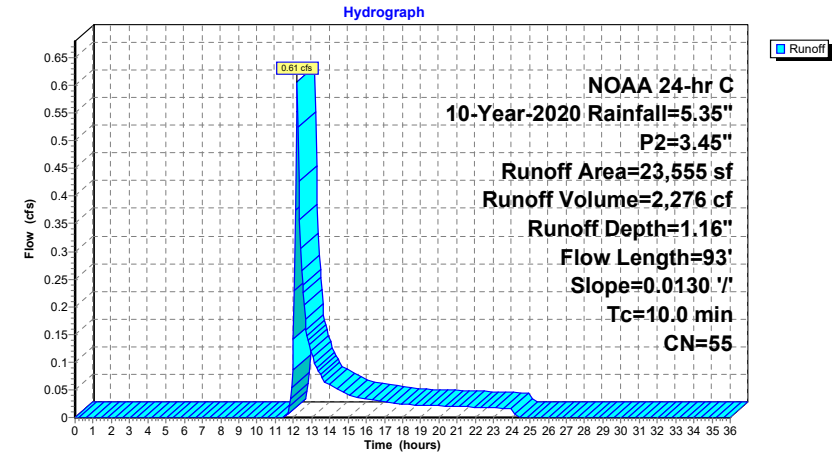
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 6,391     | 39 | >75% Grass cover, Good, HSG A |
| 17,164    | 61 | >75% Grass cover, Good, HSG B |
| 23,555    | 55 | Weighted Average              |
| 23,555    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 9.1      | 48            | 0.0130        | 0.09              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.45"                |
| 0.9      | 45            | 0.0130        | 0.80              |                | Shallow Concentrated Flow, SEG 2<br>Short Grass Pasture Kv= 7.0 fps |
| 10.0     | 93            |               |                   |                | Total                                                               |



Subcatchment 26S: GI-3 Pervious



Hydrograph for Subcatchment 26S: GI-3 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         |
| 0.50         | 0.03             | 0.00            | 0.00         |
| 1.00         | 0.06             | 0.00            | 0.00         |
| 1.50         | 0.09             | 0.00            | 0.00         |
| 2.00         | 0.12             | 0.00            | 0.00         |
| 2.50         | 0.15             | 0.00            | 0.00         |
| 3.00         | 0.19             | 0.00            | 0.00         |
| 3.50         | 0.22             | 0.00            | 0.00         |
| 4.00         | 0.26             | 0.00            | 0.00         |
| 4.50         | 0.30             | 0.00            | 0.00         |
| 5.00         | 0.34             | 0.00            | 0.00         |
| 5.50         | 0.38             | 0.00            | 0.00         |
| 6.00         | 0.42             | 0.00            | 0.00         |
| 6.50         | 0.47             | 0.00            | 0.00         |
| 7.00         | 0.52             | 0.00            | 0.00         |
| 7.50         | 0.58             | 0.00            | 0.00         |
| 8.00         | 0.64             | 0.00            | 0.00         |
| 8.50         | 0.71             | 0.00            | 0.00         |
| 9.00         | 0.78             | 0.00            | 0.00         |
| 9.50         | 0.87             | 0.00            | 0.00         |
| 10.00        | 0.98             | 0.00            | 0.00         |
| 10.50        | 1.10             | 0.00            | 0.00         |
| 11.00        | 1.28             | 0.00            | 0.00         |
| 11.50        | 1.58             | 0.00            | 0.00         |
| 12.00        | 2.55             | 0.09            | 0.14         |
| 12.50        | 3.77             | 0.44            | 0.24         |
| 13.00        | 4.07             | 0.56            | 0.12         |
| 13.50        | 4.25             | 0.63            | 0.08         |
| 14.00        | 4.37             | 0.69            | 0.06         |
| 14.50        | 4.48             | 0.73            | 0.05         |
| 15.00        | 4.57             | 0.77            | 0.04         |
| 15.50        | 4.64             | 0.81            | 0.04         |
| 16.00        | 4.71             | 0.84            | 0.03         |
| 16.50        | 4.77             | 0.87            | 0.03         |
| 17.00        | 4.83             | 0.90            | 0.03         |
| 17.50        | 4.88             | 0.92            | 0.03         |
| 18.00        | 4.93             | 0.94            | 0.02         |
| 18.50        | 4.97             | 0.96            | 0.02         |
| 19.00        | 5.01             | 0.98            | 0.02         |
| 19.50        | 5.05             | 1.00            | 0.02         |
| 20.00        | 5.09             | 1.02            | 0.02         |
| 20.50        | 5.13             | 1.04            | 0.02         |
| 21.00        | 5.16             | 1.06            | 0.02         |
| 21.50        | 5.20             | 1.08            | 0.02         |
| 22.00        | 5.23             | 1.10            | 0.02         |
| 22.50        | 5.26             | 1.11            | 0.02         |
| 23.00        | 5.29             | 1.13            | 0.02         |
| 23.50        | 5.32             | 1.14            | 0.02         |
| 24.00        | 5.35             | 1.16            | 0.02         |
| 24.50        | 5.35             | 1.16            | 0.00         |
| 25.00        | 5.35             | 1.16            | 0.00         |
| 25.50        | 5.35             | 1.16            | 0.00         |

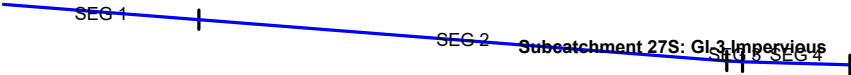
Summary for Subcatchment 27S: GI-3 Impervious

Runoff = 8.47 cfs @ 12.09 hrs, Volume= 25,816 cf, Depth= 5.11"  
Routed to Pond 28P : GI-3

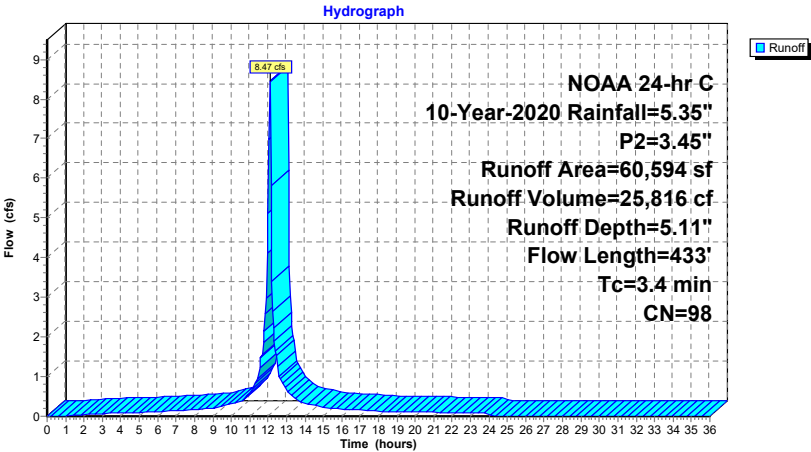
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 56,594    | 98 | Paved parking, HSG A    |
| 4,000     | 98 | Roofs, HSG A            |
| 60,594    | 98 | Weighted Average        |
| 60,594    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                           |
|----------|---------------|---------------|-------------------|----------------|-------------------------------------------------------------------------------------------------------|
| 1.3      | 100           | 0.0140        | 1.24              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.45"                                               |
| 1.9      | 270           | 0.0140        | 2.40              |                | Shallow Concentrated Flow, SEG 2<br>Paved Kv= 20.3 fps                                                |
| 0.0      | 8             | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 3<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013                                     |
| 0.2      | 55            | 0.0050        | 4.03              | 4.95           | Pipe Channel, SEG 4<br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished |
| 3.4      | 433           | Total         |                   |                |                                                                                                       |



Subcatchment 27S: GI-3 Impervious



Hydrograph for Subcatchment 27S: GI-3 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 5.11               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 5.11               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.01            | 27.00           | 5.35                | 5.11               | 0.00            |
| 1.50            | 0.09                | 0.01               | 0.03            | 27.50           | 5.35                | 5.11               | 0.00            |
| 2.00            | 0.12                | 0.02               | 0.04            | 28.00           | 5.35                | 5.11               | 0.00            |
| 2.50            | 0.15                | 0.04               | 0.05            | 28.50           | 5.35                | 5.11               | 0.00            |
| 3.00            | 0.19                | 0.06               | 0.06            | 29.00           | 5.35                | 5.11               | 0.00            |
| 3.50            | 0.22                | 0.09               | 0.07            | 29.50           | 5.35                | 5.11               | 0.00            |
| 4.00            | 0.26                | 0.11               | 0.08            | 30.00           | 5.35                | 5.11               | 0.00            |
| 4.50            | 0.30                | 0.15               | 0.09            | 30.50           | 5.35                | 5.11               | 0.00            |
| 5.00            | 0.34                | 0.18               | 0.09            | 31.00           | 5.35                | 5.11               | 0.00            |
| 5.50            | 0.38                | 0.21               | 0.10            | 31.50           | 5.35                | 5.11               | 0.00            |
| 6.00            | 0.42                | 0.25               | 0.11            | 32.00           | 5.35                | 5.11               | 0.00            |
| 6.50            | 0.47                | 0.29               | 0.12            | 32.50           | 5.35                | 5.11               | 0.00            |
| 7.00            | 0.52                | 0.34               | 0.14            | 33.00           | 5.35                | 5.11               | 0.00            |
| 7.50            | 0.58                | 0.39               | 0.15            | 33.50           | 5.35                | 5.11               | 0.00            |
| 8.00            | 0.64                | 0.45               | 0.17            | 34.00           | 5.35                | 5.11               | 0.00            |
| 8.50            | 0.71                | 0.51               | 0.18            | 34.50           | 5.35                | 5.11               | 0.00            |
| 9.00            | 0.78                | 0.58               | 0.20            | 35.00           | 5.35                | 5.11               | 0.00            |
| 9.50            | 0.87                | 0.66               | 0.26            | 35.50           | 5.35                | 5.11               | 0.00            |
| 10.00           | 0.98                | 0.77               | 0.31            | 36.00           | 5.35                | 5.11               | 0.00            |
| 10.50           | 1.10                | 0.89               | 0.37            |                 |                     |                    |                 |
| 11.00           | 1.28                | 1.07               | 0.58            |                 |                     |                    |                 |
| 11.50           | 1.58                | 1.36               | 0.97            |                 |                     |                    |                 |
| 12.00           | 2.55                | 2.32               | 5.11            |                 |                     |                    |                 |
| 12.50           | 3.77                | 3.53               | 1.51            |                 |                     |                    |                 |
| 13.00           | 4.07                | 3.83               | 0.68            |                 |                     |                    |                 |
| 13.50           | 4.25                | 4.01               | 0.42            |                 |                     |                    |                 |
| 14.00           | 4.37                | 4.14               | 0.33            |                 |                     |                    |                 |
| 14.50           | 4.48                | 4.25               | 0.28            |                 |                     |                    |                 |
| 15.00           | 4.57                | 4.33               | 0.22            |                 |                     |                    |                 |
| 15.50           | 4.64                | 4.41               | 0.20            |                 |                     |                    |                 |
| 16.00           | 4.71                | 4.47               | 0.18            |                 |                     |                    |                 |
| 16.50           | 4.77                | 4.53               | 0.17            |                 |                     |                    |                 |
| 17.00           | 4.83                | 4.59               | 0.15            |                 |                     |                    |                 |
| 17.50           | 4.88                | 4.64               | 0.14            |                 |                     |                    |                 |
| 18.00           | 4.93                | 4.69               | 0.12            |                 |                     |                    |                 |
| 18.50           | 4.97                | 4.73               | 0.12            |                 |                     |                    |                 |
| 19.00           | 5.01                | 4.77               | 0.11            |                 |                     |                    |                 |
| 19.50           | 5.05                | 4.81               | 0.11            |                 |                     |                    |                 |
| 20.00           | 5.09                | 4.85               | 0.11            |                 |                     |                    |                 |
| 20.50           | 5.13                | 4.89               | 0.10            |                 |                     |                    |                 |
| 21.00           | 5.16                | 4.92               | 0.10            |                 |                     |                    |                 |
| 21.50           | 5.20                | 4.96               | 0.10            |                 |                     |                    |                 |
| 22.00           | 5.23                | 4.99               | 0.09            |                 |                     |                    |                 |
| 22.50           | 5.26                | 5.02               | 0.09            |                 |                     |                    |                 |
| 23.00           | 5.29                | 5.05               | 0.08            |                 |                     |                    |                 |
| 23.50           | 5.32                | 5.08               | 0.08            |                 |                     |                    |                 |
| 24.00           | 5.35                | 5.11               | 0.09            |                 |                     |                    |                 |
| 24.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 29S: GI-6 Pervious

Runoff = 0.41 cfs @ 12.18 hrs, Volume= 1,780 cf, Depth= 0.78"  
Routed to Pond 31P : GI-6

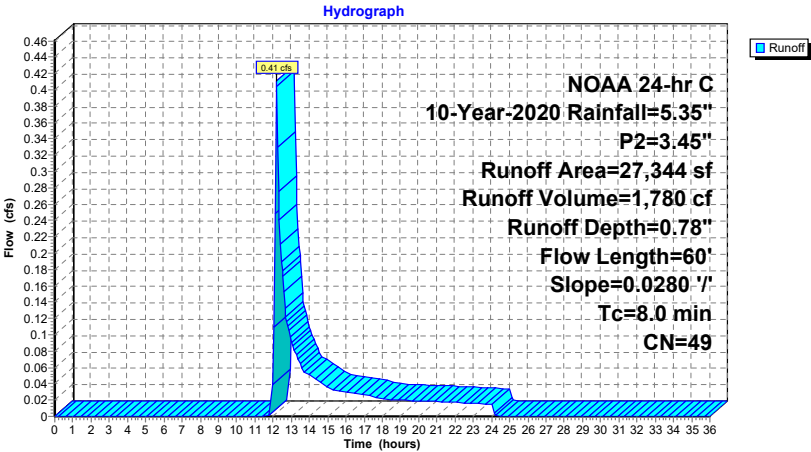
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 15,207    | 39 | >75% Grass cover, Good, HSG A |
| 12,137    | 61 | >75% Grass cover, Good, HSG B |
| 27,344    | 49 | Weighted Average              |
| 27,344    |    | 100.00% Pervious Area         |

| Tc<br>(min)                     | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description       |
|---------------------------------|------------------|------------------|----------------------|-------------------|-------------------|
| 8.0                             | 60               | 0.0280           | 0.13                 |                   | Sheet Flow, SEG 1 |
| Grass: Dense n= 0.240 P2= 3.45" |                  |                  |                      |                   |                   |



Subcatchment 29S: GI-6 Pervious





Hydrograph for Subcatchment 29S: GI-6 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 0.78               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 0.78               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 0.78               | 0.00            |
| 1.50            | 0.09                | 0.00               | 0.00            | 27.50           | 5.35                | 0.78               | 0.00            |
| 2.00            | 0.12                | 0.00               | 0.00            | 28.00           | 5.35                | 0.78               | 0.00            |
| 2.50            | 0.15                | 0.00               | 0.00            | 28.50           | 5.35                | 0.78               | 0.00            |
| 3.00            | 0.19                | 0.00               | 0.00            | 29.00           | 5.35                | 0.78               | 0.00            |
| 3.50            | 0.22                | 0.00               | 0.00            | 29.50           | 5.35                | 0.78               | 0.00            |
| 4.00            | 0.26                | 0.00               | 0.00            | 30.00           | 5.35                | 0.78               | 0.00            |
| 4.50            | 0.30                | 0.00               | 0.00            | 30.50           | 5.35                | 0.78               | 0.00            |
| 5.00            | 0.34                | 0.00               | 0.00            | 31.00           | 5.35                | 0.78               | 0.00            |
| 5.50            | 0.38                | 0.00               | 0.00            | 31.50           | 5.35                | 0.78               | 0.00            |
| 6.00            | 0.42                | 0.00               | 0.00            | 32.00           | 5.35                | 0.78               | 0.00            |
| 6.50            | 0.47                | 0.00               | 0.00            | 32.50           | 5.35                | 0.78               | 0.00            |
| 7.00            | 0.52                | 0.00               | 0.00            | 33.00           | 5.35                | 0.78               | 0.00            |
| 7.50            | 0.58                | 0.00               | 0.00            | 33.50           | 5.35                | 0.78               | 0.00            |
| 8.00            | 0.64                | 0.00               | 0.00            | 34.00           | 5.35                | 0.78               | 0.00            |
| 8.50            | 0.71                | 0.00               | 0.00            | 34.50           | 5.35                | 0.78               | 0.00            |
| 9.00            | 0.78                | 0.00               | 0.00            | 35.00           | 5.35                | 0.78               | 0.00            |
| 9.50            | 0.87                | 0.00               | 0.00            | 35.50           | 5.35                | 0.78               | 0.00            |
| 10.00           | 0.98                | 0.00               | 0.00            | 36.00           | 5.35                | 0.78               | 0.00            |
| 10.50           | 1.10                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.58                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.55                | 0.02               | 0.04            |                 |                     |                    |                 |
| 12.50           | 3.77                | 0.24               | 0.18            |                 |                     |                    |                 |
| 13.00           | 4.07                | 0.32               | 0.10            |                 |                     |                    |                 |
| 13.50           | 4.25                | 0.37               | 0.06            |                 |                     |                    |                 |
| 14.00           | 4.37                | 0.41               | 0.05            |                 |                     |                    |                 |
| 14.50           | 4.48                | 0.45               | 0.04            |                 |                     |                    |                 |
| 15.00           | 4.57                | 0.48               | 0.04            |                 |                     |                    |                 |
| 15.50           | 4.64                | 0.51               | 0.03            |                 |                     |                    |                 |
| 16.00           | 4.71                | 0.53               | 0.03            |                 |                     |                    |                 |
| 16.50           | 4.77                | 0.55               | 0.03            |                 |                     |                    |                 |
| 17.00           | 4.83                | 0.57               | 0.03            |                 |                     |                    |                 |
| 17.50           | 4.88                | 0.59               | 0.02            |                 |                     |                    |                 |
| 18.00           | 4.93                | 0.61               | 0.02            |                 |                     |                    |                 |
| 18.50           | 4.97                | 0.63               | 0.02            |                 |                     |                    |                 |
| 19.00           | 5.01                | 0.64               | 0.02            |                 |                     |                    |                 |
| 19.50           | 5.05                | 0.66               | 0.02            |                 |                     |                    |                 |
| 20.00           | 5.09                | 0.67               | 0.02            |                 |                     |                    |                 |
| 20.50           | 5.13                | 0.69               | 0.02            |                 |                     |                    |                 |
| 21.00           | 5.16                | 0.70               | 0.02            |                 |                     |                    |                 |
| 21.50           | 5.20                | 0.72               | 0.02            |                 |                     |                    |                 |
| 22.00           | 5.23                | 0.73               | 0.02            |                 |                     |                    |                 |
| 22.50           | 5.26                | 0.74               | 0.02            |                 |                     |                    |                 |
| 23.00           | 5.29                | 0.76               | 0.02            |                 |                     |                    |                 |
| 23.50           | 5.32                | 0.77               | 0.02            |                 |                     |                    |                 |
| 24.00           | 5.35                | 0.78               | 0.02            |                 |                     |                    |                 |
| 24.50           | 5.35                | 0.78               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 0.78               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 0.78               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 30S: GI-6 Impervious

Runoff = 8.11 cfs @ 12.09 hrs, Volume= 24,578 cf, Depth= 5.11"  
Routed to Pond 31P : GI-6

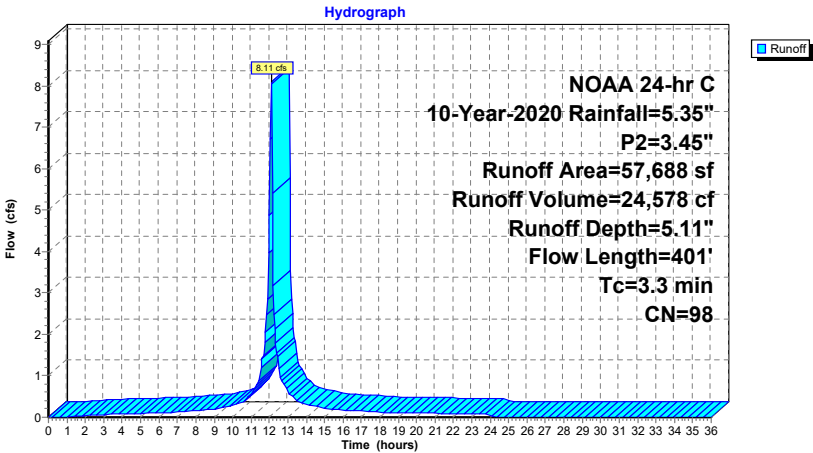
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 57,688    | 98 | Paved parking, HSG A    |
| 57,688    |    | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                             |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------|
| 1.3         | 100              | 0.0140           | 1.24                 |                   | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.45"                          |
| 1.9         | 275              | 0.0140           | 2.40                 |                   | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps                           |
| 0.1         | 26               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 3</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 |
| 3.3         | 401              | Total            |                      |                   |                                                                                         |



Subcatchment 30S: GI-6 Impervious



Hydrograph for Subcatchment 30S: GI-6 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 5.11               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 5.11               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.01            | 27.00           | 5.35                | 5.11               | 0.00            |
| 1.50            | 0.09                | 0.01               | 0.03            | 27.50           | 5.35                | 5.11               | 0.00            |
| 2.00            | 0.12                | 0.02               | 0.04            | 28.00           | 5.35                | 5.11               | 0.00            |
| 2.50            | 0.15                | 0.04               | 0.05            | 28.50           | 5.35                | 5.11               | 0.00            |
| 3.00            | 0.19                | 0.06               | 0.06            | 29.00           | 5.35                | 5.11               | 0.00            |
| 3.50            | 0.22                | 0.09               | 0.07            | 29.50           | 5.35                | 5.11               | 0.00            |
| 4.00            | 0.26                | 0.11               | 0.08            | 30.00           | 5.35                | 5.11               | 0.00            |
| 4.50            | 0.30                | 0.15               | 0.08            | 30.50           | 5.35                | 5.11               | 0.00            |
| 5.00            | 0.34                | 0.18               | 0.09            | 31.00           | 5.35                | 5.11               | 0.00            |
| 5.50            | 0.38                | 0.21               | 0.10            | 31.50           | 5.35                | 5.11               | 0.00            |
| 6.00            | 0.42                | 0.25               | 0.10            | 32.00           | 5.35                | 5.11               | 0.00            |
| 6.50            | 0.47                | 0.29               | 0.12            | 32.50           | 5.35                | 5.11               | 0.00            |
| 7.00            | 0.52                | 0.34               | 0.13            | 33.00           | 5.35                | 5.11               | 0.00            |
| 7.50            | 0.58                | 0.39               | 0.15            | 33.50           | 5.35                | 5.11               | 0.00            |
| 8.00            | 0.64                | 0.45               | 0.16            | 34.00           | 5.35                | 5.11               | 0.00            |
| 8.50            | 0.71                | 0.51               | 0.18            | 34.50           | 5.35                | 5.11               | 0.00            |
| 9.00            | 0.78                | 0.58               | 0.19            | 35.00           | 5.35                | 5.11               | 0.00            |
| 9.50            | 0.87                | 0.66               | 0.24            | 35.50           | 5.35                | 5.11               | 0.00            |
| 10.00           | 0.98                | 0.77               | 0.30            | 36.00           | 5.35                | 5.11               | 0.00            |
| 10.50           | 1.10                | 0.89               | 0.35            |                 |                     |                    |                 |
| 11.00           | 1.28                | 1.07               | 0.55            |                 |                     |                    |                 |
| 11.50           | 1.58                | 1.36               | 0.92            |                 |                     |                    |                 |
| 12.00           | 2.55                | 2.32               | 4.89            |                 |                     |                    |                 |
| 12.50           | 3.77                | 3.53               | 1.44            |                 |                     |                    |                 |
| 13.00           | 4.07                | 3.83               | 0.64            |                 |                     |                    |                 |
| 13.50           | 4.25                | 4.01               | 0.40            |                 |                     |                    |                 |
| 14.00           | 4.37                | 4.14               | 0.32            |                 |                     |                    |                 |
| 14.50           | 4.48                | 4.25               | 0.26            |                 |                     |                    |                 |
| 15.00           | 4.57                | 4.33               | 0.21            |                 |                     |                    |                 |
| 15.50           | 4.64                | 4.41               | 0.19            |                 |                     |                    |                 |
| 16.00           | 4.71                | 4.47               | 0.17            |                 |                     |                    |                 |
| 16.50           | 4.77                | 4.53               | 0.16            |                 |                     |                    |                 |
| 17.00           | 4.83                | 4.59               | 0.15            |                 |                     |                    |                 |
| 17.50           | 4.88                | 4.64               | 0.13            |                 |                     |                    |                 |
| 18.00           | 4.93                | 4.69               | 0.12            |                 |                     |                    |                 |
| 18.50           | 4.97                | 4.73               | 0.11            |                 |                     |                    |                 |
| 19.00           | 5.01                | 4.77               | 0.11            |                 |                     |                    |                 |
| 19.50           | 5.05                | 4.81               | 0.10            |                 |                     |                    |                 |
| 20.00           | 5.09                | 4.85               | 0.10            |                 |                     |                    |                 |
| 20.50           | 5.13                | 4.89               | 0.10            |                 |                     |                    |                 |
| 21.00           | 5.16                | 4.92               | 0.09            |                 |                     |                    |                 |
| 21.50           | 5.20                | 4.96               | 0.09            |                 |                     |                    |                 |
| 22.00           | 5.23                | 4.99               | 0.09            |                 |                     |                    |                 |
| 22.50           | 5.26                | 5.02               | 0.08            |                 |                     |                    |                 |
| 23.00           | 5.29                | 5.05               | 0.08            |                 |                     |                    |                 |
| 23.50           | 5.32                | 5.08               | 0.08            |                 |                     |                    |                 |
| 24.00           | 5.35                | 5.11               | 0.09            |                 |                     |                    |                 |
| 24.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 41S: GI-11 Pervious

Runoff = 0.18 cfs @ 12.10 hrs, Volume= 480 cf, Depth= 1.58"  
Routed to Pond 43P : GI-11

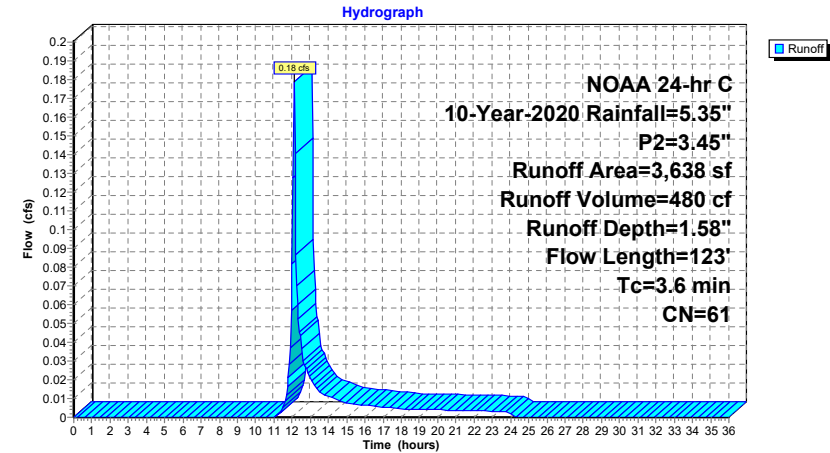
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 3,638     | 61 | >75% Grass cover, Good, HSG B |
| 3,638     |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                              |
|----------|---------------|---------------|-------------------|----------------|--------------------------------------------------------------------------|
| 2.6      | 25            | 0.0833        | 0.16              |                | Sheet Flow, Grass: Dense n= 0.240 P2= 3.45"                              |
| 0.8      | 51            | 0.0130        | 1.05              |                | Sheet Flow, Smooth surfaces n= 0.011 P2= 3.45"                           |
| 0.2      | 36            | 0.0100        | 2.98              | 0.60           | Channel Flow, Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013 Asphalt, smooth |
| 0.0      | 11            | 0.3330        | 4.04              |                | Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps               |
| 3.6      | 123           | Total         |                   |                |                                                                          |



Subcatchment 41S: GI-11 Pervious



Hydrograph for Subcatchment 41S: GI-11 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 1.58               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 1.58               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 1.58               | 0.00            |
| 1.50            | 0.09                | 0.00               | 0.00            | 27.50           | 5.35                | 1.58               | 0.00            |
| 2.00            | 0.12                | 0.00               | 0.00            | 28.00           | 5.35                | 1.58               | 0.00            |
| 2.50            | 0.15                | 0.00               | 0.00            | 28.50           | 5.35                | 1.58               | 0.00            |
| 3.00            | 0.19                | 0.00               | 0.00            | 29.00           | 5.35                | 1.58               | 0.00            |
| 3.50            | 0.22                | 0.00               | 0.00            | 29.50           | 5.35                | 1.58               | 0.00            |
| 4.00            | 0.26                | 0.00               | 0.00            | 30.00           | 5.35                | 1.58               | 0.00            |
| 4.50            | 0.30                | 0.00               | 0.00            | 30.50           | 5.35                | 1.58               | 0.00            |
| 5.00            | 0.34                | 0.00               | 0.00            | 31.00           | 5.35                | 1.58               | 0.00            |
| 5.50            | 0.38                | 0.00               | 0.00            | 31.50           | 5.35                | 1.58               | 0.00            |
| 6.00            | 0.42                | 0.00               | 0.00            | 32.00           | 5.35                | 1.58               | 0.00            |
| 6.50            | 0.47                | 0.00               | 0.00            | 32.50           | 5.35                | 1.58               | 0.00            |
| 7.00            | 0.52                | 0.00               | 0.00            | 33.00           | 5.35                | 1.58               | 0.00            |
| 7.50            | 0.58                | 0.00               | 0.00            | 33.50           | 5.35                | 1.58               | 0.00            |
| 8.00            | 0.64                | 0.00               | 0.00            | 34.00           | 5.35                | 1.58               | 0.00            |
| 8.50            | 0.71                | 0.00               | 0.00            | 34.50           | 5.35                | 1.58               | 0.00            |
| 9.00            | 0.78                | 0.00               | 0.00            | 35.00           | 5.35                | 1.58               | 0.00            |
| 9.50            | 0.87                | 0.00               | 0.00            | 35.50           | 5.35                | 1.58               | 0.00            |
| 10.00           | 0.98                | 0.00               | 0.00            | 36.00           | 5.35                | 1.58               | 0.00            |
| 10.50           | 1.10                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.58                | 0.01               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.55                | 0.21               | 0.08            |                 |                     |                    |                 |
| 12.50           | 3.77                | 0.70               | 0.04            |                 |                     |                    |                 |
| 13.00           | 4.07                | 0.85               | 0.02            |                 |                     |                    |                 |
| 13.50           | 4.25                | 0.94               | 0.01            |                 |                     |                    |                 |
| 14.00           | 4.37                | 1.01               | 0.01            |                 |                     |                    |                 |
| 14.50           | 4.48                | 1.07               | 0.01            |                 |                     |                    |                 |
| 15.00           | 4.57                | 1.12               | 0.01            |                 |                     |                    |                 |
| 15.50           | 4.64                | 1.16               | 0.01            |                 |                     |                    |                 |
| 16.00           | 4.71                | 1.20               | 0.01            |                 |                     |                    |                 |
| 16.50           | 4.77                | 1.23               | 0.01            |                 |                     |                    |                 |
| 17.00           | 4.83                | 1.27               | 0.01            |                 |                     |                    |                 |
| 17.50           | 4.88                | 1.30               | 0.00            |                 |                     |                    |                 |
| 18.00           | 4.93                | 1.32               | 0.00            |                 |                     |                    |                 |
| 18.50           | 4.97                | 1.35               | 0.00            |                 |                     |                    |                 |
| 19.00           | 5.01                | 1.37               | 0.00            |                 |                     |                    |                 |
| 19.50           | 5.05                | 1.40               | 0.00            |                 |                     |                    |                 |
| 20.00           | 5.09                | 1.42               | 0.00            |                 |                     |                    |                 |
| 20.50           | 5.13                | 1.44               | 0.00            |                 |                     |                    |                 |
| 21.00           | 5.16                | 1.47               | 0.00            |                 |                     |                    |                 |
| 21.50           | 5.20                | 1.49               | 0.00            |                 |                     |                    |                 |
| 22.00           | 5.23                | 1.51               | 0.00            |                 |                     |                    |                 |
| 22.50           | 5.26                | 1.53               | 0.00            |                 |                     |                    |                 |
| 23.00           | 5.29                | 1.55               | 0.00            |                 |                     |                    |                 |
| 23.50           | 5.32                | 1.57               | 0.00            |                 |                     |                    |                 |
| 24.00           | 5.35                | 1.58               | 0.00            |                 |                     |                    |                 |
| 24.50           | 5.35                | 1.58               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 1.58               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 1.58               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 42S: GI-11 Impervious

Runoff = 1.92 cfs @ 12.07 hrs, Volume= 5,724 cf, Depth= 5.11"  
Routed to Pond 43P : GI-11

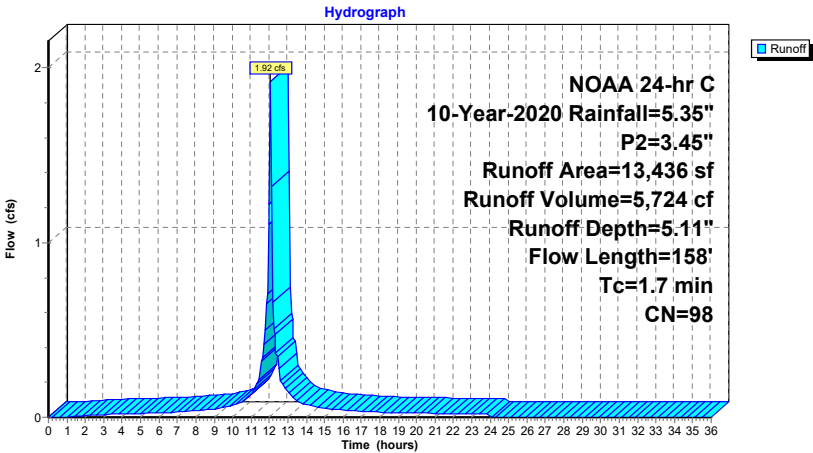
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 13,436    | 98 | Paved parking, HSG A    |
| 13,436    |    | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                           |
|-------------|------------------|------------------|----------------------|-------------------|---------------------------------------------------------------------------------------|
| 1.4         | 100              | 0.0130           | 1.20                 |                   | <b>Sheet Flow,</b><br>Smooth surfaces n= 0.011 P2= 3.45"                              |
| 0.3         | 39               | 0.0130           | 2.31                 |                   | <b>Shallow Concentrated Flow,</b><br>Paved Kv= 20.3 fps                               |
| 0.0         | 8                | 0.0100           | 6.21                 | 1.24              | <b>Channel Flow,</b><br>Area= 0.2 sf Perim= 0.5' r= 0.40'<br>n= 0.013 Asphalt, smooth |
| 0.0         | 11               | 0.3330           | 4.04                 |                   | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                  |
| 1.7         | 158              | Total            |                      |                   |                                                                                       |



Subcatchment 42S: GI-11 Impervious



Hydrograph for Subcatchment 42S: GI-11 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 5.11               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 5.11               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 5.11               | 0.00            |
| 1.50            | 0.09                | 0.01               | 0.01            | 27.50           | 5.35                | 5.11               | 0.00            |
| 2.00            | 0.12                | 0.02               | 0.01            | 28.00           | 5.35                | 5.11               | 0.00            |
| 2.50            | 0.15                | 0.04               | 0.01            | 28.50           | 5.35                | 5.11               | 0.00            |
| 3.00            | 0.19                | 0.06               | 0.01            | 29.00           | 5.35                | 5.11               | 0.00            |
| 3.50            | 0.22                | 0.09               | 0.02            | 29.50           | 5.35                | 5.11               | 0.00            |
| 4.00            | 0.26                | 0.11               | 0.02            | 30.00           | 5.35                | 5.11               | 0.00            |
| 4.50            | 0.30                | 0.15               | 0.02            | 30.50           | 5.35                | 5.11               | 0.00            |
| 5.00            | 0.34                | 0.18               | 0.02            | 31.00           | 5.35                | 5.11               | 0.00            |
| 5.50            | 0.38                | 0.21               | 0.02            | 31.50           | 5.35                | 5.11               | 0.00            |
| 6.00            | 0.42                | 0.25               | 0.02            | 32.00           | 5.35                | 5.11               | 0.00            |
| 6.50            | 0.47                | 0.29               | 0.03            | 32.50           | 5.35                | 5.11               | 0.00            |
| 7.00            | 0.52                | 0.34               | 0.03            | 33.00           | 5.35                | 5.11               | 0.00            |
| 7.50            | 0.58                | 0.39               | 0.03            | 33.50           | 5.35                | 5.11               | 0.00            |
| 8.00            | 0.64                | 0.45               | 0.04            | 34.00           | 5.35                | 5.11               | 0.00            |
| 8.50            | 0.71                | 0.51               | 0.04            | 34.50           | 5.35                | 5.11               | 0.00            |
| 9.00            | 0.78                | 0.58               | 0.04            | 35.00           | 5.35                | 5.11               | 0.00            |
| 9.50            | 0.87                | 0.66               | 0.06            | 35.50           | 5.35                | 5.11               | 0.00            |
| 10.00           | 0.98                | 0.77               | 0.07            | 36.00           | 5.35                | 5.11               | 0.00            |
| 10.50           | 1.10                | 0.89               | 0.08            |                 |                     |                    |                 |
| 11.00           | 1.28                | 1.07               | 0.13            |                 |                     |                    |                 |
| 11.50           | 1.58                | 1.36               | 0.22            |                 |                     |                    |                 |
| 12.00           | 2.55                | 2.32               | 1.22            |                 |                     |                    |                 |
| 12.50           | 3.77                | 3.53               | 0.33            |                 |                     |                    |                 |
| 13.00           | 4.07                | 3.83               | 0.15            |                 |                     |                    |                 |
| 13.50           | 4.25                | 4.01               | 0.09            |                 |                     |                    |                 |
| 14.00           | 4.37                | 4.14               | 0.07            |                 |                     |                    |                 |
| 14.50           | 4.48                | 4.25               | 0.06            |                 |                     |                    |                 |
| 15.00           | 4.57                | 4.33               | 0.05            |                 |                     |                    |                 |
| 15.50           | 4.64                | 4.41               | 0.04            |                 |                     |                    |                 |
| 16.00           | 4.71                | 4.47               | 0.04            |                 |                     |                    |                 |
| 16.50           | 4.77                | 4.53               | 0.04            |                 |                     |                    |                 |
| 17.00           | 4.83                | 4.59               | 0.03            |                 |                     |                    |                 |
| 17.50           | 4.88                | 4.64               | 0.03            |                 |                     |                    |                 |
| 18.00           | 4.93                | 4.69               | 0.03            |                 |                     |                    |                 |
| 18.50           | 4.97                | 4.73               | 0.03            |                 |                     |                    |                 |
| 19.00           | 5.01                | 4.77               | 0.03            |                 |                     |                    |                 |
| 19.50           | 5.05                | 4.81               | 0.02            |                 |                     |                    |                 |
| 20.00           | 5.09                | 4.85               | 0.02            |                 |                     |                    |                 |
| 20.50           | 5.13                | 4.89               | 0.02            |                 |                     |                    |                 |
| 21.00           | 5.16                | 4.92               | 0.02            |                 |                     |                    |                 |
| 21.50           | 5.20                | 4.96               | 0.02            |                 |                     |                    |                 |
| 22.00           | 5.23                | 4.99               | 0.02            |                 |                     |                    |                 |
| 22.50           | 5.26                | 5.02               | 0.02            |                 |                     |                    |                 |
| 23.00           | 5.29                | 5.05               | 0.02            |                 |                     |                    |                 |
| 23.50           | 5.32                | 5.08               | 0.02            |                 |                     |                    |                 |
| 24.00           | 5.35                | 5.11               | 0.02            |                 |                     |                    |                 |
| 24.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 46S: North Undisturbed Area (Pervious)

Runoff = 2.58 cfs @ 12.38 hrs, Volume= 14,307 cf, Depth= 1.09"  
Routed to Link 13L : FES

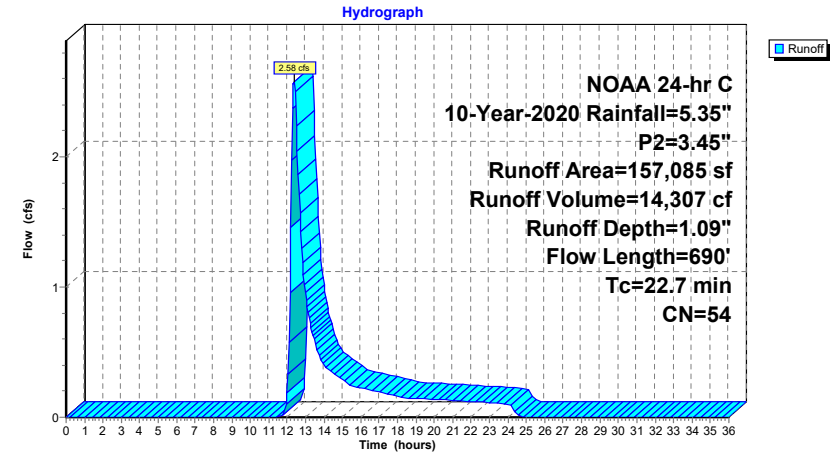
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description                    |
|-----------|----|--------------------------------|
| 15,827    | 39 | >75% Grass cover, Good, HSG A  |
| 80,837    | 61 | >75% Grass cover, Good, HSG B  |
| 30,052    | 32 | Woods/grass comb., Good, HSG A |
| 22,227    | 58 | Woods/grass comb., Good, HSG B |
| 8,142     | 86 | Fallow, bare soil, HSG B       |
| 157,085   | 54 | Weighted Average               |
| 157,085   |    | 100.00% Pervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                   |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------------------------------------------------|
| 9.1      | 27            | 0.0120        | 0.05              |                | Sheet Flow,<br>Grass: Bermuda n= 0.410 P2= 3.45"<br>Using McCuen-Spiess flow length                           |
| 1.5      | 67            | 0.0120        | 0.77              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6     | 319           | 0.0100        | 0.50              |                | Shallow Concentrated Flow,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8      | 49            | 0.0200        | 0.99              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7      | 228           | 0.0050        | 5.09              | 16.00          | Pipe Channel,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.7     | 690           | Total         |                   |                |                                                                                                               |



Subcatchment 46S: North Undisturbed Area (Pervious)



Hydrograph for Subcatchment 46S: North Undisturbed Area (Pervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 1.09               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 1.09               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 1.09               | 0.00            |
| 1.50            | 0.09                | 0.00               | 0.00            | 27.50           | 5.35                | 1.09               | 0.00            |
| 2.00            | 0.12                | 0.00               | 0.00            | 28.00           | 5.35                | 1.09               | 0.00            |
| 2.50            | 0.15                | 0.00               | 0.00            | 28.50           | 5.35                | 1.09               | 0.00            |
| 3.00            | 0.19                | 0.00               | 0.00            | 29.00           | 5.35                | 1.09               | 0.00            |
| 3.50            | 0.22                | 0.00               | 0.00            | 29.50           | 5.35                | 1.09               | 0.00            |
| 4.00            | 0.26                | 0.00               | 0.00            | 30.00           | 5.35                | 1.09               | 0.00            |
| 4.50            | 0.30                | 0.00               | 0.00            | 30.50           | 5.35                | 1.09               | 0.00            |
| 5.00            | 0.34                | 0.00               | 0.00            | 31.00           | 5.35                | 1.09               | 0.00            |
| 5.50            | 0.38                | 0.00               | 0.00            | 31.50           | 5.35                | 1.09               | 0.00            |
| 6.00            | 0.42                | 0.00               | 0.00            | 32.00           | 5.35                | 1.09               | 0.00            |
| 6.50            | 0.47                | 0.00               | 0.00            | 32.50           | 5.35                | 1.09               | 0.00            |
| 7.00            | 0.52                | 0.00               | 0.00            | 33.00           | 5.35                | 1.09               | 0.00            |
| 7.50            | 0.58                | 0.00               | 0.00            | 33.50           | 5.35                | 1.09               | 0.00            |
| 8.00            | 0.64                | 0.00               | 0.00            | 34.00           | 5.35                | 1.09               | 0.00            |
| 8.50            | 0.71                | 0.00               | 0.00            | 34.50           | 5.35                | 1.09               | 0.00            |
| 9.00            | 0.78                | 0.00               | 0.00            | 35.00           | 5.35                | 1.09               | 0.00            |
| 9.50            | 0.87                | 0.00               | 0.00            | 35.50           | 5.35                | 1.09               | 0.00            |
| 10.00           | 0.98                | 0.00               | 0.00            | 36.00           | 5.35                | 1.09               | 0.00            |
| 10.50           | 1.10                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.58                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.55                | 0.08               | 0.19            |                 |                     |                    |                 |
| 12.50           | 3.77                | 0.40               | 2.24            |                 |                     |                    |                 |
| 13.00           | 4.07                | 0.51               | 0.95            |                 |                     |                    |                 |
| 13.50           | 4.25                | 0.58               | 0.57            |                 |                     |                    |                 |
| 14.00           | 4.37                | 0.64               | 0.40            |                 |                     |                    |                 |
| 14.50           | 4.48                | 0.68               | 0.34            |                 |                     |                    |                 |
| 15.00           | 4.57                | 0.72               | 0.29            |                 |                     |                    |                 |
| 15.50           | 4.64                | 0.75               | 0.24            |                 |                     |                    |                 |
| 16.00           | 4.71                | 0.78               | 0.22            |                 |                     |                    |                 |
| 16.50           | 4.77                | 0.81               | 0.21            |                 |                     |                    |                 |
| 17.00           | 4.83                | 0.84               | 0.19            |                 |                     |                    |                 |
| 17.50           | 4.88                | 0.86               | 0.18            |                 |                     |                    |                 |
| 18.00           | 4.93                | 0.88               | 0.16            |                 |                     |                    |                 |
| 18.50           | 4.97                | 0.90               | 0.15            |                 |                     |                    |                 |
| 19.00           | 5.01                | 0.92               | 0.14            |                 |                     |                    |                 |
| 19.50           | 5.05                | 0.94               | 0.14            |                 |                     |                    |                 |
| 20.00           | 5.09                | 0.96               | 0.14            |                 |                     |                    |                 |
| 20.50           | 5.13                | 0.98               | 0.13            |                 |                     |                    |                 |
| 21.00           | 5.16                | 1.00               | 0.13            |                 |                     |                    |                 |
| 21.50           | 5.20                | 1.02               | 0.13            |                 |                     |                    |                 |
| 22.00           | 5.23                | 1.03               | 0.12            |                 |                     |                    |                 |
| 22.50           | 5.26                | 1.05               | 0.12            |                 |                     |                    |                 |
| 23.00           | 5.29                | 1.06               | 0.11            |                 |                     |                    |                 |
| 23.50           | 5.32                | 1.08               | 0.11            |                 |                     |                    |                 |
| 24.00           | 5.35                | 1.09               | 0.10            |                 |                     |                    |                 |
| 24.50           | 5.35                | 1.09               | 0.02            |                 |                     |                    |                 |
| 25.00           | 5.35                | 1.09               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 1.09               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 47S: North Undisturbed Area (Impervious)

Runoff = 3.71 cfs @ 12.32 hrs, Volume= 19,480 cf, Depth= 5.11"  
Routed to Link 13L : FES

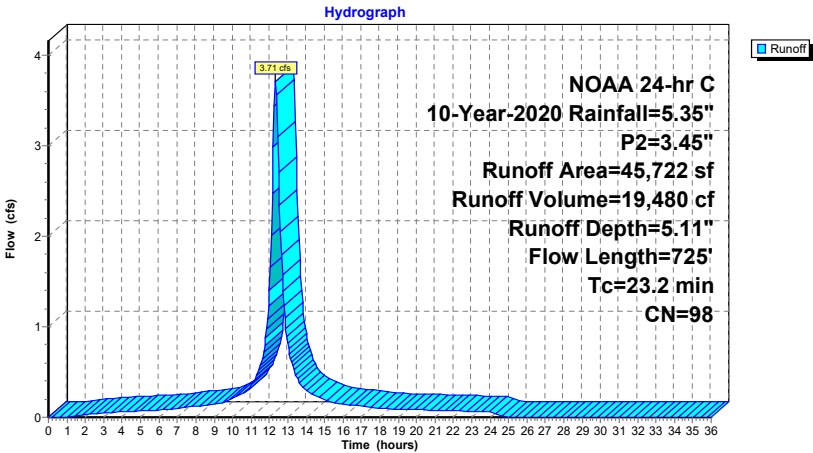
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description                 |
|-----------|----|-----------------------------|
| 45,722    | 98 | Unconnected pavement, HSG A |
| 45,722    |    | 100.00% Impervious Area     |
| 45,722    |    | 100.00% Unconnected         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                           |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------|
| 0.5         | 35               | 0.0200           | 1.16                 |                   | <b>Sheet Flow</b> ,<br>Smooth surfaces n= 0.011 P2= 3.45"                                                             |
| 9.1         | 27               | 0.0120           | 0.05                 |                   | <b>Sheet Flow</b> ,<br>Grass: Bermuda n= 0.410 P2= 3.45"<br>Using McCuen-Spiess flow length                           |
| 1.5         | 67               | 0.0120           | 0.77                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6        | 319              | 0.0100           | 0.50                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8         | 49               | 0.0200           | 0.99                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7         | 228              | 0.0050           | 5.09                 | 16.00             | <b>Pipe Channel</b> ,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 23.2        | 725              | Total            |                      |                   |                                                                                                                       |



Subcatchment 47S: North Undisturbed Area (Impervious)



Hydrograph for Subcatchment 47S: North Undisturbed Area (Impervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 5.11               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 5.11               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 5.11               | 0.00            |
| 1.50            | 0.09                | 0.01               | 0.01            | 27.50           | 5.35                | 5.11               | 0.00            |
| 2.00            | 0.12                | 0.02               | 0.03            | 28.00           | 5.35                | 5.11               | 0.00            |
| 2.50            | 0.15                | 0.04               | 0.04            | 28.50           | 5.35                | 5.11               | 0.00            |
| 3.00            | 0.19                | 0.06               | 0.04            | 29.00           | 5.35                | 5.11               | 0.00            |
| 3.50            | 0.22                | 0.09               | 0.05            | 29.50           | 5.35                | 5.11               | 0.00            |
| 4.00            | 0.26                | 0.11               | 0.06            | 30.00           | 5.35                | 5.11               | 0.00            |
| 4.50            | 0.30                | 0.15               | 0.06            | 30.50           | 5.35                | 5.11               | 0.00            |
| 5.00            | 0.34                | 0.18               | 0.07            | 31.00           | 5.35                | 5.11               | 0.00            |
| 5.50            | 0.38                | 0.21               | 0.07            | 31.50           | 5.35                | 5.11               | 0.00            |
| 6.00            | 0.42                | 0.25               | 0.08            | 32.00           | 5.35                | 5.11               | 0.00            |
| 6.50            | 0.47                | 0.29               | 0.08            | 32.50           | 5.35                | 5.11               | 0.00            |
| 7.00            | 0.52                | 0.34               | 0.10            | 33.00           | 5.35                | 5.11               | 0.00            |
| 7.50            | 0.58                | 0.39               | 0.11            | 33.50           | 5.35                | 5.11               | 0.00            |
| 8.00            | 0.64                | 0.45               | 0.12            | 34.00           | 5.35                | 5.11               | 0.00            |
| 8.50            | 0.71                | 0.51               | 0.13            | 34.50           | 5.35                | 5.11               | 0.00            |
| 9.00            | 0.78                | 0.58               | 0.14            | 35.00           | 5.35                | 5.11               | 0.00            |
| 9.50            | 0.87                | 0.66               | 0.17            | 35.50           | 5.35                | 5.11               | 0.00            |
| 10.00           | 0.98                | 0.77               | 0.21            | 36.00           | 5.35                | 5.11               | 0.00            |
| 10.50           | 1.10                | 0.89               | 0.25            |                 |                     |                    |                 |
| 11.00           | 1.28                | 1.07               | 0.34            |                 |                     |                    |                 |
| 11.50           | 1.58                | 1.36               | 0.56            |                 |                     |                    |                 |
| 12.00           | 2.55                | 2.32               | 1.41            |                 |                     |                    |                 |
| 12.50           | 3.77                | 3.53               | 2.70            |                 |                     |                    |                 |
| 13.00           | 4.07                | 3.83               | 0.81            |                 |                     |                    |                 |
| 13.50           | 4.25                | 4.01               | 0.43            |                 |                     |                    |                 |
| 14.00           | 4.37                | 4.14               | 0.29            |                 |                     |                    |                 |
| 14.50           | 4.48                | 4.25               | 0.24            |                 |                     |                    |                 |
| 15.00           | 4.57                | 4.33               | 0.19            |                 |                     |                    |                 |
| 15.50           | 4.64                | 4.41               | 0.16            |                 |                     |                    |                 |
| 16.00           | 4.71                | 4.47               | 0.15            |                 |                     |                    |                 |
| 16.50           | 4.77                | 4.53               | 0.13            |                 |                     |                    |                 |
| 17.00           | 4.83                | 4.59               | 0.12            |                 |                     |                    |                 |
| 17.50           | 4.88                | 4.64               | 0.11            |                 |                     |                    |                 |
| 18.00           | 4.93                | 4.69               | 0.10            |                 |                     |                    |                 |
| 18.50           | 4.97                | 4.73               | 0.09            |                 |                     |                    |                 |
| 19.00           | 5.01                | 4.77               | 0.09            |                 |                     |                    |                 |
| 19.50           | 5.05                | 4.81               | 0.08            |                 |                     |                    |                 |
| 20.00           | 5.09                | 4.85               | 0.08            |                 |                     |                    |                 |
| 20.50           | 5.13                | 4.89               | 0.08            |                 |                     |                    |                 |
| 21.00           | 5.16                | 4.92               | 0.08            |                 |                     |                    |                 |
| 21.50           | 5.20                | 4.96               | 0.07            |                 |                     |                    |                 |
| 22.00           | 5.23                | 4.99               | 0.07            |                 |                     |                    |                 |
| 22.50           | 5.26                | 5.02               | 0.07            |                 |                     |                    |                 |
| 23.00           | 5.29                | 5.05               | 0.07            |                 |                     |                    |                 |
| 23.50           | 5.32                | 5.08               | 0.06            |                 |                     |                    |                 |
| 24.00           | 5.35                | 5.11               | 0.06            |                 |                     |                    |                 |
| 24.50           | 5.35                | 5.11               | 0.01            |                 |                     |                    |                 |
| 25.00           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |



Summary for Pond 2P: GI-1

Inflow Area = 39,122 sf, 53.83% Impervious, Inflow Depth = 2.88" for 10-Year-2020 event  
Inflow = 3.02 cfs @ 12.09 hrs, Volume= 9,389 cf  
Outflow = 0.40 cfs @ 12.58 hrs, Volume= 7,334 cf, Atten= 87%, Lag= 29.8 min  
Primary = 0.40 cfs @ 12.58 hrs, Volume= 7,334 cf  
Routed to Link 13L : FES

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.68' @ 12.58 hrs Surf.Area= 7,982 sf Storage= 5,452 cf

Plug-Flow detention time= 333.1 min calculated for 7,324 cf (78% of inflow)  
Center-of-Mass det. time= 246.0 min ( 1,001.9 - 755.9 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 131.00' | 15,964 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

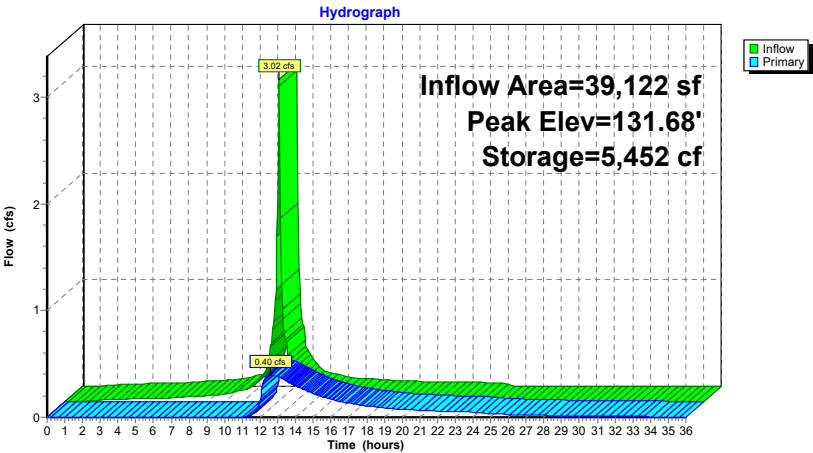
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 131.00           | 7,982             | 0                      | 0                      |
| 132.00           | 7,982             | 7,982                  | 7,982                  |
| 133.00           | 7,982             | 7,982                  | 15,964                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 132.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 131.24' | 0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

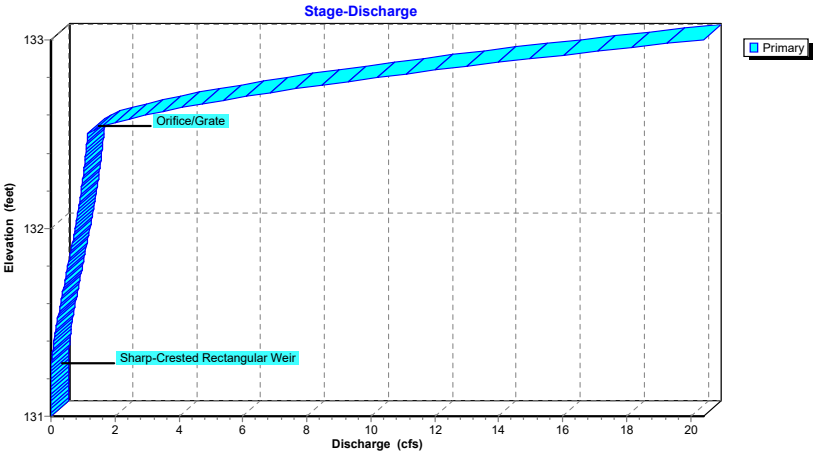
Primary OutFlow Max=0.40 cfs @ 12.58 hrs HW=131.68' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate ( Controls 0.00 cfs)  
2=Sharp-Crested Rectangular Weir(Weir Controls 0.40 cfs @ 2.18 fps)



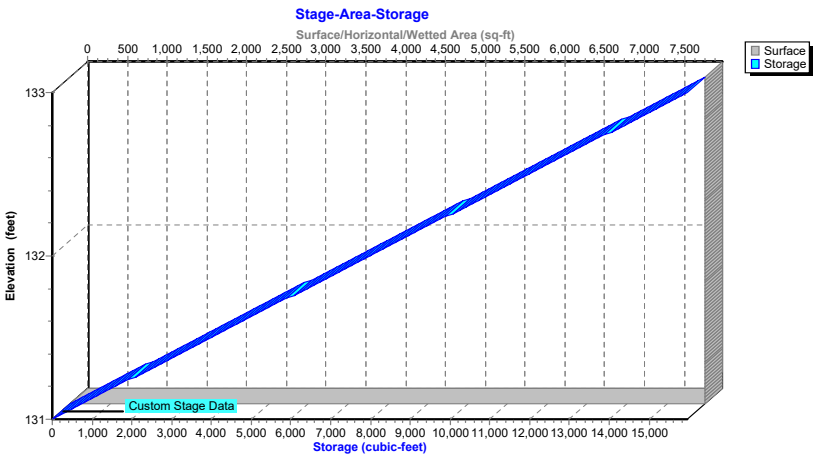
Pond 2P: GI-1



Pond 2P: GI-1



Pond 2P: GI-1



Hydrograph for Pond 2P: GI-1

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 131.00           | 0.00          |
| 1.00         | 0.00         | 2                    | 131.00           | 0.00          |
| 2.00         | 0.01         | 37                   | 131.00           | 0.00          |
| 3.00         | 0.02         | 106                  | 131.01           | 0.00          |
| 4.00         | 0.03         | 197                  | 131.02           | 0.00          |
| 5.00         | 0.03         | 308                  | 131.04           | 0.00          |
| 6.00         | 0.04         | 433                  | 131.05           | 0.00          |
| 7.00         | 0.05         | 586                  | 131.07           | 0.00          |
| 8.00         | 0.06         | 777                  | 131.10           | 0.00          |
| 9.00         | 0.07         | 1,008                | 131.13           | 0.00          |
| 10.00        | 0.11         | 1,330                | 131.17           | 0.00          |
| 11.00        | 0.20         | 1,844                | 131.23           | 0.00          |
| 12.00        | 1.82         | 3,679                | 131.46           | 0.15          |
| 13.00        | 0.26         | 5,338                | 131.67           | 0.38          |
| 14.00        | 0.13         | 4,738                | 131.59           | 0.30          |
| 15.00        | 0.09         | 4,204                | 131.53           | 0.22          |
| 16.00        | 0.07         | 3,791                | 131.47           | 0.17          |
| 17.00        | 0.06         | 3,496                | 131.44           | 0.13          |
| 18.00        | 0.05         | 3,270                | 131.41           | 0.11          |
| 19.00        | 0.05         | 3,095                | 131.39           | 0.09          |
| 20.00        | 0.04         | 2,968                | 131.37           | 0.07          |
| 21.00        | 0.04         | 2,872                | 131.36           | 0.06          |
| 22.00        | 0.04         | 2,795                | 131.35           | 0.06          |
| 23.00        | 0.04         | 2,731                | 131.34           | 0.05          |
| 24.00        | 0.04         | 2,678                | 131.34           | 0.05          |
| 25.00        | 0.00         | 2,540                | 131.32           | 0.03          |
| 26.00        | 0.00         | 2,432                | 131.30           | 0.03          |
| 27.00        | 0.00         | 2,349                | 131.29           | 0.02          |
| 28.00        | 0.00         | 2,284                | 131.29           | 0.02          |
| 29.00        | 0.00         | 2,233                | 131.28           | 0.01          |
| 30.00        | 0.00         | 2,191                | 131.27           | 0.01          |
| 31.00        | 0.00         | 2,158                | 131.27           | 0.01          |
| 32.00        | 0.00         | 2,130                | 131.27           | 0.01          |
| 33.00        | 0.00         | 2,106                | 131.26           | 0.01          |
| 34.00        | 0.00         | 2,086                | 131.26           | 0.01          |
| 35.00        | 0.00         | 2,069                | 131.26           | 0.00          |
| 36.00        | 0.00         | 2,055                | 131.26           | 0.00          |

**2101ELK-STM Analysis POI-1 - Propos**NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 2P: GI-1**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 131.00              | 0.00             | 131.52              | 0.22             | 132.04              | 0.80             | 132.56              | 2.01             |
| 131.01              | 0.00             | 131.53              | 0.23             | 132.05              | 0.81             | 132.57              | 2.22             |
| 131.02              | 0.00             | 131.54              | 0.24             | 132.06              | 0.82             | 132.58              | 2.45             |
| 131.03              | 0.00             | 131.55              | 0.25             | 132.07              | 0.83             | 132.59              | 2.69             |
| 131.04              | 0.00             | 131.56              | 0.26             | 132.08              | 0.84             | 132.60              | 2.95             |
| 131.05              | 0.00             | 131.57              | 0.27             | 132.09              | 0.85             | 132.61              | 3.22             |
| 131.06              | 0.00             | 131.58              | 0.28             | 132.10              | 0.86             | 132.62              | 3.50             |
| 131.07              | 0.00             | 131.59              | 0.29             | 132.11              | 0.87             | 132.63              | 3.79             |
| 131.08              | 0.00             | 131.60              | 0.30             | 132.12              | 0.87             | 132.64              | 4.09             |
| 131.09              | 0.00             | 131.61              | 0.31             | 132.13              | 0.88             | 132.65              | 4.41             |
| 131.10              | 0.00             | 131.62              | 0.32             | 132.14              | 0.89             | 132.66              | 4.73             |
| 131.11              | 0.00             | 131.63              | 0.34             | 132.15              | 0.90             | 132.67              | 5.07             |
| 131.12              | 0.00             | 131.64              | 0.35             | 132.16              | 0.91             | 132.68              | 5.41             |
| 131.13              | 0.00             | 131.65              | 0.36             | 132.17              | 0.92             | 132.69              | 5.76             |
| 131.14              | 0.00             | 131.66              | 0.37             | 132.18              | 0.93             | 132.70              | 6.12             |
| 131.15              | 0.00             | 131.67              | 0.38             | 132.19              | 0.94             | 132.71              | 6.49             |
| 131.16              | 0.00             | 131.68              | 0.39             | 132.20              | 0.95             | 132.72              | 6.87             |
| 131.17              | 0.00             | 131.69              | 0.40             | 132.21              | 0.96             | 132.73              | 7.26             |
| 131.18              | 0.00             | 131.70              | 0.42             | 132.22              | 0.96             | 132.74              | 7.65             |
| 131.19              | 0.00             | 131.71              | 0.43             | 132.23              | 0.97             | 132.75              | 8.06             |
| 131.20              | 0.00             | 131.72              | 0.44             | 132.24              | 0.98             | 132.76              | 8.47             |
| 131.21              | 0.00             | 131.73              | 0.45             | 132.25              | 0.99             | 132.77              | 8.89             |
| 131.22              | 0.00             | 131.74              | 0.46             | 132.26              | 1.00             | 132.78              | 9.31             |
| 131.23              | 0.00             | 131.75              | 0.47             | 132.27              | 1.00             | 132.79              | 9.75             |
| 131.24              | 0.00             | 131.76              | 0.49             | 132.28              | 1.01             | 132.80              | 10.19            |
| 131.25              | 0.00             | 131.77              | 0.50             | 132.29              | 1.02             | 132.81              | 10.64            |
| 131.26              | 0.00             | 131.78              | 0.51             | 132.30              | 1.03             | 132.82              | 11.09            |
| 131.27              | 0.01             | 131.79              | 0.52             | 132.31              | 1.04             | 132.83              | 11.56            |
| 131.28              | 0.01             | 131.80              | 0.53             | 132.32              | 1.04             | 132.84              | 12.03            |
| 131.29              | 0.02             | 131.81              | 0.54             | 132.33              | 1.05             | 132.85              | 12.50            |
| 131.30              | 0.02             | 131.82              | 0.55             | 132.34              | 1.06             | 132.86              | 12.99            |
| 131.31              | 0.03             | 131.83              | 0.57             | 132.35              | 1.06             | 132.87              | 13.48            |
| 131.32              | 0.04             | 131.84              | 0.58             | 132.36              | 1.07             | 132.88              | 13.97            |
| 131.33              | 0.04             | 131.85              | 0.59             | 132.37              | 1.08             | 132.89              | 14.48            |
| 131.34              | 0.05             | 131.86              | 0.60             | 132.38              | 1.08             | 132.90              | 14.98            |
| 131.35              | 0.06             | 131.87              | 0.61             | 132.39              | 1.09             | 132.91              | 15.50            |
| 131.36              | 0.06             | 131.88              | 0.62             | 132.40              | 1.09             | 132.92              | 16.02            |
| 131.37              | 0.07             | 131.89              | 0.63             | 132.41              | 1.10             | 132.93              | 16.55            |
| 131.38              | 0.08             | 131.90              | 0.65             | 132.42              | 1.11             | 132.94              | 17.08            |
| 131.39              | 0.09             | 131.91              | 0.66             | 132.43              | 1.11             | 132.95              | 17.62            |
| 131.40              | 0.10             | 131.92              | 0.67             | 132.44              | 1.12             | 132.96              | 18.17            |
| 131.41              | 0.11             | 131.93              | 0.68             | 132.45              | 1.12             | 132.97              | 18.72            |
| 131.42              | 0.12             | 131.94              | 0.69             | 132.46              | 1.13             | 132.98              | 19.28            |
| 131.43              | 0.13             | 131.95              | 0.70             | 132.47              | 1.13             | 132.99              | 19.84            |
| 131.44              | 0.13             | 131.96              | 0.71             | 132.48              | 1.14             | 133.00              | <b>20.41</b>     |
| 131.45              | 0.14             | 131.97              | 0.72             | 132.49              | 1.14             |                     |                  |
| 131.46              | 0.15             | 131.98              | 0.73             | 132.50              | 1.16             |                     |                  |
| 131.47              | 0.16             | 131.99              | 0.74             | 132.51              | 1.22             |                     |                  |
| 131.48              | 0.17             | 132.00              | 0.75             | 132.52              | 1.33             |                     |                  |
| 131.49              | 0.18             | 132.01              | 0.76             | 132.53              | 1.47             |                     |                  |
| 131.50              | 0.19             | 132.02              | 0.77             | 132.54              | 1.63             |                     |                  |
| 131.51              | 0.20             | 132.03              | 0.79             | 132.55              | 1.81             |                     |                  |

**2101ELK-STM Analysis POI-1 - Propos**NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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**Stage-Area-Storage for Pond 2P: GI-1**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 131.00              | <b>7,982</b>       | 0                       | 132.04              | 7,982              | 8,301                   |
| 131.02              | 7,982              | 160                     | 132.06              | 7,982              | 8,461                   |
| 131.04              | 7,982              | 319                     | 132.08              | 7,982              | 8,621                   |
| 131.06              | 7,982              | 479                     | 132.10              | 7,982              | 8,780                   |
| 131.08              | 7,982              | 639                     | 132.12              | 7,982              | 8,940                   |
| 131.10              | 7,982              | 798                     | 132.14              | 7,982              | 9,099                   |
| 131.12              | 7,982              | 958                     | 132.16              | 7,982              | 9,259                   |
| 131.14              | 7,982              | 1,117                   | 132.18              | 7,982              | 9,419                   |
| 131.16              | 7,982              | 1,277                   | 132.20              | 7,982              | 9,578                   |
| 131.18              | 7,982              | 1,437                   | 132.22              | 7,982              | 9,738                   |
| 131.20              | 7,982              | 1,596                   | 132.24              | 7,982              | 9,898                   |
| 131.22              | 7,982              | 1,756                   | 132.26              | 7,982              | 10,057                  |
| 131.24              | 7,982              | 1,916                   | 132.28              | 7,982              | 10,217                  |
| 131.26              | 7,982              | 2,075                   | 132.30              | 7,982              | 10,377                  |
| 131.28              | 7,982              | 2,235                   | 132.32              | 7,982              | 10,536                  |
| 131.30              | 7,982              | 2,395                   | 132.34              | 7,982              | 10,696                  |
| 131.32              | 7,982              | 2,554                   | 132.36              | 7,982              | 10,856                  |
| 131.34              | 7,982              | 2,714                   | 132.38              | 7,982              | 11,015                  |
| 131.36              | 7,982              | 2,874                   | 132.40              | 7,982              | 11,175                  |
| 131.38              | 7,982              | 3,033                   | 132.42              | 7,982              | 11,334                  |
| 131.40              | 7,982              | 3,193                   | 132.44              | 7,982              | 11,494                  |
| 131.42              | 7,982              | 3,352                   | 132.46              | 7,982              | 11,654                  |
| 131.44              | 7,982              | 3,512                   | 132.48              | 7,982              | 11,813                  |
| 131.46              | 7,982              | 3,672                   | 132.50              | 7,982              | 11,973                  |
| 131.48              | 7,982              | 3,831                   | 132.52              | 7,982              | 12,133                  |
| 131.50              | 7,982              | 3,991                   | 132.54              | 7,982              | 12,292                  |
| 131.52              | 7,982              | 4,151                   | 132.56              | 7,982              | 12,452                  |
| 131.54              | 7,982              | 4,310                   | 132.58              | 7,982              | 12,612                  |
| 131.56              | 7,982              | 4,470                   | 132.60              | 7,982              | 12,771                  |
| 131.58              | 7,982              | 4,630                   | 132.62              | 7,982              | 12,931                  |
| 131.60              | 7,982              | 4,789                   | 132.64              | 7,982              | 13,090                  |
| 131.62              | 7,982              | 4,949                   | 132.66              | 7,982              | 13,250                  |
| 131.64              | 7,982              | 5,108                   | 132.68              | 7,982              | 13,410                  |
| 131.66              | 7,982              | 5,268                   | 132.70              | 7,982              | 13,569                  |
| 131.68              | 7,982              | 5,428                   | 132.72              | 7,982              | 13,729                  |
| 131.70              | 7,982              | 5,587                   | 132.74              | 7,982              | 13,889                  |
| 131.72              | 7,982              | 5,747                   | 132.76              | 7,982              | 14,048                  |
| 131.74              | 7,982              | 5,907                   | 132.78              | 7,982              | 14,208                  |
| 131.76              | 7,982              | 6,066                   | 132.80              | 7,982              | 14,368                  |
| 131.78              | 7,982              | 6,226                   | 132.82              | 7,982              | 14,527                  |
| 131.80              | 7,982              | 6,386                   | 132.84              | 7,982              | 14,687                  |
| 131.82              | 7,982              | 6,545                   | 132.86              | 7,982              | 14,847                  |
| 131.84              | 7,982              | 6,705                   | 132.88              | 7,982              | 15,006                  |
| 131.86              | 7,982              | 6,865                   | 132.90              | 7,982              | 15,166                  |
| 131.88              | 7,982              | 7,024                   | 132.92              | 7,982              | 15,325                  |
| 131.90              | 7,982              | 7,184                   | 132.94              | 7,982              | 15,485                  |
| 131.92              | 7,982              | 7,343                   | 132.96              | 7,982              | 15,645                  |
| 131.94              | 7,982              | 7,503                   | 132.98              | 7,982              | 15,804                  |
| 131.96              | 7,982              | 7,663                   | 133.00              | 7,982              | <b>15,964</b>           |
| 131.98              | 7,982              | 7,822                   |                     |                    |                         |
| 132.00              | 7,982              | 7,982                   |                     |                    |                         |
| 132.02              | 7,982              | 8,142                   |                     |                    |                         |

Summary for Pond 7P: GI-9

Inflow Area = 59,364 sf, 72.99% Impervious, Inflow Depth = 4.16" for 10-Year-2020 event  
Inflow = 7.15 cfs @ 12.08 hrs, Volume= 20,578 cf  
Outflow = 0.88 cfs @ 12.57 hrs, Volume= 16,597 cf, Atten= 88%, Lag= 29.5 min  
Primary = 0.88 cfs @ 12.57 hrs, Volume= 16,597 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 129.30' @ 12.57 hrs Surf.Area= 9,141 sf Storage= 11,865 cf

Plug-Flow detention time= 310.7 min calculated for 16,574 cf (81% of inflow)  
Center-of-Mass det. time= 231.4 min ( 988.3 - 756.9 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 128.00' | 27,423 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

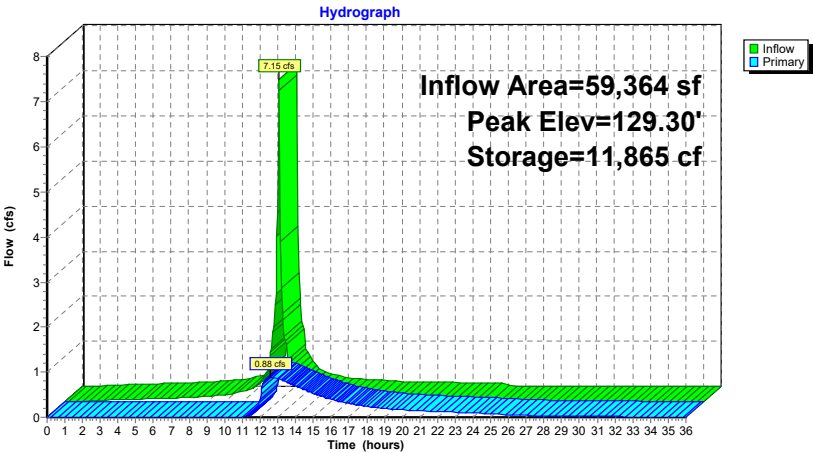
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 128.00           | 9,141             | 0                      | 0                      |
| 131.00           | 9,141             | 27,423                 | 27,423                 |

| Device | Routing | Invert  | Outlet Devices                                                |
|--------|---------|---------|---------------------------------------------------------------|
| #1     | Primary | 128.41' | 0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

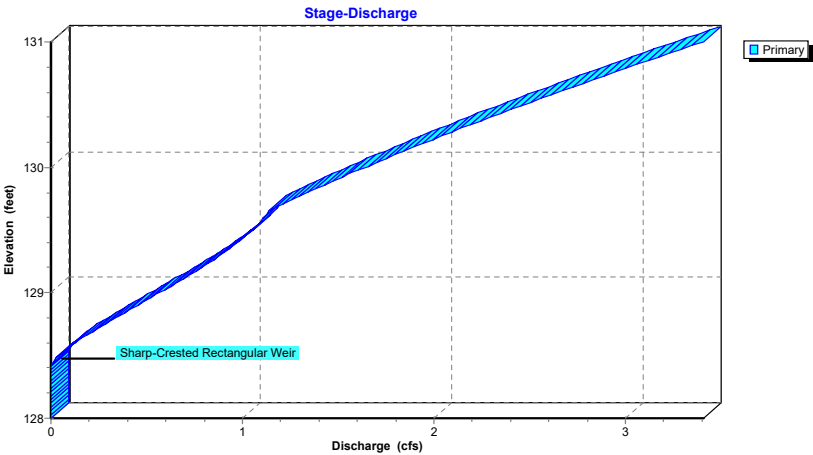
Primary OutFlow Max=0.88 cfs @ 12.57 hrs HW=129.30' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir(Weir Controls 0.88 cfs @ 3.08 fps)



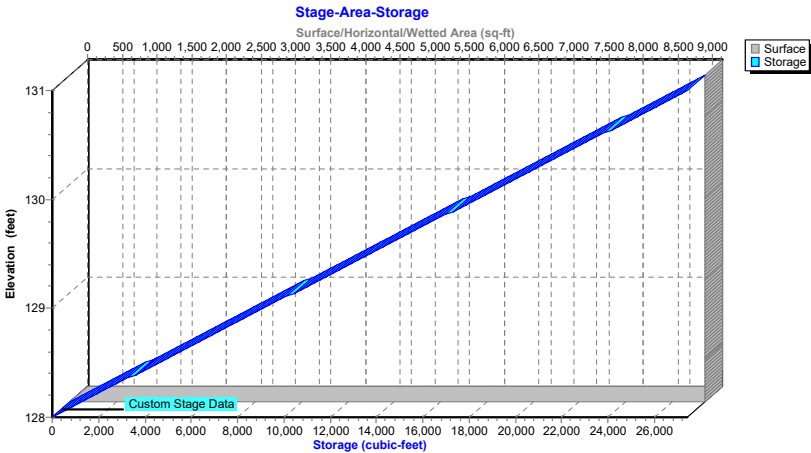
Pond 7P: GI-9



Pond 7P: GI-9



Pond 7P: GI-9



Hydrograph for Pond 7P: GI-9

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 128.00           | 0.00          |
| 1.00         | 0.01         | 4                    | 128.00           | 0.00          |
| 2.00         | 0.03         | 78                   | 128.01           | 0.00          |
| 3.00         | 0.05         | 219                  | 128.02           | 0.00          |
| 4.00         | 0.06         | 408                  | 128.04           | 0.00          |
| 5.00         | 0.07         | 634                  | 128.07           | 0.00          |
| 6.00         | 0.08         | 893                  | 128.10           | 0.00          |
| 7.00         | 0.10         | 1,207                | 128.13           | 0.00          |
| 8.00         | 0.12         | 1,602                | 128.18           | 0.00          |
| 9.00         | 0.14         | 2,078                | 128.23           | 0.00          |
| 10.00        | 0.22         | 2,742                | 128.30           | 0.00          |
| 11.00        | 0.42         | 3,803                | 128.42           | 0.00          |
| 12.00        | 4.22         | 7,799                | 128.85           | 0.40          |
| 13.00        | 0.57         | 11,607               | 129.27           | 0.86          |
| 14.00        | 0.29         | 10,169               | 129.11           | 0.69          |
| 15.00        | 0.19         | 8,835                | 128.97           | 0.53          |
| 16.00        | 0.16         | 7,802                | 128.85           | 0.40          |
| 17.00        | 0.13         | 7,070                | 128.77           | 0.31          |
| 18.00        | 0.11         | 6,525                | 128.71           | 0.24          |
| 19.00        | 0.10         | 6,119                | 128.67           | 0.19          |
| 20.00        | 0.09         | 5,830                | 128.64           | 0.16          |
| 21.00        | 0.09         | 5,616                | 128.61           | 0.14          |
| 22.00        | 0.08         | 5,450                | 128.60           | 0.12          |
| 23.00        | 0.07         | 5,315                | 128.58           | 0.11          |
| 24.00        | 0.08         | 5,204                | 128.57           | 0.10          |
| 25.00        | 0.00         | 4,914                | 128.54           | 0.07          |
| 26.00        | 0.00         | 4,695                | 128.51           | 0.05          |
| 27.00        | 0.00         | 4,531                | 128.50           | 0.04          |
| 28.00        | 0.00         | 4,405                | 128.48           | 0.03          |
| 29.00        | 0.00         | 4,307                | 128.47           | 0.02          |
| 30.00        | 0.00         | 4,229                | 128.46           | 0.02          |
| 31.00        | 0.00         | 4,167                | 128.46           | 0.02          |
| 32.00        | 0.00         | 4,115                | 128.45           | 0.01          |
| 33.00        | 0.00         | 4,073                | 128.45           | 0.01          |
| 34.00        | 0.00         | 4,037                | 128.44           | 0.01          |
| 35.00        | 0.00         | 4,007                | 128.44           | 0.01          |
| 36.00        | 0.00         | 3,981                | 128.44           | 0.01          |

**Stage-Discharge for Pond 7P: GI-9**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 128.00              | 0.00             | 129.04              | 0.61             | 130.08              | 1.76             |
| 128.02              | 0.00             | 129.06              | 0.63             | 130.10              | 1.80             |
| 128.04              | 0.00             | 129.08              | 0.66             | 130.12              | 1.83             |
| 128.06              | 0.00             | 129.10              | 0.68             | 130.14              | 1.86             |
| 128.08              | 0.00             | 129.12              | 0.70             | 130.16              | 1.89             |
| 128.10              | 0.00             | 129.14              | 0.72             | 130.18              | 1.93             |
| 128.12              | 0.00             | 129.16              | 0.74             | 130.20              | 1.96             |
| 128.14              | 0.00             | 129.18              | 0.76             | 130.22              | 1.99             |
| 128.16              | 0.00             | 129.20              | 0.79             | 130.24              | 2.02             |
| 128.18              | 0.00             | 129.22              | 0.81             | 130.26              | 2.06             |
| 128.20              | 0.00             | 129.24              | 0.83             | 130.28              | 2.09             |
| 128.22              | 0.00             | 129.26              | 0.85             | 130.30              | 2.12             |
| 128.24              | 0.00             | 129.28              | 0.87             | 130.32              | 2.16             |
| 128.26              | 0.00             | 129.30              | 0.88             | 130.34              | 2.19             |
| 128.28              | 0.00             | 129.32              | 0.90             | 130.36              | 2.23             |
| 128.30              | 0.00             | 129.34              | 0.92             | 130.38              | 2.26             |
| 128.32              | 0.00             | 129.36              | 0.94             | 130.40              | 2.29             |
| 128.34              | 0.00             | 129.38              | 0.96             | 130.42              | 2.33             |
| 128.36              | 0.00             | 129.40              | 0.97             | 130.44              | 2.36             |
| 128.38              | 0.00             | 129.42              | 0.99             | 130.46              | 2.40             |
| 128.40              | 0.00             | 129.44              | 1.00             | 130.48              | 2.43             |
| 128.42              | 0.00             | 129.46              | 1.02             | 130.50              | 2.47             |
| 128.44              | 0.01             | 129.48              | 1.04             | 130.52              | 2.51             |
| 128.46              | 0.02             | 129.50              | 1.05             | 130.54              | 2.54             |
| 128.48              | 0.03             | 129.52              | 1.06             | 130.56              | 2.58             |
| 128.50              | 0.04             | 129.54              | 1.08             | 130.58              | 2.61             |
| 128.52              | 0.06             | 129.56              | 1.09             | 130.60              | 2.65             |
| 128.54              | 0.07             | 129.58              | 1.10             | 130.62              | 2.69             |
| 128.56              | 0.09             | 129.60              | 1.11             | 130.64              | 2.72             |
| 128.58              | 0.11             | 129.62              | 1.12             | 130.66              | 2.76             |
| 128.60              | 0.13             | 129.64              | 1.13             | 130.68              | 2.80             |
| 128.62              | 0.14             | 129.66              | 1.14             | 130.70              | 2.83             |
| 128.64              | 0.16             | 129.68              | 1.17             | 130.72              | 2.87             |
| 128.66              | 0.18             | 129.70              | 1.20             | 130.74              | 2.91             |
| 128.68              | 0.20             | 129.72              | 1.23             | 130.76              | 2.95             |
| 128.70              | 0.23             | 129.74              | 1.25             | 130.78              | 2.98             |
| 128.72              | 0.25             | 129.76              | 1.28             | 130.80              | 3.02             |
| 128.74              | 0.27             | 129.78              | 1.31             | 130.82              | 3.06             |
| 128.76              | 0.29             | 129.80              | 1.34             | 130.84              | 3.10             |
| 128.78              | 0.31             | 129.82              | 1.37             | 130.86              | 3.13             |
| 128.80              | 0.34             | 129.84              | 1.40             | 130.88              | 3.17             |
| 128.82              | 0.36             | 129.86              | 1.43             | 130.90              | 3.21             |
| 128.84              | 0.38             | 129.88              | 1.46             | 130.92              | 3.25             |
| 128.86              | 0.40             | 129.90              | 1.49             | 130.94              | 3.29             |
| 128.88              | 0.43             | 129.92              | 1.52             | 130.96              | 3.33             |
| 128.90              | 0.45             | 129.94              | 1.55             | 130.98              | 3.37             |
| 128.92              | 0.47             | 129.96              | 1.58             | 131.00              | <b>3.41</b>      |
| 128.94              | 0.50             | 129.98              | 1.61             |                     |                  |
| 128.96              | 0.52             | 130.00              | 1.64             |                     |                  |
| 128.98              | 0.54             | 130.02              | 1.67             |                     |                  |
| 129.00              | 0.57             | 130.04              | 1.70             |                     |                  |
| 129.02              | 0.59             | 130.06              | 1.73             |                     |                  |

**Stage-Area-Storage for Pond 7P: GI-9**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 128.00              | <b>9,141</b>       | 0                       | 130.60              | 9,141              | 23,767                  |
| 128.05              | 9,141              | 457                     | 130.65              | 9,141              | 24,224                  |
| 128.10              | 9,141              | 914                     | 130.70              | 9,141              | 24,681                  |
| 128.15              | 9,141              | 1,371                   | 130.75              | 9,141              | 25,138                  |
| 128.20              | 9,141              | 1,828                   | 130.80              | 9,141              | 25,595                  |
| 128.25              | 9,141              | 2,285                   | 130.85              | 9,141              | 26,052                  |
| 128.30              | 9,141              | 2,742                   | 130.90              | 9,141              | 26,509                  |
| 128.35              | 9,141              | 3,199                   | 130.95              | 9,141              | 26,966                  |
| 128.40              | 9,141              | 3,656                   | 131.00              | 9,141              | <b>27,423</b>           |
| 128.45              | 9,141              | 4,113                   |                     |                    |                         |
| 128.50              | 9,141              | 4,571                   |                     |                    |                         |
| 128.55              | 9,141              | 5,028                   |                     |                    |                         |
| 128.60              | 9,141              | 5,485                   |                     |                    |                         |
| 128.65              | 9,141              | 5,942                   |                     |                    |                         |
| 128.70              | 9,141              | 6,399                   |                     |                    |                         |
| 128.75              | 9,141              | 6,856                   |                     |                    |                         |
| 128.80              | 9,141              | 7,313                   |                     |                    |                         |
| 128.85              | 9,141              | 7,770                   |                     |                    |                         |
| 128.90              | 9,141              | 8,227                   |                     |                    |                         |
| 128.95              | 9,141              | 8,684                   |                     |                    |                         |
| 129.00              | 9,141              | 9,141                   |                     |                    |                         |
| 129.05              | 9,141              | 9,598                   |                     |                    |                         |
| 129.10              | 9,141              | 10,055                  |                     |                    |                         |
| 129.15              | 9,141              | 10,512                  |                     |                    |                         |
| 129.20              | 9,141              | 10,969                  |                     |                    |                         |
| 129.25              | 9,141              | 11,426                  |                     |                    |                         |
| 129.30              | 9,141              | 11,883                  |                     |                    |                         |
| 129.35              | 9,141              | 12,340                  |                     |                    |                         |
| 129.40              | 9,141              | 12,797                  |                     |                    |                         |
| 129.45              | 9,141              | 13,254                  |                     |                    |                         |
| 129.50              | 9,141              | 13,712                  |                     |                    |                         |
| 129.55              | 9,141              | 14,169                  |                     |                    |                         |
| 129.60              | 9,141              | 14,626                  |                     |                    |                         |
| 129.65              | 9,141              | 15,083                  |                     |                    |                         |
| 129.70              | 9,141              | 15,540                  |                     |                    |                         |
| 129.75              | 9,141              | 15,997                  |                     |                    |                         |
| 129.80              | 9,141              | 16,454                  |                     |                    |                         |
| 129.85              | 9,141              | 16,911                  |                     |                    |                         |
| 129.90              | 9,141              | 17,368                  |                     |                    |                         |
| 129.95              | 9,141              | 17,825                  |                     |                    |                         |
| 130.00              | 9,141              | 18,282                  |                     |                    |                         |
| 130.05              | 9,141              | 18,739                  |                     |                    |                         |
| 130.10              | 9,141              | 19,196                  |                     |                    |                         |
| 130.15              | 9,141              | 19,653                  |                     |                    |                         |
| 130.20              | 9,141              | 20,110                  |                     |                    |                         |
| 130.25              | 9,141              | 20,567                  |                     |                    |                         |
| 130.30              | 9,141              | 21,024                  |                     |                    |                         |
| 130.35              | 9,141              | 21,481                  |                     |                    |                         |
| 130.40              | 9,141              | 21,938                  |                     |                    |                         |
| 130.45              | 9,141              | 22,395                  |                     |                    |                         |
| 130.50              | 9,141              | 22,853                  |                     |                    |                         |
| 130.55              | 9,141              | 23,310                  |                     |                    |                         |

Summary for Pond 14P: GI-2

Inflow Area = 26,583 sf, 49.36% Impervious, Inflow Depth = 2.66" for 10-Year-2020 event  
Inflow = 1.92 cfs @ 12.08 hrs, Volume= 5,900 cf  
Outflow = 0.29 cfs @ 12.53 hrs, Volume= 4,617 cf, Atten= 85%, Lag= 27.5 min  
Primary = 0.29 cfs @ 12.53 hrs, Volume= 4,617 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 130.47' @ 12.53 hrs Surf.Area= 7,126 sf Storage= 3,329 cf

Plug-Flow detention time= 314.6 min calculated for 4,611 cf (78% of inflow)  
Center-of-Mass det. time= 227.1 min ( 984.2 - 757.1 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 14,252 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

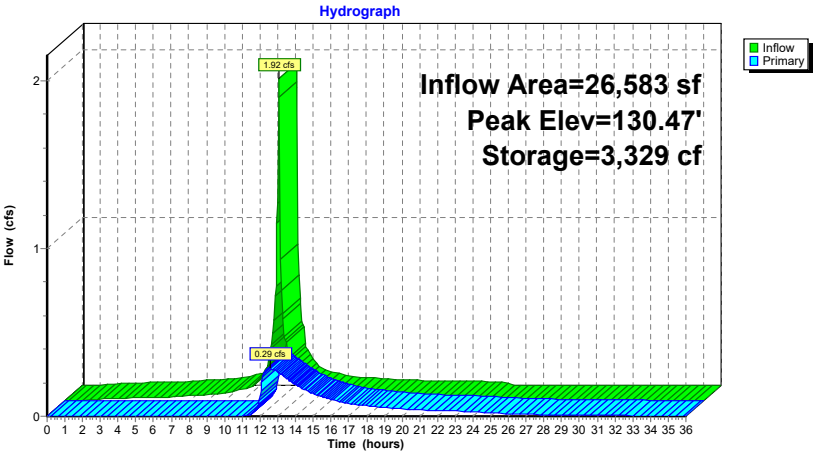
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 7,126             | 0                      | 0                      |
| 131.00           | 7,126             | 7,126                  | 7,126                  |
| 132.00           | 7,126             | 7,126                  | 14,252                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 130.17' | 0.6' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |
| #2     | Primary | 131.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |

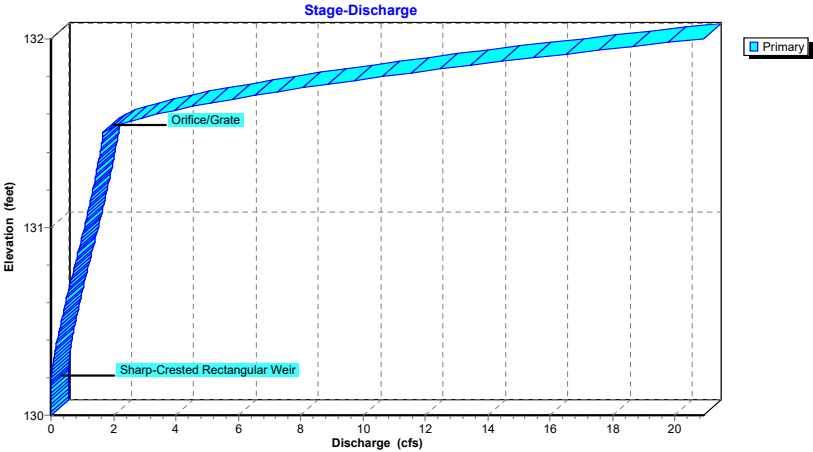
Primary OutFlow Max=0.29 cfs @ 12.53 hrs HW=130.47' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir (Weir Controls 0.29 cfs @ 1.78 fps)  
2=Orifice/Grate ( Controls 0.00 cfs)

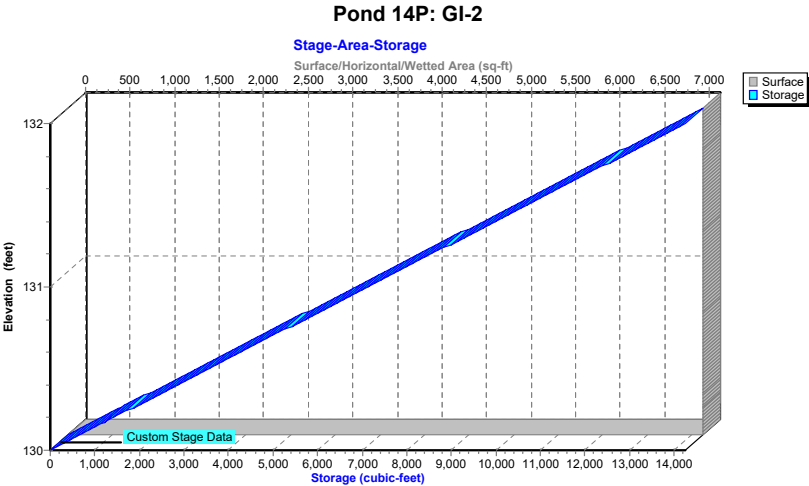


Pond 14P: GI-2



Pond 14P: GI-2





**Hydrograph for Pond 14P: GI-2**

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.00         | 1                    | 130.00           | 0.00          |
| 2.00         | 0.01         | 24                   | 130.00           | 0.00          |
| 3.00         | 0.01         | 66                   | 130.01           | 0.00          |
| 4.00         | 0.02         | 124                  | 130.02           | 0.00          |
| 5.00         | 0.02         | 193                  | 130.03           | 0.00          |
| 6.00         | 0.02         | 271                  | 130.04           | 0.00          |
| 7.00         | 0.03         | 366                  | 130.05           | 0.00          |
| 8.00         | 0.04         | 486                  | 130.07           | 0.00          |
| 9.00         | 0.04         | 630                  | 130.09           | 0.00          |
| 10.00        | 0.07         | 832                  | 130.12           | 0.00          |
| 11.00        | 0.13         | 1,154                | 130.16           | 0.00          |
| 12.00        | 1.17         | 2,332                | 130.33           | 0.12          |
| 13.00        | 0.16         | 3,204                | 130.45           | 0.26          |
| 14.00        | 0.08         | 2,783                | 130.39           | 0.19          |
| 15.00        | 0.06         | 2,456                | 130.34           | 0.13          |
| 16.00        | 0.05         | 2,220                | 130.31           | 0.10          |
| 17.00        | 0.04         | 2,059                | 130.29           | 0.08          |
| 18.00        | 0.03         | 1,939                | 130.27           | 0.06          |
| 19.00        | 0.03         | 1,848                | 130.26           | 0.05          |
| 20.00        | 0.03         | 1,783                | 130.25           | 0.04          |
| 21.00        | 0.03         | 1,735                | 130.24           | 0.04          |
| 22.00        | 0.02         | 1,696                | 130.24           | 0.03          |
| 23.00        | 0.02         | 1,664                | 130.23           | 0.03          |
| 24.00        | 0.02         | 1,637                | 130.23           | 0.03          |
| 25.00        | 0.00         | 1,554                | 130.22           | 0.02          |
| 26.00        | 0.00         | 1,491                | 130.21           | 0.02          |
| 27.00        | 0.00         | 1,444                | 130.20           | 0.01          |
| 28.00        | 0.00         | 1,407                | 130.20           | 0.01          |
| 29.00        | 0.00         | 1,379                | 130.19           | 0.01          |
| 30.00        | 0.00         | 1,356                | 130.19           | 0.01          |
| 31.00        | 0.00         | 1,338                | 130.19           | 0.00          |
| 32.00        | 0.00         | 1,323                | 130.19           | 0.00          |
| 33.00        | 0.00         | 1,310                | 130.18           | 0.00          |
| 34.00        | 0.00         | 1,300                | 130.18           | 0.00          |
| 35.00        | 0.00         | 1,291                | 130.18           | 0.00          |
| 36.00        | 0.00         | 1,283                | 130.18           | 0.00          |



**2101ELK-STM Analysis POI-1 - Propos**NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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**Stage-Discharge for Pond 14P: GI-2**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.36             | 131.04              | 1.13             | 131.56              | 2.49             |
| 130.01              | 0.00             | 130.53              | 0.37             | 131.05              | 1.14             | 131.57              | 2.70             |
| 130.02              | 0.00             | 130.54              | 0.39             | 131.06              | 1.16             | 131.58              | 2.92             |
| 130.03              | 0.00             | 130.55              | 0.40             | 131.07              | 1.17             | 131.59              | 3.16             |
| 130.04              | 0.00             | 130.56              | 0.42             | 131.08              | 1.19             | 131.60              | 3.41             |
| 130.05              | 0.00             | 130.57              | 0.43             | 131.09              | 1.20             | 131.61              | 3.67             |
| 130.06              | 0.00             | 130.58              | 0.44             | 131.10              | 1.21             | 131.62              | 3.94             |
| 130.07              | 0.00             | 130.59              | 0.46             | 131.11              | 1.23             | 131.63              | 4.23             |
| 130.08              | 0.00             | 130.60              | 0.47             | 131.12              | 1.24             | 131.64              | 4.52             |
| 130.09              | 0.00             | 130.61              | 0.49             | 131.13              | 1.25             | 131.65              | 4.83             |
| 130.10              | 0.00             | 130.62              | 0.50             | 131.14              | 1.27             | 131.66              | 5.14             |
| 130.11              | 0.00             | 130.63              | 0.52             | 131.15              | 1.28             | 131.67              | 5.47             |
| 130.12              | 0.00             | 130.64              | 0.53             | 131.16              | 1.29             | 131.68              | 5.82             |
| 130.13              | 0.00             | 130.65              | 0.55             | 131.17              | 1.31             | 131.69              | 6.17             |
| 130.14              | 0.00             | 130.66              | 0.56             | 131.18              | 1.32             | 131.70              | 6.54             |
| 130.15              | 0.00             | 130.67              | 0.58             | 131.19              | 1.33             | 131.71              | 6.91             |
| 130.16              | 0.00             | 130.68              | 0.59             | 131.20              | 1.35             | 131.72              | 7.29             |
| 130.17              | 0.00             | 130.69              | 0.61             | 131.21              | 1.36             | 131.73              | 7.68             |
| 130.18              | 0.00             | 130.70              | 0.62             | 131.22              | 1.37             | 131.74              | 8.08             |
| 130.19              | 0.01             | 130.71              | 0.64             | 131.23              | 1.38             | 131.75              | 8.49             |
| 130.20              | 0.01             | 130.72              | 0.65             | 131.24              | 1.40             | 131.76              | 8.90             |
| 130.21              | 0.02             | 130.73              | 0.67             | 131.25              | 1.41             | 131.77              | 9.33             |
| 130.22              | 0.02             | 130.74              | 0.68             | 131.26              | 1.42             | 131.78              | 9.76             |
| 130.23              | 0.03             | 130.75              | 0.70             | 131.27              | 1.43             | 131.79              | 10.19            |
| 130.24              | 0.04             | 130.76              | 0.71             | 131.28              | 1.45             | 131.80              | 10.64            |
| 130.25              | 0.04             | 130.77              | 0.73             | 131.29              | 1.46             | 131.81              | 11.09            |
| 130.26              | 0.05             | 130.78              | 0.74             | 131.30              | 1.47             | 131.82              | 11.55            |
| 130.27              | 0.06             | 130.79              | 0.76             | 131.31              | 1.48             | 131.83              | 12.02            |
| 130.28              | 0.07             | 130.80              | 0.78             | 131.32              | 1.49             | 131.84              | 12.49            |
| 130.29              | 0.08             | 130.81              | 0.79             | 131.33              | 1.50             | 131.85              | 12.97            |
| 130.30              | 0.09             | 130.82              | 0.81             | 131.34              | 1.51             | 131.86              | 13.46            |
| 130.31              | 0.10             | 130.83              | 0.82             | 131.35              | 1.53             | 131.87              | 13.95            |
| 130.32              | 0.11             | 130.84              | 0.84             | 131.36              | 1.54             | 131.88              | 14.45            |
| 130.33              | 0.12             | 130.85              | 0.85             | 131.37              | 1.55             | 131.89              | 14.96            |
| 130.34              | 0.13             | 130.86              | 0.87             | 131.38              | 1.56             | 131.90              | 15.47            |
| 130.35              | 0.14             | 130.87              | 0.88             | 131.39              | 1.57             | 131.91              | 15.99            |
| 130.36              | 0.15             | 130.88              | 0.90             | 131.40              | 1.58             | 131.92              | 16.51            |
| 130.37              | 0.16             | 130.89              | 0.91             | 131.41              | 1.59             | 131.93              | 17.04            |
| 130.38              | 0.18             | 130.90              | 0.93             | 131.42              | 1.60             | 131.94              | 17.58            |
| 130.39              | 0.19             | 130.91              | 0.94             | 131.43              | 1.61             | 131.95              | 18.12            |
| 130.40              | 0.20             | 130.92              | 0.96             | 131.44              | 1.62             | 131.96              | 18.67            |
| 130.41              | 0.21             | 130.93              | 0.97             | 131.45              | 1.63             | 131.97              | 19.23            |
| 130.42              | 0.22             | 130.94              | 0.99             | 131.46              | 1.64             | 131.98              | 19.79            |
| 130.43              | 0.24             | 130.95              | 1.00             | 131.47              | 1.65             | 131.99              | 20.35            |
| 130.44              | 0.25             | 130.96              | 1.01             | 131.48              | 1.66             | 132.00              | <b>20.93</b>     |
| 130.45              | 0.26             | 130.97              | 1.03             | 131.49              | 1.67             |                     |                  |
| 130.46              | 0.28             | 130.98              | 1.04             | 131.50              | 1.68             |                     |                  |
| 130.47              | 0.29             | 130.99              | 1.06             | 131.51              | 1.74             |                     |                  |
| 130.48              | 0.30             | 131.00              | 1.07             | 131.52              | 1.84             |                     |                  |
| 130.49              | 0.32             | 131.01              | 1.09             | 131.53              | 1.97             |                     |                  |
| 130.50              | 0.33             | 131.02              | 1.10             | 131.54              | 2.13             |                     |                  |
| 130.51              | 0.34             | 131.03              | 1.12             | 131.55              | 2.30             |                     |                  |

**2101ELK-STM Analysis POI-1 - Propos**NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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**Stage-Area-Storage for Pond 14P: GI-2**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | <b>7,126</b>       | 0                       | 131.04              | 7,126              | 7,411                   |
| 130.02              | 7,126              | 143                     | 131.06              | 7,126              | 7,554                   |
| 130.04              | 7,126              | 285                     | 131.08              | 7,126              | 7,696                   |
| 130.06              | 7,126              | 428                     | 131.10              | 7,126              | 7,839                   |
| 130.08              | 7,126              | 570                     | 131.12              | 7,126              | 7,981                   |
| 130.10              | 7,126              | 713                     | 131.14              | 7,126              | 8,124                   |
| 130.12              | 7,126              | 855                     | 131.16              | 7,126              | 8,266                   |
| 130.14              | 7,126              | 998                     | 131.18              | 7,126              | 8,409                   |
| 130.16              | 7,126              | 1,140                   | 131.20              | 7,126              | 8,551                   |
| 130.18              | 7,126              | 1,283                   | 131.22              | 7,126              | 8,694                   |
| 130.20              | 7,126              | 1,425                   | 131.24              | 7,126              | 8,836                   |
| 130.22              | 7,126              | 1,568                   | 131.26              | 7,126              | 8,979                   |
| 130.24              | 7,126              | 1,710                   | 131.28              | 7,126              | 9,121                   |
| 130.26              | 7,126              | 1,853                   | 131.30              | 7,126              | 9,264                   |
| 130.28              | 7,126              | 1,995                   | 131.32              | 7,126              | 9,406                   |
| 130.30              | 7,126              | 2,138                   | 131.34              | 7,126              | 9,549                   |
| 130.32              | 7,126              | 2,280                   | 131.36              | 7,126              | 9,691                   |
| 130.34              | 7,126              | 2,423                   | 131.38              | 7,126              | 9,834                   |
| 130.36              | 7,126              | 2,565                   | 131.40              | 7,126              | 9,976                   |
| 130.38              | 7,126              | 2,708                   | 131.42              | 7,126              | 10,119                  |
| 130.40              | 7,126              | 2,850                   | 131.44              | 7,126              | 10,261                  |
| 130.42              | 7,126              | 2,993                   | 131.46              | 7,126              | 10,404                  |
| 130.44              | 7,126              | 3,135                   | 131.48              | 7,126              | 10,546                  |
| 130.46              | 7,126              | 3,278                   | 131.50              | 7,126              | 10,689                  |
| 130.48              | 7,126              | 3,420                   | 131.52              | 7,126              | 10,832                  |
| 130.50              | 7,126              | 3,563                   | 131.54              | 7,126              | 10,974                  |
| 130.52              | 7,126              | 3,706                   | 131.56              | 7,126              | 11,117                  |
| 130.54              | 7,126              | 3,848                   | 131.58              | 7,126              | 11,259                  |
| 130.56              | 7,126              | 3,991                   | 131.60              | 7,126              | 11,402                  |
| 130.58              | 7,126              | 4,133                   | 131.62              | 7,126              | 11,544                  |
| 130.60              | 7,126              | 4,276                   | 131.64              | 7,126              | 11,687                  |
| 130.62              | 7,126              | 4,418                   | 131.66              | 7,126              | 11,829                  |
| 130.64              | 7,126              | 4,561                   | 131.68              | 7,126              | 11,972                  |
| 130.66              | 7,126              | 4,703                   | 131.70              | 7,126              | 12,114                  |
| 130.68              | 7,126              | 4,846                   | 131.72              | 7,126              | 12,257                  |
| 130.70              | 7,126              | 4,988                   | 131.74              | 7,126              | 12,399                  |
| 130.72              | 7,126              | 5,131                   | 131.76              | 7,126              | 12,542                  |
| 130.74              | 7,126              | 5,273                   | 131.78              | 7,126              | 12,684                  |
| 130.76              | 7,126              | 5,416                   | 131.80              | 7,126              | 12,827                  |
| 130.78              | 7,126              | 5,558                   | 131.82              | 7,126              | 12,969                  |
| 130.80              | 7,126              | 5,701                   | 131.84              | 7,126              | 13,112                  |
| 130.82              | 7,126              | 5,843                   | 131.86              | 7,126              | 13,254                  |
| 130.84              | 7,126              | 5,986                   | 131.88              | 7,126              | 13,397                  |
| 130.86              | 7,126              | 6,128                   | 131.90              | 7,126              | 13,539                  |
| 130.88              | 7,126              | 6,271                   | 131.92              | 7,126              | 13,682                  |
| 130.90              | 7,126              | 6,413                   | 131.94              | 7,126              | 13,824                  |
| 130.92              | 7,126              | 6,556                   | 131.96              | 7,126              | 13,967                  |
| 130.94              | 7,126              | 6,698                   | 131.98              | 7,126              | 14,109                  |
| 130.96              | 7,126              | 6,841                   | 132.00              | 7,126              | <b>14,252</b>           |
| 130.98              | 7,126              | 6,983                   |                     |                    |                         |
| 131.00              | 7,126              | 7,126                   |                     |                    |                         |
| 131.02              | 7,126              | 7,269                   |                     |                    |                         |

Summary for Pond 28P: GI-3

Inflow Area = 84,149 sf, 72.01% Impervious, Inflow Depth = 4.01" for 10-Year-2020 event  
Inflow = 8.83 cfs @ 12.09 hrs, Volume= 28,092 cf  
Outflow = 1.52 cfs @ 12.54 hrs, Volume= 16,541 cf, Atten= 83%, Lag= 27.0 min  
Primary = 1.52 cfs @ 12.54 hrs, Volume= 16,541 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.56' @ 12.54 hrs Surf.Area= 11,000 sf Storage= 17,163 cf

Plug-Flow detention time= 367.6 min calculated for 16,541 cf (59% of inflow)  
Center-of-Mass det. time= 248.8 min ( 1,006.2 - 757.4 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 22,000 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

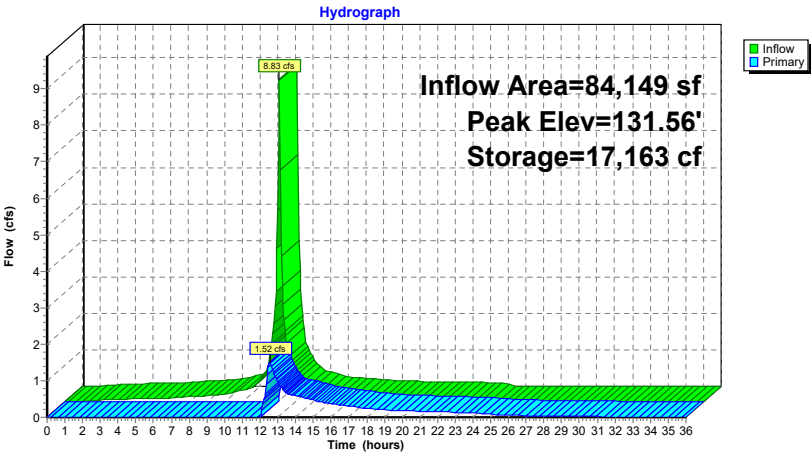
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 11,000            | 0                      | 0                      |
| 131.00           | 11,000            | 11,000                 | 11,000                 |
| 132.00           | 11,000            | 11,000                 | 22,000                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 131.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 131.03' | 0.7' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

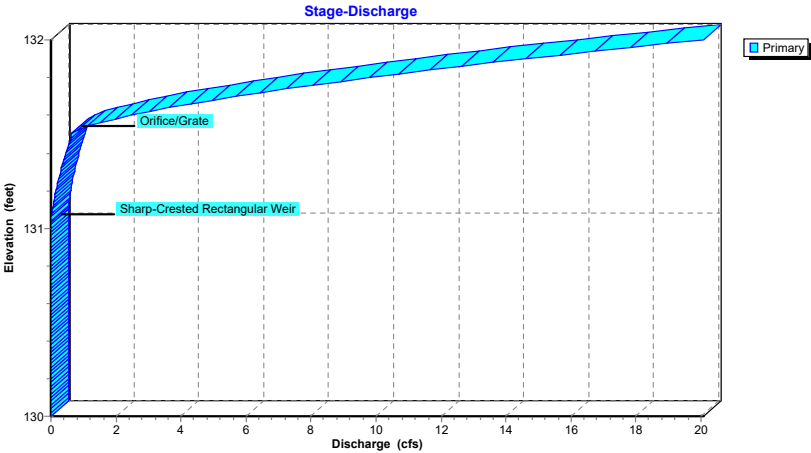
Primary OutFlow Max=1.52 cfs @ 12.54 hrs HW=131.56' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate (Weir Controls 0.77 cfs @ 0.80 fps)  
2=Sharp-Crested Rectangular Weir (Weir Controls 0.75 cfs @ 2.38 fps)



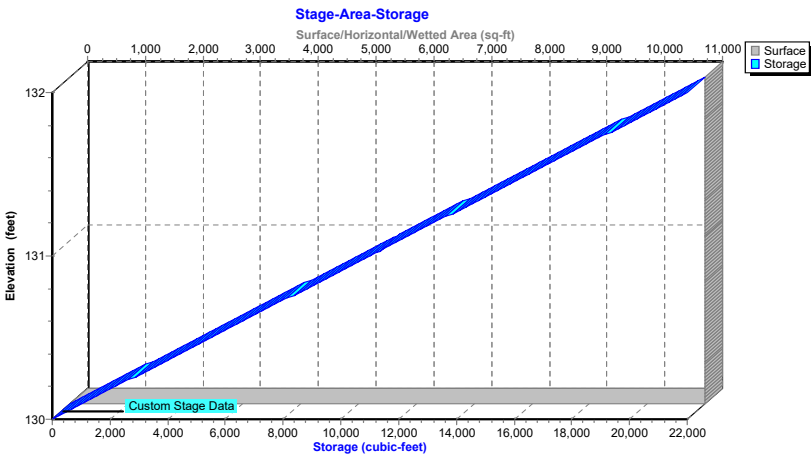
Pond 28P: GI-3



Pond 28P: GI-3



Pond 28P: GI-3



Hydrograph for Pond 28P: GI-3

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.01         | 5                    | 130.00           | 0.00          |
| 2.00         | 0.04         | 106                  | 130.01           | 0.00          |
| 3.00         | 0.06         | 302                  | 130.03           | 0.00          |
| 4.00         | 0.08         | 565                  | 130.05           | 0.00          |
| 5.00         | 0.09         | 881                  | 130.08           | 0.00          |
| 6.00         | 0.11         | 1,242                | 130.11           | 0.00          |
| 7.00         | 0.14         | 1,679                | 130.15           | 0.00          |
| 8.00         | 0.17         | 2,230                | 130.20           | 0.00          |
| 9.00         | 0.20         | 2,894                | 130.26           | 0.00          |
| 10.00        | 0.31         | 3,815                | 130.35           | 0.00          |
| 11.00        | 0.58         | 5,282                | 130.48           | 0.00          |
| 12.00        | 5.25         | 10,799               | 130.98           | 0.00          |
| 13.00        | 0.80         | 16,834               | 131.53           | 0.97          |
| 14.00        | 0.39         | 16,202               | 131.47           | 0.59          |
| 15.00        | 0.26         | 15,471               | 131.41           | 0.47          |
| 16.00        | 0.22         | 14,813               | 131.35           | 0.37          |
| 17.00        | 0.18         | 14,331               | 131.30           | 0.30          |
| 18.00        | 0.15         | 13,944               | 131.27           | 0.25          |
| 19.00        | 0.14         | 13,638               | 131.24           | 0.21          |
| 20.00        | 0.13         | 13,420               | 131.22           | 0.18          |
| 21.00        | 0.12         | 13,256               | 131.21           | 0.16          |
| 22.00        | 0.11         | 13,124               | 131.19           | 0.14          |
| 23.00        | 0.10         | 13,011               | 131.18           | 0.13          |
| 24.00        | 0.11         | 12,913               | 131.17           | 0.12          |
| 25.00        | 0.00         | 12,575               | 131.14           | 0.08          |
| 26.00        | 0.00         | 12,318               | 131.12           | 0.06          |
| 27.00        | 0.00         | 12,132               | 131.10           | 0.04          |
| 28.00        | 0.00         | 11,994               | 131.09           | 0.03          |
| 29.00        | 0.00         | 11,888               | 131.08           | 0.03          |
| 30.00        | 0.00         | 11,806               | 131.07           | 0.02          |
| 31.00        | 0.00         | 11,740               | 131.07           | 0.02          |
| 32.00        | 0.00         | 11,687               | 131.06           | 0.01          |
| 33.00        | 0.00         | 11,644               | 131.06           | 0.01          |
| 34.00        | 0.00         | 11,608               | 131.06           | 0.01          |
| 35.00        | 0.00         | 11,578               | 131.05           | 0.01          |
| 36.00        | 0.00         | 11,552               | 131.05           | 0.01          |

**2101ELK-STM Analysis POI-1 - Propos**NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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**Stage-Discharge for Pond 28P: GI-3**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.00             | 131.04              | 0.00             | 131.56              | 1.52             |
| 130.01              | 0.00             | 130.53              | 0.00             | 131.05              | 0.01             | 131.57              | 1.74             |
| 130.02              | 0.00             | 130.54              | 0.00             | 131.06              | 0.01             | 131.58              | 1.97             |
| 130.03              | 0.00             | 130.55              | 0.00             | 131.07              | 0.02             | 131.59              | 2.22             |
| 130.04              | 0.00             | 130.56              | 0.00             | 131.08              | 0.03             | 131.60              | 2.48             |
| 130.05              | 0.00             | 130.57              | 0.00             | 131.09              | 0.03             | 131.61              | 2.75             |
| 130.06              | 0.00             | 130.58              | 0.00             | 131.10              | 0.04             | 131.62              | 3.04             |
| 130.07              | 0.00             | 130.59              | 0.00             | 131.11              | 0.05             | 131.63              | 3.33             |
| 130.08              | 0.00             | 130.60              | 0.00             | 131.12              | 0.06             | 131.64              | 3.64             |
| 130.09              | 0.00             | 130.61              | 0.00             | 131.13              | 0.07             | 131.65              | 3.96             |
| 130.10              | 0.00             | 130.62              | 0.00             | 131.14              | 0.08             | 131.66              | 4.29             |
| 130.11              | 0.00             | 130.63              | 0.00             | 131.15              | 0.09             | 131.67              | 4.62             |
| 130.12              | 0.00             | 130.64              | 0.00             | 131.16              | 0.10             | 131.68              | 4.97             |
| 130.13              | 0.00             | 130.65              | 0.00             | 131.17              | 0.12             | 131.69              | 5.33             |
| 130.14              | 0.00             | 130.66              | 0.00             | 131.18              | 0.13             | 131.70              | 5.69             |
| 130.15              | 0.00             | 130.67              | 0.00             | 131.19              | 0.14             | 131.71              | 6.07             |
| 130.16              | 0.00             | 130.68              | 0.00             | 131.20              | 0.15             | 131.72              | 6.45             |
| 130.17              | 0.00             | 130.69              | 0.00             | 131.21              | 0.17             | 131.73              | 6.84             |
| 130.18              | 0.00             | 130.70              | 0.00             | 131.22              | 0.18             | 131.74              | 7.24             |
| 130.19              | 0.00             | 130.71              | 0.00             | 131.23              | 0.19             | 131.75              | 7.65             |
| 130.20              | 0.00             | 130.72              | 0.00             | 131.24              | 0.21             | 131.76              | 8.07             |
| 130.21              | 0.00             | 130.73              | 0.00             | 131.25              | 0.22             | 131.77              | 8.49             |
| 130.22              | 0.00             | 130.74              | 0.00             | 131.26              | 0.24             | 131.78              | 8.92             |
| 130.23              | 0.00             | 130.75              | 0.00             | 131.27              | 0.25             | 131.79              | 9.36             |
| 130.24              | 0.00             | 130.76              | 0.00             | 131.28              | 0.27             | 131.80              | 9.80             |
| 130.25              | 0.00             | 130.77              | 0.00             | 131.29              | 0.28             | 131.81              | 10.26            |
| 130.26              | 0.00             | 130.78              | 0.00             | 131.30              | 0.30             | 131.82              | 10.72            |
| 130.27              | 0.00             | 130.79              | 0.00             | 131.31              | 0.31             | 131.83              | 11.18            |
| 130.28              | 0.00             | 130.80              | 0.00             | 131.32              | 0.33             | 131.84              | 11.66            |
| 130.29              | 0.00             | 130.81              | 0.00             | 131.33              | 0.34             | 131.85              | 12.13            |
| 130.30              | 0.00             | 130.82              | 0.00             | 131.34              | 0.36             | 131.86              | 12.62            |
| 130.31              | 0.00             | 130.83              | 0.00             | 131.35              | 0.38             | 131.87              | 13.11            |
| 130.32              | 0.00             | 130.84              | 0.00             | 131.36              | 0.39             | 131.88              | 13.61            |
| 130.33              | 0.00             | 130.85              | 0.00             | 131.37              | 0.41             | 131.89              | 14.12            |
| 130.34              | 0.00             | 130.86              | 0.00             | 131.38              | 0.43             | 131.90              | 14.63            |
| 130.35              | 0.00             | 130.87              | 0.00             | 131.39              | 0.44             | 131.91              | 15.15            |
| 130.36              | 0.00             | 130.88              | 0.00             | 131.40              | 0.46             | 131.92              | 15.67            |
| 130.37              | 0.00             | 130.89              | 0.00             | 131.41              | 0.48             | 131.93              | 16.20            |
| 130.38              | 0.00             | 130.90              | 0.00             | 131.42              | 0.50             | 131.94              | 16.74            |
| 130.39              | 0.00             | 130.91              | 0.00             | 131.43              | 0.51             | 131.95              | 17.28            |
| 130.40              | 0.00             | 130.92              | 0.00             | 131.44              | 0.53             | 131.96              | 17.83            |
| 130.41              | 0.00             | 130.93              | 0.00             | 131.45              | 0.55             | 131.97              | 18.38            |
| 130.42              | 0.00             | 130.94              | 0.00             | 131.46              | 0.57             | 131.98              | 18.94            |
| 130.43              | 0.00             | 130.95              | 0.00             | 131.47              | 0.58             | 131.99              | 19.51            |
| 130.44              | 0.00             | 130.96              | 0.00             | 131.48              | 0.60             | 132.00              | 20.08            |
| 130.45              | 0.00             | 130.97              | 0.00             | 131.49              | 0.62             |                     |                  |
| 130.46              | 0.00             | 130.98              | 0.00             | 131.50              | 0.64             |                     |                  |
| 130.47              | 0.00             | 130.99              | 0.00             | 131.51              | 0.71             |                     |                  |
| 130.48              | 0.00             | 131.00              | 0.00             | 131.52              | 0.82             |                     |                  |
| 130.49              | 0.00             | 131.01              | 0.00             | 131.53              | 0.97             |                     |                  |
| 130.50              | 0.00             | 131.02              | 0.00             | 131.54              | 1.13             |                     |                  |
| 130.51              | 0.00             | 131.03              | 0.00             | 131.55              | 1.32             |                     |                  |

**2101ELK-STM Analysis POI-1 - Propos**NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 28P: GI-3**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | 11,000             | 0                       | 131.04              | 11,000             | 11,440                  |
| 130.02              | 11,000             | 220                     | 131.06              | 11,000             | 11,660                  |
| 130.04              | 11,000             | 440                     | 131.08              | 11,000             | 11,880                  |
| 130.06              | 11,000             | 660                     | 131.10              | 11,000             | 12,100                  |
| 130.08              | 11,000             | 880                     | 131.12              | 11,000             | 12,320                  |
| 130.10              | 11,000             | 1,100                   | 131.14              | 11,000             | 12,540                  |
| 130.12              | 11,000             | 1,320                   | 131.16              | 11,000             | 12,760                  |
| 130.14              | 11,000             | 1,540                   | 131.18              | 11,000             | 12,980                  |
| 130.16              | 11,000             | 1,760                   | 131.20              | 11,000             | 13,200                  |
| 130.18              | 11,000             | 1,980                   | 131.22              | 11,000             | 13,420                  |
| 130.20              | 11,000             | 2,200                   | 131.24              | 11,000             | 13,640                  |
| 130.22              | 11,000             | 2,420                   | 131.26              | 11,000             | 13,860                  |
| 130.24              | 11,000             | 2,640                   | 131.28              | 11,000             | 14,080                  |
| 130.26              | 11,000             | 2,860                   | 131.30              | 11,000             | 14,300                  |
| 130.28              | 11,000             | 3,080                   | 131.32              | 11,000             | 14,520                  |
| 130.30              | 11,000             | 3,300                   | 131.34              | 11,000             | 14,740                  |
| 130.32              | 11,000             | 3,520                   | 131.36              | 11,000             | 14,960                  |
| 130.34              | 11,000             | 3,740                   | 131.38              | 11,000             | 15,180                  |
| 130.36              | 11,000             | 3,960                   | 131.40              | 11,000             | 15,400                  |
| 130.38              | 11,000             | 4,180                   | 131.42              | 11,000             | 15,620                  |
| 130.40              | 11,000             | 4,400                   | 131.44              | 11,000             | 15,840                  |
| 130.42              | 11,000             | 4,620                   | 131.46              | 11,000             | 16,060                  |
| 130.44              | 11,000             | 4,840                   | 131.48              | 11,000             | 16,280                  |
| 130.46              | 11,000             | 5,060                   | 131.50              | 11,000             | 16,500                  |
| 130.48              | 11,000             | 5,280                   | 131.52              | 11,000             | 16,720                  |
| 130.50              | 11,000             | 5,500                   | 131.54              | 11,000             | 16,940                  |
| 130.52              | 11,000             | 5,720                   | 131.56              | 11,000             | 17,160                  |
| 130.54              | 11,000             | 5,940                   | 131.58              | 11,000             | 17,380                  |
| 130.56              | 11,000             | 6,160                   | 131.60              | 11,000             | 17,600                  |
| 130.58              | 11,000             | 6,380                   | 131.62              | 11,000             | 17,820                  |
| 130.60              | 11,000             | 6,600                   | 131.64              | 11,000             | 18,040                  |
| 130.62              | 11,000             | 6,820                   | 131.66              | 11,000             | 18,260                  |
| 130.64              | 11,000             | 7,040                   | 131.68              | 11,000             | 18,480                  |
| 130.66              | 11,000             | 7,260                   | 131.70              | 11,000             | 18,700                  |
| 130.68              | 11,000             | 7,480                   | 131.72              | 11,000             | 18,920                  |
| 130.70              | 11,000             | 7,700                   | 131.74              | 11,000             | 19,140                  |
| 130.72              | 11,000             | 7,920                   | 131.76              | 11,000             | 19,360                  |
| 130.74              | 11,000             | 8,140                   | 131.78              | 11,000             | 19,580                  |
| 130.76              | 11,000             | 8,360                   | 131.80              | 11,000             | 19,800                  |
| 130.78              | 11,000             | 8,580                   | 131.82              | 11,000             | 20,020                  |
| 130.80              | 11,000             | 8,800                   | 131.84              | 11,000             | 20,240                  |
| 130.82              | 11,000             | 9,020                   | 131.86              | 11,000             | 20,460                  |
| 130.84              | 11,000             | 9,240                   | 131.88              | 11,000             | 20,680                  |
| 130.86              | 11,000             | 9,460                   | 131.90              | 11,000             | 20,900                  |
| 130.88              | 11,000             | 9,680                   | 131.92              | 11,000             | 21,120                  |
| 130.90              | 11,000             | 9,900                   | 131.94              | 11,000             | 21,340                  |
| 130.92              | 11,000             | 10,120                  | 131.96              | 11,000             | 21,560                  |
| 130.94              | 11,000             | 10,340                  | 131.98              | 11,000             | 21,780                  |
| 130.96              | 11,000             | 10,560                  | 132.00              | 11,000             | 22,000                  |
| 130.98              | 11,000             | 10,780                  |                     |                    |                         |
| 131.00              | 11,000             | 11,000                  |                     |                    |                         |
| 131.02              | 11,000             | 11,220                  |                     |                    |                         |

Summary for Pond 31P: GI-6

Inflow Area = 85,032 sf, 67.84% Impervious, Inflow Depth = 3.72" for 10-Year-2020 event  
Inflow = 8.33 cfs @ 12.09 hrs, Volume= 26,358 cf  
Outflow = 0.70 cfs @ 13.05 hrs, Volume= 17,664 cf, Atten= 92%, Lag= 57.4 min  
Primary = 0.70 cfs @ 13.05 hrs, Volume= 17,664 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 130.85' @ 13.05 hrs Surf.Area= 20,000 sf Storage= 16,946 cf

Plug-Flow detention time= 423.3 min calculated for 17,664 cf (67% of inflow)  
Center-of-Mass det. time= 316.7 min ( 1,073.6 - 756.9 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 40,000 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

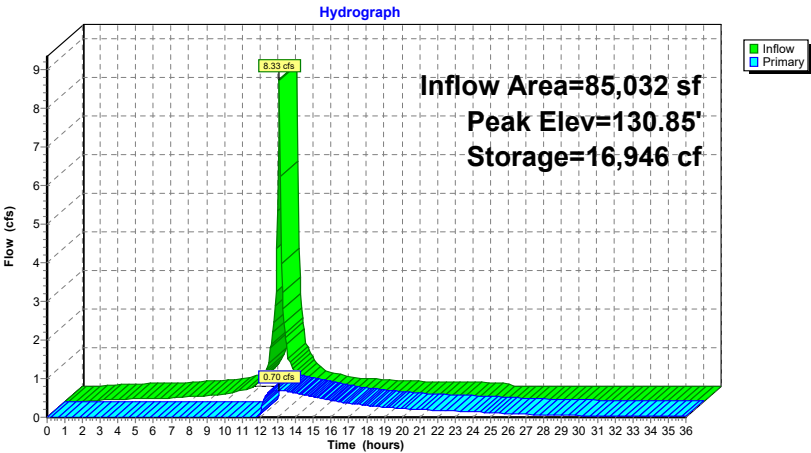
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 20,000            | 0                      | 0                      |
| 131.00           | 20,000            | 20,000                 | 20,000                 |
| 132.00           | 20,000            | 20,000                 | 40,000                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 131.80' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 130.40' | 0.8' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

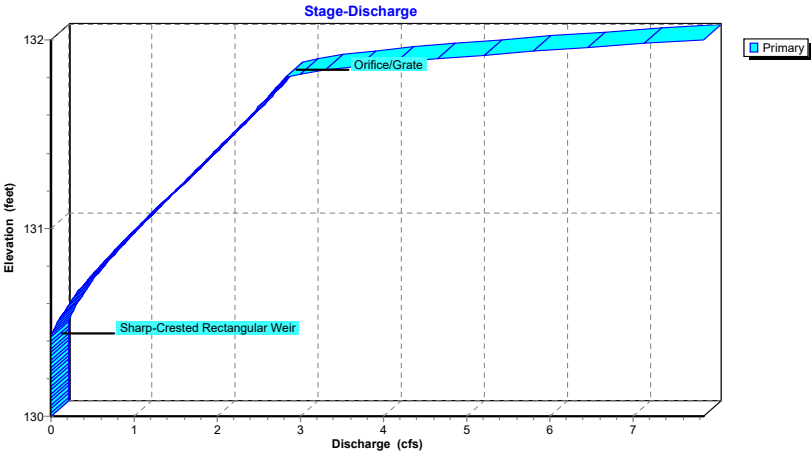
Primary OutFlow Max=0.70 cfs @ 13.05 hrs HW=130.85' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate ( Controls 0.00 cfs)  
2=Sharp-Crested Rectangular Weir(Weir Controls 0.70 cfs @ 2.19 fps)



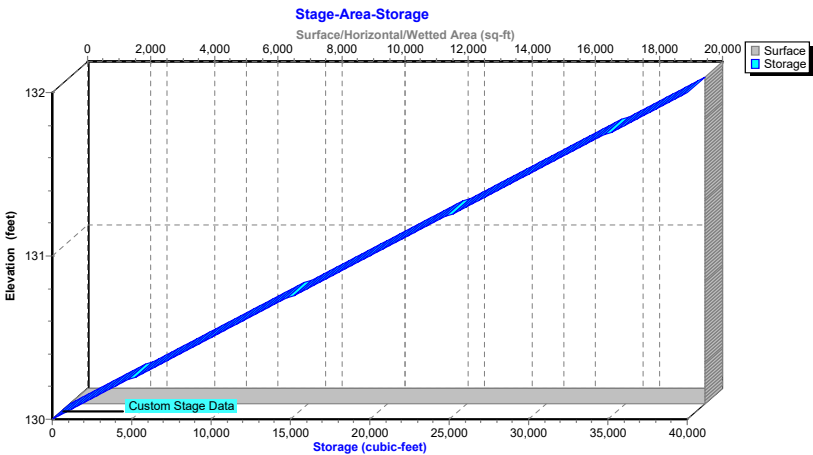
Pond 31P: GI-6



Pond 31P: GI-6



Pond 31P: GI-6



Hydrograph for Pond 31P: GI-6

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.01         | 5                    | 130.00           | 0.00          |
| 2.00         | 0.04         | 101                  | 130.01           | 0.00          |
| 3.00         | 0.06         | 288                  | 130.01           | 0.00          |
| 4.00         | 0.08         | 538                  | 130.03           | 0.00          |
| 5.00         | 0.09         | 840                  | 130.04           | 0.00          |
| 6.00         | 0.10         | 1,183                | 130.06           | 0.00          |
| 7.00         | 0.13         | 1,600                | 130.08           | 0.00          |
| 8.00         | 0.16         | 2,124                | 130.11           | 0.00          |
| 9.00         | 0.19         | 2,756                | 130.14           | 0.00          |
| 10.00        | 0.30         | 3,633                | 130.18           | 0.00          |
| 11.00        | 0.55         | 5,032                | 130.25           | 0.00          |
| 12.00        | 4.92         | 10,241               | 130.51           | 0.10          |
| 13.00        | 0.74         | 16,942               | 130.85           | 0.69          |
| 14.00        | 0.37         | 16,307               | 130.82           | 0.63          |
| 15.00        | 0.25         | 15,334               | 130.77           | 0.53          |
| 16.00        | 0.20         | 14,403               | 130.72           | 0.44          |
| 17.00        | 0.17         | 13,646               | 130.68           | 0.36          |
| 18.00        | 0.14         | 13,002               | 130.65           | 0.31          |
| 19.00        | 0.13         | 12,463               | 130.62           | 0.26          |
| 20.00        | 0.12         | 12,040               | 130.60           | 0.23          |
| 21.00        | 0.11         | 11,698               | 130.58           | 0.20          |
| 22.00        | 0.10         | 11,415               | 130.57           | 0.18          |
| 23.00        | 0.10         | 11,172               | 130.56           | 0.16          |
| 24.00        | 0.11         | 10,963               | 130.55           | 0.14          |
| 25.00        | 0.00         | 10,525               | 130.53           | 0.11          |
| 26.00        | 0.00         | 10,160               | 130.51           | 0.09          |
| 27.00        | 0.00         | 9,867                | 130.49           | 0.07          |
| 28.00        | 0.00         | 9,630                | 130.48           | 0.06          |
| 29.00        | 0.00         | 9,434                | 130.47           | 0.05          |
| 30.00        | 0.00         | 9,272                | 130.46           | 0.04          |
| 31.00        | 0.00         | 9,135                | 130.46           | 0.03          |
| 32.00        | 0.00         | 9,019                | 130.45           | 0.03          |
| 33.00        | 0.00         | 8,920                | 130.45           | 0.03          |
| 34.00        | 0.00         | 8,835                | 130.44           | 0.02          |
| 35.00        | 0.00         | 8,761                | 130.44           | 0.02          |
| 36.00        | 0.00         | 8,696                | 130.43           | 0.02          |

Stage-Discharge for Pond 31P: GI-6

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.11             | 131.04              | 1.13             | 131.56              | 2.32             |
| 130.01              | 0.00             | 130.53              | 0.12             | 131.05              | 1.15             | 131.57              | 2.34             |
| 130.02              | 0.00             | 130.54              | 0.13             | 131.06              | 1.17             | 131.58              | 2.36             |
| 130.03              | 0.00             | 130.55              | 0.15             | 131.07              | 1.19             | 131.59              | 2.39             |
| 130.04              | 0.00             | 130.56              | 0.16             | 131.08              | 1.22             | 131.60              | 2.41             |
| 130.05              | 0.00             | 130.57              | 0.18             | 131.09              | 1.24             | 131.61              | 2.43             |
| 130.06              | 0.00             | 130.58              | 0.19             | 131.10              | 1.26             | 131.62              | 2.45             |
| 130.07              | 0.00             | 130.59              | 0.21             | 131.11              | 1.29             | 131.63              | 2.47             |
| 130.08              | 0.00             | 130.60              | 0.22             | 131.12              | 1.31             | 131.64              | 2.49             |
| 130.09              | 0.00             | 130.61              | 0.24             | 131.13              | 1.33             | 131.65              | 2.51             |
| 130.10              | 0.00             | 130.62              | 0.26             | 131.14              | 1.36             | 131.66              | 2.53             |
| 130.11              | 0.00             | 130.63              | 0.27             | 131.15              | 1.38             | 131.67              | 2.56             |
| 130.12              | 0.00             | 130.64              | 0.29             | 131.16              | 1.40             | 131.68              | 2.58             |
| 130.13              | 0.00             | 130.65              | 0.31             | 131.17              | 1.43             | 131.69              | 2.60             |
| 130.14              | 0.00             | 130.66              | 0.32             | 131.18              | 1.45             | 131.70              | 2.62             |
| 130.15              | 0.00             | 130.67              | 0.34             | 131.19              | 1.47             | 131.71              | 2.64             |
| 130.16              | 0.00             | 130.68              | 0.36             | 131.20              | 1.50             | 131.72              | 2.66             |
| 130.17              | 0.00             | 130.69              | 0.38             | 131.21              | 1.52             | 131.73              | 2.68             |
| 130.18              | 0.00             | 130.70              | 0.40             | 131.22              | 1.54             | 131.74              | 2.70             |
| 130.19              | 0.00             | 130.71              | 0.42             | 131.23              | 1.57             | 131.75              | 2.72             |
| 130.20              | 0.00             | 130.72              | 0.44             | 131.24              | 1.59             | 131.76              | 2.74             |
| 130.21              | 0.00             | 130.73              | 0.46             | 131.25              | 1.61             | 131.77              | 2.76             |
| 130.22              | 0.00             | 130.74              | 0.47             | 131.26              | 1.64             | 131.78              | 2.78             |
| 130.23              | 0.00             | 130.75              | 0.49             | 131.27              | 1.66             | 131.79              | 2.80             |
| 130.24              | 0.00             | 130.76              | 0.51             | 131.28              | 1.68             | 131.80              | 2.82             |
| 130.25              | 0.00             | 130.77              | 0.53             | 131.29              | 1.71             | 131.81              | 2.89             |
| 130.26              | 0.00             | 130.78              | 0.55             | 131.30              | 1.73             | 131.82              | 3.00             |
| 130.27              | 0.00             | 130.79              | 0.58             | 131.31              | 1.75             | 131.83              | 3.15             |
| 130.28              | 0.00             | 130.80              | 0.60             | 131.32              | 1.78             | 131.84              | 3.31             |
| 130.29              | 0.00             | 130.81              | 0.62             | 131.33              | 1.80             | 131.85              | 3.50             |
| 130.30              | 0.00             | 130.82              | 0.64             | 131.34              | 1.82             | 131.86              | 3.70             |
| 130.31              | 0.00             | 130.83              | 0.66             | 131.35              | 1.85             | 131.87              | 3.92             |
| 130.32              | 0.00             | 130.84              | 0.68             | 131.36              | 1.87             | 131.88              | 4.15             |
| 130.33              | 0.00             | 130.85              | 0.70             | 131.37              | 1.89             | 131.89              | 4.40             |
| 130.34              | 0.00             | 130.86              | 0.72             | 131.38              | 1.92             | 131.90              | 4.66             |
| 130.35              | 0.00             | 130.87              | 0.74             | 131.39              | 1.94             | 131.91              | 4.93             |
| 130.36              | 0.00             | 130.88              | 0.77             | 131.40              | 1.96             | 131.92              | 5.21             |
| 130.37              | 0.00             | 130.89              | 0.79             | 131.41              | 1.98             | 131.93              | 5.51             |
| 130.38              | 0.00             | 130.90              | 0.81             | 131.42              | 2.01             | 131.94              | 5.82             |
| 130.39              | 0.00             | 130.91              | 0.83             | 131.43              | 2.03             | 131.95              | 6.13             |
| 130.40              | 0.00             | 130.92              | 0.85             | 131.44              | 2.05             | 131.96              | 6.46             |
| 130.41              | 0.00             | 130.93              | 0.88             | 131.45              | 2.08             | 131.97              | 6.79             |
| 130.42              | 0.01             | 130.94              | 0.90             | 131.46              | 2.10             | 131.98              | 7.14             |
| 130.43              | 0.01             | 130.95              | 0.92             | 131.47              | 2.12             | 131.99              | 7.49             |
| 130.44              | 0.02             | 130.96              | 0.94             | 131.48              | 2.14             | 132.00              | 7.86             |
| 130.45              | 0.03             | 130.97              | 0.97             | 131.49              | 2.17             |                     |                  |
| 130.46              | 0.04             | 130.98              | 0.99             | 131.50              | 2.19             |                     |                  |
| 130.47              | 0.05             | 130.99              | 1.01             | 131.51              | 2.21             |                     |                  |
| 130.48              | 0.06             | 131.00              | 1.03             | 131.52              | 2.23             |                     |                  |
| 130.49              | 0.07             | 131.01              | 1.06             | 131.53              | 2.25             |                     |                  |
| 130.50              | 0.08             | 131.02              | 1.08             | 131.54              | 2.28             |                     |                  |
| 130.51              | 0.09             | 131.03              | 1.10             | 131.55              | 2.30             |                     |                  |

Stage-Area-Storage for Pond 31P: GI-6

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | 20,000             | 0                       | 131.04              | 20,000             | 20,800                  |
| 130.02              | 20,000             | 400                     | 131.06              | 20,000             | 21,200                  |
| 130.04              | 20,000             | 800                     | 131.08              | 20,000             | 21,600                  |
| 130.06              | 20,000             | 1,200                   | 131.10              | 20,000             | 22,000                  |
| 130.08              | 20,000             | 1,600                   | 131.12              | 20,000             | 22,400                  |
| 130.10              | 20,000             | 2,000                   | 131.14              | 20,000             | 22,800                  |
| 130.12              | 20,000             | 2,400                   | 131.16              | 20,000             | 23,200                  |
| 130.14              | 20,000             | 2,800                   | 131.18              | 20,000             | 23,600                  |
| 130.16              | 20,000             | 3,200                   | 131.20              | 20,000             | 24,000                  |
| 130.18              | 20,000             | 3,600                   | 131.22              | 20,000             | 24,400                  |
| 130.20              | 20,000             | 4,000                   | 131.24              | 20,000             | 24,800                  |
| 130.22              | 20,000             | 4,400                   | 131.26              | 20,000             | 25,200                  |
| 130.24              | 20,000             | 4,800                   | 131.28              | 20,000             | 25,600                  |
| 130.26              | 20,000             | 5,200                   | 131.30              | 20,000             | 26,000                  |
| 130.28              | 20,000             | 5,600                   | 131.32              | 20,000             | 26,400                  |
| 130.30              | 20,000             | 6,000                   | 131.34              | 20,000             | 26,800                  |
| 130.32              | 20,000             | 6,400                   | 131.36              | 20,000             | 27,200                  |
| 130.34              | 20,000             | 6,800                   | 131.38              | 20,000             | 27,600                  |
| 130.36              | 20,000             | 7,200                   | 131.40              | 20,000             | 28,000                  |
| 130.38              | 20,000             | 7,600                   | 131.42              | 20,000             | 28,400                  |
| 130.40              | 20,000             | 8,000                   | 131.44              | 20,000             | 28,800                  |
| 130.42              | 20,000             | 8,400                   | 131.46              | 20,000             | 29,200                  |
| 130.44              | 20,000             | 8,800                   | 131.48              | 20,000             | 29,600                  |
| 130.46              | 20,000             | 9,200                   | 131.50              | 20,000             | 30,000                  |
| 130.48              | 20,000             | 9,600                   | 131.52              | 20,000             | 30,400                  |
| 130.50              | 20,000             | 10,000                  | 131.54              | 20,000             | 30,800                  |
| 130.52              | 20,000             | 10,400                  | 131.56              | 20,000             | 31,200                  |
| 130.54              | 20,000             | 10,800                  | 131.58              | 20,000             | 31,600                  |
| 130.56              | 20,000             | 11,200                  | 131.60              | 20,000             | 32,000                  |
| 130.58              | 20,000             | 11,600                  | 131.62              | 20,000             | 32,400                  |
| 130.60              | 20,000             | 12,000                  | 131.64              | 20,000             | 32,800                  |
| 130.62              | 20,000             | 12,400                  | 131.66              | 20,000             | 33,200                  |
| 130.64              | 20,000             | 12,800                  | 131.68              | 20,000             | 33,600                  |
| 130.66              | 20,000             | 13,200                  | 131.70              | 20,000             | 34,000                  |
| 130.68              | 20,000             | 13,600                  | 131.72              | 20,000             | 34,400                  |
| 130.70              | 20,000             | 14,000                  | 131.74              | 20,000             | 34,800                  |
| 130.72              | 20,000             | 14,400                  | 131.76              | 20,000             | 35,200                  |
| 130.74              | 20,000             | 14,800                  | 131.78              | 20,000             | 35,600                  |
| 130.76              | 20,000             | 15,200                  | 131.80              | 20,000             | 36,000                  |
| 130.78              | 20,000             | 15,600                  | 131.82              | 20,000             | 36,400                  |
| 130.80              | 20,000             | 16,000                  | 131.84              | 20,000             | 36,800                  |
| 130.82              | 20,000             | 16,400                  | 131.86              | 20,000             | 37,200                  |
| 130.84              | 20,000             | 16,800                  | 131.88              | 20,000             | 37,600                  |
| 130.86              | 20,000             | 17,200                  | 131.90              | 20,000             | 38,000                  |
| 130.88              | 20,000             | 17,600                  | 131.92              | 20,000             | 38,400                  |
| 130.90              | 20,000             | 18,000                  | 131.94              | 20,000             | 38,800                  |
| 130.92              | 20,000             | 18,400                  | 131.96              | 20,000             | 39,200                  |
| 130.94              | 20,000             | 18,800                  | 131.98              | 20,000             | 39,600                  |
| 130.96              | 20,000             | 19,200                  | 132.00              | 20,000             | 40,000                  |
| 130.98              | 20,000             | 19,600                  |                     |                    |                         |
| 131.00              | 20,000             | 20,000                  |                     |                    |                         |
| 131.02              | 20,000             | 20,400                  |                     |                    |                         |

Summary for Pond 43P: GI-11

Inflow Area = 17,074 sf, 78.69% Impervious, Inflow Depth = 4.36" for 10-Year-2020 event  
Inflow = 2.13 cfs @ 12.08 hrs, Volume= 6,205 cf  
Outflow = 0.95 cfs @ 12.17 hrs, Volume= 5,017 cf, Atten= 55%, Lag= 5.5 min  
Primary = 0.95 cfs @ 12.17 hrs, Volume= 5,017 cf  
Routed to Link 13L : FES

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.68' @ 12.17 hrs Surf.Area= 2,193 sf Storage= 2,584 cf

Plug-Flow detention time= 185.6 min calculated for 5,017 cf (81% of inflow)  
Center-of-Mass det. time= 105.8 min ( 859.3 - 753.4 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.50' | 4,386 cf      | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.50           | 2,193             | 0                      | 0                      |
| 132.50           | 2,193             | 4,386                  | 4,386                  |

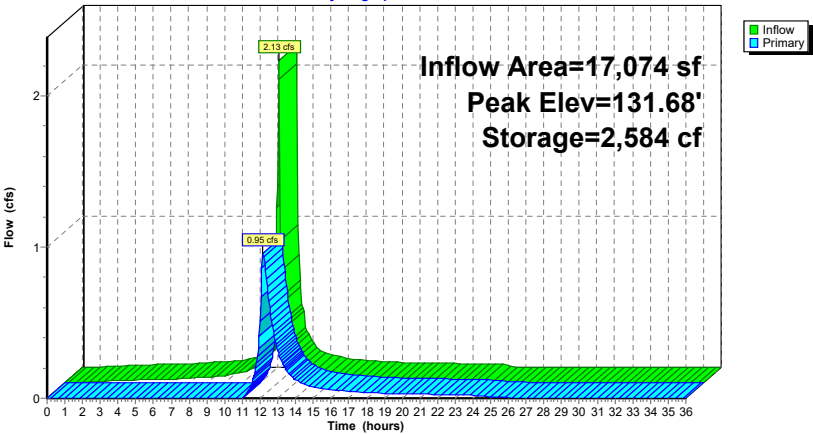
| Device | Routing | Invert  | Outlet Devices                                                |
|--------|---------|---------|---------------------------------------------------------------|
| #1     | Primary | 131.04' | 0.7' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

Primary OutFlow Max=0.94 cfs @ 12.17 hrs HW=131.67' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir(Weir Controls 0.94 cfs @ 2.60 fps)



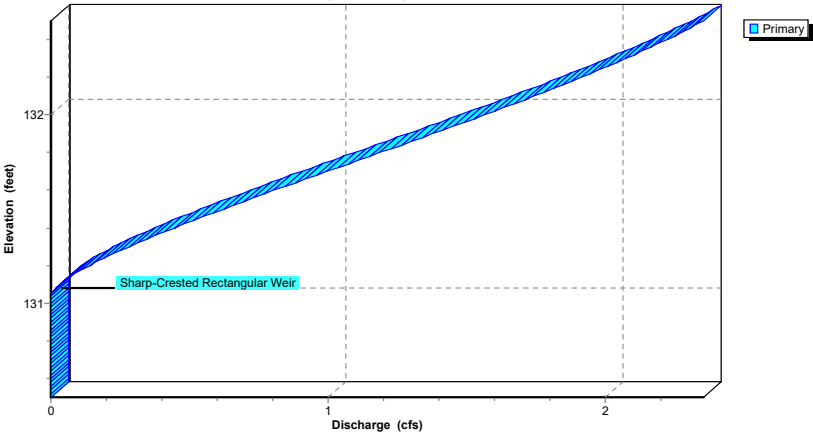
Pond 43P: GI-11

Hydrograph



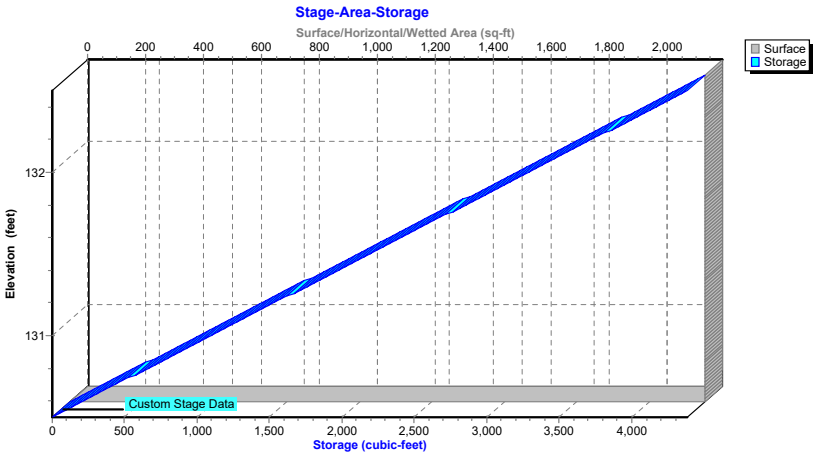
Pond 43P: GI-11

Stage-Discharge





Pond 43P: GI-11



Hydrograph for Pond 43P: GI-11

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.50           | 0.00          |
| 1.00         | 0.00         | 1                    | 130.50           | 0.00          |
| 2.00         | 0.01         | 24                   | 130.51           | 0.00          |
| 3.00         | 0.01         | 68                   | 130.53           | 0.00          |
| 4.00         | 0.02         | 127                  | 130.56           | 0.00          |
| 5.00         | 0.02         | 197                  | 130.59           | 0.00          |
| 6.00         | 0.02         | 278                  | 130.63           | 0.00          |
| 7.00         | 0.03         | 375                  | 130.67           | 0.00          |
| 8.00         | 0.04         | 498                  | 130.73           | 0.00          |
| 9.00         | 0.04         | 646                  | 130.79           | 0.00          |
| 10.00        | 0.07         | 852                  | 130.89           | 0.00          |
| 11.00        | 0.13         | 1,184                | 131.04           | 0.00          |
| 12.00        | 1.30         | 2,063                | 131.44           | 0.51          |
| 13.00        | 0.17         | 1,804                | 131.32           | 0.32          |
| 14.00        | 0.08         | 1,505                | 131.19           | 0.12          |
| 15.00        | 0.06         | 1,414                | 131.14           | 0.08          |
| 16.00        | 0.05         | 1,369                | 131.12           | 0.05          |
| 17.00        | 0.04         | 1,346                | 131.11           | 0.04          |
| 18.00        | 0.03         | 1,326                | 131.10           | 0.04          |
| 19.00        | 0.03         | 1,313                | 131.10           | 0.03          |
| 20.00        | 0.03         | 1,305                | 131.10           | 0.03          |
| 21.00        | 0.03         | 1,299                | 131.09           | 0.03          |
| 22.00        | 0.02         | 1,294                | 131.09           | 0.03          |
| 23.00        | 0.02         | 1,288                | 131.09           | 0.02          |
| 24.00        | 0.02         | 1,284                | 131.09           | 0.02          |
| 25.00        | 0.00         | 1,236                | 131.06           | 0.01          |
| 26.00        | 0.00         | 1,216                | 131.05           | 0.00          |
| 27.00        | 0.00         | 1,205                | 131.05           | 0.00          |
| 28.00        | 0.00         | 1,199                | 131.05           | 0.00          |
| 29.00        | 0.00         | 1,195                | 131.05           | 0.00          |
| 30.00        | 0.00         | 1,193                | 131.04           | 0.00          |
| 31.00        | 0.00         | 1,191                | 131.04           | 0.00          |
| 32.00        | 0.00         | 1,190                | 131.04           | 0.00          |
| 33.00        | 0.00         | 1,189                | 131.04           | 0.00          |
| 34.00        | 0.00         | 1,188                | 131.04           | 0.00          |
| 35.00        | 0.00         | 1,188                | 131.04           | 0.00          |
| 36.00        | 0.00         | 1,187                | 131.04           | 0.00          |

**2101ELK-STM Analysis POI-1 - Propos**NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 43P: GI-11**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.50              | 0.00             | 131.02              | 0.00             | 131.54              | 0.69             | 132.06              | 1.67             |
| 130.51              | 0.00             | 131.03              | 0.00             | 131.55              | 0.71             | 132.07              | 1.69             |
| 130.52              | 0.00             | 131.04              | 0.00             | 131.56              | 0.73             | 132.08              | 1.71             |
| 130.53              | 0.00             | 131.05              | 0.00             | 131.57              | 0.75             | 132.09              | 1.72             |
| 130.54              | 0.00             | 131.06              | 0.01             | 131.58              | 0.77             | 132.10              | 1.74             |
| 130.55              | 0.00             | 131.07              | 0.01             | 131.59              | 0.79             | 132.11              | 1.76             |
| 130.56              | 0.00             | 131.08              | 0.02             | 131.60              | 0.81             | 132.12              | 1.78             |
| 130.57              | 0.00             | 131.09              | 0.03             | 131.61              | 0.82             | 132.13              | 1.79             |
| 130.58              | 0.00             | 131.10              | 0.03             | 131.62              | 0.84             | 132.14              | 1.81             |
| 130.59              | 0.00             | 131.11              | 0.04             | 131.63              | 0.86             | 132.15              | 1.83             |
| 130.60              | 0.00             | 131.12              | 0.05             | 131.64              | 0.88             | 132.16              | 1.84             |
| 130.61              | 0.00             | 131.13              | 0.06             | 131.65              | 0.90             | 132.17              | 1.86             |
| 130.62              | 0.00             | 131.14              | 0.07             | 131.66              | 0.92             | 132.18              | 1.88             |
| 130.63              | 0.00             | 131.15              | 0.08             | 131.67              | 0.94             | 132.19              | 1.90             |
| 130.64              | 0.00             | 131.16              | 0.09             | 131.68              | 0.96             | 132.20              | 1.91             |
| 130.65              | 0.00             | 131.17              | 0.10             | 131.69              | 0.98             | 132.21              | 1.93             |
| 130.66              | 0.00             | 131.18              | 0.12             | 131.70              | 1.00             | 132.22              | 1.94             |
| 130.67              | 0.00             | 131.19              | 0.13             | 131.71              | 1.02             | 132.23              | 1.96             |
| 130.68              | 0.00             | 131.20              | 0.14             | 131.72              | 1.03             | 132.24              | 1.98             |
| 130.69              | 0.00             | 131.21              | 0.15             | 131.73              | 1.05             | 132.25              | 1.99             |
| 130.70              | 0.00             | 131.22              | 0.17             | 131.74              | 1.07             | 132.26              | 2.01             |
| 130.71              | 0.00             | 131.23              | 0.18             | 131.75              | 1.09             | 132.27              | 2.03             |
| 130.72              | 0.00             | 131.24              | 0.19             | 131.76              | 1.11             | 132.28              | 2.04             |
| 130.73              | 0.00             | 131.25              | 0.21             | 131.77              | 1.13             | 132.29              | 2.06             |
| 130.74              | 0.00             | 131.26              | 0.22             | 131.78              | 1.15             | 132.30              | 2.07             |
| 130.75              | 0.00             | 131.27              | 0.24             | 131.79              | 1.17             | 132.31              | 2.09             |
| 130.76              | 0.00             | 131.28              | 0.25             | 131.80              | 1.19             | 132.32              | 2.10             |
| 130.77              | 0.00             | 131.29              | 0.27             | 131.81              | 1.21             | 132.33              | 2.12             |
| 130.78              | 0.00             | 131.30              | 0.28             | 131.82              | 1.23             | 132.34              | 2.13             |
| 130.79              | 0.00             | 131.31              | 0.30             | 131.83              | 1.24             | 132.35              | 2.15             |
| 130.80              | 0.00             | 131.32              | 0.31             | 131.84              | 1.26             | 132.36              | 2.16             |
| 130.81              | 0.00             | 131.33              | 0.33             | 131.85              | 1.28             | 132.37              | 2.18             |
| 130.82              | 0.00             | 131.34              | 0.34             | 131.86              | 1.30             | 132.38              | 2.19             |
| 130.83              | 0.00             | 131.35              | 0.36             | 131.87              | 1.32             | 132.39              | 2.21             |
| 130.84              | 0.00             | 131.36              | 0.38             | 131.88              | 1.34             | 132.40              | 2.22             |
| 130.85              | 0.00             | 131.37              | 0.39             | 131.89              | 1.36             | 132.41              | 2.23             |
| 130.86              | 0.00             | 131.38              | 0.41             | 131.90              | 1.38             | 132.42              | 2.25             |
| 130.87              | 0.00             | 131.39              | 0.43             | 131.91              | 1.40             | 132.43              | 2.26             |
| 130.88              | 0.00             | 131.40              | 0.44             | 131.92              | 1.41             | 132.44              | 2.28             |
| 130.89              | 0.00             | 131.41              | 0.46             | 131.93              | 1.43             | 132.45              | 2.29             |
| 130.90              | 0.00             | 131.42              | 0.48             | 131.94              | 1.45             | 132.46              | 2.30             |
| 130.91              | 0.00             | 131.43              | 0.50             | 131.95              | 1.47             | 132.47              | 2.32             |
| 130.92              | 0.00             | 131.44              | 0.51             | 131.96              | 1.49             | 132.48              | 2.33             |
| 130.93              | 0.00             | 131.45              | 0.53             | 131.97              | 1.51             | 132.49              | 2.34             |
| 130.94              | 0.00             | 131.46              | 0.55             | 131.98              | 1.53             | 132.50              | 2.35             |
| 130.95              | 0.00             | 131.47              | 0.57             | 131.99              | 1.54             |                     |                  |
| 130.96              | 0.00             | 131.48              | 0.58             | 132.00              | 1.56             |                     |                  |
| 130.97              | 0.00             | 131.49              | 0.60             | 132.01              | 1.58             |                     |                  |
| 130.98              | 0.00             | 131.50              | 0.62             | 132.02              | 1.60             |                     |                  |
| 130.99              | 0.00             | 131.51              | 0.64             | 132.03              | 1.62             |                     |                  |
| 131.00              | 0.00             | 131.52              | 0.66             | 132.04              | 1.64             |                     |                  |
| 131.01              | 0.00             | 131.53              | 0.68             | 132.05              | 1.65             |                     |                  |

**2101ELK-STM Analysis POI-1 - Propos**NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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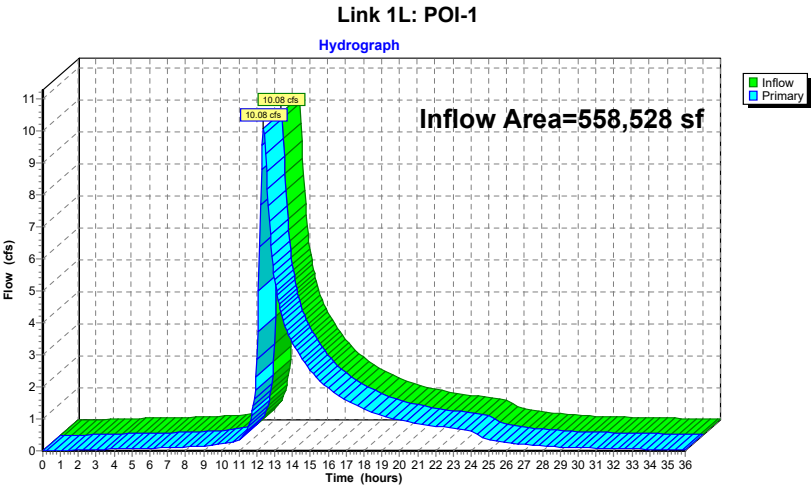
**Stage-Area-Storage for Pond 43P: GI-11**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.50              | 2,193              | 0                       | 131.54              | 2,193              | 2,281                   |
| 130.52              | 2,193              | 44                      | 131.56              | 2,193              | 2,325                   |
| 130.54              | 2,193              | 88                      | 131.58              | 2,193              | 2,368                   |
| 130.56              | 2,193              | 132                     | 131.60              | 2,193              | 2,412                   |
| 130.58              | 2,193              | 175                     | 131.62              | 2,193              | 2,456                   |
| 130.60              | 2,193              | 219                     | 131.64              | 2,193              | 2,500                   |
| 130.62              | 2,193              | 263                     | 131.66              | 2,193              | 2,544                   |
| 130.64              | 2,193              | 307                     | 131.68              | 2,193              | 2,588                   |
| 130.66              | 2,193              | 351                     | 131.70              | 2,193              | 2,632                   |
| 130.68              | 2,193              | 395                     | 131.72              | 2,193              | 2,675                   |
| 130.70              | 2,193              | 439                     | 131.74              | 2,193              | 2,719                   |
| 130.72              | 2,193              | 482                     | 131.76              | 2,193              | 2,763                   |
| 130.74              | 2,193              | 526                     | 131.78              | 2,193              | 2,807                   |
| 130.76              | 2,193              | 570                     | 131.80              | 2,193              | 2,851                   |
| 130.78              | 2,193              | 614                     | 131.82              | 2,193              | 2,895                   |
| 130.80              | 2,193              | 658                     | 131.84              | 2,193              | 2,939                   |
| 130.82              | 2,193              | 702                     | 131.86              | 2,193              | 2,982                   |
| 130.84              | 2,193              | 746                     | 131.88              | 2,193              | 3,026                   |
| 130.86              | 2,193              | 789                     | 131.90              | 2,193              | 3,070                   |
| 130.88              | 2,193              | 833                     | 131.92              | 2,193              | 3,114                   |
| 130.90              | 2,193              | 877                     | 131.94              | 2,193              | 3,158                   |
| 130.92              | 2,193              | 921                     | 131.96              | 2,193              | 3,202                   |
| 130.94              | 2,193              | 965                     | 131.98              | 2,193              | 3,246                   |
| 130.96              | 2,193              | 1,009                   | 132.00              | 2,193              | 3,290                   |
| 130.98              | 2,193              | 1,053                   | 132.02              | 2,193              | 3,333                   |
| 131.00              | 2,193              | 1,097                   | 132.04              | 2,193              | 3,377                   |
| 131.02              | 2,193              | 1,140                   | 132.06              | 2,193              | 3,421                   |
| 131.04              | 2,193              | 1,184                   | 132.08              | 2,193              | 3,465                   |
| 131.06              | 2,193              | 1,228                   | 132.10              | 2,193              | 3,509                   |
| 131.08              | 2,193              | 1,272                   | 132.12              | 2,193              | 3,553                   |
| 131.10              | 2,193              | 1,316                   | 132.14              | 2,193              | 3,597                   |
| 131.12              | 2,193              | 1,360                   | 132.16              | 2,193              | 3,640                   |
| 131.14              | 2,193              | 1,404                   | 132.18              | 2,193              | 3,684                   |
| 131.16              | 2,193              | 1,447                   | 132.20              | 2,193              | 3,728                   |
| 131.18              | 2,193              | 1,491                   | 132.22              | 2,193              | 3,772                   |
| 131.20              | 2,193              | 1,535                   | 132.24              | 2,193              | 3,816                   |
| 131.22              | 2,193              | 1,579                   | 132.26              | 2,193              | 3,860                   |
| 131.24              | 2,193              | 1,623                   | 132.28              | 2,193              | 3,904                   |
| 131.26              | 2,193              | 1,667                   | 132.30              | 2,193              | 3,947                   |
| 131.28              | 2,193              | 1,711                   | 132.32              | 2,193              | 3,991                   |
| 131.30              | 2,193              | 1,754                   | 132.34              | 2,193              | 4,035                   |
| 131.32              | 2,193              | 1,798                   | 132.36              | 2,193              | 4,079                   |
| 131.34              | 2,193              | 1,842                   | 132.38              | 2,193              | 4,123                   |
| 131.36              | 2,193              | 1,886                   | 132.40              | 2,193              | 4,167                   |
| 131.38              | 2,193              | 1,930                   | 132.42              | 2,193              | 4,211                   |
| 131.40              | 2,193              | 1,974                   | 132.44              | 2,193              | 4,254                   |
| 131.42              | 2,193              | 2,018                   | 132.46              | 2,193              | 4,298                   |
| 131.44              | 2,193              | 2,061                   | 132.48              | 2,193              | 4,342                   |
| 131.46              | 2,193              | 2,105                   | 132.50              | 2,193              | 4,386                   |
| 131.48              | 2,193              | 2,149                   |                     |                    |                         |
| 131.50              | 2,193              | 2,193                   |                     |                    |                         |
| 131.52              | 2,193              | 2,237                   |                     |                    |                         |

Summary for Link 1L: POI-1

Inflow Area = 558,528 sf, 45.65% Impervious, Inflow Depth > 2.23" for 10-Year-2020 event  
Inflow = 10.08 cfs @ 12.38 hrs, Volume= 104,023 cf  
Primary = 10.08 cfs @ 12.38 hrs, Volume= 104,023 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs



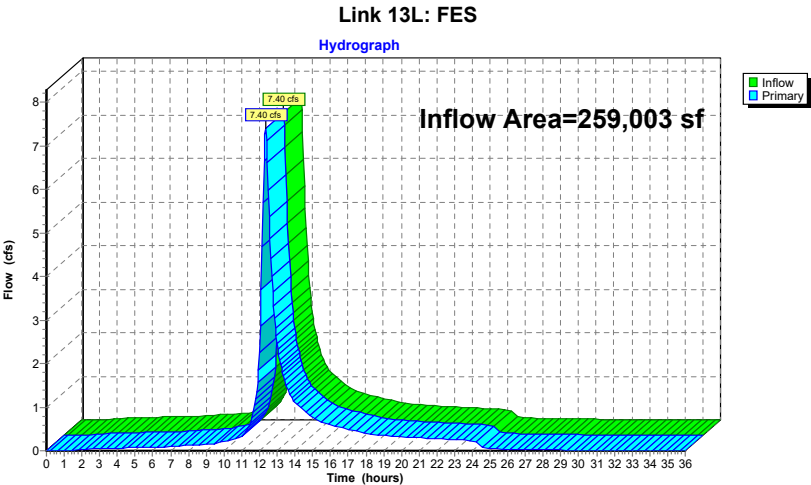
Hydrograph for Link 1L: POI-1

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.25         | 0.00             | 0.25          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.22         | 0.00             | 0.22          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.19         | 0.00             | 0.19          |
| 1.50         | 0.01         | 0.00             | 0.01          | 27.50        | 0.17         | 0.00             | 0.17          |
| 2.00         | 0.03         | 0.00             | 0.03          | 28.00        | 0.15         | 0.00             | 0.15          |
| 2.50         | 0.04         | 0.00             | 0.04          | 28.50        | 0.13         | 0.00             | 0.13          |
| 3.00         | 0.04         | 0.00             | 0.04          | 29.00        | 0.12         | 0.00             | 0.12          |
| 3.50         | 0.05         | 0.00             | 0.05          | 29.50        | 0.11         | 0.00             | 0.11          |
| 4.00         | 0.06         | 0.00             | 0.06          | 30.00        | 0.10         | 0.00             | 0.10          |
| 4.50         | 0.06         | 0.00             | 0.06          | 30.50        | 0.09         | 0.00             | 0.09          |
| 5.00         | 0.07         | 0.00             | 0.07          | 31.00        | 0.08         | 0.00             | 0.08          |
| 5.50         | 0.07         | 0.00             | 0.07          | 31.50        | 0.07         | 0.00             | 0.07          |
| 6.00         | 0.08         | 0.00             | 0.08          | 32.00        | 0.07         | 0.00             | 0.07          |
| 6.50         | 0.08         | 0.00             | 0.08          | 32.50        | 0.06         | 0.00             | 0.06          |
| 7.00         | 0.10         | 0.00             | 0.10          | 33.00        | 0.06         | 0.00             | 0.06          |
| 7.50         | 0.11         | 0.00             | 0.11          | 33.50        | 0.05         | 0.00             | 0.05          |
| 8.00         | 0.12         | 0.00             | 0.12          | 34.00        | 0.05         | 0.00             | 0.05          |
| 8.50         | 0.13         | 0.00             | 0.13          | 34.50        | 0.04         | 0.00             | 0.04          |
| 9.00         | 0.14         | 0.00             | 0.14          | 35.00        | 0.04         | 0.00             | 0.04          |
| 9.50         | 0.17         | 0.00             | 0.17          | 35.50        | 0.04         | 0.00             | 0.04          |
| 10.00        | 0.21         | 0.00             | 0.21          | 36.00        | 0.04         | 0.00             | 0.04          |
| 10.50        | 0.25         | 0.00             | 0.25          |              |              |                  |               |
| 11.00        | 0.35         | 0.00             | 0.35          |              |              |                  |               |
| 11.50        | 0.74         | 0.00             | 0.74          |              |              |                  |               |
| 12.00        | 2.87         | 0.00             | 2.87          |              |              |                  |               |
| 12.50        | 9.28         | 0.00             | 9.28          |              |              |                  |               |
| 13.00        | 5.36         | 0.00             | 5.36          |              |              |                  |               |
| 13.50        | 4.04         | 0.00             | 4.04          |              |              |                  |               |
| 14.00        | 3.35         | 0.00             | 3.35          |              |              |                  |               |
| 14.50        | 2.92         | 0.00             | 2.92          |              |              |                  |               |
| 15.00        | 2.53         | 0.00             | 2.53          |              |              |                  |               |
| 15.50        | 2.19         | 0.00             | 2.19          |              |              |                  |               |
| 16.00        | 1.96         | 0.00             | 1.96          |              |              |                  |               |
| 16.50        | 1.76         | 0.00             | 1.76          |              |              |                  |               |
| 17.00        | 1.59         | 0.00             | 1.59          |              |              |                  |               |
| 17.50        | 1.44         | 0.00             | 1.44          |              |              |                  |               |
| 18.00        | 1.30         | 0.00             | 1.30          |              |              |                  |               |
| 18.50        | 1.18         | 0.00             | 1.18          |              |              |                  |               |
| 19.00        | 1.10         | 0.00             | 1.10          |              |              |                  |               |
| 19.50        | 1.02         | 0.00             | 1.02          |              |              |                  |               |
| 20.00        | 0.96         | 0.00             | 0.96          |              |              |                  |               |
| 20.50        | 0.91         | 0.00             | 0.91          |              |              |                  |               |
| 21.00        | 0.86         | 0.00             | 0.86          |              |              |                  |               |
| 21.50        | 0.82         | 0.00             | 0.82          |              |              |                  |               |
| 22.00        | 0.78         | 0.00             | 0.78          |              |              |                  |               |
| 22.50        | 0.74         | 0.00             | 0.74          |              |              |                  |               |
| 23.00        | 0.71         | 0.00             | 0.71          |              |              |                  |               |
| 23.50        | 0.67         | 0.00             | 0.67          |              |              |                  |               |
| 24.00        | 0.65         | 0.00             | 0.65          |              |              |                  |               |
| 24.50        | 0.44         | 0.00             | 0.44          |              |              |                  |               |
| 25.00        | 0.35         | 0.00             | 0.35          |              |              |                  |               |
| 25.50        | 0.29         | 0.00             | 0.29          |              |              |                  |               |

Summary for Link 13L: FES

Inflow Area = 259,003 sf, 30.97% Impervious, Inflow Depth > 2.14" for 10-Year-2020 event  
Inflow = 7.40 cfs @ 12.34 hrs, Volume= 46,139 cf  
Primary = 7.40 cfs @ 12.34 hrs, Volume= 46,139 cf, Atten= 0%, Lag= 0.0 min  
Routed to Link 1L : POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs



Hydrograph for Link 13L: FES

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.03         | 0.00             | 0.03          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.03         | 0.00             | 0.03          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.02         | 0.00             | 0.02          |
| 1.50         | 0.01         | 0.00             | 0.01          | 27.50        | 0.02         | 0.00             | 0.02          |
| 2.00         | 0.03         | 0.00             | 0.03          | 28.00        | 0.02         | 0.00             | 0.02          |
| 2.50         | 0.04         | 0.00             | 0.04          | 28.50        | 0.02         | 0.00             | 0.02          |
| 3.00         | 0.04         | 0.00             | 0.04          | 29.00        | 0.01         | 0.00             | 0.01          |
| 3.50         | 0.05         | 0.00             | 0.05          | 29.50        | 0.01         | 0.00             | 0.01          |
| 4.00         | 0.06         | 0.00             | 0.06          | 30.00        | 0.01         | 0.00             | 0.01          |
| 4.50         | 0.06         | 0.00             | 0.06          | 30.50        | 0.01         | 0.00             | 0.01          |
| 5.00         | 0.07         | 0.00             | 0.07          | 31.00        | 0.01         | 0.00             | 0.01          |
| 5.50         | 0.07         | 0.00             | 0.07          | 31.50        | 0.01         | 0.00             | 0.01          |
| 6.00         | 0.08         | 0.00             | 0.08          | 32.00        | 0.01         | 0.00             | 0.01          |
| 6.50         | 0.08         | 0.00             | 0.08          | 32.50        | 0.01         | 0.00             | 0.01          |
| 7.00         | 0.10         | 0.00             | 0.10          | 33.00        | 0.01         | 0.00             | 0.01          |
| 7.50         | 0.11         | 0.00             | 0.11          | 33.50        | 0.01         | 0.00             | 0.01          |
| 8.00         | 0.12         | 0.00             | 0.12          | 34.00        | 0.01         | 0.00             | 0.01          |
| 8.50         | 0.13         | 0.00             | 0.13          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.14         | 0.00             | 0.14          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.17         | 0.00             | 0.17          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.21         | 0.00             | 0.21          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.25         | 0.00             | 0.25          |              |              |                  |               |
| 11.00        | 0.34         | 0.00             | 0.34          |              |              |                  |               |
| 11.50        | 0.67         | 0.00             | 0.67          |              |              |                  |               |
| 12.00        | 2.26         | 0.00             | 2.26          |              |              |                  |               |
| 12.50        | 5.98         | 0.00             | 5.98          |              |              |                  |               |
| 13.00        | 2.46         | 0.00             | 2.46          |              |              |                  |               |
| 13.50        | 1.53         | 0.00             | 1.53          |              |              |                  |               |
| 14.00        | 1.11         | 0.00             | 1.11          |              |              |                  |               |
| 14.50        | 0.93         | 0.00             | 0.93          |              |              |                  |               |
| 15.00        | 0.78         | 0.00             | 0.78          |              |              |                  |               |
| 15.50        | 0.65         | 0.00             | 0.65          |              |              |                  |               |
| 16.00        | 0.59         | 0.00             | 0.59          |              |              |                  |               |
| 16.50        | 0.54         | 0.00             | 0.54          |              |              |                  |               |
| 17.00        | 0.49         | 0.00             | 0.49          |              |              |                  |               |
| 17.50        | 0.45         | 0.00             | 0.45          |              |              |                  |               |
| 18.00        | 0.41         | 0.00             | 0.41          |              |              |                  |               |
| 18.50        | 0.37         | 0.00             | 0.37          |              |              |                  |               |
| 19.00        | 0.35         | 0.00             | 0.35          |              |              |                  |               |
| 19.50        | 0.34         | 0.00             | 0.34          |              |              |                  |               |
| 20.00        | 0.32         | 0.00             | 0.32          |              |              |                  |               |
| 20.50        | 0.31         | 0.00             | 0.31          |              |              |                  |               |
| 21.00        | 0.30         | 0.00             | 0.30          |              |              |                  |               |
| 21.50        | 0.29         | 0.00             | 0.29          |              |              |                  |               |
| 22.00        | 0.27         | 0.00             | 0.27          |              |              |                  |               |
| 22.50        | 0.26         | 0.00             | 0.26          |              |              |                  |               |
| 23.00        | 0.25         | 0.00             | 0.25          |              |              |                  |               |
| 23.50        | 0.24         | 0.00             | 0.24          |              |              |                  |               |
| 24.00        | 0.23         | 0.00             | 0.23          |              |              |                  |               |
| 24.50        | 0.08         | 0.00             | 0.08          |              |              |                  |               |
| 25.00        | 0.04         | 0.00             | 0.04          |              |              |                  |               |
| 25.50        | 0.04         | 0.00             | 0.04          |              |              |                  |               |

**2101ELK-STM Analysis POI-1 - PropoNOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"**

Prepared by Van Cleef Engineering Assoc

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Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

|                                           |                                                                                                                                          |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Subcatchment1S: GI-1 Pervious</b>      | Runoff Area=18,062 sf 0.00% Impervious Runoff Depth=1.63"<br>Flow Length=68' Slope=0.0330 '/' Tc=8.3 min CN=39 Runoff=0.65 cfs 2,455 cf  |
| <b>Subcatchment2S: GI-9 Pervious</b>      | Runoff Area=16,032 sf 0.00% Impervious Runoff Depth=4.27"<br>Flow Length=17' Slope=0.0960 '/' Tc=1.8 min CN=61 Runoff=2.36 cfs 5,707 cf  |
| <b>Subcatchment3S: GI-1 Impervious</b>    | Runoff Area=21,060 sf 100.00% Impervious Runoff Depth=8.82"<br>Flow Length=400' Tc=2.7 min CN=98 Runoff=5.14 cfs 15,478 cf               |
| <b>Subcatchment5S: Proposed Disturbed</b> | Runoff Area=44,397 sf 0.00% Impervious Runoff Depth=2.56"<br>Flow Length=1,818' Tc=89.9 min CN=47 Runoff=0.87 cfs 9,475 cf               |
| <b>Subcatchment6S: GI-9 Impervious</b>    | Runoff Area=43,332 sf 100.00% Impervious Runoff Depth=8.82"<br>Flow Length=311' Tc=2.3 min CN=98 Runoff=10.69 cfs 31,848 cf              |
| <b>Subcatchment15S: GI-2 Pervious</b>     | Runoff Area=13,462 sf 0.00% Impervious Runoff Depth=1.63"<br>Flow Length=28' Slope=0.0400 '/' Tc=3.8 min CN=39 Runoff=0.58 cfs 1,830 cf  |
| <b>Subcatchment16S: GI-2 Impervious</b>   | Runoff Area=13,121 sf 100.00% Impervious Runoff Depth=8.82"<br>Flow Length=220' Tc=1.9 min CN=98 Runoff=3.26 cfs 9,644 cf                |
| <b>Subcatchment26S: GI-3 Pervious</b>     | Runoff Area=23,555 sf 0.00% Impervious Runoff Depth=3.53"<br>Flow Length=93' Slope=0.0130 '/' Tc=10.0 min CN=55 Runoff=2.09 cfs 6,932 cf |
| <b>Subcatchment27S: GI-3 Impervious</b>   | Runoff Area=60,594 sf 100.00% Impervious Runoff Depth=8.82"<br>Flow Length=433' Tc=3.4 min CN=98 Runoff=14.39 cfs 44,535 cf              |
| <b>Subcatchment29S: GI-6 Pervious</b>     | Runoff Area=27,344 sf 0.00% Impervious Runoff Depth=2.80"<br>Flow Length=60' Slope=0.0280 '/' Tc=8.0 min CN=49 Runoff=2.03 cfs 6,382 cf  |
| <b>Subcatchment30S: GI-6 Impervious</b>   | Runoff Area=57,688 sf 100.00% Impervious Runoff Depth=8.82"<br>Flow Length=401' Tc=3.3 min CN=98 Runoff=13.77 cfs 42,399 cf              |
| <b>Subcatchment41S: GI-11 Pervious</b>    | Runoff Area=3,638 sf 0.00% Impervious Runoff Depth=4.27"<br>Flow Length=123' Tc=3.6 min CN=61 Runoff=0.50 cfs 1,295 cf                   |
| <b>Subcatchment42S: GI-11 Impervious</b>  | Runoff Area=13,436 sf 100.00% Impervious Runoff Depth=8.82"<br>Flow Length=158' Tc=1.7 min CN=98 Runoff=3.27 cfs 9,875 cf                |
| <b>Subcatchment46S: North Undisturbed</b> | Runoff Area=157,085 sf 0.00% Impervious Runoff Depth=3.41"<br>Flow Length=690' Tc=22.7 min CN=54 Runoff=9.51 cfs 44,623 cf               |
| <b>Subcatchment47S: North Undisturbed</b> | Runoff Area=45,722 sf 100.00% Impervious Runoff Depth=8.82"<br>Flow Length=725' Tc=23.2 min CN=98 Runoff=6.30 cfs 33,604 cf              |
| <b>Pond 2P: GI-1</b>                      | Peak Elev=132.14' Storage=9,088 cf Inflow=5.51 cfs 17,933 cf<br>Outflow=0.89 cfs 15,852 cf                                               |

**2101ELK-STM Analysis POI-1 - PropoNOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"**

Prepared by Van Cleef Engineering Assoc

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|                        |                                                                                               |
|------------------------|-----------------------------------------------------------------------------------------------|
| <b>Pond 7P: GI-9</b>   | Peak Elev=130.16' Storage=19,723 cf Inflow=13.06 cfs 37,554 cf<br>Outflow=1.89 cfs 33,534 cf  |
| <b>Pond 14P: GI-2</b>  | Peak Elev=130.76' Storage=5,445 cf Inflow=3.78 cfs 11,473 cf<br>Outflow=0.72 cfs 10,177 cf    |
| <b>Pond 28P: GI-3</b>  | Peak Elev=131.86' Storage=20,485 cf Inflow=15.85 cfs 51,467 cf<br>Outflow=12.73 cfs 39,882 cf |
| <b>Pond 31P: GI-6</b>  | Peak Elev=131.41' Storage=28,173 cf Inflow=15.28 cfs 48,781 cf<br>Outflow=1.98 cfs 39,946 cf  |
| <b>Pond 43P: GI-11</b> | Peak Elev=132.12' Storage=3,559 cf Inflow=3.81 cfs 11,170 cf<br>Outflow=1.78 cfs 9,983 cf     |
| <b>Link 1L: POI-1</b>  | Inflow=29.77 cfs 237,076 cf<br>Primary=29.77 cfs 237,076 cf                                   |
| <b>Link 13L: FES</b>   | Inflow=18.14 cfs 104,062 cf<br>Primary=18.14 cfs 104,062 cf                                   |

**Total Runoff Area = 558,528 sf Runoff Volume = 266,081 cf Average Runoff Depth = 5.72"**  
**54.35% Pervious = 303,575 sf 45.65% Impervious = 254,953 sf**

Summary for Subcatchment 1S: GI-1 Pervious

Runoff = 0.65 cfs @ 12.17 hrs, Volume= 2,455 cf, Depth= 1.63"  
Routed to Pond 2P : GI-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

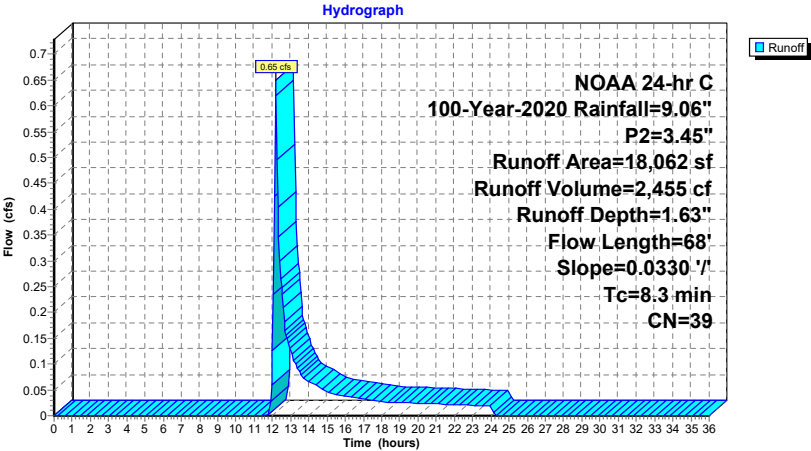
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 18,062    | 39 | >75% Grass cover, Good, HSG A |
| 18,062    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|-------------|
| 8.3      | 68            | 0.0330        | 0.14              |                |             |

Sheet Flow, SEG 1  
Grass: Dense n= 0.240 P2= 3.45"



Subcatchment 1S: GI-1 Pervious



Hydrograph for Subcatchment 1S: GI-1 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 9.06             | 1.63            | 0.00         |
| 0.50         | 0.05             | 0.00            | 0.00         | 26.50        | 9.06             | 1.63            | 0.00         |
| 1.00         | 0.10             | 0.00            | 0.00         | 27.00        | 9.06             | 1.63            | 0.00         |
| 1.50         | 0.15             | 0.00            | 0.00         | 27.50        | 9.06             | 1.63            | 0.00         |
| 2.00         | 0.20             | 0.00            | 0.00         | 28.00        | 9.06             | 1.63            | 0.00         |
| 2.50         | 0.26             | 0.00            | 0.00         | 28.50        | 9.06             | 1.63            | 0.00         |
| 3.00         | 0.32             | 0.00            | 0.00         | 29.00        | 9.06             | 1.63            | 0.00         |
| 3.50         | 0.38             | 0.00            | 0.00         | 29.50        | 9.06             | 1.63            | 0.00         |
| 4.00         | 0.44             | 0.00            | 0.00         | 30.00        | 9.06             | 1.63            | 0.00         |
| 4.50         | 0.51             | 0.00            | 0.00         | 30.50        | 9.06             | 1.63            | 0.00         |
| 5.00         | 0.58             | 0.00            | 0.00         | 31.00        | 9.06             | 1.63            | 0.00         |
| 5.50         | 0.65             | 0.00            | 0.00         | 31.50        | 9.06             | 1.63            | 0.00         |
| 6.00         | 0.72             | 0.00            | 0.00         | 32.00        | 9.06             | 1.63            | 0.00         |
| 6.50         | 0.80             | 0.00            | 0.00         | 32.50        | 9.06             | 1.63            | 0.00         |
| 7.00         | 0.88             | 0.00            | 0.00         | 33.00        | 9.06             | 1.63            | 0.00         |
| 7.50         | 0.98             | 0.00            | 0.00         | 33.50        | 9.06             | 1.63            | 0.00         |
| 8.00         | 1.09             | 0.00            | 0.00         | 34.00        | 9.06             | 1.63            | 0.00         |
| 8.50         | 1.20             | 0.00            | 0.00         | 34.50        | 9.06             | 1.63            | 0.00         |
| 9.00         | 1.32             | 0.00            | 0.00         | 35.00        | 9.06             | 1.63            | 0.00         |
| 9.50         | 1.47             | 0.00            | 0.00         | 35.50        | 9.06             | 1.63            | 0.00         |
| 10.00        | 1.65             | 0.00            | 0.00         | 36.00        | 9.06             | 1.63            | 0.00         |
| 10.50        | 1.87             | 0.00            | 0.00         |              |                  |                 |              |
| 11.00        | 2.17             | 0.00            | 0.00         |              |                  |                 |              |
| 11.50        | 2.68             | 0.00            | 0.00         |              |                  |                 |              |
| 12.00        | 4.32             | 0.08            | 0.13         |              |                  |                 |              |
| 12.50        | 6.38             | 0.56            | 0.25         |              |                  |                 |              |
| 13.00        | 6.89             | 0.73            | 0.13         |              |                  |                 |              |
| 13.50        | 7.19             | 0.84            | 0.08         |              |                  |                 |              |
| 14.00        | 7.41             | 0.92            | 0.07         |              |                  |                 |              |
| 14.50        | 7.59             | 0.99            | 0.06         |              |                  |                 |              |
| 15.00        | 7.74             | 1.05            | 0.05         |              |                  |                 |              |
| 15.50        | 7.86             | 1.10            | 0.04         |              |                  |                 |              |
| 16.00        | 7.97             | 1.15            | 0.04         |              |                  |                 |              |
| 16.50        | 8.08             | 1.19            | 0.04         |              |                  |                 |              |
| 17.00        | 8.18             | 1.23            | 0.03         |              |                  |                 |              |
| 17.50        | 8.26             | 1.27            | 0.03         |              |                  |                 |              |
| 18.00        | 8.34             | 1.30            | 0.03         |              |                  |                 |              |
| 18.50        | 8.41             | 1.34            | 0.03         |              |                  |                 |              |
| 19.00        | 8.48             | 1.37            | 0.03         |              |                  |                 |              |
| 19.50        | 8.55             | 1.40            | 0.03         |              |                  |                 |              |
| 20.00        | 8.62             | 1.43            | 0.02         |              |                  |                 |              |
| 20.50        | 8.68             | 1.45            | 0.02         |              |                  |                 |              |
| 21.00        | 8.74             | 1.48            | 0.02         |              |                  |                 |              |
| 21.50        | 8.80             | 1.51            | 0.02         |              |                  |                 |              |
| 22.00        | 8.86             | 1.53            | 0.02         |              |                  |                 |              |
| 22.50        | 8.91             | 1.56            | 0.02         |              |                  |                 |              |
| 23.00        | 8.96             | 1.58            | 0.02         |              |                  |                 |              |
| 23.50        | 9.01             | 1.61            | 0.02         |              |                  |                 |              |
| 24.00        | 9.06             | 1.63            | 0.02         |              |                  |                 |              |
| 24.50        | 9.06             | 1.63            | 0.00         |              |                  |                 |              |
| 25.00        | 9.06             | 1.63            | 0.00         |              |                  |                 |              |
| 25.50        | 9.06             | 1.63            | 0.00         |              |                  |                 |              |

Summary for Subcatchment 2S: GI-9 Pervious

Runoff = 2.36 cfs @ 12.08 hrs, Volume= 5,707 cf, Depth= 4.27"  
Routed to Pond 7P : GI-9

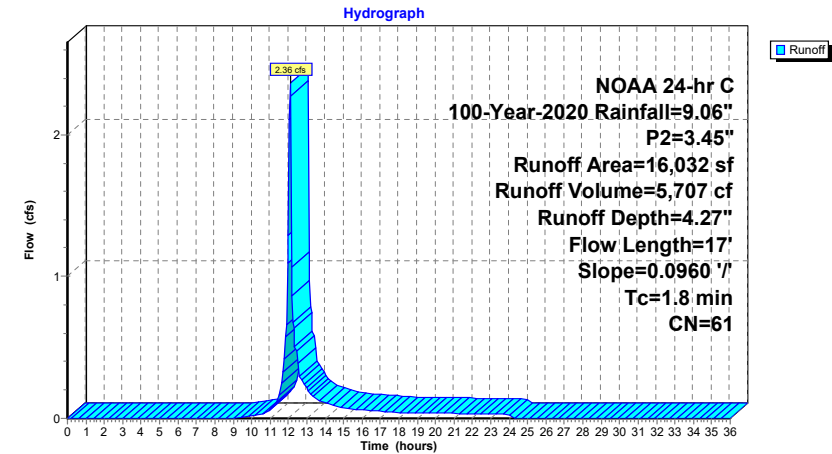
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 154       | 39 | >75% Grass cover, Good, HSG A |
| 15,878    | 61 | >75% Grass cover, Good, HSG B |
| 16,032    | 61 | Weighted Average              |
| 16,032    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                    |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------|
| 1.8      | 17            | 0.0960        | 0.16              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.45" |



Subcatchment 2S: GI-9 Pervious



Hydrograph for Subcatchment 2S: GI-9 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 9.06             | 4.27            | 0.00         |
| 0.50         | 0.05             | 0.00            | 0.00         | 26.50        | 9.06             | 4.27            | 0.00         |
| 1.00         | 0.10             | 0.00            | 0.00         | 27.00        | 9.06             | 4.27            | 0.00         |
| 1.50         | 0.15             | 0.00            | 0.00         | 27.50        | 9.06             | 4.27            | 0.00         |
| 2.00         | 0.20             | 0.00            | 0.00         | 28.00        | 9.06             | 4.27            | 0.00         |
| 2.50         | 0.26             | 0.00            | 0.00         | 28.50        | 9.06             | 4.27            | 0.00         |
| 3.00         | 0.32             | 0.00            | 0.00         | 29.00        | 9.06             | 4.27            | 0.00         |
| 3.50         | 0.38             | 0.00            | 0.00         | 29.50        | 9.06             | 4.27            | 0.00         |
| 4.00         | 0.44             | 0.00            | 0.00         | 30.00        | 9.06             | 4.27            | 0.00         |
| 4.50         | 0.51             | 0.00            | 0.00         | 30.50        | 9.06             | 4.27            | 0.00         |
| 5.00         | 0.58             | 0.00            | 0.00         | 31.00        | 9.06             | 4.27            | 0.00         |
| 5.50         | 0.65             | 0.00            | 0.00         | 31.50        | 9.06             | 4.27            | 0.00         |
| 6.00         | 0.72             | 0.00            | 0.00         | 32.00        | 9.06             | 4.27            | 0.00         |
| 6.50         | 0.80             | 0.00            | 0.00         | 32.50        | 9.06             | 4.27            | 0.00         |
| 7.00         | 0.88             | 0.00            | 0.00         | 33.00        | 9.06             | 4.27            | 0.00         |
| 7.50         | 0.98             | 0.00            | 0.00         | 33.50        | 9.06             | 4.27            | 0.00         |
| 8.00         | 1.09             | 0.00            | 0.00         | 34.00        | 9.06             | 4.27            | 0.00         |
| 8.50         | 1.20             | 0.00            | 0.00         | 34.50        | 9.06             | 4.27            | 0.00         |
| 9.00         | 1.32             | 0.00            | 0.00         | 35.00        | 9.06             | 4.27            | 0.00         |
| 9.50         | 1.47             | 0.01            | 0.01         | 35.50        | 9.06             | 4.27            | 0.00         |
| 10.00        | 1.65             | 0.02            | 0.02         | 36.00        | 9.06             | 4.27            | 0.00         |
| 10.50        | 1.87             | 0.05            | 0.03         |              |                  |                 |              |
| 11.00        | 2.17             | 0.11            | 0.06         |              |                  |                 |              |
| 11.50        | 2.68             | 0.25            | 0.15         |              |                  |                 |              |
| 12.00        | 4.32             | 0.98            | 1.29         |              |                  |                 |              |
| 12.50        | 6.38             | 2.27            | 0.46         |              |                  |                 |              |
| 13.00        | 6.89             | 2.62            | 0.21         |              |                  |                 |              |
| 13.50        | 7.19             | 2.84            | 0.14         |              |                  |                 |              |
| 14.00        | 7.41             | 3.00            | 0.11         |              |                  |                 |              |
| 14.50        | 7.59             | 3.13            | 0.09         |              |                  |                 |              |
| 15.00        | 7.74             | 3.25            | 0.07         |              |                  |                 |              |
| 15.50        | 7.86             | 3.34            | 0.07         |              |                  |                 |              |
| 16.00        | 7.97             | 3.43            | 0.06         |              |                  |                 |              |
| 16.50        | 8.08             | 3.51            | 0.06         |              |                  |                 |              |
| 17.00        | 8.18             | 3.58            | 0.05         |              |                  |                 |              |
| 17.50        | 8.26             | 3.65            | 0.05         |              |                  |                 |              |
| 18.00        | 8.34             | 3.71            | 0.04         |              |                  |                 |              |
| 18.50        | 8.41             | 3.76            | 0.04         |              |                  |                 |              |
| 19.00        | 8.48             | 3.82            | 0.04         |              |                  |                 |              |
| 19.50        | 8.55             | 3.87            | 0.04         |              |                  |                 |              |
| 20.00        | 8.62             | 3.92            | 0.04         |              |                  |                 |              |
| 20.50        | 8.68             | 3.97            | 0.04         |              |                  |                 |              |
| 21.00        | 8.74             | 4.02            | 0.03         |              |                  |                 |              |
| 21.50        | 8.80             | 4.06            | 0.03         |              |                  |                 |              |
| 22.00        | 8.86             | 4.11            | 0.03         |              |                  |                 |              |
| 22.50        | 8.91             | 4.15            | 0.03         |              |                  |                 |              |
| 23.00        | 8.96             | 4.19            | 0.03         |              |                  |                 |              |
| 23.50        | 9.01             | 4.23            | 0.03         |              |                  |                 |              |
| 24.00        | 9.06             | 4.27            | 0.03         |              |                  |                 |              |
| 24.50        | 9.06             | 4.27            | 0.00         |              |                  |                 |              |
| 25.00        | 9.06             | 4.27            | 0.00         |              |                  |                 |              |
| 25.50        | 9.06             | 4.27            | 0.00         |              |                  |                 |              |

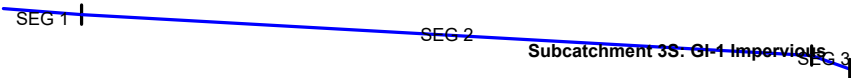
Summary for Subcatchment 3S: GI-1 Impervious

Runoff = 5.14 cfs @ 12.09 hrs, Volume= 15,478 cf, Depth= 8.82"  
Routed to Pond 2P : GI-1

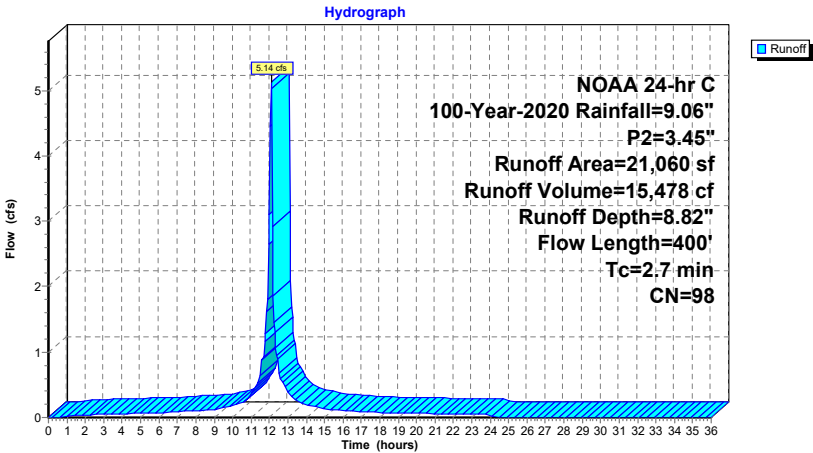
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 21,060    | 98 | Paved parking, HSG A    |
| 21,060    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 0.6      | 37            | 0.0140        | 1.02              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.45"             |
| 1.9      | 345           | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2      | 18            | 0.0630        | 1.76              |                | Shallow Concentrated Flow, SEG 3<br>Short Grass Pasture Kv= 7.0 fps |
| 2.7      | 400           |               |                   |                | Total                                                               |



Subcatchment 3S: GI-1 Impervious



Hydrograph for Subcatchment 3S: GI-1 Impervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         |
| 0.50         | 0.05             | 0.00            | 0.00         |
| 1.00         | 0.10             | 0.01            | 0.02         |
| 1.50         | 0.15             | 0.04            | 0.03         |
| 2.00         | 0.20             | 0.07            | 0.04         |
| 2.50         | 0.26             | 0.11            | 0.04         |
| 3.00         | 0.32             | 0.16            | 0.05         |
| 3.50         | 0.38             | 0.21            | 0.05         |
| 4.00         | 0.44             | 0.27            | 0.06         |
| 4.50         | 0.51             | 0.33            | 0.06         |
| 5.00         | 0.58             | 0.39            | 0.06         |
| 5.50         | 0.65             | 0.45            | 0.06         |
| 6.00         | 0.72             | 0.52            | 0.07         |
| 6.50         | 0.80             | 0.59            | 0.08         |
| 7.00         | 0.88             | 0.68            | 0.09         |
| 7.50         | 0.98             | 0.77            | 0.09         |
| 8.00         | 1.09             | 0.87            | 0.10         |
| 8.50         | 1.20             | 0.99            | 0.11         |
| 9.00         | 1.32             | 1.11            | 0.12         |
| 9.50         | 1.47             | 1.25            | 0.15         |
| 10.00        | 1.65             | 1.43            | 0.19         |
| 10.50        | 1.87             | 1.64            | 0.22         |
| 11.00        | 2.17             | 1.95            | 0.35         |
| 11.50        | 2.68             | 2.45            | 0.58         |
| 12.00        | 4.32             | 4.08            | 3.10         |
| 12.50        | 6.38             | 6.14            | 8.89         |
| 13.00        | 6.89             | 6.65            | 8.40         |
| 13.50        | 7.19             | 6.95            | 8.25         |
| 14.00        | 7.41             | 7.17            | 8.20         |
| 14.50        | 7.59             | 7.35            | 8.16         |
| 15.00        | 7.74             | 7.50            | 8.13         |
| 15.50        | 7.86             | 7.62            | 8.12         |
| 16.00        | 7.97             | 7.73            | 8.11         |
| 16.50        | 8.08             | 7.84            | 8.10         |
| 17.00        | 8.18             | 7.94            | 8.09         |
| 17.50        | 8.26             | 8.02            | 8.08         |
| 18.00        | 8.34             | 8.10            | 8.07         |
| 18.50        | 8.41             | 8.17            | 8.07         |
| 19.00        | 8.48             | 8.24            | 8.07         |
| 19.50        | 8.55             | 8.31            | 8.06         |
| 20.00        | 8.62             | 8.38            | 8.06         |
| 20.50        | 8.68             | 8.44            | 8.06         |
| 21.00        | 8.74             | 8.50            | 8.06         |
| 21.50        | 8.80             | 8.56            | 8.06         |
| 22.00        | 8.86             | 8.61            | 8.05         |
| 22.50        | 8.91             | 8.67            | 8.05         |
| 23.00        | 8.96             | 8.72            | 8.05         |
| 23.50        | 9.01             | 8.77            | 8.05         |
| 24.00        | 9.06             | 8.82            | 8.06         |
| 24.50        | 9.06             | 8.82            | 8.00         |
| 25.00        | 9.06             | 8.82            | 8.00         |
| 25.50        | 9.06             | 8.82            | 8.00         |



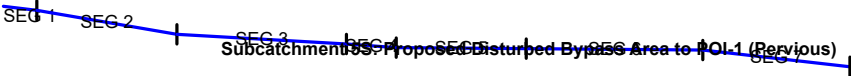
Summary for Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)

Runoff = 0.87 cfs @ 13.32 hrs, Volume= 9,475 cf, Depth= 2.56"  
Routed to Link 1L : POI-1

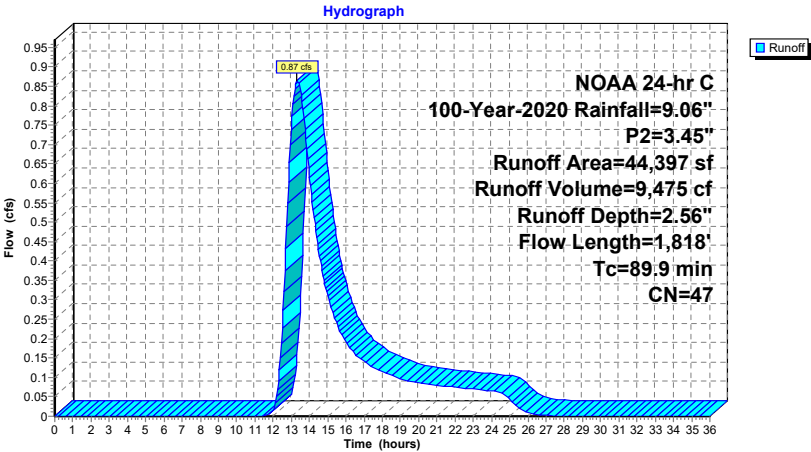
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 28,757    | 39 | >75% Grass cover, Good, HSG A |
| 15,640    | 61 | >75% Grass cover, Good, HSG B |
| 44,397    | 47 | Weighted Average              |
| 44,397    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 9.0      | 72            | 0.0150        | 0.13              |                | Sheet Flow, SEG 1<br>Cultivated: Residue>20% n= 0.170 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 3.8      | 301           | 0.0210        | 1.30              |                | Shallow Concentrated Flow, SEG 2<br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 8.1      | 364           | 0.0070        | 0.75              |                | Shallow Concentrated Flow, SEG 3<br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 3.8      | 107           | 0.0090        | 0.47              |                | Shallow Concentrated Flow, SEG 4<br>Woodland Kv= 5.0 fps                                           |
| 16.3     | 279           | 0.0010        | 0.28              |                | Shallow Concentrated Flow, SEG 5<br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 40.0     | 379           | 0.0010        | 0.16              |                | Shallow Concentrated Flow, SEG 6<br>Woodland Kv= 5.0 fps                                           |
| 8.9      | 316           | 0.0140        | 0.59              |                | Shallow Concentrated Flow, SEG 7<br>Woodland Kv= 5.0 fps                                           |
| 89.9     | 1,818         | Total         |                   |                |                                                                                                    |



Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)



# 2101ELK-STM Analysis POI-1 - PropoNOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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## Hydrograph for Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 2.56               | 0.01            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 2.56               | 0.00            |
| 1.00            | 0.10                | 0.00               | 0.00            | 27.00           | 9.06                | 2.56               | 0.00            |
| 1.50            | 0.15                | 0.00               | 0.00            | 27.50           | 9.06                | 2.56               | 0.00            |
| 2.00            | 0.20                | 0.00               | 0.00            | 28.00           | 9.06                | 2.56               | 0.00            |
| 2.50            | 0.26                | 0.00               | 0.00            | 28.50           | 9.06                | 2.56               | 0.00            |
| 3.00            | 0.32                | 0.00               | 0.00            | 29.00           | 9.06                | 2.56               | 0.00            |
| 3.50            | 0.38                | 0.00               | 0.00            | 29.50           | 9.06                | 2.56               | 0.00            |
| 4.00            | 0.44                | 0.00               | 0.00            | 30.00           | 9.06                | 2.56               | 0.00            |
| 4.50            | 0.51                | 0.00               | 0.00            | 30.50           | 9.06                | 2.56               | 0.00            |
| 5.00            | 0.58                | 0.00               | 0.00            | 31.00           | 9.06                | 2.56               | 0.00            |
| 5.50            | 0.65                | 0.00               | 0.00            | 31.50           | 9.06                | 2.56               | 0.00            |
| 6.00            | 0.72                | 0.00               | 0.00            | 32.00           | 9.06                | 2.56               | 0.00            |
| 6.50            | 0.80                | 0.00               | 0.00            | 32.50           | 9.06                | 2.56               | 0.00            |
| 7.00            | 0.88                | 0.00               | 0.00            | 33.00           | 9.06                | 2.56               | 0.00            |
| 7.50            | 0.98                | 0.00               | 0.00            | 33.50           | 9.06                | 2.56               | 0.00            |
| 8.00            | 1.09                | 0.00               | 0.00            | 34.00           | 9.06                | 2.56               | 0.00            |
| 8.50            | 1.20                | 0.00               | 0.00            | 34.50           | 9.06                | 2.56               | 0.00            |
| 9.00            | 1.32                | 0.00               | 0.00            | 35.00           | 9.06                | 2.56               | 0.00            |
| 9.50            | 1.47                | 0.00               | 0.00            | 35.50           | 9.06                | 2.56               | 0.00            |
| 10.00           | 1.65                | 0.00               | 0.00            | 36.00           | 9.06                | 2.56               | 0.00            |
| 10.50           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.17                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 2.68                | 0.02               | 0.00            |                 |                     |                    |                 |
| 12.00           | 4.32                | 0.32               | 0.02            |                 |                     |                    |                 |
| 12.50           | 6.38                | 1.11               | 0.23            |                 |                     |                    |                 |
| 13.00           | 6.89                | 1.35               | 0.74            |                 |                     |                    |                 |
| 13.50           | 7.19                | 1.50               | 0.84            |                 |                     |                    |                 |
| 14.00           | 7.41                | 1.62               | 0.62            |                 |                     |                    |                 |
| 14.50           | 7.59                | 1.71               | 0.43            |                 |                     |                    |                 |
| 15.00           | 7.74                | 1.79               | 0.31            |                 |                     |                    |                 |
| 15.50           | 7.86                | 1.86               | 0.24            |                 |                     |                    |                 |
| 16.00           | 7.97                | 1.92               | 0.19            |                 |                     |                    |                 |
| 16.50           | 8.08                | 1.98               | 0.16            |                 |                     |                    |                 |
| 17.00           | 8.18                | 2.04               | 0.14            |                 |                     |                    |                 |
| 17.50           | 8.26                | 2.09               | 0.13            |                 |                     |                    |                 |
| 18.00           | 8.34                | 2.13               | 0.12            |                 |                     |                    |                 |
| 18.50           | 8.41                | 2.18               | 0.11            |                 |                     |                    |                 |
| 19.00           | 8.48                | 2.22               | 0.10            |                 |                     |                    |                 |
| 19.50           | 8.55                | 2.26               | 0.09            |                 |                     |                    |                 |
| 20.00           | 8.62                | 2.29               | 0.09            |                 |                     |                    |                 |
| 20.50           | 8.68                | 2.33               | 0.08            |                 |                     |                    |                 |
| 21.00           | 8.74                | 2.37               | 0.08            |                 |                     |                    |                 |
| 21.50           | 8.80                | 2.40               | 0.08            |                 |                     |                    |                 |
| 22.00           | 8.86                | 2.44               | 0.08            |                 |                     |                    |                 |
| 22.50           | 8.91                | 2.47               | 0.07            |                 |                     |                    |                 |
| 23.00           | 8.96                | 2.50               | 0.07            |                 |                     |                    |                 |
| 23.50           | 9.01                | 2.53               | 0.07            |                 |                     |                    |                 |
| 24.00           | 9.06                | 2.56               | 0.07            |                 |                     |                    |                 |
| 24.50           | 9.06                | 2.56               | 0.06            |                 |                     |                    |                 |
| 25.00           | 9.06                | 2.56               | 0.04            |                 |                     |                    |                 |
| 25.50           | 9.06                | 2.56               | 0.02            |                 |                     |                    |                 |

# 2101ELK-STM Analysis POI-1 - PropoNOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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## Summary for Subcatchment 6S: GI-9 Impervious

Runoff = 10.69 cfs @ 12.08 hrs, Volume= 31,848 cf, Depth= 8.82"  
Routed to Pond 7P : GI-9

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

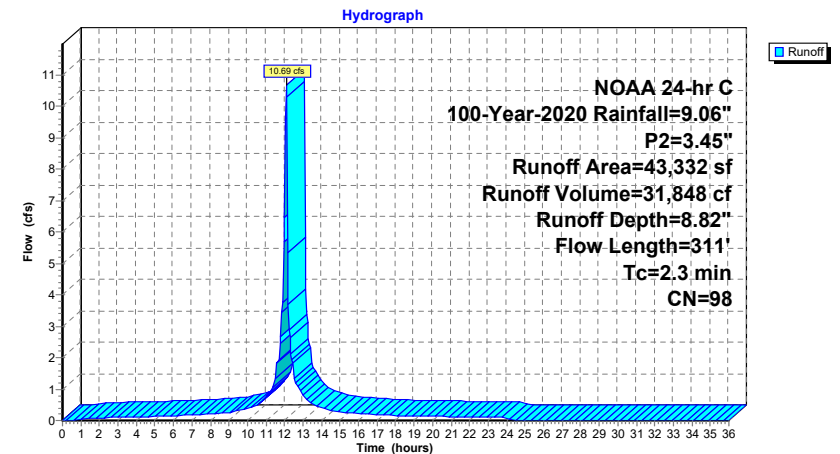
| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 43,332    | 98 | Paved parking, HSG A    |
| 43,332    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 1.0      | 71            | 0.0140        | 1.16              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.45"             |
| 1.2      | 222           | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.1      | 18            | 0.0960        | 2.17              |                | Shallow Concentrated Flow, SEG 3<br>Short Grass Pasture Kv= 7.0 fps |
| 2.3      | 311           | Total         |                   |                |                                                                     |



## Subcatchment 6S: GI-9 Impervious



Hydrograph for Subcatchment 6S: GI-9 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 8.82               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 8.82               | 0.00            |
| 1.00            | 0.10                | 0.01               | 0.04            | 27.00           | 9.06                | 8.82               | 0.00            |
| 1.50            | 0.15                | 0.04               | 0.06            | 27.50           | 9.06                | 8.82               | 0.00            |
| 2.00            | 0.20                | 0.07               | 0.08            | 28.00           | 9.06                | 8.82               | 0.00            |
| 2.50            | 0.26                | 0.11               | 0.09            | 28.50           | 9.06                | 8.82               | 0.00            |
| 3.00            | 0.32                | 0.16               | 0.10            | 29.00           | 9.06                | 8.82               | 0.00            |
| 3.50            | 0.38                | 0.21               | 0.11            | 29.50           | 9.06                | 8.82               | 0.00            |
| 4.00            | 0.44                | 0.27               | 0.11            | 30.00           | 9.06                | 8.82               | 0.00            |
| 4.50            | 0.51                | 0.33               | 0.12            | 30.50           | 9.06                | 8.82               | 0.00            |
| 5.00            | 0.58                | 0.39               | 0.13            | 31.00           | 9.06                | 8.82               | 0.00            |
| 5.50            | 0.65                | 0.45               | 0.13            | 31.50           | 9.06                | 8.82               | 0.00            |
| 6.00            | 0.72                | 0.52               | 0.14            | 32.00           | 9.06                | 8.82               | 0.00            |
| 6.50            | 0.80                | 0.59               | 0.16            | 32.50           | 9.06                | 8.82               | 0.00            |
| 7.00            | 0.88                | 0.68               | 0.18            | 33.00           | 9.06                | 8.82               | 0.00            |
| 7.50            | 0.98                | 0.77               | 0.19            | 33.50           | 9.06                | 8.82               | 0.00            |
| 8.00            | 1.09                | 0.87               | 0.21            | 34.00           | 9.06                | 8.82               | 0.00            |
| 8.50            | 1.20                | 0.99               | 0.23            | 34.50           | 9.06                | 8.82               | 0.00            |
| 9.00            | 1.32                | 1.11               | 0.25            | 35.00           | 9.06                | 8.82               | 0.00            |
| 9.50            | 1.47                | 1.25               | 0.32            | 35.50           | 9.06                | 8.82               | 0.00            |
| 10.00           | 1.65                | 1.43               | 0.39            | 36.00           | 9.06                | 8.82               | 0.00            |
| 10.50           | 1.87                | 1.64               | 0.46            |                 |                     |                    |                 |
| 11.00           | 2.17                | 1.95               | 0.72            |                 |                     |                    |                 |
| 11.50           | 2.68                | 2.45               | 1.20            |                 |                     |                    |                 |
| 12.00           | 4.32                | 4.08               | 6.47            |                 |                     |                    |                 |
| 12.50           | 6.38                | 6.14               | 1.81            |                 |                     |                    |                 |
| 13.00           | 6.89                | 6.65               | 0.81            |                 |                     |                    |                 |
| 13.50           | 7.19                | 6.95               | 0.51            |                 |                     |                    |                 |
| 14.00           | 7.41                | 7.17               | 0.40            |                 |                     |                    |                 |
| 14.50           | 7.59                | 7.35               | 0.34            |                 |                     |                    |                 |
| 15.00           | 7.74                | 7.50               | 0.27            |                 |                     |                    |                 |
| 15.50           | 7.86                | 7.62               | 0.24            |                 |                     |                    |                 |
| 16.00           | 7.97                | 7.73               | 0.22            |                 |                     |                    |                 |
| 16.50           | 8.08                | 7.84               | 0.20            |                 |                     |                    |                 |
| 17.00           | 8.18                | 7.94               | 0.19            |                 |                     |                    |                 |
| 17.50           | 8.26                | 8.02               | 0.17            |                 |                     |                    |                 |
| 18.00           | 8.34                | 8.10               | 0.15            |                 |                     |                    |                 |
| 18.50           | 8.41                | 8.17               | 0.14            |                 |                     |                    |                 |
| 19.00           | 8.48                | 8.24               | 0.14            |                 |                     |                    |                 |
| 19.50           | 8.55                | 8.31               | 0.13            |                 |                     |                    |                 |
| 20.00           | 8.62                | 8.38               | 0.13            |                 |                     |                    |                 |
| 20.50           | 8.68                | 8.44               | 0.12            |                 |                     |                    |                 |
| 21.00           | 8.74                | 8.50               | 0.12            |                 |                     |                    |                 |
| 21.50           | 8.80                | 8.56               | 0.12            |                 |                     |                    |                 |
| 22.00           | 8.86                | 8.61               | 0.11            |                 |                     |                    |                 |
| 22.50           | 8.91                | 8.67               | 0.11            |                 |                     |                    |                 |
| 23.00           | 8.96                | 8.72               | 0.10            |                 |                     |                    |                 |
| 23.50           | 9.01                | 8.77               | 0.10            |                 |                     |                    |                 |
| 24.00           | 9.06                | 8.82               | 0.11            |                 |                     |                    |                 |
| 24.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 15S: GI-2 Pervious

Runoff = 0.58 cfs @ 12.11 hrs, Volume= 1,830 cf, Depth= 1.63"  
Routed to Pond 14P : GI-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

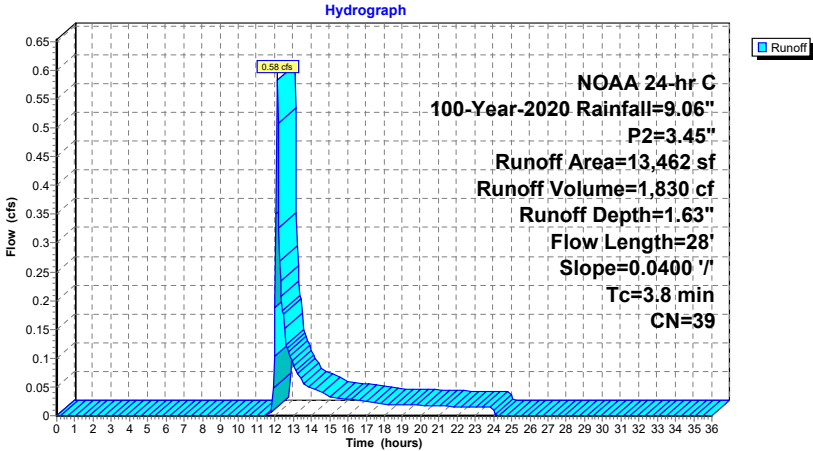
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 13,462    | 39 | >75% Grass cover, Good, HSG A |
| 13,462    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|-------------|
| 3.8      | 28            | 0.0400        | 0.12              |                |             |

Sheet Flow, SEG 1  
Grass: Dense n= 0.240 P2= 3.45"



Subcatchment 15S: GI-2 Pervious



Hydrograph for Subcatchment 15S: GI-2 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 1.63               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 1.63               | 0.00            |
| 1.00            | 0.10                | 0.00               | 0.00            | 27.00           | 9.06                | 1.63               | 0.00            |
| 1.50            | 0.15                | 0.00               | 0.00            | 27.50           | 9.06                | 1.63               | 0.00            |
| 2.00            | 0.20                | 0.00               | 0.00            | 28.00           | 9.06                | 1.63               | 0.00            |
| 2.50            | 0.26                | 0.00               | 0.00            | 28.50           | 9.06                | 1.63               | 0.00            |
| 3.00            | 0.32                | 0.00               | 0.00            | 29.00           | 9.06                | 1.63               | 0.00            |
| 3.50            | 0.38                | 0.00               | 0.00            | 29.50           | 9.06                | 1.63               | 0.00            |
| 4.00            | 0.44                | 0.00               | 0.00            | 30.00           | 9.06                | 1.63               | 0.00            |
| 4.50            | 0.51                | 0.00               | 0.00            | 30.50           | 9.06                | 1.63               | 0.00            |
| 5.00            | 0.58                | 0.00               | 0.00            | 31.00           | 9.06                | 1.63               | 0.00            |
| 5.50            | 0.65                | 0.00               | 0.00            | 31.50           | 9.06                | 1.63               | 0.00            |
| 6.00            | 0.72                | 0.00               | 0.00            | 32.00           | 9.06                | 1.63               | 0.00            |
| 6.50            | 0.80                | 0.00               | 0.00            | 32.50           | 9.06                | 1.63               | 0.00            |
| 7.00            | 0.88                | 0.00               | 0.00            | 33.00           | 9.06                | 1.63               | 0.00            |
| 7.50            | 0.98                | 0.00               | 0.00            | 33.50           | 9.06                | 1.63               | 0.00            |
| 8.00            | 1.09                | 0.00               | 0.00            | 34.00           | 9.06                | 1.63               | 0.00            |
| 8.50            | 1.20                | 0.00               | 0.00            | 34.50           | 9.06                | 1.63               | 0.00            |
| 9.00            | 1.32                | 0.00               | 0.00            | 35.00           | 9.06                | 1.63               | 0.00            |
| 9.50            | 1.47                | 0.00               | 0.00            | 35.50           | 9.06                | 1.63               | 0.00            |
| 10.00           | 1.65                | 0.00               | 0.00            | 36.00           | 9.06                | 1.63               | 0.00            |
| 10.50           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.17                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 2.68                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 4.32                | 0.08               | 0.19            |                 |                     |                    |                 |
| 12.50           | 6.38                | 0.56               | 0.18            |                 |                     |                    |                 |
| 13.00           | 6.89                | 0.73               | 0.09            |                 |                     |                    |                 |
| 13.50           | 7.19                | 0.84               | 0.06            |                 |                     |                    |                 |
| 14.00           | 7.41                | 0.92               | 0.05            |                 |                     |                    |                 |
| 14.50           | 7.59                | 0.99               | 0.04            |                 |                     |                    |                 |
| 15.00           | 7.74                | 1.05               | 0.03            |                 |                     |                    |                 |
| 15.50           | 7.86                | 1.10               | 0.03            |                 |                     |                    |                 |
| 16.00           | 7.97                | 1.15               | 0.03            |                 |                     |                    |                 |
| 16.50           | 8.08                | 1.19               | 0.03            |                 |                     |                    |                 |
| 17.00           | 8.18                | 1.23               | 0.02            |                 |                     |                    |                 |
| 17.50           | 8.26                | 1.27               | 0.02            |                 |                     |                    |                 |
| 18.00           | 8.34                | 1.30               | 0.02            |                 |                     |                    |                 |
| 18.50           | 8.41                | 1.34               | 0.02            |                 |                     |                    |                 |
| 19.00           | 8.48                | 1.37               | 0.02            |                 |                     |                    |                 |
| 19.50           | 8.55                | 1.40               | 0.02            |                 |                     |                    |                 |
| 20.00           | 8.62                | 1.43               | 0.02            |                 |                     |                    |                 |
| 20.50           | 8.68                | 1.45               | 0.02            |                 |                     |                    |                 |
| 21.00           | 8.74                | 1.48               | 0.02            |                 |                     |                    |                 |
| 21.50           | 8.80                | 1.51               | 0.02            |                 |                     |                    |                 |
| 22.00           | 8.86                | 1.53               | 0.02            |                 |                     |                    |                 |
| 22.50           | 8.91                | 1.56               | 0.02            |                 |                     |                    |                 |
| 23.00           | 8.96                | 1.58               | 0.01            |                 |                     |                    |                 |
| 23.50           | 9.01                | 1.61               | 0.01            |                 |                     |                    |                 |
| 24.00           | 9.06                | 1.63               | 0.02            |                 |                     |                    |                 |
| 24.50           | 9.06                | 1.63               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 1.63               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 1.63               | 0.00            |                 |                     |                    |                 |

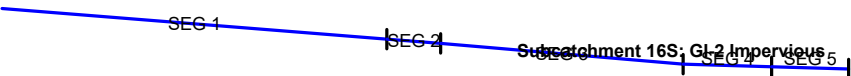
Summary for Subcatchment 16S: GI-2 Impervious

Runoff = 3.26 cfs @ 12.08 hrs, Volume= 9,644 cf, Depth= 8.82"  
Routed to Pond 14P : GI-2

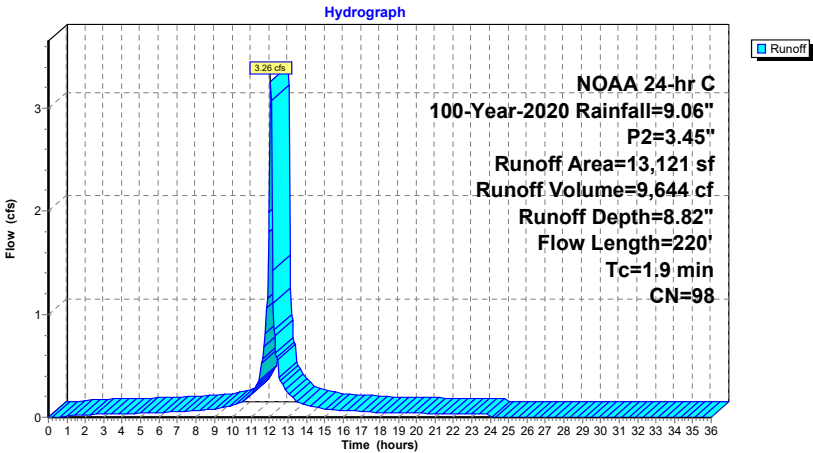
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 13,121    | 98 | Paved parking, HSG A    |
| 13,121    |    | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                     |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------|
| 1.3         | 100              | 0.0140           | 1.24                 |                   | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.45"                                                  |
| 0.1         | 14               | 0.0140           | 2.40                 |                   | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps                                                   |
| 0.3         | 63               | 0.0150           | 3.65                 | 0.73              | <b>Channel Flow, SEG 3</b><br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013                                        |
| 0.1         | 23               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 4</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 Concrete pipe, finished |
| 0.1         | 20               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 5</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012                         |
| 1.9         | 220              | Total            |                      |                   |                                                                                                                 |



Subcatchment 16S: GI-2 Impervious



Hydrograph for Subcatchment 16S: GI-2 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 8.82               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 8.82               | 0.00            |
| 1.00            | 0.10                | 0.01               | 0.01            | 27.00           | 9.06                | 8.82               | 0.00            |
| 1.50            | 0.15                | 0.04               | 0.02            | 27.50           | 9.06                | 8.82               | 0.00            |
| 2.00            | 0.20                | 0.07               | 0.02            | 28.00           | 9.06                | 8.82               | 0.00            |
| 2.50            | 0.26                | 0.11               | 0.03            | 28.50           | 9.06                | 8.82               | 0.00            |
| 3.00            | 0.32                | 0.16               | 0.03            | 29.00           | 9.06                | 8.82               | 0.00            |
| 3.50            | 0.38                | 0.21               | 0.03            | 29.50           | 9.06                | 8.82               | 0.00            |
| 4.00            | 0.44                | 0.27               | 0.03            | 30.00           | 9.06                | 8.82               | 0.00            |
| 4.50            | 0.51                | 0.33               | 0.04            | 30.50           | 9.06                | 8.82               | 0.00            |
| 5.00            | 0.58                | 0.39               | 0.04            | 31.00           | 9.06                | 8.82               | 0.00            |
| 5.50            | 0.65                | 0.45               | 0.04            | 31.50           | 9.06                | 8.82               | 0.00            |
| 6.00            | 0.72                | 0.52               | 0.04            | 32.00           | 9.06                | 8.82               | 0.00            |
| 6.50            | 0.80                | 0.59               | 0.05            | 32.50           | 9.06                | 8.82               | 0.00            |
| 7.00            | 0.88                | 0.68               | 0.05            | 33.00           | 9.06                | 8.82               | 0.00            |
| 7.50            | 0.98                | 0.77               | 0.06            | 33.50           | 9.06                | 8.82               | 0.00            |
| 8.00            | 1.09                | 0.87               | 0.06            | 34.00           | 9.06                | 8.82               | 0.00            |
| 8.50            | 1.20                | 0.99               | 0.07            | 34.50           | 9.06                | 8.82               | 0.00            |
| 9.00            | 1.32                | 1.11               | 0.08            | 35.00           | 9.06                | 8.82               | 0.00            |
| 9.50            | 1.47                | 1.25               | 0.10            | 35.50           | 9.06                | 8.82               | 0.00            |
| 10.00           | 1.65                | 1.43               | 0.12            | 36.00           | 9.06                | 8.82               | 0.00            |
| 10.50           | 1.87                | 1.64               | 0.14            |                 |                     |                    |                 |
| 11.00           | 2.17                | 1.95               | 0.22            |                 |                     |                    |                 |
| 11.50           | 2.68                | 2.45               | 0.37            |                 |                     |                    |                 |
| 12.00           | 4.32                | 4.08               | 2.00            |                 |                     |                    |                 |
| 12.50           | 6.38                | 6.14               | 0.54            |                 |                     |                    |                 |
| 13.00           | 6.89                | 6.65               | 0.25            |                 |                     |                    |                 |
| 13.50           | 7.19                | 6.95               | 0.15            |                 |                     |                    |                 |
| 14.00           | 7.41                | 7.17               | 0.12            |                 |                     |                    |                 |
| 14.50           | 7.59                | 7.35               | 0.10            |                 |                     |                    |                 |
| 15.00           | 7.74                | 7.50               | 0.08            |                 |                     |                    |                 |
| 15.50           | 7.86                | 7.62               | 0.07            |                 |                     |                    |                 |
| 16.00           | 7.97                | 7.73               | 0.07            |                 |                     |                    |                 |
| 16.50           | 8.08                | 7.84               | 0.06            |                 |                     |                    |                 |
| 17.00           | 8.18                | 7.94               | 0.06            |                 |                     |                    |                 |
| 17.50           | 8.26                | 8.02               | 0.05            |                 |                     |                    |                 |
| 18.00           | 8.34                | 8.10               | 0.05            |                 |                     |                    |                 |
| 18.50           | 8.41                | 8.17               | 0.04            |                 |                     |                    |                 |
| 19.00           | 8.48                | 8.24               | 0.04            |                 |                     |                    |                 |
| 19.50           | 8.55                | 8.31               | 0.04            |                 |                     |                    |                 |
| 20.00           | 8.62                | 8.38               | 0.04            |                 |                     |                    |                 |
| 20.50           | 8.68                | 8.44               | 0.04            |                 |                     |                    |                 |
| 21.00           | 8.74                | 8.50               | 0.04            |                 |                     |                    |                 |
| 21.50           | 8.80                | 8.56               | 0.03            |                 |                     |                    |                 |
| 22.00           | 8.86                | 8.61               | 0.03            |                 |                     |                    |                 |
| 22.50           | 8.91                | 8.67               | 0.03            |                 |                     |                    |                 |
| 23.00           | 8.96                | 8.72               | 0.03            |                 |                     |                    |                 |
| 23.50           | 9.01                | 8.77               | 0.03            |                 |                     |                    |                 |
| 24.00           | 9.06                | 8.82               | 0.03            |                 |                     |                    |                 |
| 24.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |

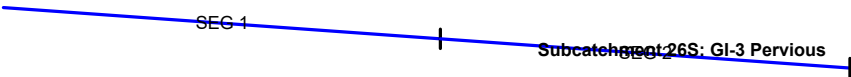
Summary for Subcatchment 26S: GI-3 Pervious

Runoff = 2.09 cfs @ 12.18 hrs, Volume= 6,932 cf, Depth= 3.53"  
Routed to Pond 28P : GI-3

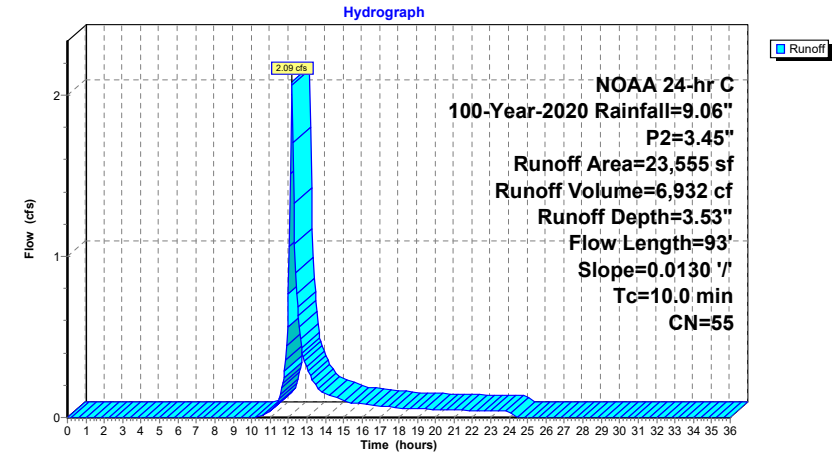
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 6,391     | 39 | >75% Grass cover, Good, HSG A |
| 17,164    | 61 | >75% Grass cover, Good, HSG B |
| 23,555    | 55 | Weighted Average              |
| 23,555    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 9.1      | 48            | 0.0130        | 0.09              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.45"                |
| 0.9      | 45            | 0.0130        | 0.80              |                | Shallow Concentrated Flow, SEG 2<br>Short Grass Pasture Kv= 7.0 fps |
| 10.0     | 93            | Total         |                   |                |                                                                     |



Subcatchment 26S: GI-3 Pervious



Hydrograph for Subcatchment 26S: GI-3 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         |
| 0.50         | 0.05             | 0.00            | 0.00         |
| 1.00         | 0.10             | 0.00            | 0.00         |
| 1.50         | 0.15             | 0.00            | 0.00         |
| 2.00         | 0.20             | 0.00            | 0.00         |
| 2.50         | 0.26             | 0.00            | 0.00         |
| 3.00         | 0.32             | 0.00            | 0.00         |
| 3.50         | 0.38             | 0.00            | 0.00         |
| 4.00         | 0.44             | 0.00            | 0.00         |
| 4.50         | 0.51             | 0.00            | 0.00         |
| 5.00         | 0.58             | 0.00            | 0.00         |
| 5.50         | 0.65             | 0.00            | 0.00         |
| 6.00         | 0.72             | 0.00            | 0.00         |
| 6.50         | 0.80             | 0.00            | 0.00         |
| 7.00         | 0.88             | 0.00            | 0.00         |
| 7.50         | 0.98             | 0.00            | 0.00         |
| 8.00         | 1.09             | 0.00            | 0.00         |
| 8.50         | 1.20             | 0.00            | 0.00         |
| 9.00         | 1.32             | 0.00            | 0.00         |
| 9.50         | 1.47             | 0.00            | 0.00         |
| 10.00        | 1.65             | 0.00            | 0.00         |
| 10.50        | 1.87             | 0.01            | 0.01         |
| 11.00        | 2.17             | 0.03            | 0.04         |
| 11.50        | 2.68             | 0.12            | 0.11         |
| 12.00        | 4.32             | 0.66            | 0.77         |
| 12.50        | 6.38             | 1.74            | 0.68         |
| 13.00        | 6.89             | 2.05            | 0.31         |
| 13.50        | 7.19             | 2.25            | 0.20         |
| 14.00        | 7.41             | 2.39            | 0.15         |
| 14.50        | 7.59             | 2.51            | 0.13         |
| 15.00        | 7.74             | 2.61            | 0.10         |
| 15.50        | 7.86             | 2.69            | 0.09         |
| 16.00        | 7.97             | 2.77            | 0.08         |
| 16.50        | 8.08             | 2.84            | 0.08         |
| 17.00        | 8.18             | 2.91            | 0.07         |
| 17.50        | 8.26             | 2.97            | 0.06         |
| 18.00        | 8.34             | 3.02            | 0.06         |
| 18.50        | 8.41             | 3.07            | 0.05         |
| 19.00        | 8.48             | 3.12            | 0.05         |
| 19.50        | 8.55             | 3.17            | 0.05         |
| 20.00        | 8.62             | 3.21            | 0.05         |
| 20.50        | 8.68             | 3.26            | 0.05         |
| 21.00        | 8.74             | 3.30            | 0.05         |
| 21.50        | 8.80             | 3.34            | 0.05         |
| 22.00        | 8.86             | 3.38            | 0.04         |
| 22.50        | 8.91             | 3.42            | 0.04         |
| 23.00        | 8.96             | 3.46            | 0.04         |
| 23.50        | 9.01             | 3.50            | 0.04         |
| 24.00        | 9.06             | 3.53            | 0.04         |
| 24.50        | 9.06             | 3.53            | 0.00         |
| 25.00        | 9.06             | 3.53            | 0.00         |
| 25.50        | 9.06             | 3.53            | 0.00         |

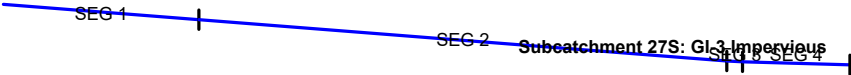
Summary for Subcatchment 27S: GI-3 Impervious

Runoff = 14.39 cfs @ 12.09 hrs, Volume= 44,535 cf, Depth= 8.82"  
Routed to Pond 28P : GI-3

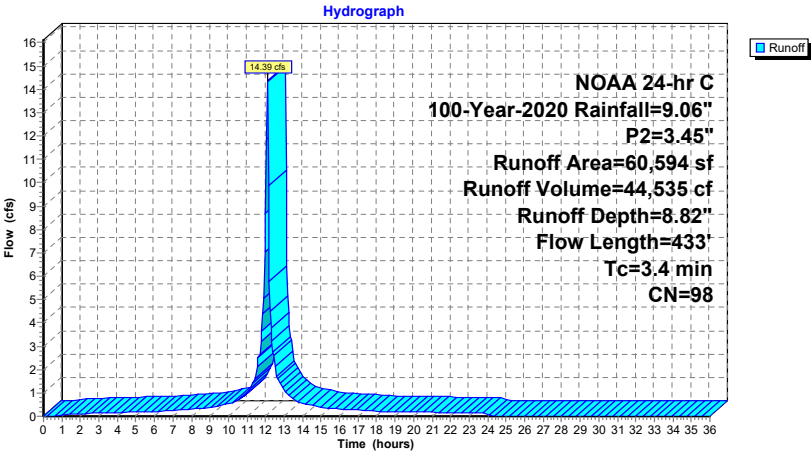
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 56,594    | 98 | Paved parking, HSG A    |
| 4,000     | 98 | Roofs, HSG A            |
| 60,594    | 98 | Weighted Average        |
| 60,594    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                           |
|----------|---------------|---------------|-------------------|----------------|-------------------------------------------------------------------------------------------------------|
| 1.3      | 100           | 0.0140        | 1.24              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.45"                                               |
| 1.9      | 270           | 0.0140        | 2.40              |                | Shallow Concentrated Flow, SEG 2<br>Paved Kv= 20.3 fps                                                |
| 0.0      | 8             | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 3<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013                                     |
| 0.2      | 55            | 0.0050        | 4.03              | 4.95           | Pipe Channel, SEG 4<br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished |
| 3.4      | 433           | Total         |                   |                |                                                                                                       |



Subcatchment 27S: GI-3 Impervious



Hydrograph for Subcatchment 27S: GI-3 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 8.82               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 8.82               | 0.00            |
| 1.00            | 0.10                | 0.01               | 0.05            | 27.00           | 9.06                | 8.82               | 0.00            |
| 1.50            | 0.15                | 0.04               | 0.08            | 27.50           | 9.06                | 8.82               | 0.00            |
| 2.00            | 0.20                | 0.07               | 0.10            | 28.00           | 9.06                | 8.82               | 0.00            |
| 2.50            | 0.26                | 0.11               | 0.12            | 28.50           | 9.06                | 8.82               | 0.00            |
| 3.00            | 0.32                | 0.16               | 0.14            | 29.00           | 9.06                | 8.82               | 0.00            |
| 3.50            | 0.38                | 0.21               | 0.15            | 29.50           | 9.06                | 8.82               | 0.00            |
| 4.00            | 0.44                | 0.27               | 0.16            | 30.00           | 9.06                | 8.82               | 0.00            |
| 4.50            | 0.51                | 0.33               | 0.17            | 30.50           | 9.06                | 8.82               | 0.00            |
| 5.00            | 0.58                | 0.39               | 0.18            | 31.00           | 9.06                | 8.82               | 0.00            |
| 5.50            | 0.65                | 0.45               | 0.19            | 31.50           | 9.06                | 8.82               | 0.00            |
| 6.00            | 0.72                | 0.52               | 0.19            | 32.00           | 9.06                | 8.82               | 0.00            |
| 6.50            | 0.80                | 0.59               | 0.22            | 32.50           | 9.06                | 8.82               | 0.00            |
| 7.00            | 0.88                | 0.68               | 0.25            | 33.00           | 9.06                | 8.82               | 0.00            |
| 7.50            | 0.98                | 0.77               | 0.27            | 33.50           | 9.06                | 8.82               | 0.00            |
| 8.00            | 1.09                | 0.87               | 0.30            | 34.00           | 9.06                | 8.82               | 0.00            |
| 8.50            | 1.20                | 0.99               | 0.32            | 34.50           | 9.06                | 8.82               | 0.00            |
| 9.00            | 1.32                | 1.11               | 0.35            | 35.00           | 9.06                | 8.82               | 0.00            |
| 9.50            | 1.47                | 1.25               | 0.44            | 35.50           | 9.06                | 8.82               | 0.00            |
| 10.00           | 1.65                | 1.43               | 0.54            | 36.00           | 9.06                | 8.82               | 0.00            |
| 10.50           | 1.87                | 1.64               | 0.64            |                 |                     |                    |                 |
| 11.00           | 2.17                | 1.95               | 1.00            |                 |                     |                    |                 |
| 11.50           | 2.68                | 2.45               | 1.65            |                 |                     |                    |                 |
| 12.00           | 4.32                | 4.08               | 8.69            |                 |                     |                    |                 |
| 12.50           | 6.38                | 6.14               | 2.57            |                 |                     |                    |                 |
| 13.00           | 6.89                | 6.65               | 1.15            |                 |                     |                    |                 |
| 13.50           | 7.19                | 6.95               | 0.72            |                 |                     |                    |                 |
| 14.00           | 7.41                | 7.17               | 0.57            |                 |                     |                    |                 |
| 14.50           | 7.59                | 7.35               | 0.47            |                 |                     |                    |                 |
| 15.00           | 7.74                | 7.50               | 0.38            |                 |                     |                    |                 |
| 15.50           | 7.86                | 7.62               | 0.34            |                 |                     |                    |                 |
| 16.00           | 7.97                | 7.73               | 0.31            |                 |                     |                    |                 |
| 16.50           | 8.08                | 7.84               | 0.28            |                 |                     |                    |                 |
| 17.00           | 8.18                | 7.94               | 0.26            |                 |                     |                    |                 |
| 17.50           | 8.26                | 8.02               | 0.24            |                 |                     |                    |                 |
| 18.00           | 8.34                | 8.10               | 0.21            |                 |                     |                    |                 |
| 18.50           | 8.41                | 8.17               | 0.20            |                 |                     |                    |                 |
| 19.00           | 8.48                | 8.24               | 0.19            |                 |                     |                    |                 |
| 19.50           | 8.55                | 8.31               | 0.19            |                 |                     |                    |                 |
| 20.00           | 8.62                | 8.38               | 0.18            |                 |                     |                    |                 |
| 20.50           | 8.68                | 8.44               | 0.17            |                 |                     |                    |                 |
| 21.00           | 8.74                | 8.50               | 0.17            |                 |                     |                    |                 |
| 21.50           | 8.80                | 8.56               | 0.16            |                 |                     |                    |                 |
| 22.00           | 8.86                | 8.61               | 0.16            |                 |                     |                    |                 |
| 22.50           | 8.91                | 8.67               | 0.15            |                 |                     |                    |                 |
| 23.00           | 8.96                | 8.72               | 0.14            |                 |                     |                    |                 |
| 23.50           | 9.01                | 8.77               | 0.14            |                 |                     |                    |                 |
| 24.00           | 9.06                | 8.82               | 0.16            |                 |                     |                    |                 |
| 24.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 29S: GI-6 Pervious

Runoff = 2.03 cfs @ 12.16 hrs, Volume= 6,382 cf, Depth= 2.80"  
Routed to Pond 31P : GI-6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

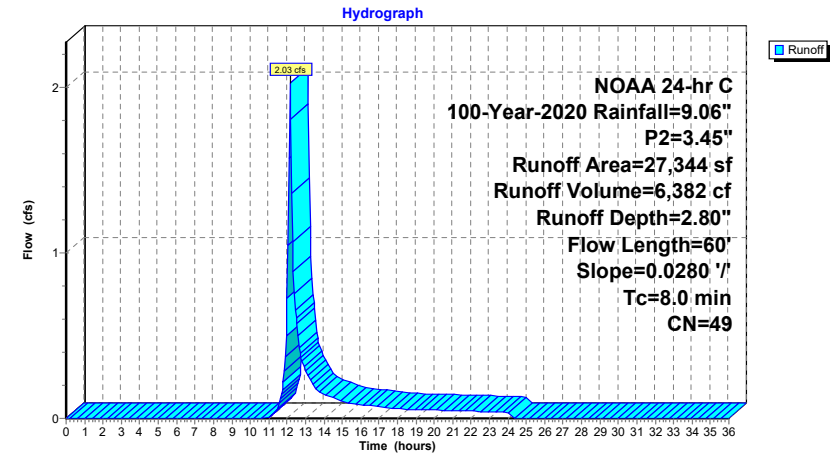
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 15,207    | 39 | >75% Grass cover, Good, HSG A |
| 12,137    | 61 | >75% Grass cover, Good, HSG B |
| 27,344    | 49 | Weighted Average              |
| 27,344    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description       |
|----------|---------------|---------------|-------------------|----------------|-------------------|
| 8.0      | 60            | 0.0280        | 0.13              |                | Sheet Flow, SEG 1 |

Grass: Dense n= 0.240 P2= 3.45"



Subcatchment 29S: GI-6 Pervious





Hydrograph for Subcatchment 29S: GI-6 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 2.80               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 2.80               | 0.00            |
| 1.00            | 0.10                | 0.00               | 0.00            | 27.00           | 9.06                | 2.80               | 0.00            |
| 1.50            | 0.15                | 0.00               | 0.00            | 27.50           | 9.06                | 2.80               | 0.00            |
| 2.00            | 0.20                | 0.00               | 0.00            | 28.00           | 9.06                | 2.80               | 0.00            |
| 2.50            | 0.26                | 0.00               | 0.00            | 28.50           | 9.06                | 2.80               | 0.00            |
| 3.00            | 0.32                | 0.00               | 0.00            | 29.00           | 9.06                | 2.80               | 0.00            |
| 3.50            | 0.38                | 0.00               | 0.00            | 29.50           | 9.06                | 2.80               | 0.00            |
| 4.00            | 0.44                | 0.00               | 0.00            | 30.00           | 9.06                | 2.80               | 0.00            |
| 4.50            | 0.51                | 0.00               | 0.00            | 30.50           | 9.06                | 2.80               | 0.00            |
| 5.00            | 0.58                | 0.00               | 0.00            | 31.00           | 9.06                | 2.80               | 0.00            |
| 5.50            | 0.65                | 0.00               | 0.00            | 31.50           | 9.06                | 2.80               | 0.00            |
| 6.00            | 0.72                | 0.00               | 0.00            | 32.00           | 9.06                | 2.80               | 0.00            |
| 6.50            | 0.80                | 0.00               | 0.00            | 32.50           | 9.06                | 2.80               | 0.00            |
| 7.00            | 0.88                | 0.00               | 0.00            | 33.00           | 9.06                | 2.80               | 0.00            |
| 7.50            | 0.98                | 0.00               | 0.00            | 33.50           | 9.06                | 2.80               | 0.00            |
| 8.00            | 1.09                | 0.00               | 0.00            | 34.00           | 9.06                | 2.80               | 0.00            |
| 8.50            | 1.20                | 0.00               | 0.00            | 34.50           | 9.06                | 2.80               | 0.00            |
| 9.00            | 1.32                | 0.00               | 0.00            | 35.00           | 9.06                | 2.80               | 0.00            |
| 9.50            | 1.47                | 0.00               | 0.00            | 35.50           | 9.06                | 2.80               | 0.00            |
| 10.00           | 1.65                | 0.00               | 0.00            | 36.00           | 9.06                | 2.80               | 0.00            |
| 10.50           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.17                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 2.68                | 0.03               | 0.06            |                 |                     |                    |                 |
| 12.00           | 4.32                | 0.40               | 0.73            |                 |                     |                    |                 |
| 12.50           | 6.38                | 1.26               | 0.61            |                 |                     |                    |                 |
| 13.00           | 6.89                | 1.52               | 0.29            |                 |                     |                    |                 |
| 13.50           | 7.19                | 1.68               | 0.19            |                 |                     |                    |                 |
| 14.00           | 7.41                | 1.80               | 0.15            |                 |                     |                    |                 |
| 14.50           | 7.59                | 1.91               | 0.12            |                 |                     |                    |                 |
| 15.00           | 7.74                | 1.99               | 0.10            |                 |                     |                    |                 |
| 15.50           | 7.86                | 2.06               | 0.09            |                 |                     |                    |                 |
| 16.00           | 7.97                | 2.13               | 0.08            |                 |                     |                    |                 |
| 16.50           | 8.08                | 2.19               | 0.08            |                 |                     |                    |                 |
| 17.00           | 8.18                | 2.25               | 0.07            |                 |                     |                    |                 |
| 17.50           | 8.26                | 2.30               | 0.07            |                 |                     |                    |                 |
| 18.00           | 8.34                | 2.35               | 0.06            |                 |                     |                    |                 |
| 18.50           | 8.41                | 2.40               | 0.06            |                 |                     |                    |                 |
| 19.00           | 8.48                | 2.44               | 0.05            |                 |                     |                    |                 |
| 19.50           | 8.55                | 2.48               | 0.05            |                 |                     |                    |                 |
| 20.00           | 8.62                | 2.52               | 0.05            |                 |                     |                    |                 |
| 20.50           | 8.68                | 2.56               | 0.05            |                 |                     |                    |                 |
| 21.00           | 8.74                | 2.60               | 0.05            |                 |                     |                    |                 |
| 21.50           | 8.80                | 2.63               | 0.05            |                 |                     |                    |                 |
| 22.00           | 8.86                | 2.67               | 0.04            |                 |                     |                    |                 |
| 22.50           | 8.91                | 2.70               | 0.04            |                 |                     |                    |                 |
| 23.00           | 8.96                | 2.74               | 0.04            |                 |                     |                    |                 |
| 23.50           | 9.01                | 2.77               | 0.04            |                 |                     |                    |                 |
| 24.00           | 9.06                | 2.80               | 0.04            |                 |                     |                    |                 |
| 24.50           | 9.06                | 2.80               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 2.80               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 2.80               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 30S: GI-6 Impervious

Runoff = 13.77 cfs @ 12.09 hrs, Volume= 42,399 cf, Depth= 8.82"  
Routed to Pond 31P : GI-6

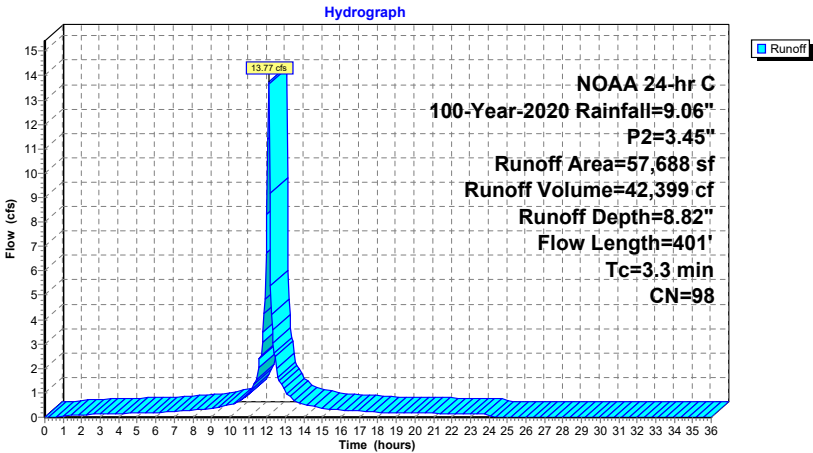
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 57,688    | 98 | Paved parking, HSG A    |
| 57,688    |    | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                             |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------|
| 1.3         | 100              | 0.0140           | 1.24                 |                   | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.45"                          |
| 1.9         | 275              | 0.0140           | 2.40                 |                   | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps                           |
| 0.1         | 26               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 3</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 |
| 3.3         | 401              | Total            |                      |                   |                                                                                         |



Subcatchment 30S: GI-6 Impervious



Hydrograph for Subcatchment 30S: GI-6 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 8.82               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 8.82               | 0.00            |
| 1.00            | 0.10                | 0.01               | 0.05            | 27.00           | 9.06                | 8.82               | 0.00            |
| 1.50            | 0.15                | 0.04               | 0.08            | 27.50           | 9.06                | 8.82               | 0.00            |
| 2.00            | 0.20                | 0.07               | 0.10            | 28.00           | 9.06                | 8.82               | 0.00            |
| 2.50            | 0.26                | 0.11               | 0.12            | 28.50           | 9.06                | 8.82               | 0.00            |
| 3.00            | 0.32                | 0.16               | 0.13            | 29.00           | 9.06                | 8.82               | 0.00            |
| 3.50            | 0.38                | 0.21               | 0.14            | 29.50           | 9.06                | 8.82               | 0.00            |
| 4.00            | 0.44                | 0.27               | 0.15            | 30.00           | 9.06                | 8.82               | 0.00            |
| 4.50            | 0.51                | 0.33               | 0.16            | 30.50           | 9.06                | 8.82               | 0.00            |
| 5.00            | 0.58                | 0.39               | 0.17            | 31.00           | 9.06                | 8.82               | 0.00            |
| 5.50            | 0.65                | 0.45               | 0.18            | 31.50           | 9.06                | 8.82               | 0.00            |
| 6.00            | 0.72                | 0.52               | 0.18            | 32.00           | 9.06                | 8.82               | 0.00            |
| 6.50            | 0.80                | 0.59               | 0.21            | 32.50           | 9.06                | 8.82               | 0.00            |
| 7.00            | 0.88                | 0.68               | 0.23            | 33.00           | 9.06                | 8.82               | 0.00            |
| 7.50            | 0.98                | 0.77               | 0.26            | 33.50           | 9.06                | 8.82               | 0.00            |
| 8.00            | 1.09                | 0.87               | 0.28            | 34.00           | 9.06                | 8.82               | 0.00            |
| 8.50            | 1.20                | 0.99               | 0.31            | 34.50           | 9.06                | 8.82               | 0.00            |
| 9.00            | 1.32                | 1.11               | 0.33            | 35.00           | 9.06                | 8.82               | 0.00            |
| 9.50            | 1.47                | 1.25               | 0.42            | 35.50           | 9.06                | 8.82               | 0.00            |
| 10.00           | 1.65                | 1.43               | 0.51            | 36.00           | 9.06                | 8.82               | 0.00            |
| 10.50           | 1.87                | 1.64               | 0.61            |                 |                     |                    |                 |
| 11.00           | 2.17                | 1.95               | 0.95            |                 |                     |                    |                 |
| 11.50           | 2.68                | 2.45               | 1.57            |                 |                     |                    |                 |
| 12.00           | 4.32                | 4.08               | 8.31            |                 |                     |                    |                 |
| 12.50           | 6.38                | 6.14               | 2.44            |                 |                     |                    |                 |
| 13.00           | 6.89                | 6.65               | 1.09            |                 |                     |                    |                 |
| 13.50           | 7.19                | 6.95               | 0.68            |                 |                     |                    |                 |
| 14.00           | 7.41                | 7.17               | 0.54            |                 |                     |                    |                 |
| 14.50           | 7.59                | 7.35               | 0.45            |                 |                     |                    |                 |
| 15.00           | 7.74                | 7.50               | 0.36            |                 |                     |                    |                 |
| 15.50           | 7.86                | 7.62               | 0.32            |                 |                     |                    |                 |
| 16.00           | 7.97                | 7.73               | 0.30            |                 |                     |                    |                 |
| 16.50           | 8.08                | 7.84               | 0.27            |                 |                     |                    |                 |
| 17.00           | 8.18                | 7.94               | 0.25            |                 |                     |                    |                 |
| 17.50           | 8.26                | 8.02               | 0.22            |                 |                     |                    |                 |
| 18.00           | 8.34                | 8.10               | 0.20            |                 |                     |                    |                 |
| 18.50           | 8.41                | 8.17               | 0.19            |                 |                     |                    |                 |
| 19.00           | 8.48                | 8.24               | 0.18            |                 |                     |                    |                 |
| 19.50           | 8.55                | 8.31               | 0.18            |                 |                     |                    |                 |
| 20.00           | 8.62                | 8.38               | 0.17            |                 |                     |                    |                 |
| 20.50           | 8.68                | 8.44               | 0.17            |                 |                     |                    |                 |
| 21.00           | 8.74                | 8.50               | 0.16            |                 |                     |                    |                 |
| 21.50           | 8.80                | 8.56               | 0.15            |                 |                     |                    |                 |
| 22.00           | 8.86                | 8.61               | 0.15            |                 |                     |                    |                 |
| 22.50           | 8.91                | 8.67               | 0.14            |                 |                     |                    |                 |
| 23.00           | 8.96                | 8.72               | 0.14            |                 |                     |                    |                 |
| 23.50           | 9.01                | 8.77               | 0.13            |                 |                     |                    |                 |
| 24.00           | 9.06                | 8.82               | 0.15            |                 |                     |                    |                 |
| 24.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 41S: GI-11 Pervious

Runoff = 0.50 cfs @ 12.10 hrs, Volume= 1,295 cf, Depth= 4.27"  
Routed to Pond 43P : GI-11

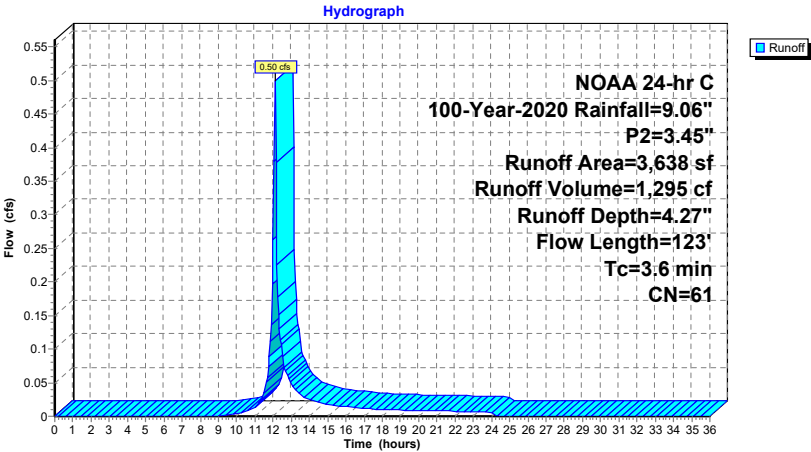
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 3,638     | 61 | >75% Grass cover, Good, HSG B |
| 3,638     |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                    |
|----------|---------------|---------------|-------------------|----------------|--------------------------------------------------------------------------------|
| 2.6      | 25            | 0.0833        | 0.16              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.45"                                 |
| 0.8      | 51            | 0.0130        | 1.05              |                | Sheet Flow,<br>Smooth surfaces n= 0.011 P2= 3.45"                              |
| 0.2      | 36            | 0.0100        | 2.98              | 0.60           | Channel Flow,<br>Area= 0.2 sf Perim= 1.5' r= 0.13'<br>n= 0.013 Asphalt, smooth |
| 0.0      | 11            | 0.3330        | 4.04              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                  |
| 3.6      | 123           | Total         |                   |                |                                                                                |



Subcatchment 41S: GI-11 Pervious



Hydrograph for Subcatchment 41S: GI-11 Pervious

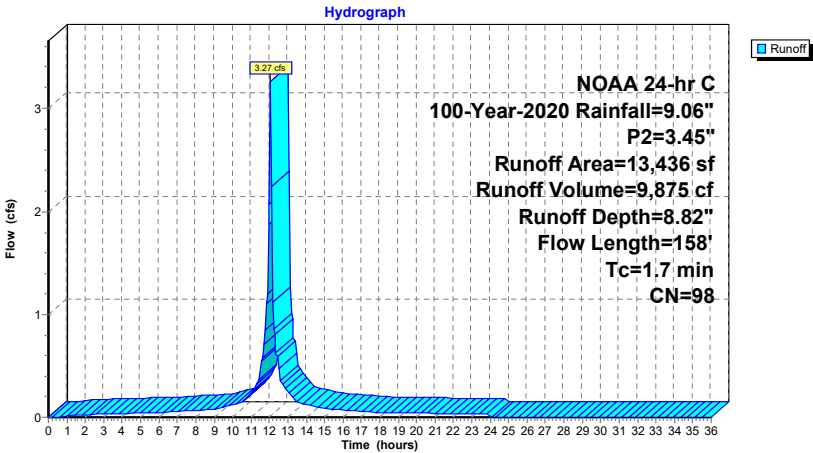
| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 4.27               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 4.27               | 0.00            |
| 1.00            | 0.10                | 0.00               | 0.00            | 27.00           | 9.06                | 4.27               | 0.00            |
| 1.50            | 0.15                | 0.00               | 0.00            | 27.50           | 9.06                | 4.27               | 0.00            |
| 2.00            | 0.20                | 0.00               | 0.00            | 28.00           | 9.06                | 4.27               | 0.00            |
| 2.50            | 0.26                | 0.00               | 0.00            | 28.50           | 9.06                | 4.27               | 0.00            |
| 3.00            | 0.32                | 0.00               | 0.00            | 29.00           | 9.06                | 4.27               | 0.00            |
| 3.50            | 0.38                | 0.00               | 0.00            | 29.50           | 9.06                | 4.27               | 0.00            |
| 4.00            | 0.44                | 0.00               | 0.00            | 30.00           | 9.06                | 4.27               | 0.00            |
| 4.50            | 0.51                | 0.00               | 0.00            | 30.50           | 9.06                | 4.27               | 0.00            |
| 5.00            | 0.58                | 0.00               | 0.00            | 31.00           | 9.06                | 4.27               | 0.00            |
| 5.50            | 0.65                | 0.00               | 0.00            | 31.50           | 9.06                | 4.27               | 0.00            |
| 6.00            | 0.72                | 0.00               | 0.00            | 32.00           | 9.06                | 4.27               | 0.00            |
| 6.50            | 0.80                | 0.00               | 0.00            | 32.50           | 9.06                | 4.27               | 0.00            |
| 7.00            | 0.88                | 0.00               | 0.00            | 33.00           | 9.06                | 4.27               | 0.00            |
| 7.50            | 0.98                | 0.00               | 0.00            | 33.50           | 9.06                | 4.27               | 0.00            |
| 8.00            | 1.09                | 0.00               | 0.00            | 34.00           | 9.06                | 4.27               | 0.00            |
| 8.50            | 1.20                | 0.00               | 0.00            | 34.50           | 9.06                | 4.27               | 0.00            |
| 9.00            | 1.32                | 0.00               | 0.00            | 35.00           | 9.06                | 4.27               | 0.00            |
| 9.50            | 1.47                | 0.01               | 0.00            | 35.50           | 9.06                | 4.27               | 0.00            |
| 10.00           | 1.65                | 0.02               | 0.00            | 36.00           | 9.06                | 4.27               | 0.00            |
| 10.50           | 1.87                | 0.05               | 0.01            |                 |                     |                    |                 |
| 11.00           | 2.17                | 0.11               | 0.01            |                 |                     |                    |                 |
| 11.50           | 2.68                | 0.25               | 0.03            |                 |                     |                    |                 |
| 12.00           | 4.32                | 0.98               | 0.26            |                 |                     |                    |                 |
| 12.50           | 6.38                | 2.27               | 0.11            |                 |                     |                    |                 |
| 13.00           | 6.89                | 2.62               | 0.05            |                 |                     |                    |                 |
| 13.50           | 7.19                | 2.84               | 0.03            |                 |                     |                    |                 |
| 14.00           | 7.41                | 3.00               | 0.03            |                 |                     |                    |                 |
| 14.50           | 7.59                | 3.13               | 0.02            |                 |                     |                    |                 |
| 15.00           | 7.74                | 3.25               | 0.02            |                 |                     |                    |                 |
| 15.50           | 7.86                | 3.34               | 0.02            |                 |                     |                    |                 |
| 16.00           | 7.97                | 3.43               | 0.01            |                 |                     |                    |                 |
| 16.50           | 8.08                | 3.51               | 0.01            |                 |                     |                    |                 |
| 17.00           | 8.18                | 3.58               | 0.01            |                 |                     |                    |                 |
| 17.50           | 8.26                | 3.65               | 0.01            |                 |                     |                    |                 |
| 18.00           | 8.34                | 3.71               | 0.01            |                 |                     |                    |                 |
| 18.50           | 8.41                | 3.76               | 0.01            |                 |                     |                    |                 |
| 19.00           | 8.48                | 3.82               | 0.01            |                 |                     |                    |                 |
| 19.50           | 8.55                | 3.87               | 0.01            |                 |                     |                    |                 |
| 20.00           | 8.62                | 3.92               | 0.01            |                 |                     |                    |                 |
| 20.50           | 8.68                | 3.97               | 0.01            |                 |                     |                    |                 |
| 21.00           | 8.74                | 4.02               | 0.01            |                 |                     |                    |                 |
| 21.50           | 8.80                | 4.06               | 0.01            |                 |                     |                    |                 |
| 22.00           | 8.86                | 4.11               | 0.01            |                 |                     |                    |                 |
| 22.50           | 8.91                | 4.15               | 0.01            |                 |                     |                    |                 |
| 23.00           | 8.96                | 4.19               | 0.01            |                 |                     |                    |                 |
| 23.50           | 9.01                | 4.23               | 0.01            |                 |                     |                    |                 |
| 24.00           | 9.06                | 4.27               | 0.01            |                 |                     |                    |                 |
| 24.50           | 9.06                | 4.27               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 4.27               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 4.27               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 42S: GI-11 Impervious

| Runoff = 3.27 cfs @ 12.07 hrs, Volume= 9,875 cf, Depth= 8.82"                                                                                   |                  |                         |                      |                   |                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------|----------------------|-------------------|---------------------------------------------------------------------------------------|
| Routed to Pond 43P : GI-11                                                                                                                      |                  |                         |                      |                   |                                                                                       |
| Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs<br>NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45" |                  |                         |                      |                   |                                                                                       |
| Area (sf)                                                                                                                                       | CN               | Description             |                      |                   |                                                                                       |
| 13,436                                                                                                                                          | 98               | Paved parking, HSG A    |                      |                   |                                                                                       |
| 13,436                                                                                                                                          |                  | 100.00% Impervious Area |                      |                   |                                                                                       |
| Tc<br>(min)                                                                                                                                     | Length<br>(feet) | Slope<br>(ft/ft)        | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                           |
| 1.4                                                                                                                                             | 100              | 0.0130                  | 1.20                 |                   | <b>Sheet Flow,</b><br>Smooth surfaces n= 0.011 P2= 3.45"                              |
| 0.3                                                                                                                                             | 39               | 0.0130                  | 2.31                 |                   | <b>Shallow Concentrated Flow,</b><br>Paved Kv= 20.3 fps                               |
| 0.0                                                                                                                                             | 8                | 0.0100                  | 6.21                 | 1.24              | <b>Channel Flow,</b><br>Area= 0.2 sf Perim= 0.5' r= 0.40'<br>n= 0.013 Asphalt, smooth |
| 0.0                                                                                                                                             | 11               | 0.3330                  | 4.04                 |                   | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                  |
| 1.7                                                                                                                                             | 158              | Total                   |                      |                   |                                                                                       |



Subcatchment 42S: GI-11 Impervious



Hydrograph for Subcatchment 42S: GI-11 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 8.82               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 8.82               | 0.00            |
| 1.00            | 0.10                | 0.01               | 0.01            | 27.00           | 9.06                | 8.82               | 0.00            |
| 1.50            | 0.15                | 0.04               | 0.02            | 27.50           | 9.06                | 8.82               | 0.00            |
| 2.00            | 0.20                | 0.07               | 0.02            | 28.00           | 9.06                | 8.82               | 0.00            |
| 2.50            | 0.26                | 0.11               | 0.03            | 28.50           | 9.06                | 8.82               | 0.00            |
| 3.00            | 0.32                | 0.16               | 0.03            | 29.00           | 9.06                | 8.82               | 0.00            |
| 3.50            | 0.38                | 0.21               | 0.03            | 29.50           | 9.06                | 8.82               | 0.00            |
| 4.00            | 0.44                | 0.27               | 0.04            | 30.00           | 9.06                | 8.82               | 0.00            |
| 4.50            | 0.51                | 0.33               | 0.04            | 30.50           | 9.06                | 8.82               | 0.00            |
| 5.00            | 0.58                | 0.39               | 0.04            | 31.00           | 9.06                | 8.82               | 0.00            |
| 5.50            | 0.65                | 0.45               | 0.04            | 31.50           | 9.06                | 8.82               | 0.00            |
| 6.00            | 0.72                | 0.52               | 0.04            | 32.00           | 9.06                | 8.82               | 0.00            |
| 6.50            | 0.80                | 0.59               | 0.05            | 32.50           | 9.06                | 8.82               | 0.00            |
| 7.00            | 0.88                | 0.68               | 0.05            | 33.00           | 9.06                | 8.82               | 0.00            |
| 7.50            | 0.98                | 0.77               | 0.06            | 33.50           | 9.06                | 8.82               | 0.00            |
| 8.00            | 1.09                | 0.87               | 0.07            | 34.00           | 9.06                | 8.82               | 0.00            |
| 8.50            | 1.20                | 0.99               | 0.07            | 34.50           | 9.06                | 8.82               | 0.00            |
| 9.00            | 1.32                | 1.11               | 0.08            | 35.00           | 9.06                | 8.82               | 0.00            |
| 9.50            | 1.47                | 1.25               | 0.10            | 35.50           | 9.06                | 8.82               | 0.00            |
| 10.00           | 1.65                | 1.43               | 0.12            | 36.00           | 9.06                | 8.82               | 0.00            |
| 10.50           | 1.87                | 1.64               | 0.14            |                 |                     |                    |                 |
| 11.00           | 2.17                | 1.95               | 0.22            |                 |                     |                    |                 |
| 11.50           | 2.68                | 2.45               | 0.38            |                 |                     |                    |                 |
| 12.00           | 4.32                | 4.08               | 2.07            |                 |                     |                    |                 |
| 12.50           | 6.38                | 6.14               | 0.55            |                 |                     |                    |                 |
| 13.00           | 6.89                | 6.65               | 0.25            |                 |                     |                    |                 |
| 13.50           | 7.19                | 6.95               | 0.16            |                 |                     |                    |                 |
| 14.00           | 7.41                | 7.17               | 0.12            |                 |                     |                    |                 |
| 14.50           | 7.59                | 7.35               | 0.10            |                 |                     |                    |                 |
| 15.00           | 7.74                | 7.50               | 0.08            |                 |                     |                    |                 |
| 15.50           | 7.86                | 7.62               | 0.07            |                 |                     |                    |                 |
| 16.00           | 7.97                | 7.73               | 0.07            |                 |                     |                    |                 |
| 16.50           | 8.08                | 7.84               | 0.06            |                 |                     |                    |                 |
| 17.00           | 8.18                | 7.94               | 0.06            |                 |                     |                    |                 |
| 17.50           | 8.26                | 8.02               | 0.05            |                 |                     |                    |                 |
| 18.00           | 8.34                | 8.10               | 0.05            |                 |                     |                    |                 |
| 18.50           | 8.41                | 8.17               | 0.04            |                 |                     |                    |                 |
| 19.00           | 8.48                | 8.24               | 0.04            |                 |                     |                    |                 |
| 19.50           | 8.55                | 8.31               | 0.04            |                 |                     |                    |                 |
| 20.00           | 8.62                | 8.38               | 0.04            |                 |                     |                    |                 |
| 20.50           | 8.68                | 8.44               | 0.04            |                 |                     |                    |                 |
| 21.00           | 8.74                | 8.50               | 0.04            |                 |                     |                    |                 |
| 21.50           | 8.80                | 8.56               | 0.04            |                 |                     |                    |                 |
| 22.00           | 8.86                | 8.61               | 0.03            |                 |                     |                    |                 |
| 22.50           | 8.91                | 8.67               | 0.03            |                 |                     |                    |                 |
| 23.00           | 8.96                | 8.72               | 0.03            |                 |                     |                    |                 |
| 23.50           | 9.01                | 8.77               | 0.03            |                 |                     |                    |                 |
| 24.00           | 9.06                | 8.82               | 0.03            |                 |                     |                    |                 |
| 24.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 46S: North Undisturbed Area (Pervious)

Runoff = 9.51 cfs @ 12.35 hrs, Volume= 44,623 cf, Depth= 3.41"  
Routed to Link 13L : FES

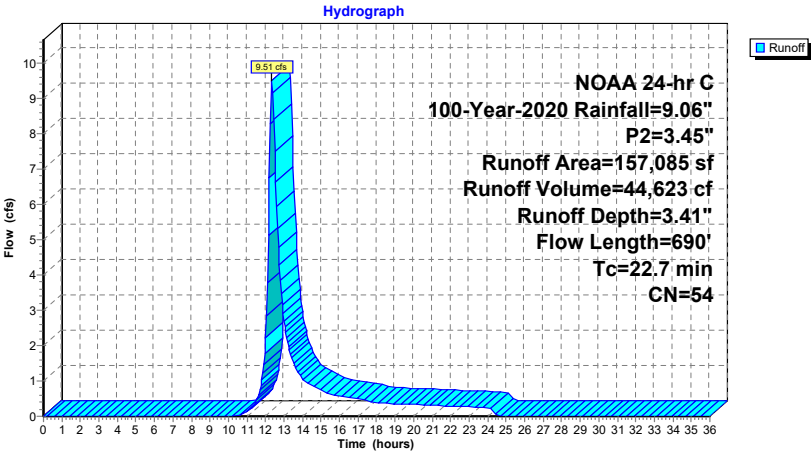
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description                    |
|-----------|----|--------------------------------|
| 15,827    | 39 | >75% Grass cover, Good, HSG A  |
| 80,837    | 61 | >75% Grass cover, Good, HSG B  |
| 30,052    | 32 | Woods/grass comb., Good, HSG A |
| 22,227    | 58 | Woods/grass comb., Good, HSG B |
| 8,142     | 86 | Fallow, bare soil, HSG B       |
| 157,085   | 54 | Weighted Average               |
| 157,085   |    | 100.00% Pervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                   |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------------------------------------------------|
| 9.1      | 27            | 0.0120        | 0.05              |                | Sheet Flow,<br>Grass: Bermuda n= 0.410 P2= 3.45"<br>Using McCuen-Spiess flow length                           |
| 1.5      | 67            | 0.0120        | 0.77              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6     | 319           | 0.0100        | 0.50              |                | Shallow Concentrated Flow,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8      | 49            | 0.0200        | 0.99              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7      | 228           | 0.0050        | 5.09              | 16.00          | Pipe Channel,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.7     | 690           | Total         |                   |                |                                                                                                               |



Subcatchment 46S: North Undisturbed Area (Pervious)



Hydrograph for Subcatchment 46S: North Undisturbed Area (Pervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 3.41               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 3.41               | 0.00            |
| 1.00            | 0.10                | 0.00               | 0.00            | 27.00           | 9.06                | 3.41               | 0.00            |
| 1.50            | 0.15                | 0.00               | 0.00            | 27.50           | 9.06                | 3.41               | 0.00            |
| 2.00            | 0.20                | 0.00               | 0.00            | 28.00           | 9.06                | 3.41               | 0.00            |
| 2.50            | 0.26                | 0.00               | 0.00            | 28.50           | 9.06                | 3.41               | 0.00            |
| 3.00            | 0.32                | 0.00               | 0.00            | 29.00           | 9.06                | 3.41               | 0.00            |
| 3.50            | 0.38                | 0.00               | 0.00            | 29.50           | 9.06                | 3.41               | 0.00            |
| 4.00            | 0.44                | 0.00               | 0.00            | 30.00           | 9.06                | 3.41               | 0.00            |
| 4.50            | 0.51                | 0.00               | 0.00            | 30.50           | 9.06                | 3.41               | 0.00            |
| 5.00            | 0.58                | 0.00               | 0.00            | 31.00           | 9.06                | 3.41               | 0.00            |
| 5.50            | 0.65                | 0.00               | 0.00            | 31.50           | 9.06                | 3.41               | 0.00            |
| 6.00            | 0.72                | 0.00               | 0.00            | 32.00           | 9.06                | 3.41               | 0.00            |
| 6.50            | 0.80                | 0.00               | 0.00            | 32.50           | 9.06                | 3.41               | 0.00            |
| 7.00            | 0.88                | 0.00               | 0.00            | 33.00           | 9.06                | 3.41               | 0.00            |
| 7.50            | 0.98                | 0.00               | 0.00            | 33.50           | 9.06                | 3.41               | 0.00            |
| 8.00            | 1.09                | 0.00               | 0.00            | 34.00           | 9.06                | 3.41               | 0.00            |
| 8.50            | 1.20                | 0.00               | 0.00            | 34.50           | 9.06                | 3.41               | 0.00            |
| 9.00            | 1.32                | 0.00               | 0.00            | 35.00           | 9.06                | 3.41               | 0.00            |
| 9.50            | 1.47                | 0.00               | 0.00            | 35.50           | 9.06                | 3.41               | 0.00            |
| 10.00           | 1.65                | 0.00               | 0.00            | 36.00           | 9.06                | 3.41               | 0.00            |
| 10.50           | 1.87                | 0.00               | 0.01            |                 |                     |                    |                 |
| 11.00           | 2.17                | 0.02               | 0.12            |                 |                     |                    |                 |
| 11.50           | 2.68                | 0.10               | 0.44            |                 |                     |                    |                 |
| 12.00           | 4.32                | 0.61               | 2.22            |                 |                     |                    |                 |
| 12.50           | 6.38                | 1.66               | 7.49            |                 |                     |                    |                 |
| 13.00           | 6.89                | 1.96               | 2.69            |                 |                     |                    |                 |
| 13.50           | 7.19                | 2.15               | 1.53            |                 |                     |                    |                 |
| 14.00           | 7.41                | 2.29               | 1.05            |                 |                     |                    |                 |
| 14.50           | 7.59                | 2.40               | 0.88            |                 |                     |                    |                 |
| 15.00           | 7.74                | 2.50               | 0.73            |                 |                     |                    |                 |
| 15.50           | 7.86                | 2.58               | 0.61            |                 |                     |                    |                 |
| 16.00           | 7.97                | 2.66               | 0.56            |                 |                     |                    |                 |
| 16.50           | 8.08                | 2.73               | 0.52            |                 |                     |                    |                 |
| 17.00           | 8.18                | 2.79               | 0.48            |                 |                     |                    |                 |
| 17.50           | 8.26                | 2.85               | 0.44            |                 |                     |                    |                 |
| 18.00           | 8.34                | 2.91               | 0.40            |                 |                     |                    |                 |
| 18.50           | 8.41                | 2.96               | 0.36            |                 |                     |                    |                 |
| 19.00           | 8.48                | 3.00               | 0.35            |                 |                     |                    |                 |
| 19.50           | 8.55                | 3.05               | 0.34            |                 |                     |                    |                 |
| 20.00           | 8.62                | 3.10               | 0.33            |                 |                     |                    |                 |
| 20.50           | 8.68                | 3.14               | 0.32            |                 |                     |                    |                 |
| 21.00           | 8.74                | 3.18               | 0.31            |                 |                     |                    |                 |
| 21.50           | 8.80                | 3.22               | 0.30            |                 |                     |                    |                 |
| 22.00           | 8.86                | 3.26               | 0.29            |                 |                     |                    |                 |
| 22.50           | 8.91                | 3.30               | 0.28            |                 |                     |                    |                 |
| 23.00           | 8.96                | 3.34               | 0.27            |                 |                     |                    |                 |
| 23.50           | 9.01                | 3.37               | 0.26            |                 |                     |                    |                 |
| 24.00           | 9.06                | 3.41               | 0.25            |                 |                     |                    |                 |
| 24.50           | 9.06                | 3.41               | 0.04            |                 |                     |                    |                 |
| 25.00           | 9.06                | 3.41               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 3.41               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 47S: North Undisturbed Area (Impervious)

Runoff = 6.30 cfs @ 12.32 hrs, Volume= 33,604 cf, Depth= 8.82"  
Routed to Link 13L : FES

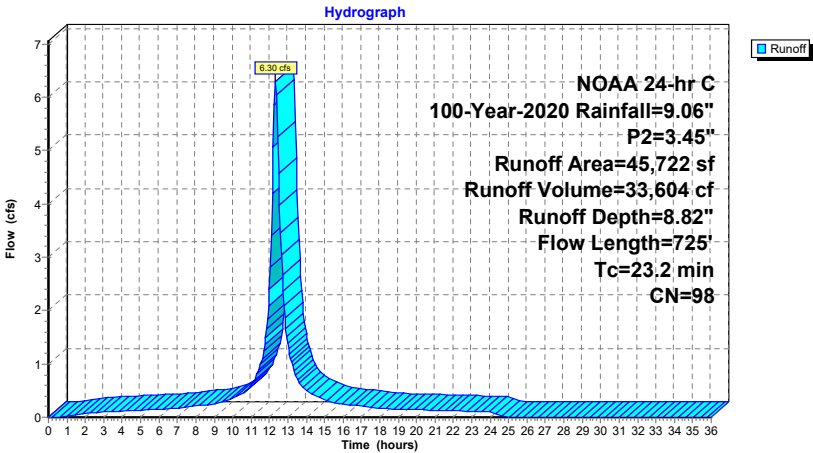
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description                 |
|-----------|----|-----------------------------|
| 45,722    | 98 | Unconnected pavement, HSG A |
| 45,722    |    | 100.00% Impervious Area     |
| 45,722    |    | 100.00% Unconnected         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                           |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------|
| 0.5         | 35               | 0.0200           | 1.16                 |                   | <b>Sheet Flow</b> ,<br>Smooth surfaces n= 0.011 P2= 3.45"                                                             |
| 9.1         | 27               | 0.0120           | 0.05                 |                   | <b>Sheet Flow</b> ,<br>Grass: Bermuda n= 0.410 P2= 3.45"<br>Using McCuen-Spiess flow length                           |
| 1.5         | 67               | 0.0120           | 0.77                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6        | 319              | 0.0100           | 0.50                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8         | 49               | 0.0200           | 0.99                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7         | 228              | 0.0050           | 5.09                 | 16.00             | <b>Pipe Channel</b> ,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 23.2        | 725              | Total            |                      |                   |                                                                                                                       |



Subcatchment 47S: North Undisturbed Area (Impervious)



Hydrograph for Subcatchment 47S: North Undisturbed Area (Impervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 8.82               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 8.82               | 0.00            |
| 1.00            | 0.10                | 0.01               | 0.02            | 27.00           | 9.06                | 8.82               | 0.00            |
| 1.50            | 0.15                | 0.04               | 0.05            | 27.50           | 9.06                | 8.82               | 0.00            |
| 2.00            | 0.20                | 0.07               | 0.07            | 28.00           | 9.06                | 8.82               | 0.00            |
| 2.50            | 0.26                | 0.11               | 0.08            | 28.50           | 9.06                | 8.82               | 0.00            |
| 3.00            | 0.32                | 0.16               | 0.10            | 29.00           | 9.06                | 8.82               | 0.00            |
| 3.50            | 0.38                | 0.21               | 0.11            | 29.50           | 9.06                | 8.82               | 0.00            |
| 4.00            | 0.44                | 0.27               | 0.11            | 30.00           | 9.06                | 8.82               | 0.00            |
| 4.50            | 0.51                | 0.33               | 0.12            | 30.50           | 9.06                | 8.82               | 0.00            |
| 5.00            | 0.58                | 0.39               | 0.13            | 31.00           | 9.06                | 8.82               | 0.00            |
| 5.50            | 0.65                | 0.45               | 0.14            | 31.50           | 9.06                | 8.82               | 0.00            |
| 6.00            | 0.72                | 0.52               | 0.14            | 32.00           | 9.06                | 8.82               | 0.00            |
| 6.50            | 0.80                | 0.59               | 0.15            | 32.50           | 9.06                | 8.82               | 0.00            |
| 7.00            | 0.88                | 0.68               | 0.17            | 33.00           | 9.06                | 8.82               | 0.00            |
| 7.50            | 0.98                | 0.77               | 0.19            | 33.50           | 9.06                | 8.82               | 0.00            |
| 8.00            | 1.09                | 0.87               | 0.21            | 34.00           | 9.06                | 8.82               | 0.00            |
| 8.50            | 1.20                | 0.99               | 0.23            | 34.50           | 9.06                | 8.82               | 0.00            |
| 9.00            | 1.32                | 1.11               | 0.25            | 35.00           | 9.06                | 8.82               | 0.00            |
| 9.50            | 1.47                | 1.25               | 0.29            | 35.50           | 9.06                | 8.82               | 0.00            |
| 10.00           | 1.65                | 1.43               | 0.36            | 36.00           | 9.06                | 8.82               | 0.00            |
| 10.50           | 1.87                | 1.64               | 0.44            |                 |                     |                    |                 |
| 11.00           | 2.17                | 1.95               | 0.59            |                 |                     |                    |                 |
| 11.50           | 2.68                | 2.45               | 0.96            |                 |                     |                    |                 |
| 12.00           | 4.32                | 4.08               | 2.40            |                 |                     |                    |                 |
| 12.50           | 6.38                | 6.14               | 4.58            |                 |                     |                    |                 |
| 13.00           | 6.89                | 6.65               | 1.38            |                 |                     |                    |                 |
| 13.50           | 7.19                | 6.95               | 0.73            |                 |                     |                    |                 |
| 14.00           | 7.41                | 7.17               | 0.49            |                 |                     |                    |                 |
| 14.50           | 7.59                | 7.35               | 0.40            |                 |                     |                    |                 |
| 15.00           | 7.74                | 7.50               | 0.33            |                 |                     |                    |                 |
| 15.50           | 7.86                | 7.62               | 0.27            |                 |                     |                    |                 |
| 16.00           | 7.97                | 7.73               | 0.25            |                 |                     |                    |                 |
| 16.50           | 8.08                | 7.84               | 0.23            |                 |                     |                    |                 |
| 17.00           | 8.18                | 7.94               | 0.21            |                 |                     |                    |                 |
| 17.50           | 8.26                | 8.02               | 0.19            |                 |                     |                    |                 |
| 18.00           | 8.34                | 8.10               | 0.17            |                 |                     |                    |                 |
| 18.50           | 8.41                | 8.17               | 0.15            |                 |                     |                    |                 |
| 19.00           | 8.48                | 8.24               | 0.15            |                 |                     |                    |                 |
| 19.50           | 8.55                | 8.31               | 0.14            |                 |                     |                    |                 |
| 20.00           | 8.62                | 8.38               | 0.14            |                 |                     |                    |                 |
| 20.50           | 8.68                | 8.44               | 0.13            |                 |                     |                    |                 |
| 21.00           | 8.74                | 8.50               | 0.13            |                 |                     |                    |                 |
| 21.50           | 8.80                | 8.56               | 0.12            |                 |                     |                    |                 |
| 22.00           | 8.86                | 8.61               | 0.12            |                 |                     |                    |                 |
| 22.50           | 8.91                | 8.67               | 0.12            |                 |                     |                    |                 |
| 23.00           | 8.96                | 8.72               | 0.11            |                 |                     |                    |                 |
| 23.50           | 9.01                | 8.77               | 0.11            |                 |                     |                    |                 |
| 24.00           | 9.06                | 8.82               | 0.10            |                 |                     |                    |                 |
| 24.50           | 9.06                | 8.82               | 0.02            |                 |                     |                    |                 |
| 25.00           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |



Summary for Pond 2P: GI-1

Inflow Area = 39,122 sf, 53.83% Impervious, Inflow Depth = 5.50" for 100-Year-2020 event  
Inflow = 5.51 cfs @ 12.09 hrs, Volume= 17,933 cf  
Outflow = 0.89 cfs @ 12.56 hrs, Volume= 15,852 cf, Atten= 84%, Lag= 28.5 min  
Primary = 0.89 cfs @ 12.56 hrs, Volume= 15,852 cf  
Routed to Link 13L : FES

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 132.14' @ 12.56 hrs Surf.Area= 7,982 sf Storage= 9,088 cf

Plug-Flow detention time= 260.6 min calculated for 15,830 cf (88% of inflow)  
Center-of-Mass det. time= 201.6 min ( 961.7 - 760.1 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 131.00' | 15,964 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

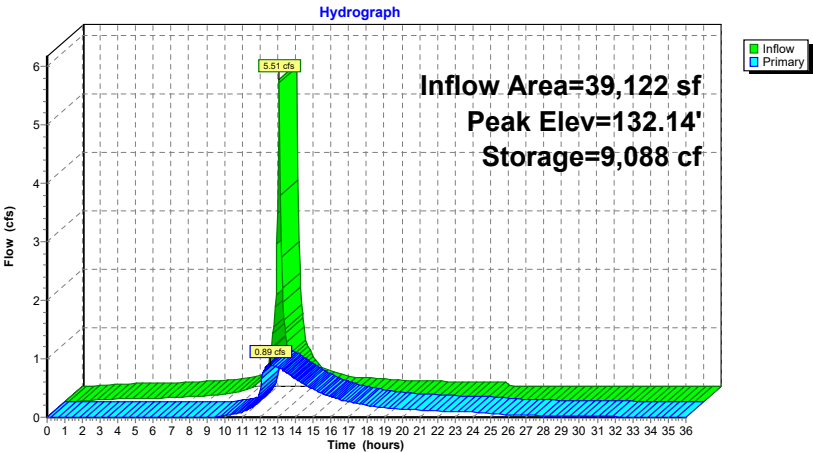
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 131.00           | 7,982             | 0                      | 0                      |
| 132.00           | 7,982             | 7,982                  | 7,982                  |
| 133.00           | 7,982             | 7,982                  | 15,964                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 132.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 131.24' | 0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

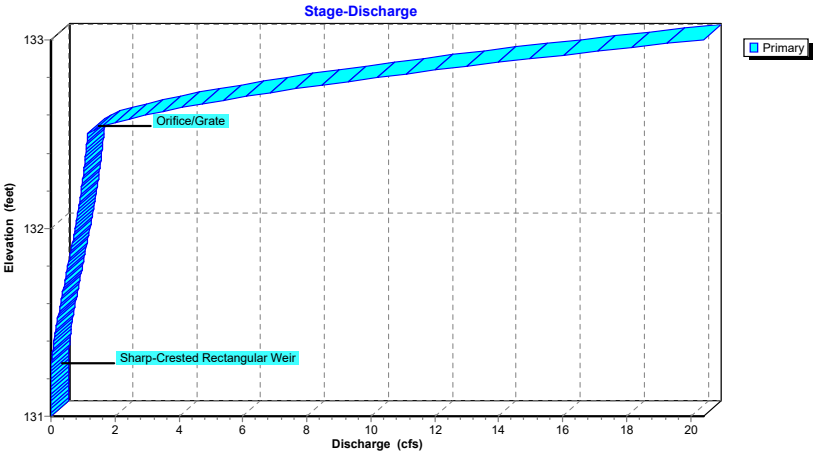
Primary OutFlow Max=0.89 cfs @ 12.56 hrs HW=132.14' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate ( Controls 0.00 cfs)  
2=Sharp-Crested Rectangular Weir(Weir Controls 0.89 cfs @ 3.10 fps)



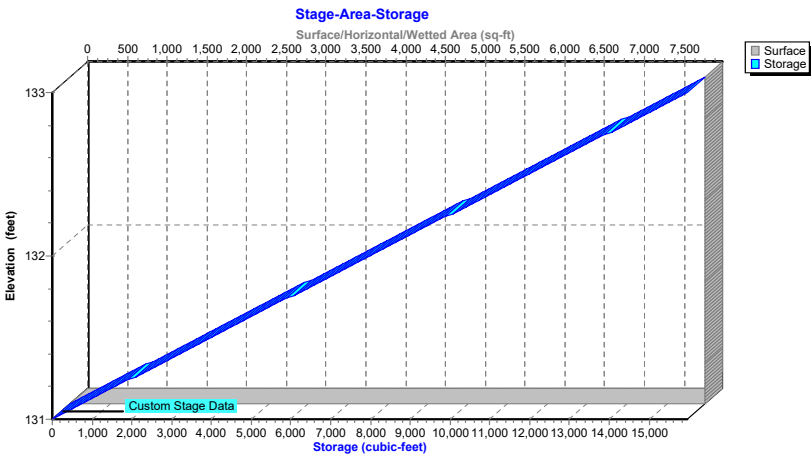
Pond 2P: GI-1



Pond 2P: GI-1



Pond 2P: GI-1



Hydrograph for Pond 2P: GI-1

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 131.00           | 0.00          |
| 1.00         | 0.02         | 20                   | 131.00           | 0.00          |
| 2.00         | 0.04         | 123                  | 131.02           | 0.00          |
| 3.00         | 0.05         | 275                  | 131.03           | 0.00          |
| 4.00         | 0.06         | 461                  | 131.06           | 0.00          |
| 5.00         | 0.06         | 671                  | 131.08           | 0.00          |
| 6.00         | 0.07         | 903                  | 131.11           | 0.00          |
| 7.00         | 0.09         | 1,178                | 131.15           | 0.00          |
| 8.00         | 0.10         | 1,518                | 131.19           | 0.00          |
| 9.00         | 0.12         | 1,923                | 131.24           | 0.00          |
| 10.00        | 0.19         | 2,444                | 131.31           | 0.03          |
| 11.00        | 0.35         | 3,131                | 131.39           | 0.09          |
| 12.00        | 3.22         | 5,808                | 131.73           | 0.45          |
| 13.00        | 0.52         | 8,746                | 132.10           | 0.85          |
| 14.00        | 0.26         | 7,276                | 131.91           | 0.66          |
| 15.00        | 0.18         | 6,029                | 131.76           | 0.48          |
| 16.00        | 0.15         | 5,123                | 131.64           | 0.35          |
| 17.00        | 0.12         | 4,516                | 131.57           | 0.26          |
| 18.00        | 0.10         | 4,079                | 131.51           | 0.21          |
| 19.00        | 0.09         | 3,762                | 131.47           | 0.17          |
| 20.00        | 0.09         | 3,543                | 131.44           | 0.14          |
| 21.00        | 0.08         | 3,384                | 131.42           | 0.12          |
| 22.00        | 0.08         | 3,262                | 131.41           | 0.11          |
| 23.00        | 0.07         | 3,164                | 131.40           | 0.09          |
| 24.00        | 0.08         | 3,081                | 131.39           | 0.09          |
| 25.00        | 0.00         | 2,836                | 131.36           | 0.06          |
| 26.00        | 0.00         | 2,649                | 131.33           | 0.04          |
| 27.00        | 0.00         | 2,513                | 131.31           | 0.03          |
| 28.00        | 0.00         | 2,411                | 131.30           | 0.02          |
| 29.00        | 0.00         | 2,333                | 131.29           | 0.02          |
| 30.00        | 0.00         | 2,272                | 131.28           | 0.02          |
| 31.00        | 0.00         | 2,223                | 131.28           | 0.01          |
| 32.00        | 0.00         | 2,183                | 131.27           | 0.01          |
| 33.00        | 0.00         | 2,151                | 131.27           | 0.01          |
| 34.00        | 0.00         | 2,124                | 131.27           | 0.01          |
| 35.00        | 0.00         | 2,101                | 131.26           | 0.01          |
| 36.00        | 0.00         | 2,082                | 131.26           | 0.00          |

**2101ELK-STM Analysis POI-1 - Propo**NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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**Stage-Discharge for Pond 2P: GI-1**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 131.00              | 0.00             | 131.52              | 0.22             | 132.04              | 0.80             | 132.56              | 2.01             |
| 131.01              | 0.00             | 131.53              | 0.23             | 132.05              | 0.81             | 132.57              | 2.22             |
| 131.02              | 0.00             | 131.54              | 0.24             | 132.06              | 0.82             | 132.58              | 2.45             |
| 131.03              | 0.00             | 131.55              | 0.25             | 132.07              | 0.83             | 132.59              | 2.69             |
| 131.04              | 0.00             | 131.56              | 0.26             | 132.08              | 0.84             | 132.60              | 2.95             |
| 131.05              | 0.00             | 131.57              | 0.27             | 132.09              | 0.85             | 132.61              | 3.22             |
| 131.06              | 0.00             | 131.58              | 0.28             | 132.10              | 0.86             | 132.62              | 3.50             |
| 131.07              | 0.00             | 131.59              | 0.29             | 132.11              | 0.87             | 132.63              | 3.79             |
| 131.08              | 0.00             | 131.60              | 0.30             | 132.12              | 0.87             | 132.64              | 4.09             |
| 131.09              | 0.00             | 131.61              | 0.31             | 132.13              | 0.88             | 132.65              | 4.41             |
| 131.10              | 0.00             | 131.62              | 0.32             | 132.14              | 0.89             | 132.66              | 4.73             |
| 131.11              | 0.00             | 131.63              | 0.34             | 132.15              | 0.90             | 132.67              | 5.07             |
| 131.12              | 0.00             | 131.64              | 0.35             | 132.16              | 0.91             | 132.68              | 5.41             |
| 131.13              | 0.00             | 131.65              | 0.36             | 132.17              | 0.92             | 132.69              | 5.76             |
| 131.14              | 0.00             | 131.66              | 0.37             | 132.18              | 0.93             | 132.70              | 6.12             |
| 131.15              | 0.00             | 131.67              | 0.38             | 132.19              | 0.94             | 132.71              | 6.49             |
| 131.16              | 0.00             | 131.68              | 0.39             | 132.20              | 0.95             | 132.72              | 6.87             |
| 131.17              | 0.00             | 131.69              | 0.40             | 132.21              | 0.96             | 132.73              | 7.26             |
| 131.18              | 0.00             | 131.70              | 0.42             | 132.22              | 0.96             | 132.74              | 7.65             |
| 131.19              | 0.00             | 131.71              | 0.43             | 132.23              | 0.97             | 132.75              | 8.06             |
| 131.20              | 0.00             | 131.72              | 0.44             | 132.24              | 0.98             | 132.76              | 8.47             |
| 131.21              | 0.00             | 131.73              | 0.45             | 132.25              | 0.99             | 132.77              | 8.89             |
| 131.22              | 0.00             | 131.74              | 0.46             | 132.26              | 1.00             | 132.78              | 9.31             |
| 131.23              | 0.00             | 131.75              | 0.47             | 132.27              | 1.00             | 132.79              | 9.75             |
| 131.24              | 0.00             | 131.76              | 0.49             | 132.28              | 1.01             | 132.80              | 10.19            |
| 131.25              | 0.00             | 131.77              | 0.50             | 132.29              | 1.02             | 132.81              | 10.64            |
| 131.26              | 0.00             | 131.78              | 0.51             | 132.30              | 1.03             | 132.82              | 11.09            |
| 131.27              | 0.01             | 131.79              | 0.52             | 132.31              | 1.04             | 132.83              | 11.56            |
| 131.28              | 0.01             | 131.80              | 0.53             | 132.32              | 1.04             | 132.84              | 12.03            |
| 131.29              | 0.02             | 131.81              | 0.54             | 132.33              | 1.05             | 132.85              | 12.50            |
| 131.30              | 0.02             | 131.82              | 0.55             | 132.34              | 1.06             | 132.86              | 12.99            |
| 131.31              | 0.03             | 131.83              | 0.57             | 132.35              | 1.06             | 132.87              | 13.48            |
| 131.32              | 0.04             | 131.84              | 0.58             | 132.36              | 1.07             | 132.88              | 13.97            |
| 131.33              | 0.04             | 131.85              | 0.59             | 132.37              | 1.08             | 132.89              | 14.48            |
| 131.34              | 0.05             | 131.86              | 0.60             | 132.38              | 1.08             | 132.90              | 14.98            |
| 131.35              | 0.06             | 131.87              | 0.61             | 132.39              | 1.09             | 132.91              | 15.50            |
| 131.36              | 0.06             | 131.88              | 0.62             | 132.40              | 1.09             | 132.92              | 16.02            |
| 131.37              | 0.07             | 131.89              | 0.63             | 132.41              | 1.10             | 132.93              | 16.55            |
| 131.38              | 0.08             | 131.90              | 0.65             | 132.42              | 1.11             | 132.94              | 17.08            |
| 131.39              | 0.09             | 131.91              | 0.66             | 132.43              | 1.11             | 132.95              | 17.62            |
| 131.40              | 0.10             | 131.92              | 0.67             | 132.44              | 1.12             | 132.96              | 18.17            |
| 131.41              | 0.11             | 131.93              | 0.68             | 132.45              | 1.12             | 132.97              | 18.72            |
| 131.42              | 0.12             | 131.94              | 0.69             | 132.46              | 1.13             | 132.98              | 19.28            |
| 131.43              | 0.13             | 131.95              | 0.70             | 132.47              | 1.13             | 132.99              | 19.84            |
| 131.44              | 0.13             | 131.96              | 0.71             | 132.48              | 1.14             | 133.00              | <b>20.41</b>     |
| 131.45              | 0.14             | 131.97              | 0.72             | 132.49              | 1.14             |                     |                  |
| 131.46              | 0.15             | 131.98              | 0.73             | 132.50              | 1.16             |                     |                  |
| 131.47              | 0.16             | 131.99              | 0.74             | 132.51              | 1.22             |                     |                  |
| 131.48              | 0.17             | 132.00              | 0.75             | 132.52              | 1.33             |                     |                  |
| 131.49              | 0.18             | 132.01              | 0.76             | 132.53              | 1.47             |                     |                  |
| 131.50              | 0.19             | 132.02              | 0.77             | 132.54              | 1.63             |                     |                  |
| 131.51              | 0.20             | 132.03              | 0.79             | 132.55              | 1.81             |                     |                  |

**2101ELK-STM Analysis POI-1 - Propo**NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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**Stage-Area-Storage for Pond 2P: GI-1**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 131.00              | <b>7,982</b>       | 0                       | 132.04              | 7,982              | 8,301                   |
| 131.02              | 7,982              | 160                     | 132.06              | 7,982              | 8,461                   |
| 131.04              | 7,982              | 319                     | 132.08              | 7,982              | 8,621                   |
| 131.06              | 7,982              | 479                     | 132.10              | 7,982              | 8,780                   |
| 131.08              | 7,982              | 639                     | 132.12              | 7,982              | 8,940                   |
| 131.10              | 7,982              | 798                     | 132.14              | 7,982              | 9,099                   |
| 131.12              | 7,982              | 958                     | 132.16              | 7,982              | 9,259                   |
| 131.14              | 7,982              | 1,117                   | 132.18              | 7,982              | 9,419                   |
| 131.16              | 7,982              | 1,277                   | 132.20              | 7,982              | 9,578                   |
| 131.18              | 7,982              | 1,437                   | 132.22              | 7,982              | 9,738                   |
| 131.20              | 7,982              | 1,596                   | 132.24              | 7,982              | 9,898                   |
| 131.22              | 7,982              | 1,756                   | 132.26              | 7,982              | 10,057                  |
| 131.24              | 7,982              | 1,916                   | 132.28              | 7,982              | 10,217                  |
| 131.26              | 7,982              | 2,075                   | 132.30              | 7,982              | 10,377                  |
| 131.28              | 7,982              | 2,235                   | 132.32              | 7,982              | 10,536                  |
| 131.30              | 7,982              | 2,395                   | 132.34              | 7,982              | 10,696                  |
| 131.32              | 7,982              | 2,554                   | 132.36              | 7,982              | 10,856                  |
| 131.34              | 7,982              | 2,714                   | 132.38              | 7,982              | 11,015                  |
| 131.36              | 7,982              | 2,874                   | 132.40              | 7,982              | 11,175                  |
| 131.38              | 7,982              | 3,033                   | 132.42              | 7,982              | 11,334                  |
| 131.40              | 7,982              | 3,193                   | 132.44              | 7,982              | 11,494                  |
| 131.42              | 7,982              | 3,352                   | 132.46              | 7,982              | 11,654                  |
| 131.44              | 7,982              | 3,512                   | 132.48              | 7,982              | 11,813                  |
| 131.46              | 7,982              | 3,672                   | 132.50              | 7,982              | 11,973                  |
| 131.48              | 7,982              | 3,831                   | 132.52              | 7,982              | 12,133                  |
| 131.50              | 7,982              | 3,991                   | 132.54              | 7,982              | 12,292                  |
| 131.52              | 7,982              | 4,151                   | 132.56              | 7,982              | 12,452                  |
| 131.54              | 7,982              | 4,310                   | 132.58              | 7,982              | 12,612                  |
| 131.56              | 7,982              | 4,470                   | 132.60              | 7,982              | 12,771                  |
| 131.58              | 7,982              | 4,630                   | 132.62              | 7,982              | 12,931                  |
| 131.60              | 7,982              | 4,789                   | 132.64              | 7,982              | 13,090                  |
| 131.62              | 7,982              | 4,949                   | 132.66              | 7,982              | 13,250                  |
| 131.64              | 7,982              | 5,108                   | 132.68              | 7,982              | 13,410                  |
| 131.66              | 7,982              | 5,268                   | 132.70              | 7,982              | 13,569                  |
| 131.68              | 7,982              | 5,428                   | 132.72              | 7,982              | 13,729                  |
| 131.70              | 7,982              | 5,587                   | 132.74              | 7,982              | 13,889                  |
| 131.72              | 7,982              | 5,747                   | 132.76              | 7,982              | 14,048                  |
| 131.74              | 7,982              | 5,907                   | 132.78              | 7,982              | 14,208                  |
| 131.76              | 7,982              | 6,066                   | 132.80              | 7,982              | 14,368                  |
| 131.78              | 7,982              | 6,226                   | 132.82              | 7,982              | 14,527                  |
| 131.80              | 7,982              | 6,386                   | 132.84              | 7,982              | 14,687                  |
| 131.82              | 7,982              | 6,545                   | 132.86              | 7,982              | 14,847                  |
| 131.84              | 7,982              | 6,705                   | 132.88              | 7,982              | 15,006                  |
| 131.86              | 7,982              | 6,865                   | 132.90              | 7,982              | 15,166                  |
| 131.88              | 7,982              | 7,024                   | 132.92              | 7,982              | 15,325                  |
| 131.90              | 7,982              | 7,184                   | 132.94              | 7,982              | 15,485                  |
| 131.92              | 7,982              | 7,343                   | 132.96              | 7,982              | 15,645                  |
| 131.94              | 7,982              | 7,503                   | 132.98              | 7,982              | 15,804                  |
| 131.96              | 7,982              | 7,663                   | 133.00              | 7,982              | <b>15,964</b>           |
| 131.98              | 7,982              | 7,822                   |                     |                    |                         |
| 132.00              | 7,982              | 7,982                   |                     |                    |                         |
| 132.02              | 7,982              | 8,142                   |                     |                    |                         |

Summary for Pond 7P: GI-9

Inflow Area = 59,364 sf, 72.99% Impervious, Inflow Depth = 7.59" for 100-Year-2020 event  
Inflow = 13.06 cfs @ 12.08 hrs, Volume= 37,554 cf  
Outflow = 1.89 cfs @ 12.54 hrs, Volume= 33,534 cf, Atten= 86%, Lag= 27.2 min  
Primary = 1.89 cfs @ 12.54 hrs, Volume= 33,534 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 130.16' @ 12.54 hrs Surf.Area= 9,141 sf Storage= 19,723 cf

Plug-Flow detention time= 258.0 min calculated for 33,488 cf (89% of inflow)  
Center-of-Mass det. time= 203.8 min ( 955.9 - 752.1 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 128.00' | 27,423 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

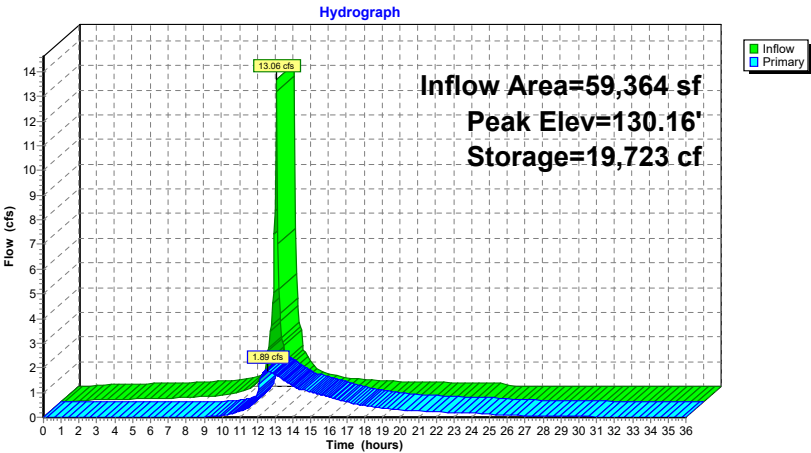
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 128.00           | 9,141             | 0                      | 0                      |
| 131.00           | 9,141             | 27,423                 | 27,423                 |

| Device | Routing | Invert  | Outlet Devices                                                |
|--------|---------|---------|---------------------------------------------------------------|
| #1     | Primary | 128.41' | 0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

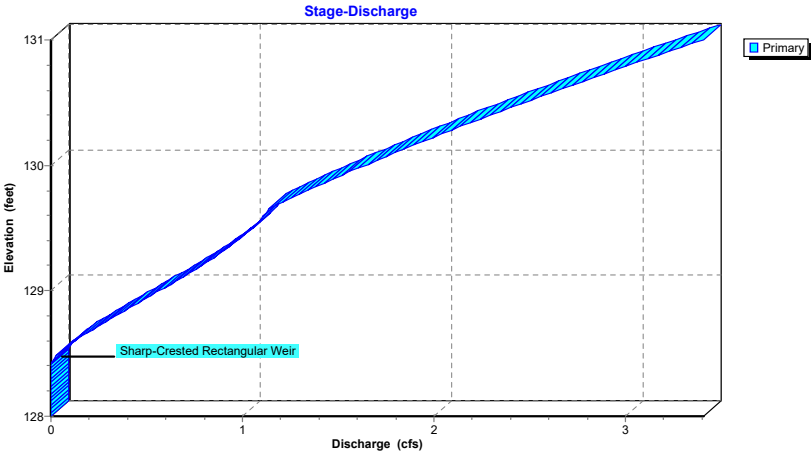
Primary OutFlow Max=1.89 cfs @ 12.54 hrs HW=130.16' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir(Weir Controls 1.89 cfs @ 4.32 fps)



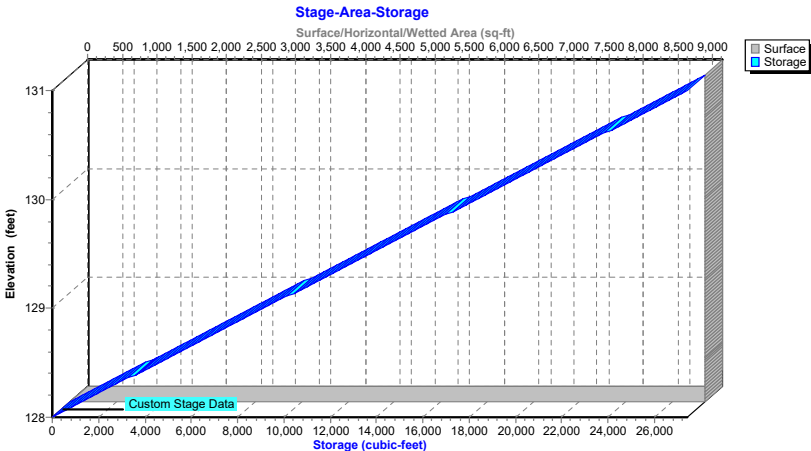
Pond 7P: GI-9



Pond 7P: GI-9



Pond 7P: GI-9



Hydrograph for Pond 7P: GI-9

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 128.00           | 0.00          |
| 1.00         | 0.04         | 42                   | 128.00           | 0.00          |
| 2.00         | 0.08         | 254                  | 128.03           | 0.00          |
| 3.00         | 0.10         | 569                  | 128.06           | 0.00          |
| 4.00         | 0.11         | 950                  | 128.10           | 0.00          |
| 5.00         | 0.13         | 1,384                | 128.15           | 0.00          |
| 6.00         | 0.14         | 1,861                | 128.20           | 0.00          |
| 7.00         | 0.18         | 2,428                | 128.27           | 0.00          |
| 8.00         | 0.21         | 3,129                | 128.34           | 0.00          |
| 9.00         | 0.25         | 3,961                | 128.43           | 0.01          |
| 10.00        | 0.40         | 5,006                | 128.55           | 0.08          |
| 11.00        | 0.78         | 6,431                | 128.70           | 0.23          |
| 12.00        | 7.76         | 12,830               | 129.40           | 0.98          |
| 13.00        | 1.03         | 18,860               | 130.06           | 1.74          |
| 14.00        | 0.51         | 15,938               | 129.74           | 1.26          |
| 15.00        | 0.34         | 13,433               | 129.47           | 1.03          |
| 16.00        | 0.28         | 11,223               | 129.23           | 0.81          |
| 17.00        | 0.24         | 9,591                | 129.05           | 0.62          |
| 18.00        | 0.19         | 8,406                | 128.92           | 0.47          |
| 19.00        | 0.18         | 7,566                | 128.83           | 0.37          |
| 20.00        | 0.17         | 6,997                | 128.77           | 0.30          |
| 21.00        | 0.15         | 6,597                | 128.72           | 0.25          |
| 22.00        | 0.14         | 6,302                | 128.69           | 0.21          |
| 23.00        | 0.13         | 6,074                | 128.66           | 0.19          |
| 24.00        | 0.14         | 5,894                | 128.64           | 0.17          |
| 25.00        | 0.00         | 5,403                | 128.59           | 0.12          |
| 26.00        | 0.00         | 5,048                | 128.55           | 0.08          |
| 27.00        | 0.00         | 4,793                | 128.52           | 0.06          |
| 28.00        | 0.00         | 4,605                | 128.50           | 0.05          |
| 29.00        | 0.00         | 4,462                | 128.49           | 0.03          |
| 30.00        | 0.00         | 4,352                | 128.48           | 0.03          |
| 31.00        | 0.00         | 4,265                | 128.47           | 0.02          |
| 32.00        | 0.00         | 4,196                | 128.46           | 0.02          |
| 33.00        | 0.00         | 4,139                | 128.45           | 0.01          |
| 34.00        | 0.00         | 4,092                | 128.45           | 0.01          |
| 35.00        | 0.00         | 4,053                | 128.44           | 0.01          |
| 36.00        | 0.00         | 4,021                | 128.44           | 0.01          |

**2101ELK-STM Analysis POI-1 - Propo**NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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**Stage-Discharge for Pond 7P: GI-9**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 128.00              | 0.00             | 129.04              | 0.61             | 130.08              | 1.76             |
| 128.02              | 0.00             | 129.06              | 0.63             | 130.10              | 1.80             |
| 128.04              | 0.00             | 129.08              | 0.66             | 130.12              | 1.83             |
| 128.06              | 0.00             | 129.10              | 0.68             | 130.14              | 1.86             |
| 128.08              | 0.00             | 129.12              | 0.70             | 130.16              | 1.89             |
| 128.10              | 0.00             | 129.14              | 0.72             | 130.18              | 1.93             |
| 128.12              | 0.00             | 129.16              | 0.74             | 130.20              | 1.96             |
| 128.14              | 0.00             | 129.18              | 0.76             | 130.22              | 1.99             |
| 128.16              | 0.00             | 129.20              | 0.79             | 130.24              | 2.02             |
| 128.18              | 0.00             | 129.22              | 0.81             | 130.26              | 2.06             |
| 128.20              | 0.00             | 129.24              | 0.83             | 130.28              | 2.09             |
| 128.22              | 0.00             | 129.26              | 0.85             | 130.30              | 2.12             |
| 128.24              | 0.00             | 129.28              | 0.87             | 130.32              | 2.16             |
| 128.26              | 0.00             | 129.30              | 0.88             | 130.34              | 2.19             |
| 128.28              | 0.00             | 129.32              | 0.90             | 130.36              | 2.23             |
| 128.30              | 0.00             | 129.34              | 0.92             | 130.38              | 2.26             |
| 128.32              | 0.00             | 129.36              | 0.94             | 130.40              | 2.29             |
| 128.34              | 0.00             | 129.38              | 0.96             | 130.42              | 2.33             |
| 128.36              | 0.00             | 129.40              | 0.97             | 130.44              | 2.36             |
| 128.38              | 0.00             | 129.42              | 0.99             | 130.46              | 2.40             |
| 128.40              | 0.00             | 129.44              | 1.00             | 130.48              | 2.43             |
| 128.42              | 0.00             | 129.46              | 1.02             | 130.50              | 2.47             |
| 128.44              | 0.01             | 129.48              | 1.04             | 130.52              | 2.51             |
| 128.46              | 0.02             | 129.50              | 1.05             | 130.54              | 2.54             |
| 128.48              | 0.03             | 129.52              | 1.06             | 130.56              | 2.58             |
| 128.50              | 0.04             | 129.54              | 1.08             | 130.58              | 2.61             |
| 128.52              | 0.06             | 129.56              | 1.09             | 130.60              | 2.65             |
| 128.54              | 0.07             | 129.58              | 1.10             | 130.62              | 2.69             |
| 128.56              | 0.09             | 129.60              | 1.11             | 130.64              | 2.72             |
| 128.58              | 0.11             | 129.62              | 1.12             | 130.66              | 2.76             |
| 128.60              | 0.13             | 129.64              | 1.13             | 130.68              | 2.80             |
| 128.62              | 0.14             | 129.66              | 1.14             | 130.70              | 2.83             |
| 128.64              | 0.16             | 129.68              | 1.17             | 130.72              | 2.87             |
| 128.66              | 0.18             | 129.70              | 1.20             | 130.74              | 2.91             |
| 128.68              | 0.20             | 129.72              | 1.23             | 130.76              | 2.95             |
| 128.70              | 0.23             | 129.74              | 1.25             | 130.78              | 2.98             |
| 128.72              | 0.25             | 129.76              | 1.28             | 130.80              | 3.02             |
| 128.74              | 0.27             | 129.78              | 1.31             | 130.82              | 3.06             |
| 128.76              | 0.29             | 129.80              | 1.34             | 130.84              | 3.10             |
| 128.78              | 0.31             | 129.82              | 1.37             | 130.86              | 3.13             |
| 128.80              | 0.34             | 129.84              | 1.40             | 130.88              | 3.17             |
| 128.82              | 0.36             | 129.86              | 1.43             | 130.90              | 3.21             |
| 128.84              | 0.38             | 129.88              | 1.46             | 130.92              | 3.25             |
| 128.86              | 0.40             | 129.90              | 1.49             | 130.94              | 3.29             |
| 128.88              | 0.43             | 129.92              | 1.52             | 130.96              | 3.33             |
| 128.90              | 0.45             | 129.94              | 1.55             | 130.98              | 3.37             |
| 128.92              | 0.47             | 129.96              | 1.58             | 131.00              | <b>3.41</b>      |
| 128.94              | 0.50             | 129.98              | 1.61             |                     |                  |
| 128.96              | 0.52             | 130.00              | 1.64             |                     |                  |
| 128.98              | 0.54             | 130.02              | 1.67             |                     |                  |
| 129.00              | 0.57             | 130.04              | 1.70             |                     |                  |
| 129.02              | 0.59             | 130.06              | 1.73             |                     |                  |

**2101ELK-STM Analysis POI-1 - Propo**NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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**Stage-Area-Storage for Pond 7P: GI-9**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 128.00              | <b>9,141</b>       | 0                       | 130.60              | 9,141              | 23,767                  |
| 128.05              | 9,141              | 457                     | 130.65              | 9,141              | 24,224                  |
| 128.10              | 9,141              | 914                     | 130.70              | 9,141              | 24,681                  |
| 128.15              | 9,141              | 1,371                   | 130.75              | 9,141              | 25,138                  |
| 128.20              | 9,141              | 1,828                   | 130.80              | 9,141              | 25,595                  |
| 128.25              | 9,141              | 2,285                   | 130.85              | 9,141              | 26,052                  |
| 128.30              | 9,141              | 2,742                   | 130.90              | 9,141              | 26,509                  |
| 128.35              | 9,141              | 3,199                   | 130.95              | 9,141              | 26,966                  |
| 128.40              | 9,141              | 3,656                   | 131.00              | 9,141              | <b>27,423</b>           |
| 128.45              | 9,141              | 4,113                   |                     |                    |                         |
| 128.50              | 9,141              | 4,571                   |                     |                    |                         |
| 128.55              | 9,141              | 5,028                   |                     |                    |                         |
| 128.60              | 9,141              | 5,485                   |                     |                    |                         |
| 128.65              | 9,141              | 5,942                   |                     |                    |                         |
| 128.70              | 9,141              | 6,399                   |                     |                    |                         |
| 128.75              | 9,141              | 6,856                   |                     |                    |                         |
| 128.80              | 9,141              | 7,313                   |                     |                    |                         |
| 128.85              | 9,141              | 7,770                   |                     |                    |                         |
| 128.90              | 9,141              | 8,227                   |                     |                    |                         |
| 128.95              | 9,141              | 8,684                   |                     |                    |                         |
| 129.00              | 9,141              | 9,141                   |                     |                    |                         |
| 129.05              | 9,141              | 9,598                   |                     |                    |                         |
| 129.10              | 9,141              | 10,055                  |                     |                    |                         |
| 129.15              | 9,141              | 10,512                  |                     |                    |                         |
| 129.20              | 9,141              | 10,969                  |                     |                    |                         |
| 129.25              | 9,141              | 11,426                  |                     |                    |                         |
| 129.30              | 9,141              | 11,883                  |                     |                    |                         |
| 129.35              | 9,141              | 12,340                  |                     |                    |                         |
| 129.40              | 9,141              | 12,797                  |                     |                    |                         |
| 129.45              | 9,141              | 13,254                  |                     |                    |                         |
| 129.50              | 9,141              | 13,712                  |                     |                    |                         |
| 129.55              | 9,141              | 14,169                  |                     |                    |                         |
| 129.60              | 9,141              | 14,626                  |                     |                    |                         |
| 129.65              | 9,141              | 15,083                  |                     |                    |                         |
| 129.70              | 9,141              | 15,540                  |                     |                    |                         |
| 129.75              | 9,141              | 15,997                  |                     |                    |                         |
| 129.80              | 9,141              | 16,454                  |                     |                    |                         |
| 129.85              | 9,141              | 16,911                  |                     |                    |                         |
| 129.90              | 9,141              | 17,368                  |                     |                    |                         |
| 129.95              | 9,141              | 17,825                  |                     |                    |                         |
| 130.00              | 9,141              | 18,282                  |                     |                    |                         |
| 130.05              | 9,141              | 18,739                  |                     |                    |                         |
| 130.10              | 9,141              | 19,196                  |                     |                    |                         |
| 130.15              | 9,141              | 19,653                  |                     |                    |                         |
| 130.20              | 9,141              | 20,110                  |                     |                    |                         |
| 130.25              | 9,141              | 20,567                  |                     |                    |                         |
| 130.30              | 9,141              | 21,024                  |                     |                    |                         |
| 130.35              | 9,141              | 21,481                  |                     |                    |                         |
| 130.40              | 9,141              | 21,938                  |                     |                    |                         |
| 130.45              | 9,141              | 22,395                  |                     |                    |                         |
| 130.50              | 9,141              | 22,853                  |                     |                    |                         |
| 130.55              | 9,141              | 23,310                  |                     |                    |                         |

Summary for Pond 14P: GI-2

Inflow Area = 26,583 sf, 49.36% Impervious, Inflow Depth = 5.18" for 100-Year-2020 event  
Inflow = 3.78 cfs @ 12.08 hrs, Volume= 11,473 cf  
Outflow = 0.72 cfs @ 12.48 hrs, Volume= 10,177 cf, Atten= 81%, Lag= 23.8 min  
Primary = 0.72 cfs @ 12.48 hrs, Volume= 10,177 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 130.76' @ 12.48 hrs Surf.Area= 7,126 sf Storage= 5,445 cf

Plug-Flow detention time= 235.1 min calculated for 10,163 cf (89% of inflow)  
Center-of-Mass det. time= 177.2 min ( 939.8 - 762.6 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 14,252 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

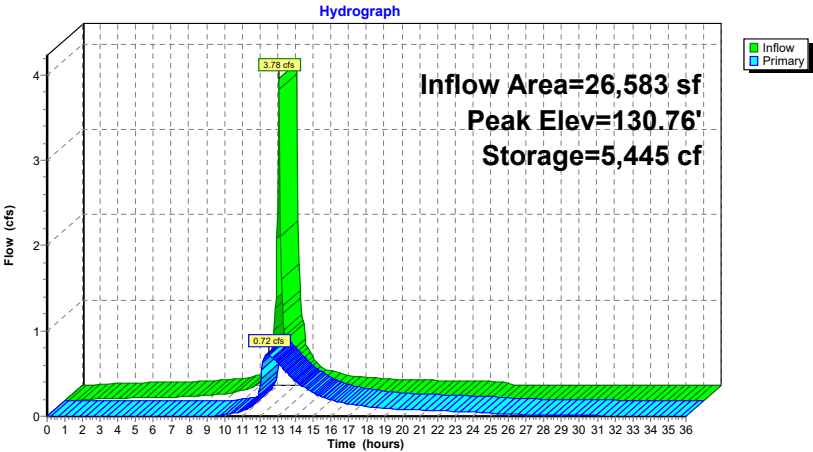
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 7,126             | 0                      | 0                      |
| 131.00           | 7,126             | 7,126                  | 7,126                  |
| 132.00           | 7,126             | 14,252                 | 14,252                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 130.17' | 0.6' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |
| #2     | Primary | 131.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |

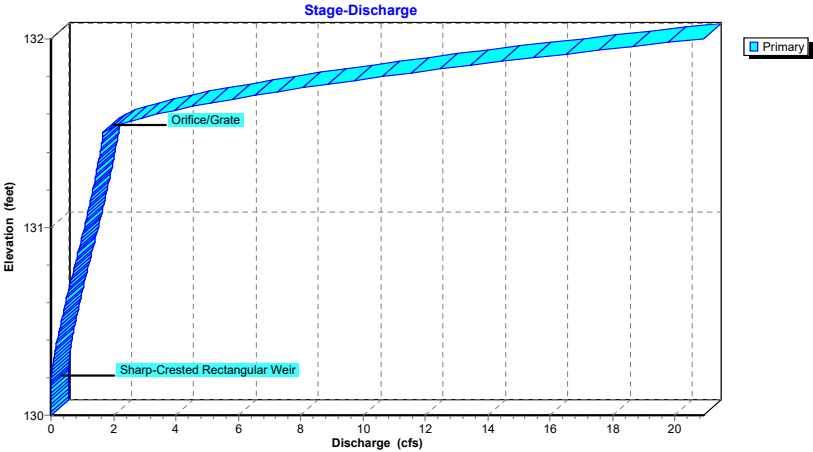
Primary OutFlow Max=0.72 cfs @ 12.48 hrs HW=130.76' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir (Weir Controls 0.72 cfs @ 2.52 fps)  
2=Orifice/Grate ( Controls 0.00 cfs)



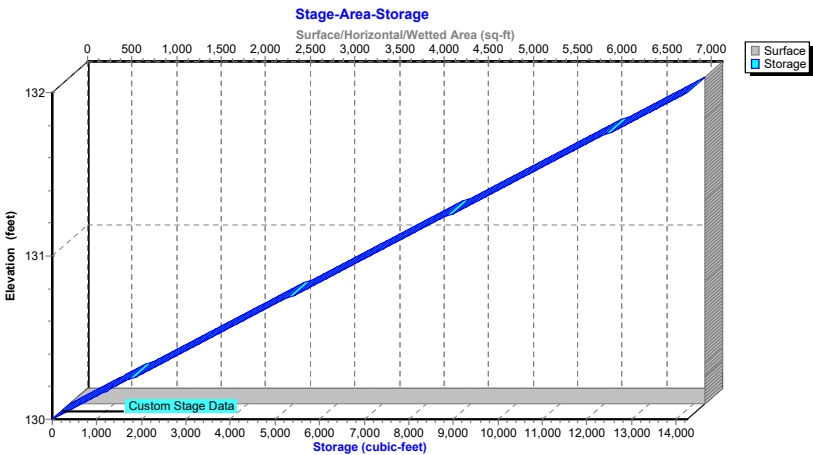
Pond 14P: GI-2



Pond 14P: GI-2



Pond 14P: GI-2



Hydrograph for Pond 14P: GI-2

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.01         | 13                   | 130.00           | 0.00          |
| 2.00         | 0.02         | 78                   | 130.01           | 0.00          |
| 3.00         | 0.03         | 173                  | 130.02           | 0.00          |
| 4.00         | 0.03         | 288                  | 130.04           | 0.00          |
| 5.00         | 0.04         | 420                  | 130.06           | 0.00          |
| 6.00         | 0.04         | 565                  | 130.08           | 0.00          |
| 7.00         | 0.05         | 736                  | 130.10           | 0.00          |
| 8.00         | 0.06         | 949                  | 130.13           | 0.00          |
| 9.00         | 0.08         | 1,202                | 130.17           | 0.00          |
| 10.00        | 0.12         | 1,527                | 130.21           | 0.02          |
| 11.00        | 0.22         | 1,949                | 130.27           | 0.06          |
| 12.00        | 2.18         | 3,658                | 130.51           | 0.35          |
| 13.00        | 0.33         | 5,010                | 130.70           | 0.63          |
| 14.00        | 0.17         | 3,966                | 130.56           | 0.41          |
| 15.00        | 0.11         | 3,264                | 130.46           | 0.27          |
| 16.00        | 0.10         | 2,810                | 130.39           | 0.19          |
| 17.00        | 0.08         | 2,525                | 130.35           | 0.15          |
| 18.00        | 0.07         | 2,323                | 130.33           | 0.11          |
| 19.00        | 0.06         | 2,178                | 130.31           | 0.09          |
| 20.00        | 0.06         | 2,079                | 130.29           | 0.08          |
| 21.00        | 0.05         | 2,008                | 130.28           | 0.07          |
| 22.00        | 0.05         | 1,953                | 130.27           | 0.06          |
| 23.00        | 0.05         | 1,906                | 130.27           | 0.06          |
| 24.00        | 0.05         | 1,867                | 130.26           | 0.05          |
| 25.00        | 0.00         | 1,715                | 130.24           | 0.04          |
| 26.00        | 0.00         | 1,607                | 130.23           | 0.03          |
| 27.00        | 0.00         | 1,529                | 130.21           | 0.02          |
| 28.00        | 0.00         | 1,473                | 130.21           | 0.01          |
| 29.00        | 0.00         | 1,430                | 130.20           | 0.01          |
| 30.00        | 0.00         | 1,397                | 130.20           | 0.01          |
| 31.00        | 0.00         | 1,370                | 130.19           | 0.01          |
| 32.00        | 0.00         | 1,349                | 130.19           | 0.01          |
| 33.00        | 0.00         | 1,332                | 130.19           | 0.00          |
| 34.00        | 0.00         | 1,318                | 130.18           | 0.00          |
| 35.00        | 0.00         | 1,306                | 130.18           | 0.00          |
| 36.00        | 0.00         | 1,296                | 130.18           | 0.00          |



**2101ELK-STM Analysis POI-1 - Propo**NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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**Stage-Discharge for Pond 14P: GI-2**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.36             | 131.04              | 1.13             | 131.56              | 2.49             |
| 130.01              | 0.00             | 130.53              | 0.37             | 131.05              | 1.14             | 131.57              | 2.70             |
| 130.02              | 0.00             | 130.54              | 0.39             | 131.06              | 1.16             | 131.58              | 2.92             |
| 130.03              | 0.00             | 130.55              | 0.40             | 131.07              | 1.17             | 131.59              | 3.16             |
| 130.04              | 0.00             | 130.56              | 0.42             | 131.08              | 1.19             | 131.60              | 3.41             |
| 130.05              | 0.00             | 130.57              | 0.43             | 131.09              | 1.20             | 131.61              | 3.67             |
| 130.06              | 0.00             | 130.58              | 0.44             | 131.10              | 1.21             | 131.62              | 3.94             |
| 130.07              | 0.00             | 130.59              | 0.46             | 131.11              | 1.23             | 131.63              | 4.23             |
| 130.08              | 0.00             | 130.60              | 0.47             | 131.12              | 1.24             | 131.64              | 4.52             |
| 130.09              | 0.00             | 130.61              | 0.49             | 131.13              | 1.25             | 131.65              | 4.83             |
| 130.10              | 0.00             | 130.62              | 0.50             | 131.14              | 1.27             | 131.66              | 5.14             |
| 130.11              | 0.00             | 130.63              | 0.52             | 131.15              | 1.28             | 131.67              | 5.47             |
| 130.12              | 0.00             | 130.64              | 0.53             | 131.16              | 1.29             | 131.68              | 5.82             |
| 130.13              | 0.00             | 130.65              | 0.55             | 131.17              | 1.31             | 131.69              | 6.17             |
| 130.14              | 0.00             | 130.66              | 0.56             | 131.18              | 1.32             | 131.70              | 6.54             |
| 130.15              | 0.00             | 130.67              | 0.58             | 131.19              | 1.33             | 131.71              | 6.91             |
| 130.16              | 0.00             | 130.68              | 0.59             | 131.20              | 1.35             | 131.72              | 7.29             |
| 130.17              | 0.00             | 130.69              | 0.61             | 131.21              | 1.36             | 131.73              | 7.68             |
| 130.18              | 0.00             | 130.70              | 0.62             | 131.22              | 1.37             | 131.74              | 8.08             |
| 130.19              | 0.01             | 130.71              | 0.64             | 131.23              | 1.38             | 131.75              | 8.49             |
| 130.20              | 0.01             | 130.72              | 0.65             | 131.24              | 1.40             | 131.76              | 8.90             |
| 130.21              | 0.02             | 130.73              | 0.67             | 131.25              | 1.41             | 131.77              | 9.33             |
| 130.22              | 0.02             | 130.74              | 0.68             | 131.26              | 1.42             | 131.78              | 9.76             |
| 130.23              | 0.03             | 130.75              | 0.70             | 131.27              | 1.43             | 131.79              | 10.19            |
| 130.24              | 0.04             | 130.76              | 0.71             | 131.28              | 1.45             | 131.80              | 10.64            |
| 130.25              | 0.04             | 130.77              | 0.73             | 131.29              | 1.46             | 131.81              | 11.09            |
| 130.26              | 0.05             | 130.78              | 0.74             | 131.30              | 1.47             | 131.82              | 11.55            |
| 130.27              | 0.06             | 130.79              | 0.76             | 131.31              | 1.48             | 131.83              | 12.02            |
| 130.28              | 0.07             | 130.80              | 0.78             | 131.32              | 1.49             | 131.84              | 12.49            |
| 130.29              | 0.08             | 130.81              | 0.79             | 131.33              | 1.50             | 131.85              | 12.97            |
| 130.30              | 0.09             | 130.82              | 0.81             | 131.34              | 1.51             | 131.86              | 13.46            |
| 130.31              | 0.10             | 130.83              | 0.82             | 131.35              | 1.53             | 131.87              | 13.95            |
| 130.32              | 0.11             | 130.84              | 0.84             | 131.36              | 1.54             | 131.88              | 14.45            |
| 130.33              | 0.12             | 130.85              | 0.85             | 131.37              | 1.55             | 131.89              | 14.96            |
| 130.34              | 0.13             | 130.86              | 0.87             | 131.38              | 1.56             | 131.90              | 15.47            |
| 130.35              | 0.14             | 130.87              | 0.88             | 131.39              | 1.57             | 131.91              | 15.99            |
| 130.36              | 0.15             | 130.88              | 0.90             | 131.40              | 1.58             | 131.92              | 16.51            |
| 130.37              | 0.16             | 130.89              | 0.91             | 131.41              | 1.59             | 131.93              | 17.04            |
| 130.38              | 0.18             | 130.90              | 0.93             | 131.42              | 1.60             | 131.94              | 17.58            |
| 130.39              | 0.19             | 130.91              | 0.94             | 131.43              | 1.61             | 131.95              | 18.12            |
| 130.40              | 0.20             | 130.92              | 0.96             | 131.44              | 1.62             | 131.96              | 18.67            |
| 130.41              | 0.21             | 130.93              | 0.97             | 131.45              | 1.63             | 131.97              | 19.23            |
| 130.42              | 0.22             | 130.94              | 0.99             | 131.46              | 1.64             | 131.98              | 19.79            |
| 130.43              | 0.24             | 130.95              | 1.00             | 131.47              | 1.65             | 131.99              | 20.35            |
| 130.44              | 0.25             | 130.96              | 1.01             | 131.48              | 1.66             | 132.00              | <b>20.93</b>     |
| 130.45              | 0.26             | 130.97              | 1.03             | 131.49              | 1.67             |                     |                  |
| 130.46              | 0.28             | 130.98              | 1.04             | 131.50              | 1.68             |                     |                  |
| 130.47              | 0.29             | 130.99              | 1.06             | 131.51              | 1.74             |                     |                  |
| 130.48              | 0.30             | 131.00              | 1.07             | 131.52              | 1.84             |                     |                  |
| 130.49              | 0.32             | 131.01              | 1.09             | 131.53              | 1.97             |                     |                  |
| 130.50              | 0.33             | 131.02              | 1.10             | 131.54              | 2.13             |                     |                  |
| 130.51              | 0.34             | 131.03              | 1.12             | 131.55              | 2.30             |                     |                  |

**2101ELK-STM Analysis POI-1 - Propo**NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 14P: GI-2**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | <b>7,126</b>       | 0                       | 131.04              | 7,126              | 7,411                   |
| 130.02              | 7,126              | 143                     | 131.06              | 7,126              | 7,554                   |
| 130.04              | 7,126              | 285                     | 131.08              | 7,126              | 7,696                   |
| 130.06              | 7,126              | 428                     | 131.10              | 7,126              | 7,839                   |
| 130.08              | 7,126              | 570                     | 131.12              | 7,126              | 7,981                   |
| 130.10              | 7,126              | 713                     | 131.14              | 7,126              | 8,124                   |
| 130.12              | 7,126              | 855                     | 131.16              | 7,126              | 8,266                   |
| 130.14              | 7,126              | 998                     | 131.18              | 7,126              | 8,409                   |
| 130.16              | 7,126              | 1,140                   | 131.20              | 7,126              | 8,551                   |
| 130.18              | 7,126              | 1,283                   | 131.22              | 7,126              | 8,694                   |
| 130.20              | 7,126              | 1,425                   | 131.24              | 7,126              | 8,836                   |
| 130.22              | 7,126              | 1,568                   | 131.26              | 7,126              | 8,979                   |
| 130.24              | 7,126              | 1,710                   | 131.28              | 7,126              | 9,121                   |
| 130.26              | 7,126              | 1,853                   | 131.30              | 7,126              | 9,264                   |
| 130.28              | 7,126              | 1,995                   | 131.32              | 7,126              | 9,406                   |
| 130.30              | 7,126              | 2,138                   | 131.34              | 7,126              | 9,549                   |
| 130.32              | 7,126              | 2,280                   | 131.36              | 7,126              | 9,691                   |
| 130.34              | 7,126              | 2,423                   | 131.38              | 7,126              | 9,834                   |
| 130.36              | 7,126              | 2,565                   | 131.40              | 7,126              | 9,976                   |
| 130.38              | 7,126              | 2,708                   | 131.42              | 7,126              | 10,119                  |
| 130.40              | 7,126              | 2,850                   | 131.44              | 7,126              | 10,261                  |
| 130.42              | 7,126              | 2,993                   | 131.46              | 7,126              | 10,404                  |
| 130.44              | 7,126              | 3,135                   | 131.48              | 7,126              | 10,546                  |
| 130.46              | 7,126              | 3,278                   | 131.50              | 7,126              | 10,689                  |
| 130.48              | 7,126              | 3,420                   | 131.52              | 7,126              | 10,832                  |
| 130.50              | 7,126              | 3,563                   | 131.54              | 7,126              | 10,974                  |
| 130.52              | 7,126              | 3,706                   | 131.56              | 7,126              | 11,117                  |
| 130.54              | 7,126              | 3,848                   | 131.58              | 7,126              | 11,259                  |
| 130.56              | 7,126              | 3,991                   | 131.60              | 7,126              | 11,402                  |
| 130.58              | 7,126              | 4,133                   | 131.62              | 7,126              | 11,544                  |
| 130.60              | 7,126              | 4,276                   | 131.64              | 7,126              | 11,687                  |
| 130.62              | 7,126              | 4,418                   | 131.66              | 7,126              | 11,829                  |
| 130.64              | 7,126              | 4,561                   | 131.68              | 7,126              | 11,972                  |
| 130.66              | 7,126              | 4,703                   | 131.70              | 7,126              | 12,114                  |
| 130.68              | 7,126              | 4,846                   | 131.72              | 7,126              | 12,257                  |
| 130.70              | 7,126              | 4,988                   | 131.74              | 7,126              | 12,399                  |
| 130.72              | 7,126              | 5,131                   | 131.76              | 7,126              | 12,542                  |
| 130.74              | 7,126              | 5,273                   | 131.78              | 7,126              | 12,684                  |
| 130.76              | 7,126              | 5,416                   | 131.80              | 7,126              | 12,827                  |
| 130.78              | 7,126              | 5,558                   | 131.82              | 7,126              | 12,969                  |
| 130.80              | 7,126              | 5,701                   | 131.84              | 7,126              | 13,112                  |
| 130.82              | 7,126              | 5,843                   | 131.86              | 7,126              | 13,254                  |
| 130.84              | 7,126              | 5,986                   | 131.88              | 7,126              | 13,397                  |
| 130.86              | 7,126              | 6,128                   | 131.90              | 7,126              | 13,539                  |
| 130.88              | 7,126              | 6,271                   | 131.92              | 7,126              | 13,682                  |
| 130.90              | 7,126              | 6,413                   | 131.94              | 7,126              | 13,824                  |
| 130.92              | 7,126              | 6,556                   | 131.96              | 7,126              | 13,967                  |
| 130.94              | 7,126              | 6,698                   | 131.98              | 7,126              | 14,109                  |
| 130.96              | 7,126              | 6,841                   | 132.00              | 7,126              | <b>14,252</b>           |
| 130.98              | 7,126              | 6,983                   |                     |                    |                         |
| 131.00              | 7,126              | 7,126                   |                     |                    |                         |
| 131.02              | 7,126              | 7,269                   |                     |                    |                         |

Summary for Pond 28P: GI-3

Inflow Area = 84,149 sf, 72.01% Impervious, Inflow Depth = 7.34" for 100-Year-2020 event  
Inflow = 15.85 cfs @ 12.10 hrs, Volume= 51,467 cf  
Outflow = 12.73 cfs @ 12.15 hrs, Volume= 39,882 cf, Atten= 20%, Lag= 3.1 min  
Primary = 12.73 cfs @ 12.15 hrs, Volume= 39,882 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.86' @ 12.15 hrs Surf.Area= 11,000 sf Storage= 20,485 cf

Plug-Flow detention time= 240.4 min calculated for 39,827 cf (77% of inflow)  
Center-of-Mass det. time= 153.8 min ( 907.8 - 754.0 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 22,000 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

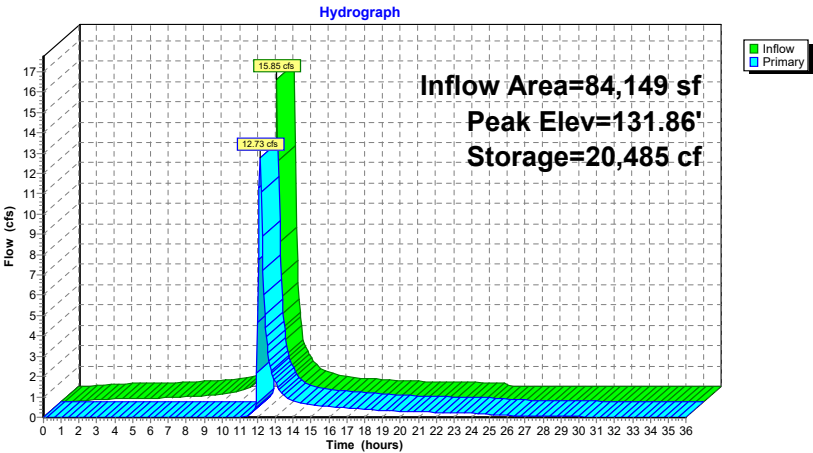
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 11,000            | 0                      | 0                      |
| 131.00           | 11,000            | 11,000                 | 11,000                 |
| 132.00           | 11,000            | 11,000                 | 22,000                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 131.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 131.03' | 0.7' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

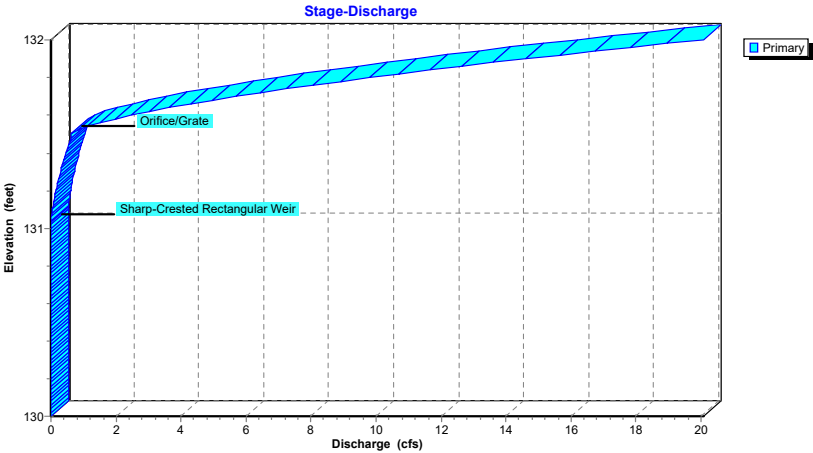
Primary OutFlow Max=12.69 cfs @ 12.15 hrs HW=131.86' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate (Weir Controls 11.36 cfs @ 1.97 fps)  
2=Sharp-Crested Rectangular Weir (Weir Controls 1.32 cfs @ 2.98 fps)



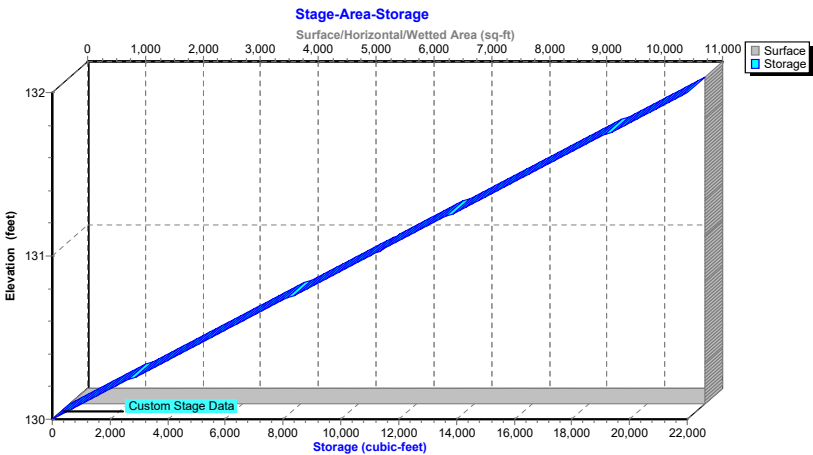
Pond 28P: GI-3



Pond 28P: GI-3



Pond 28P: GI-3



Hydrograph for Pond 28P: GI-3

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.05         | 55                   | 130.01           | 0.00          |
| 2.00         | 0.10         | 349                  | 130.03           | 0.00          |
| 3.00         | 0.14         | 787                  | 130.07           | 0.00          |
| 4.00         | 0.16         | 1,319                | 130.12           | 0.00          |
| 5.00         | 0.18         | 1,924                | 130.17           | 0.00          |
| 6.00         | 0.19         | 2,591                | 130.24           | 0.00          |
| 7.00         | 0.25         | 3,380                | 130.31           | 0.00          |
| 8.00         | 0.30         | 4,357                | 130.40           | 0.00          |
| 9.00         | 0.35         | 5,520                | 130.50           | 0.00          |
| 10.00        | 0.54         | 7,119                | 130.65           | 0.00          |
| 11.00        | 1.03         | 9,687                | 130.88           | 0.00          |
| 12.00        | 9.46         | 18,389               | 131.67           | 4.68          |
| 13.00        | 1.46         | 17,254               | 131.57           | 1.70          |
| 14.00        | 0.71         | 16,691               | 131.52           | 0.79          |
| 15.00        | 0.48         | 16,380               | 131.49           | 0.62          |
| 16.00        | 0.39         | 15,850               | 131.44           | 0.53          |
| 17.00        | 0.33         | 15,378               | 131.40           | 0.46          |
| 18.00        | 0.27         | 14,935               | 131.36           | 0.39          |
| 19.00        | 0.25         | 14,557               | 131.32           | 0.33          |
| 20.00        | 0.23         | 14,289               | 131.30           | 0.29          |
| 21.00        | 0.21         | 14,083               | 131.28           | 0.27          |
| 22.00        | 0.20         | 13,913               | 131.26           | 0.24          |
| 23.00        | 0.18         | 13,762               | 131.25           | 0.22          |
| 24.00        | 0.20         | 13,628               | 131.24           | 0.21          |
| 25.00        | 0.00         | 13,067               | 131.19           | 0.14          |
| 26.00        | 0.00         | 12,660               | 131.15           | 0.09          |
| 27.00        | 0.00         | 12,378               | 131.13           | 0.07          |
| 28.00        | 0.00         | 12,177               | 131.11           | 0.05          |
| 29.00        | 0.00         | 12,027               | 131.09           | 0.04          |
| 30.00        | 0.00         | 11,914               | 131.08           | 0.03          |
| 31.00        | 0.00         | 11,826               | 131.08           | 0.02          |
| 32.00        | 0.00         | 11,756               | 131.07           | 0.02          |
| 33.00        | 0.00         | 11,700               | 131.06           | 0.01          |
| 34.00        | 0.00         | 11,655               | 131.06           | 0.01          |
| 35.00        | 0.00         | 11,617               | 131.06           | 0.01          |
| 36.00        | 0.00         | 11,585               | 131.05           | 0.01          |

Stage-Discharge for Pond 28P: GI-3

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.00             | 131.04              | 0.00             | 131.56              | 1.52             |
| 130.01              | 0.00             | 130.53              | 0.00             | 131.05              | 0.01             | 131.57              | 1.74             |
| 130.02              | 0.00             | 130.54              | 0.00             | 131.06              | 0.01             | 131.58              | 1.97             |
| 130.03              | 0.00             | 130.55              | 0.00             | 131.07              | 0.02             | 131.59              | 2.22             |
| 130.04              | 0.00             | 130.56              | 0.00             | 131.08              | 0.03             | 131.60              | 2.48             |
| 130.05              | 0.00             | 130.57              | 0.00             | 131.09              | 0.03             | 131.61              | 2.75             |
| 130.06              | 0.00             | 130.58              | 0.00             | 131.10              | 0.04             | 131.62              | 3.04             |
| 130.07              | 0.00             | 130.59              | 0.00             | 131.11              | 0.05             | 131.63              | 3.33             |
| 130.08              | 0.00             | 130.60              | 0.00             | 131.12              | 0.06             | 131.64              | 3.64             |
| 130.09              | 0.00             | 130.61              | 0.00             | 131.13              | 0.07             | 131.65              | 3.96             |
| 130.10              | 0.00             | 130.62              | 0.00             | 131.14              | 0.08             | 131.66              | 4.29             |
| 130.11              | 0.00             | 130.63              | 0.00             | 131.15              | 0.09             | 131.67              | 4.62             |
| 130.12              | 0.00             | 130.64              | 0.00             | 131.16              | 0.10             | 131.68              | 4.97             |
| 130.13              | 0.00             | 130.65              | 0.00             | 131.17              | 0.12             | 131.69              | 5.33             |
| 130.14              | 0.00             | 130.66              | 0.00             | 131.18              | 0.13             | 131.70              | 5.69             |
| 130.15              | 0.00             | 130.67              | 0.00             | 131.19              | 0.14             | 131.71              | 6.07             |
| 130.16              | 0.00             | 130.68              | 0.00             | 131.20              | 0.15             | 131.72              | 6.45             |
| 130.17              | 0.00             | 130.69              | 0.00             | 131.21              | 0.17             | 131.73              | 6.84             |
| 130.18              | 0.00             | 130.70              | 0.00             | 131.22              | 0.18             | 131.74              | 7.24             |
| 130.19              | 0.00             | 130.71              | 0.00             | 131.23              | 0.19             | 131.75              | 7.65             |
| 130.20              | 0.00             | 130.72              | 0.00             | 131.24              | 0.21             | 131.76              | 8.07             |
| 130.21              | 0.00             | 130.73              | 0.00             | 131.25              | 0.22             | 131.77              | 8.49             |
| 130.22              | 0.00             | 130.74              | 0.00             | 131.26              | 0.24             | 131.78              | 8.92             |
| 130.23              | 0.00             | 130.75              | 0.00             | 131.27              | 0.25             | 131.79              | 9.36             |
| 130.24              | 0.00             | 130.76              | 0.00             | 131.28              | 0.27             | 131.80              | 9.80             |
| 130.25              | 0.00             | 130.77              | 0.00             | 131.29              | 0.28             | 131.81              | 10.26            |
| 130.26              | 0.00             | 130.78              | 0.00             | 131.30              | 0.30             | 131.82              | 10.72            |
| 130.27              | 0.00             | 130.79              | 0.00             | 131.31              | 0.31             | 131.83              | 11.18            |
| 130.28              | 0.00             | 130.80              | 0.00             | 131.32              | 0.33             | 131.84              | 11.66            |
| 130.29              | 0.00             | 130.81              | 0.00             | 131.33              | 0.34             | 131.85              | 12.13            |
| 130.30              | 0.00             | 130.82              | 0.00             | 131.34              | 0.36             | 131.86              | 12.62            |
| 130.31              | 0.00             | 130.83              | 0.00             | 131.35              | 0.38             | 131.87              | 13.11            |
| 130.32              | 0.00             | 130.84              | 0.00             | 131.36              | 0.39             | 131.88              | 13.61            |
| 130.33              | 0.00             | 130.85              | 0.00             | 131.37              | 0.41             | 131.89              | 14.12            |
| 130.34              | 0.00             | 130.86              | 0.00             | 131.38              | 0.43             | 131.90              | 14.63            |
| 130.35              | 0.00             | 130.87              | 0.00             | 131.39              | 0.44             | 131.91              | 15.15            |
| 130.36              | 0.00             | 130.88              | 0.00             | 131.40              | 0.46             | 131.92              | 15.67            |
| 130.37              | 0.00             | 130.89              | 0.00             | 131.41              | 0.48             | 131.93              | 16.20            |
| 130.38              | 0.00             | 130.90              | 0.00             | 131.42              | 0.50             | 131.94              | 16.74            |
| 130.39              | 0.00             | 130.91              | 0.00             | 131.43              | 0.51             | 131.95              | 17.28            |
| 130.40              | 0.00             | 130.92              | 0.00             | 131.44              | 0.53             | 131.96              | 17.83            |
| 130.41              | 0.00             | 130.93              | 0.00             | 131.45              | 0.55             | 131.97              | 18.38            |
| 130.42              | 0.00             | 130.94              | 0.00             | 131.46              | 0.57             | 131.98              | 18.94            |
| 130.43              | 0.00             | 130.95              | 0.00             | 131.47              | 0.58             | 131.99              | 19.51            |
| 130.44              | 0.00             | 130.96              | 0.00             | 131.48              | 0.60             | 132.00              | 20.08            |
| 130.45              | 0.00             | 130.97              | 0.00             | 131.49              | 0.62             |                     |                  |
| 130.46              | 0.00             | 130.98              | 0.00             | 131.50              | 0.64             |                     |                  |
| 130.47              | 0.00             | 130.99              | 0.00             | 131.51              | 0.71             |                     |                  |
| 130.48              | 0.00             | 131.00              | 0.00             | 131.52              | 0.82             |                     |                  |
| 130.49              | 0.00             | 131.01              | 0.00             | 131.53              | 0.97             |                     |                  |
| 130.50              | 0.00             | 131.02              | 0.00             | 131.54              | 1.13             |                     |                  |
| 130.51              | 0.00             | 131.03              | 0.00             | 131.55              | 1.32             |                     |                  |

Stage-Area-Storage for Pond 28P: GI-3

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | 11,000             | 0                       | 131.04              | 11,000             | 11,440                  |
| 130.02              | 11,000             | 220                     | 131.06              | 11,000             | 11,660                  |
| 130.04              | 11,000             | 440                     | 131.08              | 11,000             | 11,880                  |
| 130.06              | 11,000             | 660                     | 131.10              | 11,000             | 12,100                  |
| 130.08              | 11,000             | 880                     | 131.12              | 11,000             | 12,320                  |
| 130.10              | 11,000             | 1,100                   | 131.14              | 11,000             | 12,540                  |
| 130.12              | 11,000             | 1,320                   | 131.16              | 11,000             | 12,760                  |
| 130.14              | 11,000             | 1,540                   | 131.18              | 11,000             | 12,980                  |
| 130.16              | 11,000             | 1,760                   | 131.20              | 11,000             | 13,200                  |
| 130.18              | 11,000             | 1,980                   | 131.22              | 11,000             | 13,420                  |
| 130.20              | 11,000             | 2,200                   | 131.24              | 11,000             | 13,640                  |
| 130.22              | 11,000             | 2,420                   | 131.26              | 11,000             | 13,860                  |
| 130.24              | 11,000             | 2,640                   | 131.28              | 11,000             | 14,080                  |
| 130.26              | 11,000             | 2,860                   | 131.30              | 11,000             | 14,300                  |
| 130.28              | 11,000             | 3,080                   | 131.32              | 11,000             | 14,520                  |
| 130.30              | 11,000             | 3,300                   | 131.34              | 11,000             | 14,740                  |
| 130.32              | 11,000             | 3,520                   | 131.36              | 11,000             | 14,960                  |
| 130.34              | 11,000             | 3,740                   | 131.38              | 11,000             | 15,180                  |
| 130.36              | 11,000             | 3,960                   | 131.40              | 11,000             | 15,400                  |
| 130.38              | 11,000             | 4,180                   | 131.42              | 11,000             | 15,620                  |
| 130.40              | 11,000             | 4,400                   | 131.44              | 11,000             | 15,840                  |
| 130.42              | 11,000             | 4,620                   | 131.46              | 11,000             | 16,060                  |
| 130.44              | 11,000             | 4,840                   | 131.48              | 11,000             | 16,280                  |
| 130.46              | 11,000             | 5,060                   | 131.50              | 11,000             | 16,500                  |
| 130.48              | 11,000             | 5,280                   | 131.52              | 11,000             | 16,720                  |
| 130.50              | 11,000             | 5,500                   | 131.54              | 11,000             | 16,940                  |
| 130.52              | 11,000             | 5,720                   | 131.56              | 11,000             | 17,160                  |
| 130.54              | 11,000             | 5,940                   | 131.58              | 11,000             | 17,380                  |
| 130.56              | 11,000             | 6,160                   | 131.60              | 11,000             | 17,600                  |
| 130.58              | 11,000             | 6,380                   | 131.62              | 11,000             | 17,820                  |
| 130.60              | 11,000             | 6,600                   | 131.64              | 11,000             | 18,040                  |
| 130.62              | 11,000             | 6,820                   | 131.66              | 11,000             | 18,260                  |
| 130.64              | 11,000             | 7,040                   | 131.68              | 11,000             | 18,480                  |
| 130.66              | 11,000             | 7,260                   | 131.70              | 11,000             | 18,700                  |
| 130.68              | 11,000             | 7,480                   | 131.72              | 11,000             | 18,920                  |
| 130.70              | 11,000             | 7,700                   | 131.74              | 11,000             | 19,140                  |
| 130.72              | 11,000             | 7,920                   | 131.76              | 11,000             | 19,360                  |
| 130.74              | 11,000             | 8,140                   | 131.78              | 11,000             | 19,580                  |
| 130.76              | 11,000             | 8,360                   | 131.80              | 11,000             | 19,800                  |
| 130.78              | 11,000             | 8,580                   | 131.82              | 11,000             | 20,020                  |
| 130.80              | 11,000             | 8,800                   | 131.84              | 11,000             | 20,240                  |
| 130.82              | 11,000             | 9,020                   | 131.86              | 11,000             | 20,460                  |
| 130.84              | 11,000             | 9,240                   | 131.88              | 11,000             | 20,680                  |
| 130.86              | 11,000             | 9,460                   | 131.90              | 11,000             | 20,900                  |
| 130.88              | 11,000             | 9,680                   | 131.92              | 11,000             | 21,120                  |
| 130.90              | 11,000             | 9,900                   | 131.94              | 11,000             | 21,340                  |
| 130.92              | 11,000             | 10,120                  | 131.96              | 11,000             | 21,560                  |
| 130.94              | 11,000             | 10,340                  | 131.98              | 11,000             | 21,780                  |
| 130.96              | 11,000             | 10,560                  | 132.00              | 11,000             | 22,000                  |
| 130.98              | 11,000             | 10,780                  |                     |                    |                         |
| 131.00              | 11,000             | 11,000                  |                     |                    |                         |
| 131.02              | 11,000             | 11,220                  |                     |                    |                         |

Summary for Pond 31P: GI-6

Inflow Area = 85,032 sf, 67.84% Impervious, Inflow Depth = 6.88" for 100-Year-2020 event  
Inflow = 15.28 cfs @ 12.10 hrs, Volume= 48,781 cf  
Outflow = 1.98 cfs @ 12.65 hrs, Volume= 39,946 cf, Atten= 87%, Lag= 33.2 min  
Primary = 1.98 cfs @ 12.65 hrs, Volume= 39,946 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.41' @ 12.65 hrs Surf.Area= 20,000 sf Storage= 28,173 cf

Plug-Flow detention time= 331.5 min calculated for 39,891 cf (82% of inflow)  
Center-of-Mass det. time= 253.9 min ( 1,009.0 - 755.1 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 40,000 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

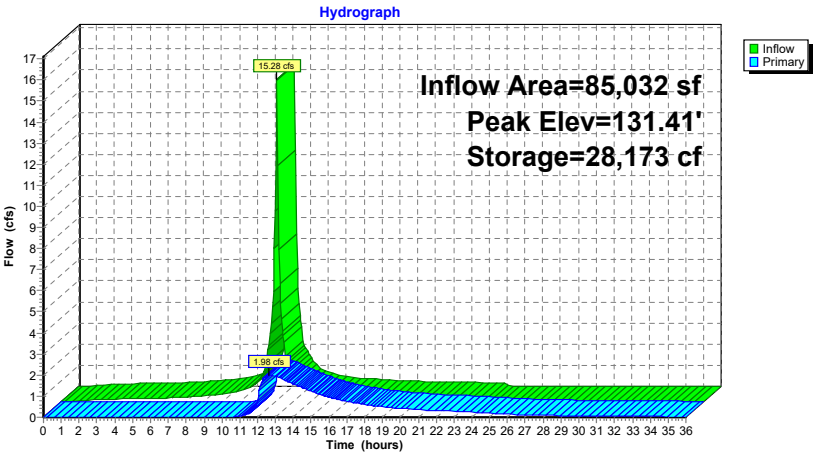
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 20,000            | 0                      | 0                      |
| 131.00           | 20,000            | 20,000                 | 20,000                 |
| 132.00           | 20,000            | 20,000                 | 40,000                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 131.80' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 130.40' | 0.8' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

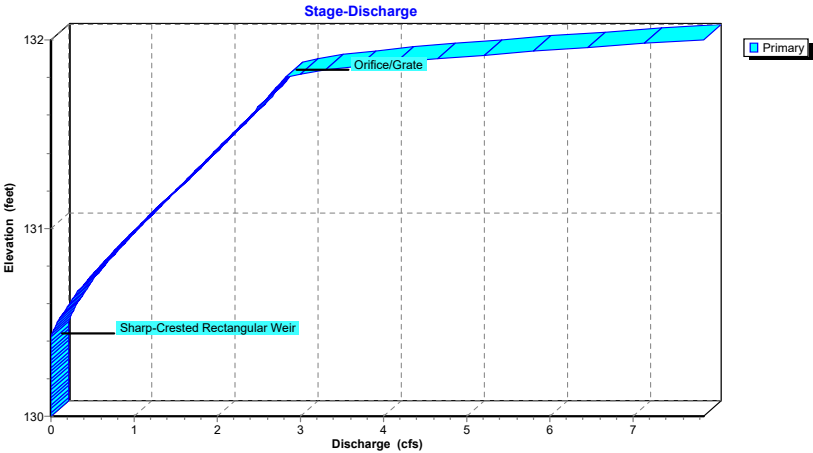
Primary OutFlow Max=1.98 cfs @ 12.65 hrs HW=131.41' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate ( Controls 0.00 cfs)  
2=Sharp-Crested Rectangular Weir(Weir Controls 1.98 cfs @ 3.28 fps)



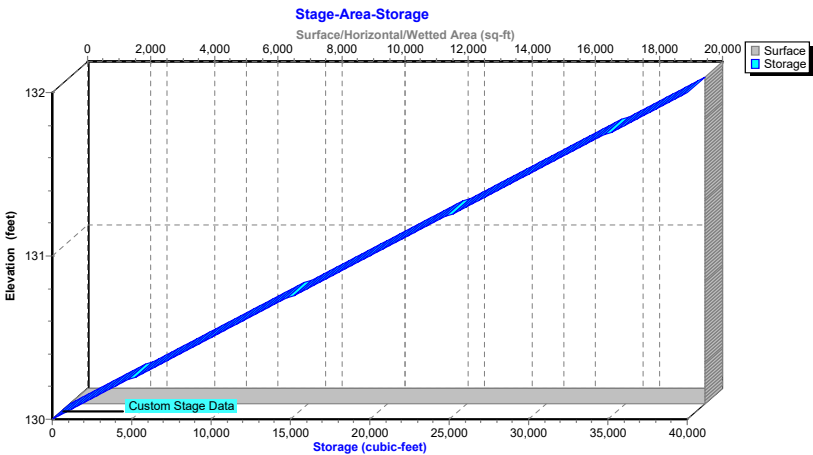
Pond 31P: GI-6



Pond 31P: GI-6



Pond 31P: GI-6



Hydrograph for Pond 31P: GI-6

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.05         | 53                   | 130.00           | 0.00          |
| 2.00         | 0.10         | 333                  | 130.02           | 0.00          |
| 3.00         | 0.13         | 750                  | 130.04           | 0.00          |
| 4.00         | 0.15         | 1,257                | 130.06           | 0.00          |
| 5.00         | 0.17         | 1,833                | 130.09           | 0.00          |
| 6.00         | 0.18         | 2,468                | 130.12           | 0.00          |
| 7.00         | 0.23         | 3,219                | 130.16           | 0.00          |
| 8.00         | 0.28         | 4,149                | 130.21           | 0.00          |
| 9.00         | 0.33         | 5,257                | 130.26           | 0.00          |
| 10.00        | 0.51         | 6,780                | 130.34           | 0.00          |
| 11.00        | 0.95         | 9,167                | 130.46           | 0.04          |
| 12.00        | 9.04         | 17,708               | 130.89           | 0.78          |
| 13.00        | 1.39         | 27,794               | 131.39           | 1.94          |
| 14.00        | 0.69         | 24,738               | 131.24           | 1.58          |
| 15.00        | 0.46         | 21,742               | 131.09           | 1.23          |
| 16.00        | 0.38         | 19,309               | 130.97           | 0.96          |
| 17.00        | 0.32         | 17,507               | 130.88           | 0.76          |
| 18.00        | 0.26         | 16,107               | 130.81           | 0.61          |
| 19.00        | 0.24         | 15,018               | 130.75           | 0.50          |
| 20.00        | 0.22         | 14,210               | 130.71           | 0.42          |
| 21.00        | 0.21         | 13,591               | 130.68           | 0.36          |
| 22.00        | 0.19         | 13,099               | 130.65           | 0.32          |
| 23.00        | 0.18         | 12,695               | 130.63           | 0.28          |
| 24.00        | 0.19         | 12,356               | 130.62           | 0.25          |
| 25.00        | 0.00         | 11,608               | 130.58           | 0.19          |
| 26.00        | 0.00         | 11,004               | 130.55           | 0.15          |
| 27.00        | 0.00         | 10,537               | 130.53           | 0.11          |
| 28.00        | 0.00         | 10,170               | 130.51           | 0.09          |
| 29.00        | 0.00         | 9,875                | 130.49           | 0.07          |
| 30.00        | 0.00         | 9,636                | 130.48           | 0.06          |
| 31.00        | 0.00         | 9,440                | 130.47           | 0.05          |
| 32.00        | 0.00         | 9,276                | 130.46           | 0.04          |
| 33.00        | 0.00         | 9,139                | 130.46           | 0.04          |
| 34.00        | 0.00         | 9,023                | 130.45           | 0.03          |
| 35.00        | 0.00         | 8,923                | 130.45           | 0.03          |
| 36.00        | 0.00         | 8,837                | 130.44           | 0.02          |

Stage-Discharge for Pond 31P: GI-6

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.11             | 131.04              | 1.13             | 131.56              | 2.32             |
| 130.01              | 0.00             | 130.53              | 0.12             | 131.05              | 1.15             | 131.57              | 2.34             |
| 130.02              | 0.00             | 130.54              | 0.13             | 131.06              | 1.17             | 131.58              | 2.36             |
| 130.03              | 0.00             | 130.55              | 0.15             | 131.07              | 1.19             | 131.59              | 2.39             |
| 130.04              | 0.00             | 130.56              | 0.16             | 131.08              | 1.22             | 131.60              | 2.41             |
| 130.05              | 0.00             | 130.57              | 0.18             | 131.09              | 1.24             | 131.61              | 2.43             |
| 130.06              | 0.00             | 130.58              | 0.19             | 131.10              | 1.26             | 131.62              | 2.45             |
| 130.07              | 0.00             | 130.59              | 0.21             | 131.11              | 1.29             | 131.63              | 2.47             |
| 130.08              | 0.00             | 130.60              | 0.22             | 131.12              | 1.31             | 131.64              | 2.49             |
| 130.09              | 0.00             | 130.61              | 0.24             | 131.13              | 1.33             | 131.65              | 2.51             |
| 130.10              | 0.00             | 130.62              | 0.26             | 131.14              | 1.36             | 131.66              | 2.53             |
| 130.11              | 0.00             | 130.63              | 0.27             | 131.15              | 1.38             | 131.67              | 2.56             |
| 130.12              | 0.00             | 130.64              | 0.29             | 131.16              | 1.40             | 131.68              | 2.58             |
| 130.13              | 0.00             | 130.65              | 0.31             | 131.17              | 1.43             | 131.69              | 2.60             |
| 130.14              | 0.00             | 130.66              | 0.32             | 131.18              | 1.45             | 131.70              | 2.62             |
| 130.15              | 0.00             | 130.67              | 0.34             | 131.19              | 1.47             | 131.71              | 2.64             |
| 130.16              | 0.00             | 130.68              | 0.36             | 131.20              | 1.50             | 131.72              | 2.66             |
| 130.17              | 0.00             | 130.69              | 0.38             | 131.21              | 1.52             | 131.73              | 2.68             |
| 130.18              | 0.00             | 130.70              | 0.40             | 131.22              | 1.54             | 131.74              | 2.70             |
| 130.19              | 0.00             | 130.71              | 0.42             | 131.23              | 1.57             | 131.75              | 2.72             |
| 130.20              | 0.00             | 130.72              | 0.44             | 131.24              | 1.59             | 131.76              | 2.74             |
| 130.21              | 0.00             | 130.73              | 0.46             | 131.25              | 1.61             | 131.77              | 2.76             |
| 130.22              | 0.00             | 130.74              | 0.47             | 131.26              | 1.64             | 131.78              | 2.78             |
| 130.23              | 0.00             | 130.75              | 0.49             | 131.27              | 1.66             | 131.79              | 2.80             |
| 130.24              | 0.00             | 130.76              | 0.51             | 131.28              | 1.68             | 131.80              | 2.82             |
| 130.25              | 0.00             | 130.77              | 0.53             | 131.29              | 1.71             | 131.81              | 2.89             |
| 130.26              | 0.00             | 130.78              | 0.55             | 131.30              | 1.73             | 131.82              | 3.00             |
| 130.27              | 0.00             | 130.79              | 0.58             | 131.31              | 1.75             | 131.83              | 3.15             |
| 130.28              | 0.00             | 130.80              | 0.60             | 131.32              | 1.78             | 131.84              | 3.31             |
| 130.29              | 0.00             | 130.81              | 0.62             | 131.33              | 1.80             | 131.85              | 3.50             |
| 130.30              | 0.00             | 130.82              | 0.64             | 131.34              | 1.82             | 131.86              | 3.70             |
| 130.31              | 0.00             | 130.83              | 0.66             | 131.35              | 1.85             | 131.87              | 3.92             |
| 130.32              | 0.00             | 130.84              | 0.68             | 131.36              | 1.87             | 131.88              | 4.15             |
| 130.33              | 0.00             | 130.85              | 0.70             | 131.37              | 1.89             | 131.89              | 4.40             |
| 130.34              | 0.00             | 130.86              | 0.72             | 131.38              | 1.92             | 131.90              | 4.66             |
| 130.35              | 0.00             | 130.87              | 0.74             | 131.39              | 1.94             | 131.91              | 4.93             |
| 130.36              | 0.00             | 130.88              | 0.77             | 131.40              | 1.96             | 131.92              | 5.21             |
| 130.37              | 0.00             | 130.89              | 0.79             | 131.41              | 1.98             | 131.93              | 5.51             |
| 130.38              | 0.00             | 130.90              | 0.81             | 131.42              | 2.01             | 131.94              | 5.82             |
| 130.39              | 0.00             | 130.91              | 0.83             | 131.43              | 2.03             | 131.95              | 6.13             |
| 130.40              | 0.00             | 130.92              | 0.85             | 131.44              | 2.05             | 131.96              | 6.46             |
| 130.41              | 0.00             | 130.93              | 0.88             | 131.45              | 2.08             | 131.97              | 6.79             |
| 130.42              | 0.01             | 130.94              | 0.90             | 131.46              | 2.10             | 131.98              | 7.14             |
| 130.43              | 0.01             | 130.95              | 0.92             | 131.47              | 2.12             | 131.99              | 7.49             |
| 130.44              | 0.02             | 130.96              | 0.94             | 131.48              | 2.14             | 132.00              | 7.86             |
| 130.45              | 0.03             | 130.97              | 0.97             | 131.49              | 2.17             |                     |                  |
| 130.46              | 0.04             | 130.98              | 0.99             | 131.50              | 2.19             |                     |                  |
| 130.47              | 0.05             | 130.99              | 1.01             | 131.51              | 2.21             |                     |                  |
| 130.48              | 0.06             | 131.00              | 1.03             | 131.52              | 2.23             |                     |                  |
| 130.49              | 0.07             | 131.01              | 1.06             | 131.53              | 2.25             |                     |                  |
| 130.50              | 0.08             | 131.02              | 1.08             | 131.54              | 2.28             |                     |                  |
| 130.51              | 0.09             | 131.03              | 1.10             | 131.55              | 2.30             |                     |                  |

Stage-Area-Storage for Pond 31P: GI-6

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | 20,000             | 0                       | 131.04              | 20,000             | 20,800                  |
| 130.02              | 20,000             | 400                     | 131.06              | 20,000             | 21,200                  |
| 130.04              | 20,000             | 800                     | 131.08              | 20,000             | 21,600                  |
| 130.06              | 20,000             | 1,200                   | 131.10              | 20,000             | 22,000                  |
| 130.08              | 20,000             | 1,600                   | 131.12              | 20,000             | 22,400                  |
| 130.10              | 20,000             | 2,000                   | 131.14              | 20,000             | 22,800                  |
| 130.12              | 20,000             | 2,400                   | 131.16              | 20,000             | 23,200                  |
| 130.14              | 20,000             | 2,800                   | 131.18              | 20,000             | 23,600                  |
| 130.16              | 20,000             | 3,200                   | 131.20              | 20,000             | 24,000                  |
| 130.18              | 20,000             | 3,600                   | 131.22              | 20,000             | 24,400                  |
| 130.20              | 20,000             | 4,000                   | 131.24              | 20,000             | 24,800                  |
| 130.22              | 20,000             | 4,400                   | 131.26              | 20,000             | 25,200                  |
| 130.24              | 20,000             | 4,800                   | 131.28              | 20,000             | 25,600                  |
| 130.26              | 20,000             | 5,200                   | 131.30              | 20,000             | 26,000                  |
| 130.28              | 20,000             | 5,600                   | 131.32              | 20,000             | 26,400                  |
| 130.30              | 20,000             | 6,000                   | 131.34              | 20,000             | 26,800                  |
| 130.32              | 20,000             | 6,400                   | 131.36              | 20,000             | 27,200                  |
| 130.34              | 20,000             | 6,800                   | 131.38              | 20,000             | 27,600                  |
| 130.36              | 20,000             | 7,200                   | 131.40              | 20,000             | 28,000                  |
| 130.38              | 20,000             | 7,600                   | 131.42              | 20,000             | 28,400                  |
| 130.40              | 20,000             | 8,000                   | 131.44              | 20,000             | 28,800                  |
| 130.42              | 20,000             | 8,400                   | 131.46              | 20,000             | 29,200                  |
| 130.44              | 20,000             | 8,800                   | 131.48              | 20,000             | 29,600                  |
| 130.46              | 20,000             | 9,200                   | 131.50              | 20,000             | 30,000                  |
| 130.48              | 20,000             | 9,600                   | 131.52              | 20,000             | 30,400                  |
| 130.50              | 20,000             | 10,000                  | 131.54              | 20,000             | 30,800                  |
| 130.52              | 20,000             | 10,400                  | 131.56              | 20,000             | 31,200                  |
| 130.54              | 20,000             | 10,800                  | 131.58              | 20,000             | 31,600                  |
| 130.56              | 20,000             | 11,200                  | 131.60              | 20,000             | 32,000                  |
| 130.58              | 20,000             | 11,600                  | 131.62              | 20,000             | 32,400                  |
| 130.60              | 20,000             | 12,000                  | 131.64              | 20,000             | 32,800                  |
| 130.62              | 20,000             | 12,400                  | 131.66              | 20,000             | 33,200                  |
| 130.64              | 20,000             | 12,800                  | 131.68              | 20,000             | 33,600                  |
| 130.66              | 20,000             | 13,200                  | 131.70              | 20,000             | 34,000                  |
| 130.68              | 20,000             | 13,600                  | 131.72              | 20,000             | 34,400                  |
| 130.70              | 20,000             | 14,000                  | 131.74              | 20,000             | 34,800                  |
| 130.72              | 20,000             | 14,400                  | 131.76              | 20,000             | 35,200                  |
| 130.74              | 20,000             | 14,800                  | 131.78              | 20,000             | 35,600                  |
| 130.76              | 20,000             | 15,200                  | 131.80              | 20,000             | 36,000                  |
| 130.78              | 20,000             | 15,600                  | 131.82              | 20,000             | 36,400                  |
| 130.80              | 20,000             | 16,000                  | 131.84              | 20,000             | 36,800                  |
| 130.82              | 20,000             | 16,400                  | 131.86              | 20,000             | 37,200                  |
| 130.84              | 20,000             | 16,800                  | 131.88              | 20,000             | 37,600                  |
| 130.86              | 20,000             | 17,200                  | 131.90              | 20,000             | 38,000                  |
| 130.88              | 20,000             | 17,600                  | 131.92              | 20,000             | 38,400                  |
| 130.90              | 20,000             | 18,000                  | 131.94              | 20,000             | 38,800                  |
| 130.92              | 20,000             | 18,400                  | 131.96              | 20,000             | 39,200                  |
| 130.94              | 20,000             | 18,800                  | 131.98              | 20,000             | 39,600                  |
| 130.96              | 20,000             | 19,200                  | 132.00              | 20,000             | 40,000                  |
| 130.98              | 20,000             | 19,600                  |                     |                    |                         |
| 131.00              | 20,000             | 20,000                  |                     |                    |                         |
| 131.02              | 20,000             | 20,400                  |                     |                    |                         |

Summary for Pond 43P: GI-11

Inflow Area = 17,074 sf, 78.69% Impervious, Inflow Depth = 7.85" for 100-Year-2020 event  
Inflow = 3.81 cfs @ 12.08 hrs, Volume= 11,170 cf  
Outflow = 1.78 cfs @ 12.17 hrs, Volume= 9,983 cf, Atten= 53%, Lag= 5.3 min  
Primary = 1.78 cfs @ 12.17 hrs, Volume= 9,983 cf  
Routed to Link 13L : FES

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 132.12' @ 12.17 hrs Surf.Area= 2,193 sf Storage= 3,559 cf

Plug-Flow detention time= 137.9 min calculated for 9,983 cf (89% of inflow)  
Center-of-Mass det. time= 82.8 min ( 830.9 - 748.2 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.50' | 4,386 cf      | Custom Stage Data (Prismatic) Listed below (Recalc) |

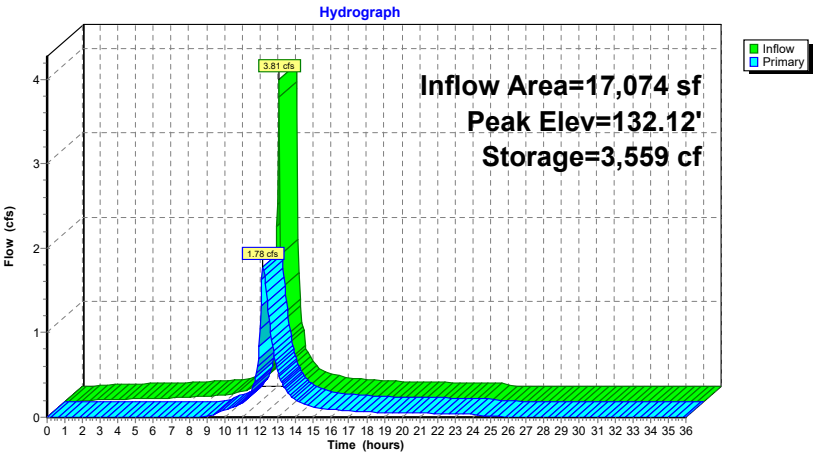
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.50           | 2,193             | 0                      | 0                      |
| 132.50           | 2,193             | 4,386                  | 4,386                  |

| Device | Routing | Invert  | Outlet Devices                                                |
|--------|---------|---------|---------------------------------------------------------------|
| #1     | Primary | 131.04' | 0.7' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

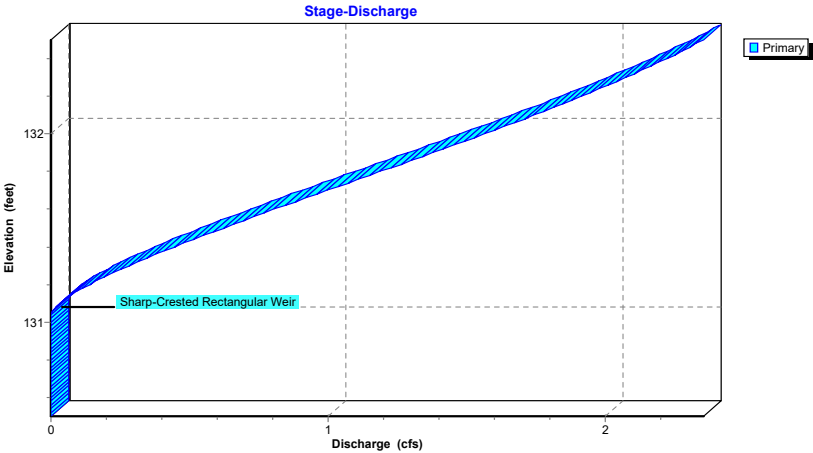
Primary OutFlow Max=1.76 cfs @ 12.17 hrs HW=132.11' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir (Weir Controls 1.76 cfs @ 3.39 fps)



Pond 43P: GI-11

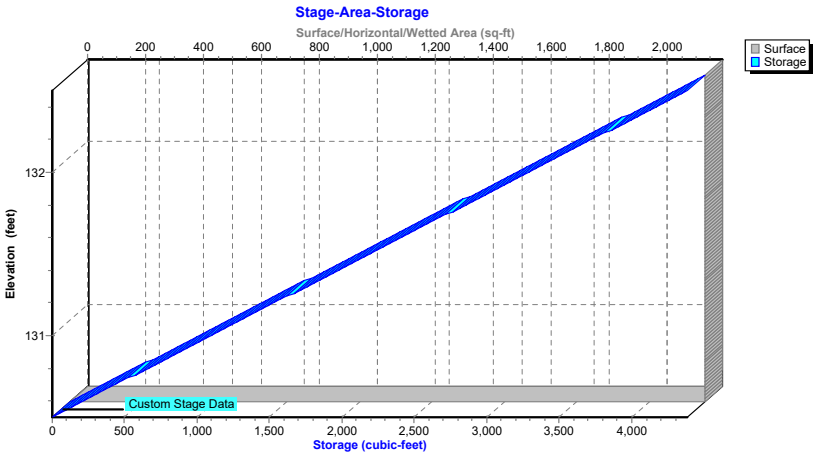


Pond 43P: GI-11





Pond 43P: GI-11



Hydrograph for Pond 43P: GI-11

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.50           | 0.00          |
| 1.00         | 0.01         | 13                   | 130.51           | 0.00          |
| 2.00         | 0.02         | 80                   | 130.54           | 0.00          |
| 3.00         | 0.03         | 177                  | 130.58           | 0.00          |
| 4.00         | 0.04         | 296                  | 130.63           | 0.00          |
| 5.00         | 0.04         | 430                  | 130.70           | 0.00          |
| 6.00         | 0.04         | 579                  | 130.76           | 0.00          |
| 7.00         | 0.05         | 755                  | 130.84           | 0.00          |
| 8.00         | 0.07         | 972                  | 130.94           | 0.00          |
| 9.00         | 0.08         | 1,230                | 131.06           | 0.01          |
| 10.00        | 0.12         | 1,432                | 131.15           | 0.08          |
| 11.00        | 0.24         | 1,590                | 131.23           | 0.17          |
| 12.00        | 2.33         | 2,680                | 131.72           | 1.04          |
| 13.00        | 0.30         | 2,101                | 131.46           | 0.54          |
| 14.00        | 0.15         | 1,639                | 131.25           | 0.20          |
| 15.00        | 0.10         | 1,512                | 131.19           | 0.13          |
| 16.00        | 0.08         | 1,450                | 131.16           | 0.09          |
| 17.00        | 0.07         | 1,418                | 131.15           | 0.08          |
| 18.00        | 0.06         | 1,390                | 131.13           | 0.06          |
| 19.00        | 0.05         | 1,370                | 131.12           | 0.06          |
| 20.00        | 0.05         | 1,360                | 131.12           | 0.05          |
| 21.00        | 0.05         | 1,352                | 131.12           | 0.05          |
| 22.00        | 0.04         | 1,344                | 131.11           | 0.04          |
| 23.00        | 0.04         | 1,336                | 131.11           | 0.04          |
| 24.00        | 0.04         | 1,329                | 131.11           | 0.04          |
| 25.00        | 0.00         | 1,252                | 131.07           | 0.01          |
| 26.00        | 0.00         | 1,223                | 131.06           | 0.01          |
| 27.00        | 0.00         | 1,209                | 131.05           | 0.00          |
| 28.00        | 0.00         | 1,201                | 131.05           | 0.00          |
| 29.00        | 0.00         | 1,197                | 131.05           | 0.00          |
| 30.00        | 0.00         | 1,194                | 131.04           | 0.00          |
| 31.00        | 0.00         | 1,192                | 131.04           | 0.00          |
| 32.00        | 0.00         | 1,190                | 131.04           | 0.00          |
| 33.00        | 0.00         | 1,189                | 131.04           | 0.00          |
| 34.00        | 0.00         | 1,189                | 131.04           | 0.00          |
| 35.00        | 0.00         | 1,188                | 131.04           | 0.00          |
| 36.00        | 0.00         | 1,187                | 131.04           | 0.00          |

**2101ELK-STM Analysis POI-1 - Propo**NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 43P: GI-11**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.50              | 0.00             | 131.02              | 0.00             | 131.54              | 0.69             | 132.06              | 1.67             |
| 130.51              | 0.00             | 131.03              | 0.00             | 131.55              | 0.71             | 132.07              | 1.69             |
| 130.52              | 0.00             | 131.04              | 0.00             | 131.56              | 0.73             | 132.08              | 1.71             |
| 130.53              | 0.00             | 131.05              | 0.00             | 131.57              | 0.75             | 132.09              | 1.72             |
| 130.54              | 0.00             | 131.06              | 0.01             | 131.58              | 0.77             | 132.10              | 1.74             |
| 130.55              | 0.00             | 131.07              | 0.01             | 131.59              | 0.79             | 132.11              | 1.76             |
| 130.56              | 0.00             | 131.08              | 0.02             | 131.60              | 0.81             | 132.12              | 1.78             |
| 130.57              | 0.00             | 131.09              | 0.03             | 131.61              | 0.82             | 132.13              | 1.79             |
| 130.58              | 0.00             | 131.10              | 0.03             | 131.62              | 0.84             | 132.14              | 1.81             |
| 130.59              | 0.00             | 131.11              | 0.04             | 131.63              | 0.86             | 132.15              | 1.83             |
| 130.60              | 0.00             | 131.12              | 0.05             | 131.64              | 0.88             | 132.16              | 1.84             |
| 130.61              | 0.00             | 131.13              | 0.06             | 131.65              | 0.90             | 132.17              | 1.86             |
| 130.62              | 0.00             | 131.14              | 0.07             | 131.66              | 0.92             | 132.18              | 1.88             |
| 130.63              | 0.00             | 131.15              | 0.08             | 131.67              | 0.94             | 132.19              | 1.90             |
| 130.64              | 0.00             | 131.16              | 0.09             | 131.68              | 0.96             | 132.20              | 1.91             |
| 130.65              | 0.00             | 131.17              | 0.10             | 131.69              | 0.98             | 132.21              | 1.93             |
| 130.66              | 0.00             | 131.18              | 0.12             | 131.70              | 1.00             | 132.22              | 1.94             |
| 130.67              | 0.00             | 131.19              | 0.13             | 131.71              | 1.02             | 132.23              | 1.96             |
| 130.68              | 0.00             | 131.20              | 0.14             | 131.72              | 1.03             | 132.24              | 1.98             |
| 130.69              | 0.00             | 131.21              | 0.15             | 131.73              | 1.05             | 132.25              | 1.99             |
| 130.70              | 0.00             | 131.22              | 0.17             | 131.74              | 1.07             | 132.26              | 2.01             |
| 130.71              | 0.00             | 131.23              | 0.18             | 131.75              | 1.09             | 132.27              | 2.03             |
| 130.72              | 0.00             | 131.24              | 0.19             | 131.76              | 1.11             | 132.28              | 2.04             |
| 130.73              | 0.00             | 131.25              | 0.21             | 131.77              | 1.13             | 132.29              | 2.06             |
| 130.74              | 0.00             | 131.26              | 0.22             | 131.78              | 1.15             | 132.30              | 2.07             |
| 130.75              | 0.00             | 131.27              | 0.24             | 131.79              | 1.17             | 132.31              | 2.09             |
| 130.76              | 0.00             | 131.28              | 0.25             | 131.80              | 1.19             | 132.32              | 2.10             |
| 130.77              | 0.00             | 131.29              | 0.27             | 131.81              | 1.21             | 132.33              | 2.12             |
| 130.78              | 0.00             | 131.30              | 0.28             | 131.82              | 1.23             | 132.34              | 2.13             |
| 130.79              | 0.00             | 131.31              | 0.30             | 131.83              | 1.24             | 132.35              | 2.15             |
| 130.80              | 0.00             | 131.32              | 0.31             | 131.84              | 1.26             | 132.36              | 2.16             |
| 130.81              | 0.00             | 131.33              | 0.33             | 131.85              | 1.28             | 132.37              | 2.18             |
| 130.82              | 0.00             | 131.34              | 0.34             | 131.86              | 1.30             | 132.38              | 2.19             |
| 130.83              | 0.00             | 131.35              | 0.36             | 131.87              | 1.32             | 132.39              | 2.21             |
| 130.84              | 0.00             | 131.36              | 0.38             | 131.88              | 1.34             | 132.40              | 2.22             |
| 130.85              | 0.00             | 131.37              | 0.39             | 131.89              | 1.36             | 132.41              | 2.23             |
| 130.86              | 0.00             | 131.38              | 0.41             | 131.90              | 1.38             | 132.42              | 2.25             |
| 130.87              | 0.00             | 131.39              | 0.43             | 131.91              | 1.40             | 132.43              | 2.26             |
| 130.88              | 0.00             | 131.40              | 0.44             | 131.92              | 1.41             | 132.44              | 2.28             |
| 130.89              | 0.00             | 131.41              | 0.46             | 131.93              | 1.43             | 132.45              | 2.29             |
| 130.90              | 0.00             | 131.42              | 0.48             | 131.94              | 1.45             | 132.46              | 2.30             |
| 130.91              | 0.00             | 131.43              | 0.50             | 131.95              | 1.47             | 132.47              | 2.32             |
| 130.92              | 0.00             | 131.44              | 0.51             | 131.96              | 1.49             | 132.48              | 2.33             |
| 130.93              | 0.00             | 131.45              | 0.53             | 131.97              | 1.51             | 132.49              | 2.34             |
| 130.94              | 0.00             | 131.46              | 0.55             | 131.98              | 1.53             | 132.50              | 2.35             |
| 130.95              | 0.00             | 131.47              | 0.57             | 131.99              | 1.54             |                     |                  |
| 130.96              | 0.00             | 131.48              | 0.58             | 132.00              | 1.56             |                     |                  |
| 130.97              | 0.00             | 131.49              | 0.60             | 132.01              | 1.58             |                     |                  |
| 130.98              | 0.00             | 131.50              | 0.62             | 132.02              | 1.60             |                     |                  |
| 130.99              | 0.00             | 131.51              | 0.64             | 132.03              | 1.62             |                     |                  |
| 131.00              | 0.00             | 131.52              | 0.66             | 132.04              | 1.64             |                     |                  |
| 131.01              | 0.00             | 131.53              | 0.68             | 132.05              | 1.65             |                     |                  |

**2101ELK-STM Analysis POI-1 - Propo**NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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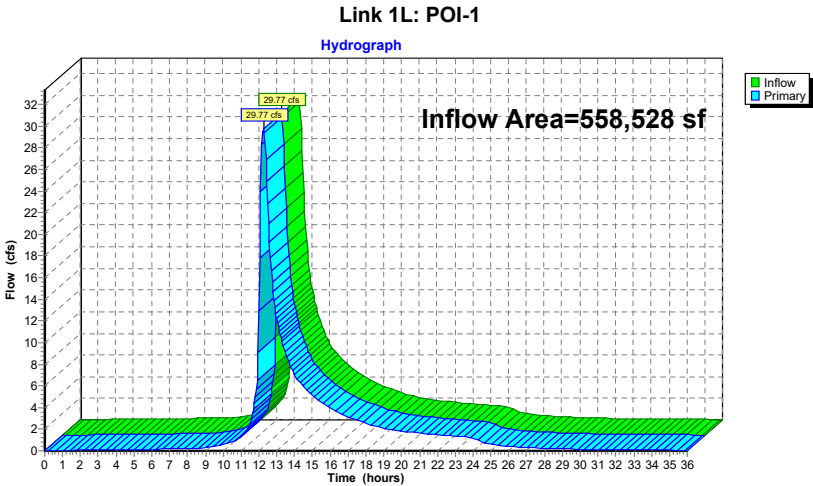
**Stage-Area-Storage for Pond 43P: GI-11**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.50              | 2,193              | 0                       | 131.54              | 2,193              | 2,281                   |
| 130.52              | 2,193              | 44                      | 131.56              | 2,193              | 2,325                   |
| 130.54              | 2,193              | 88                      | 131.58              | 2,193              | 2,368                   |
| 130.56              | 2,193              | 132                     | 131.60              | 2,193              | 2,412                   |
| 130.58              | 2,193              | 175                     | 131.62              | 2,193              | 2,456                   |
| 130.60              | 2,193              | 219                     | 131.64              | 2,193              | 2,500                   |
| 130.62              | 2,193              | 263                     | 131.66              | 2,193              | 2,544                   |
| 130.64              | 2,193              | 307                     | 131.68              | 2,193              | 2,588                   |
| 130.66              | 2,193              | 351                     | 131.70              | 2,193              | 2,632                   |
| 130.68              | 2,193              | 395                     | 131.72              | 2,193              | 2,675                   |
| 130.70              | 2,193              | 439                     | 131.74              | 2,193              | 2,719                   |
| 130.72              | 2,193              | 482                     | 131.76              | 2,193              | 2,763                   |
| 130.74              | 2,193              | 526                     | 131.78              | 2,193              | 2,807                   |
| 130.76              | 2,193              | 570                     | 131.80              | 2,193              | 2,851                   |
| 130.78              | 2,193              | 614                     | 131.82              | 2,193              | 2,895                   |
| 130.80              | 2,193              | 658                     | 131.84              | 2,193              | 2,939                   |
| 130.82              | 2,193              | 702                     | 131.86              | 2,193              | 2,982                   |
| 130.84              | 2,193              | 746                     | 131.88              | 2,193              | 3,026                   |
| 130.86              | 2,193              | 789                     | 131.90              | 2,193              | 3,070                   |
| 130.88              | 2,193              | 833                     | 131.92              | 2,193              | 3,114                   |
| 130.90              | 2,193              | 877                     | 131.94              | 2,193              | 3,158                   |
| 130.92              | 2,193              | 921                     | 131.96              | 2,193              | 3,202                   |
| 130.94              | 2,193              | 965                     | 131.98              | 2,193              | 3,246                   |
| 130.96              | 2,193              | 1,009                   | 132.00              | 2,193              | 3,290                   |
| 130.98              | 2,193              | 1,053                   | 132.02              | 2,193              | 3,333                   |
| 131.00              | 2,193              | 1,097                   | 132.04              | 2,193              | 3,377                   |
| 131.02              | 2,193              | 1,140                   | 132.06              | 2,193              | 3,421                   |
| 131.04              | 2,193              | 1,184                   | 132.08              | 2,193              | 3,465                   |
| 131.06              | 2,193              | 1,228                   | 132.10              | 2,193              | 3,509                   |
| 131.08              | 2,193              | 1,272                   | 132.12              | 2,193              | 3,553                   |
| 131.10              | 2,193              | 1,316                   | 132.14              | 2,193              | 3,597                   |
| 131.12              | 2,193              | 1,360                   | 132.16              | 2,193              | 3,640                   |
| 131.14              | 2,193              | 1,404                   | 132.18              | 2,193              | 3,684                   |
| 131.16              | 2,193              | 1,447                   | 132.20              | 2,193              | 3,728                   |
| 131.18              | 2,193              | 1,491                   | 132.22              | 2,193              | 3,772                   |
| 131.20              | 2,193              | 1,535                   | 132.24              | 2,193              | 3,816                   |
| 131.22              | 2,193              | 1,579                   | 132.26              | 2,193              | 3,860                   |
| 131.24              | 2,193              | 1,623                   | 132.28              | 2,193              | 3,904                   |
| 131.26              | 2,193              | 1,667                   | 132.30              | 2,193              | 3,947                   |
| 131.28              | 2,193              | 1,711                   | 132.32              | 2,193              | 3,991                   |
| 131.30              | 2,193              | 1,754                   | 132.34              | 2,193              | 4,035                   |
| 131.32              | 2,193              | 1,798                   | 132.36              | 2,193              | 4,079                   |
| 131.34              | 2,193              | 1,842                   | 132.38              | 2,193              | 4,123                   |
| 131.36              | 2,193              | 1,886                   | 132.40              | 2,193              | 4,167                   |
| 131.38              | 2,193              | 1,930                   | 132.42              | 2,193              | 4,211                   |
| 131.40              | 2,193              | 1,974                   | 132.44              | 2,193              | 4,254                   |
| 131.42              | 2,193              | 2,018                   | 132.46              | 2,193              | 4,298                   |
| 131.44              | 2,193              | 2,061                   | 132.48              | 2,193              | 4,342                   |
| 131.46              | 2,193              | 2,105                   | 132.50              | 2,193              | 4,386                   |
| 131.48              | 2,193              | 2,149                   |                     |                    |                         |
| 131.50              | 2,193              | 2,193                   |                     |                    |                         |
| 131.52              | 2,193              | 2,237                   |                     |                    |                         |

Summary for Link 1L: POI-1

Inflow Area = 558,528 sf, 45.65% Impervious, Inflow Depth > 5.09" for 100-Year-2020 event  
Inflow = 29.77 cfs @ 12.26 hrs, Volume= 237,076 cf  
Primary = 29.77 cfs @ 12.26 hrs, Volume= 237,076 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs



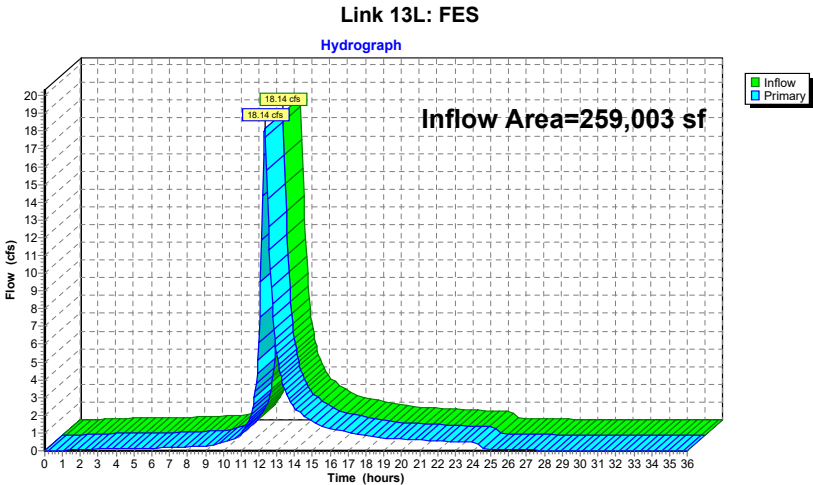
Hydrograph for Link 1L: POI-1

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.41         | 0.00             | 0.41          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.34         | 0.00             | 0.34          |
| 1.00         | 0.02         | 0.00             | 0.02          | 27.00        | 0.30         | 0.00             | 0.30          |
| 1.50         | 0.05         | 0.00             | 0.05          | 27.50        | 0.26         | 0.00             | 0.26          |
| 2.00         | 0.07         | 0.00             | 0.07          | 28.00        | 0.22         | 0.00             | 0.22          |
| 2.50         | 0.08         | 0.00             | 0.08          | 28.50        | 0.20         | 0.00             | 0.20          |
| 3.00         | 0.10         | 0.00             | 0.10          | 29.00        | 0.17         | 0.00             | 0.17          |
| 3.50         | 0.11         | 0.00             | 0.11          | 29.50        | 0.16         | 0.00             | 0.16          |
| 4.00         | 0.11         | 0.00             | 0.11          | 30.00        | 0.14         | 0.00             | 0.14          |
| 4.50         | 0.12         | 0.00             | 0.12          | 30.50        | 0.12         | 0.00             | 0.12          |
| 5.00         | 0.13         | 0.00             | 0.13          | 31.00        | 0.11         | 0.00             | 0.11          |
| 5.50         | 0.14         | 0.00             | 0.14          | 31.50        | 0.10         | 0.00             | 0.10          |
| 6.00         | 0.14         | 0.00             | 0.14          | 32.00        | 0.09         | 0.00             | 0.09          |
| 6.50         | 0.15         | 0.00             | 0.15          | 32.50        | 0.08         | 0.00             | 0.08          |
| 7.00         | 0.17         | 0.00             | 0.17          | 33.00        | 0.08         | 0.00             | 0.08          |
| 7.50         | 0.19         | 0.00             | 0.19          | 33.50        | 0.07         | 0.00             | 0.07          |
| 8.00         | 0.21         | 0.00             | 0.21          | 34.00        | 0.06         | 0.00             | 0.06          |
| 8.50         | 0.23         | 0.00             | 0.23          | 34.50        | 0.06         | 0.00             | 0.06          |
| 9.00         | 0.26         | 0.00             | 0.26          | 35.00        | 0.05         | 0.00             | 0.05          |
| 9.50         | 0.39         | 0.00             | 0.39          | 35.50        | 0.05         | 0.00             | 0.05          |
| 10.00        | 0.57         | 0.00             | 0.57          | 36.00        | 0.05         | 0.00             | 0.05          |
| 10.50        | 0.79         | 0.00             | 0.79          |              |              |                  |               |
| 11.00        | 1.30         | 0.00             | 1.30          |              |              |                  |               |
| 11.50        | 2.59         | 0.00             | 2.59          |              |              |                  |               |
| 12.00        | 12.91        | 0.00             | 12.91         |              |              |                  |               |
| 12.50        | 22.87        | 0.00             | 22.87         |              |              |                  |               |
| 13.00        | 12.22        | 0.00             | 12.22         |              |              |                  |               |
| 13.50        | 9.03         | 0.00             | 9.03          |              |              |                  |               |
| 14.00        | 7.06         | 0.00             | 7.06          |              |              |                  |               |
| 14.50        | 5.95         | 0.00             | 5.95          |              |              |                  |               |
| 15.00        | 5.13         | 0.00             | 5.13          |              |              |                  |               |
| 15.50        | 4.43         | 0.00             | 4.43          |              |              |                  |               |
| 16.00        | 3.93         | 0.00             | 3.93          |              |              |                  |               |
| 16.50        | 3.52         | 0.00             | 3.52          |              |              |                  |               |
| 17.00        | 3.15         | 0.00             | 3.15          |              |              |                  |               |
| 17.50        | 2.83         | 0.00             | 2.83          |              |              |                  |               |
| 18.00        | 2.54         | 0.00             | 2.54          |              |              |                  |               |
| 18.50        | 2.29         | 0.00             | 2.29          |              |              |                  |               |
| 19.00        | 2.11         | 0.00             | 2.11          |              |              |                  |               |
| 19.50        | 1.96         | 0.00             | 1.96          |              |              |                  |               |
| 20.00        | 1.84         | 0.00             | 1.84          |              |              |                  |               |
| 20.50        | 1.73         | 0.00             | 1.73          |              |              |                  |               |
| 21.00        | 1.63         | 0.00             | 1.63          |              |              |                  |               |
| 21.50        | 1.55         | 0.00             | 1.55          |              |              |                  |               |
| 22.00        | 1.47         | 0.00             | 1.47          |              |              |                  |               |
| 22.50        | 1.40         | 0.00             | 1.40          |              |              |                  |               |
| 23.00        | 1.33         | 0.00             | 1.33          |              |              |                  |               |
| 23.50        | 1.27         | 0.00             | 1.27          |              |              |                  |               |
| 24.00        | 1.22         | 0.00             | 1.22          |              |              |                  |               |
| 24.50        | 0.79         | 0.00             | 0.79          |              |              |                  |               |
| 25.00        | 0.60         | 0.00             | 0.60          |              |              |                  |               |
| 25.50        | 0.49         | 0.00             | 0.49          |              |              |                  |               |

Summary for Link 13L: FES

Inflow Area = 259,003 sf, 30.97% Impervious, Inflow Depth > 4.82" for 100-Year-2020 event  
Inflow = 18.14 cfs @ 12.33 hrs, Volume= 104,062 cf  
Primary = 18.14 cfs @ 12.33 hrs, Volume= 104,062 cf, Atten= 0%, Lag= 0.0 min  
Routed to Link 1L : POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs



Hydrograph for Link 13L: FES

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.05         | 0.00             | 0.05          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.04         | 0.00             | 0.04          |
| 1.00         | 0.02         | 0.00             | 0.02          | 27.00        | 0.04         | 0.00             | 0.04          |
| 1.50         | 0.05         | 0.00             | 0.05          | 27.50        | 0.03         | 0.00             | 0.03          |
| 2.00         | 0.07         | 0.00             | 0.07          | 28.00        | 0.03         | 0.00             | 0.03          |
| 2.50         | 0.08         | 0.00             | 0.08          | 28.50        | 0.02         | 0.00             | 0.02          |
| 3.00         | 0.10         | 0.00             | 0.10          | 29.00        | 0.02         | 0.00             | 0.02          |
| 3.50         | 0.11         | 0.00             | 0.11          | 29.50        | 0.02         | 0.00             | 0.02          |
| 4.00         | 0.11         | 0.00             | 0.11          | 30.00        | 0.02         | 0.00             | 0.02          |
| 4.50         | 0.12         | 0.00             | 0.12          | 30.50        | 0.01         | 0.00             | 0.01          |
| 5.00         | 0.13         | 0.00             | 0.13          | 31.00        | 0.01         | 0.00             | 0.01          |
| 5.50         | 0.14         | 0.00             | 0.14          | 31.50        | 0.01         | 0.00             | 0.01          |
| 6.00         | 0.14         | 0.00             | 0.14          | 32.00        | 0.01         | 0.00             | 0.01          |
| 6.50         | 0.15         | 0.00             | 0.15          | 32.50        | 0.01         | 0.00             | 0.01          |
| 7.00         | 0.17         | 0.00             | 0.17          | 33.00        | 0.01         | 0.00             | 0.01          |
| 7.50         | 0.19         | 0.00             | 0.19          | 33.50        | 0.01         | 0.00             | 0.01          |
| 8.00         | 0.21         | 0.00             | 0.21          | 34.00        | 0.01         | 0.00             | 0.01          |
| 8.50         | 0.23         | 0.00             | 0.23          | 34.50        | 0.01         | 0.00             | 0.01          |
| 9.00         | 0.26         | 0.00             | 0.26          | 35.00        | 0.01         | 0.00             | 0.01          |
| 9.50         | 0.35         | 0.00             | 0.35          | 35.50        | 0.01         | 0.00             | 0.01          |
| 10.00        | 0.47         | 0.00             | 0.47          | 36.00        | 0.01         | 0.00             | 0.01          |
| 10.50        | 0.62         | 0.00             | 0.62          |              |              |                  |               |
| 11.00        | 0.98         | 0.00             | 0.98          |              |              |                  |               |
| 11.50        | 1.86         | 0.00             | 1.86          |              |              |                  |               |
| 12.00        | 6.11         | 0.00             | 6.11          |              |              |                  |               |
| 12.50        | 14.14        | 0.00             | 14.14         |              |              |                  |               |
| 13.00        | 5.47         | 0.00             | 5.47          |              |              |                  |               |
| 13.50        | 3.33         | 0.00             | 3.33          |              |              |                  |               |
| 14.00        | 2.40         | 0.00             | 2.40          |              |              |                  |               |
| 14.50        | 2.00         | 0.00             | 2.00          |              |              |                  |               |
| 15.00        | 1.67         | 0.00             | 1.67          |              |              |                  |               |
| 15.50        | 1.39         | 0.00             | 1.39          |              |              |                  |               |
| 16.00        | 1.25         | 0.00             | 1.25          |              |              |                  |               |
| 16.50        | 1.14         | 0.00             | 1.14          |              |              |                  |               |
| 17.00        | 1.03         | 0.00             | 1.03          |              |              |                  |               |
| 17.50        | 0.93         | 0.00             | 0.93          |              |              |                  |               |
| 18.00        | 0.84         | 0.00             | 0.84          |              |              |                  |               |
| 18.50        | 0.76         | 0.00             | 0.76          |              |              |                  |               |
| 19.00        | 0.72         | 0.00             | 0.72          |              |              |                  |               |
| 19.50        | 0.69         | 0.00             | 0.69          |              |              |                  |               |
| 20.00        | 0.66         | 0.00             | 0.66          |              |              |                  |               |
| 20.50        | 0.63         | 0.00             | 0.63          |              |              |                  |               |
| 21.00        | 0.61         | 0.00             | 0.61          |              |              |                  |               |
| 21.50        | 0.58         | 0.00             | 0.58          |              |              |                  |               |
| 22.00        | 0.56         | 0.00             | 0.56          |              |              |                  |               |
| 22.50        | 0.54         | 0.00             | 0.54          |              |              |                  |               |
| 23.00        | 0.51         | 0.00             | 0.51          |              |              |                  |               |
| 23.50        | 0.49         | 0.00             | 0.49          |              |              |                  |               |
| 24.00        | 0.47         | 0.00             | 0.47          |              |              |                  |               |
| 24.50        | 0.16         | 0.00             | 0.16          |              |              |                  |               |
| 25.00        | 0.08         | 0.00             | 0.08          |              |              |                  |               |
| 25.50        | 0.06         | 0.00             | 0.06          |              |              |                  |               |

**2101ELK-STM Analysis POI-1 - ProposedVOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"**

Prepared by Van Cleef Engineering Assoc

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Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

|                                           |                                                                                                                                         |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Subcatchment1S: GI-1 Pervious</b>      | Runoff Area=18,062 sf 0.00% Impervious Runoff Depth=0.04"<br>Flow Length=68' Slope=0.0330 '/' Tc=7.8 min CN=39 Runoff=0.00 cfs 57 cf    |
| <b>Subcatchment2S: GI-9 Pervious</b>      | Runoff Area=16,032 sf 0.00% Impervious Runoff Depth=0.77"<br>Flow Length=17' Slope=0.0960 '/' Tc=1.7 min CN=61 Runoff=0.39 cfs 1,032 cf |
| <b>Subcatchment3S: GI-1 Impervious</b>    | Runoff Area=21,060 sf 100.00% Impervious Runoff Depth=3.69"<br>Flow Length=400' Tc=2.7 min CN=98 Runoff=2.21 cfs 6,468 cf               |
| <b>Subcatchment5S: Proposed Disturbed</b> | Runoff Area=44,397 sf 0.00% Impervious Runoff Depth=0.21"<br>Flow Length=1,818' Tc=89.3 min CN=47 Runoff=0.04 cfs 792 cf                |
| <b>Subcatchment6S: GI-9 Impervious</b>    | Runoff Area=43,332 sf 100.00% Impervious Runoff Depth=3.69"<br>Flow Length=311' Tc=2.3 min CN=98 Runoff=4.60 cfs 13,308 cf              |
| <b>Subcatchment15S: GI-2 Pervious</b>     | Runoff Area=13,462 sf 0.00% Impervious Runoff Depth=0.04"<br>Flow Length=28' Slope=0.0400 '/' Tc=3.5 min CN=39 Runoff=0.00 cfs 43 cf    |
| <b>Subcatchment16S: GI-2 Impervious</b>   | Runoff Area=13,121 sf 100.00% Impervious Runoff Depth=3.69"<br>Flow Length=220' Tc=1.9 min CN=98 Runoff=1.40 cfs 4,030 cf               |
| <b>Subcatchment26S: GI-3 Pervious</b>     | Runoff Area=23,555 sf 0.00% Impervious Runoff Depth=0.50"<br>Flow Length=93' Slope=0.0130 '/' Tc=9.4 min CN=55 Runoff=0.19 cfs 978 cf   |
| <b>Subcatchment27S: GI-3 Impervious</b>   | Runoff Area=60,594 sf 100.00% Impervious Runoff Depth=3.69"<br>Flow Length=433' Tc=3.4 min CN=98 Runoff=6.18 cfs 18,609 cf              |
| <b>Subcatchment29S: GI-6 Pervious</b>     | Runoff Area=27,344 sf 0.00% Impervious Runoff Depth=0.28"<br>Flow Length=60' Slope=0.0280 '/' Tc=7.5 min CN=49 Runoff=0.06 cfs 629 cf   |
| <b>Subcatchment30S: GI-6 Impervious</b>   | Runoff Area=57,688 sf 100.00% Impervious Runoff Depth=3.69"<br>Flow Length=401' Tc=3.3 min CN=98 Runoff=5.92 cfs 17,716 cf              |
| <b>Subcatchment41S: GI-11 Pervious</b>    | Runoff Area=3,638 sf 0.00% Impervious Runoff Depth=0.77"<br>Flow Length=123' Tc=3.4 min CN=61 Runoff=0.08 cfs 234 cf                    |
| <b>Subcatchment42S: GI-11 Impervious</b>  | Runoff Area=13,436 sf 100.00% Impervious Runoff Depth=3.69"<br>Flow Length=158' Tc=1.6 min CN=98 Runoff=1.41 cfs 4,126 cf               |
| <b>Subcatchment46S: North Undisturbed</b> | Runoff Area=157,085 sf 0.00% Impervious Runoff Depth=0.46"<br>Flow Length=690' Tc=22.1 min CN=54 Runoff=0.77 cfs 5,990 cf               |
| <b>Subcatchment47S: North Undisturbed</b> | Runoff Area=45,722 sf 100.00% Impervious Runoff Depth=3.69"<br>Flow Length=725' Tc=22.6 min CN=98 Runoff=2.75 cfs 14,042 cf             |
| <b>Pond 2P: GI-1</b>                      | Peak Elev=131.52' Storage=4,134 cf Inflow=2.21 cfs 6,525 cf<br>Outflow=0.21 cfs 4,486 cf                                                |

**2101ELK-STM Analysis POI-1 - ProposedVOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"**

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|                        |                                                                                            |
|------------------------|--------------------------------------------------------------------------------------------|
| <b>Pond 7P: GI-9</b>   | Peak Elev=128.95' Storage=8,719 cf Inflow=4.98 cfs 14,339 cf<br>Outflow=0.51 cfs 10,381 cf |
| <b>Pond 14P: GI-2</b>  | Peak Elev=130.36' Storage=2,539 cf Inflow=1.40 cfs 4,072 cf<br>Outflow=0.15 cfs 2,797 cf   |
| <b>Pond 28P: GI-3</b>  | Peak Elev=131.29' Storage=14,148 cf Inflow=6.25 cfs 19,587 cf<br>Outflow=0.28 cfs 8,055 cf |
| <b>Pond 31P: GI-6</b>  | Peak Elev=130.64' Storage=12,832 cf Inflow=5.92 cfs 18,345 cf<br>Outflow=0.29 cfs 9,736 cf |
| <b>Pond 43P: GI-11</b> | Peak Elev=131.47' Storage=2,120 cf Inflow=1.47 cfs 4,360 cf<br>Outflow=0.56 cfs 3,173 cf   |
| <b>Link 1L: POI-1</b>  | Inflow=4.90 cfs 59,451 cf<br>Primary=4.90 cfs 59,451 cf                                    |
| <b>Link 13L: FES</b>   | Inflow=4.09 cfs 27,690 cf<br>Primary=4.09 cfs 27,690 cf                                    |

**Total Runoff Area = 558,528 sf Runoff Volume = 88,053 cf Average Runoff Depth = 1.89"**  
**54.35% Pervious = 303,575 sf 45.65% Impervious = 254,953 sf**

Summary for Subcatchment 1S: GI-1 Pervious

Runoff = 0.00 cfs @ 24.02 hrs, Volume= 57 cf, Depth= 0.04"  
Routed to Pond 2P : GI-1

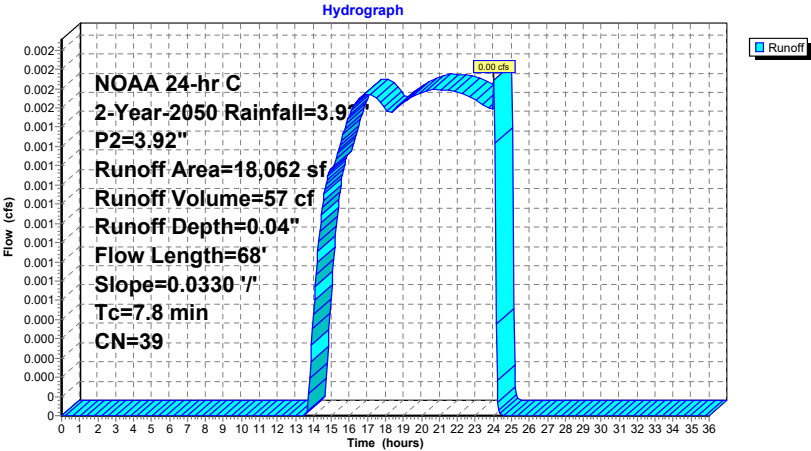
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 18,062    | 39 | >75% Grass cover, Good, HSG A |
| 18,062    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                          |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------|
| 7.8      | 68            | 0.0330        | 0.15              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92" |



Subcatchment 1S: GI-1 Pervious



Hydrograph for Subcatchment 1S: GI-1 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 3.92             | 0.04            | 0.00         |
| 0.50         | 0.02             | 0.00            | 0.00         | 26.50        | 3.92             | 0.04            | 0.00         |
| 1.00         | 0.04             | 0.00            | 0.00         | 27.00        | 3.92             | 0.04            | 0.00         |
| 1.50         | 0.07             | 0.00            | 0.00         | 27.50        | 3.92             | 0.04            | 0.00         |
| 2.00         | 0.09             | 0.00            | 0.00         | 28.00        | 3.92             | 0.04            | 0.00         |
| 2.50         | 0.11             | 0.00            | 0.00         | 28.50        | 3.92             | 0.04            | 0.00         |
| 3.00         | 0.14             | 0.00            | 0.00         | 29.00        | 3.92             | 0.04            | 0.00         |
| 3.50         | 0.16             | 0.00            | 0.00         | 29.50        | 3.92             | 0.04            | 0.00         |
| 4.00         | 0.19             | 0.00            | 0.00         | 30.00        | 3.92             | 0.04            | 0.00         |
| 4.50         | 0.22             | 0.00            | 0.00         | 30.50        | 3.92             | 0.04            | 0.00         |
| 5.00         | 0.25             | 0.00            | 0.00         | 31.00        | 3.92             | 0.04            | 0.00         |
| 5.50         | 0.28             | 0.00            | 0.00         | 31.50        | 3.92             | 0.04            | 0.00         |
| 6.00         | 0.31             | 0.00            | 0.00         | 32.00        | 3.92             | 0.04            | 0.00         |
| 6.50         | 0.34             | 0.00            | 0.00         | 32.50        | 3.92             | 0.04            | 0.00         |
| 7.00         | 0.38             | 0.00            | 0.00         | 33.00        | 3.92             | 0.04            | 0.00         |
| 7.50         | 0.42             | 0.00            | 0.00         | 33.50        | 3.92             | 0.04            | 0.00         |
| 8.00         | 0.47             | 0.00            | 0.00         | 34.00        | 3.92             | 0.04            | 0.00         |
| 8.50         | 0.52             | 0.00            | 0.00         | 34.50        | 3.92             | 0.04            | 0.00         |
| 9.00         | 0.57             | 0.00            | 0.00         | 35.00        | 3.92             | 0.04            | 0.00         |
| 9.50         | 0.64             | 0.00            | 0.00         | 35.50        | 3.92             | 0.04            | 0.00         |
| 10.00        | 0.71             | 0.00            | 0.00         | 36.00        | 3.92             | 0.04            | 0.00         |
| 10.50        | 0.81             | 0.00            | 0.00         |              |                  |                 |              |
| 11.00        | 0.94             | 0.00            | 0.00         |              |                  |                 |              |
| 11.50        | 1.16             | 0.00            | 0.00         |              |                  |                 |              |
| 12.00        | 1.87             | 0.00            | 0.00         |              |                  |                 |              |
| 12.50        | 2.76             | 0.00            | 0.00         |              |                  |                 |              |
| 13.00        | 2.98             | 0.00            | 0.00         |              |                  |                 |              |
| 13.50        | 3.11             | 0.00            | 0.00         |              |                  |                 |              |
| 14.00        | 3.21             | 0.00            | 0.00         |              |                  |                 |              |
| 14.50        | 3.28             | 0.00            | 0.00         |              |                  |                 |              |
| 15.00        | 3.35             | 0.00            | 0.00         |              |                  |                 |              |
| 15.50        | 3.40             | 0.00            | 0.00         |              |                  |                 |              |
| 16.00        | 3.45             | 0.01            | 0.00         |              |                  |                 |              |
| 16.50        | 3.50             | 0.01            | 0.00         |              |                  |                 |              |
| 17.00        | 3.54             | 0.01            | 0.00         |              |                  |                 |              |
| 17.50        | 3.58             | 0.01            | 0.00         |              |                  |                 |              |
| 18.00        | 3.61             | 0.01            | 0.00         |              |                  |                 |              |
| 18.50        | 3.64             | 0.02            | 0.00         |              |                  |                 |              |
| 19.00        | 3.67             | 0.02            | 0.00         |              |                  |                 |              |
| 19.50        | 3.70             | 0.02            | 0.00         |              |                  |                 |              |
| 20.00        | 3.73             | 0.02            | 0.00         |              |                  |                 |              |
| 20.50        | 3.76             | 0.02            | 0.00         |              |                  |                 |              |
| 21.00        | 3.78             | 0.03            | 0.00         |              |                  |                 |              |
| 21.50        | 3.81             | 0.03            | 0.00         |              |                  |                 |              |
| 22.00        | 3.83             | 0.03            | 0.00         |              |                  |                 |              |
| 22.50        | 3.85             | 0.03            | 0.00         |              |                  |                 |              |
| 23.00        | 3.88             | 0.03            | 0.00         |              |                  |                 |              |
| 23.50        | 3.90             | 0.04            | 0.00         |              |                  |                 |              |
| 24.00        | 3.92             | 0.04            | 0.00         |              |                  |                 |              |
| 24.50        | 3.92             | 0.04            | 0.00         |              |                  |                 |              |
| 25.00        | 3.92             | 0.04            | 0.00         |              |                  |                 |              |
| 25.50        | 3.92             | 0.04            | 0.00         |              |                  |                 |              |

Summary for Subcatchment 2S: GI-9 Pervious

Runoff = 0.39 cfs @ 12.09 hrs, Volume= 1,032 cf, Depth= 0.77"  
Routed to Pond 7P : GI-9

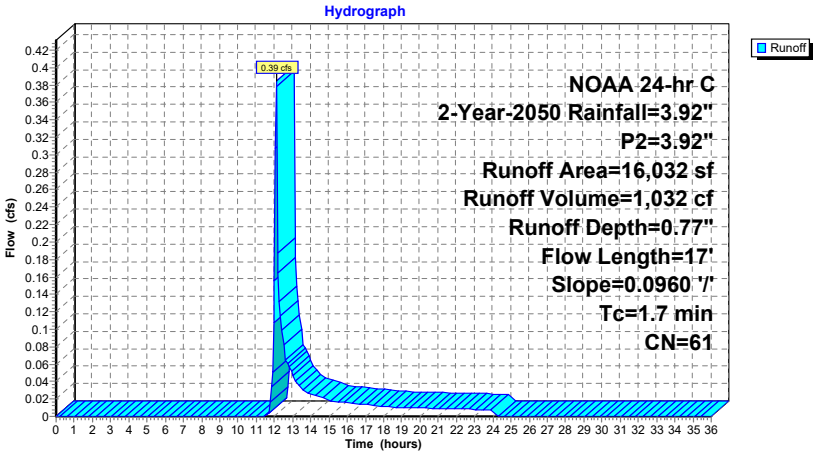
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 154       | 39 | >75% Grass cover, Good, HSG A |
| 15,878    | 61 | >75% Grass cover, Good, HSG B |
| 16,032    | 61 | Weighted Average              |
| 16,032    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                    |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------|
| 1.7      | 17            | 0.0960        | 0.17              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.92" |



Subcatchment 2S: GI-9 Pervious



Hydrograph for Subcatchment 2S: GI-9 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 3.92             | 0.77            | 0.00         |
| 0.50         | 0.02             | 0.00            | 0.00         | 26.50        | 3.92             | 0.77            | 0.00         |
| 1.00         | 0.04             | 0.00            | 0.00         | 27.00        | 3.92             | 0.77            | 0.00         |
| 1.50         | 0.07             | 0.00            | 0.00         | 27.50        | 3.92             | 0.77            | 0.00         |
| 2.00         | 0.09             | 0.00            | 0.00         | 28.00        | 3.92             | 0.77            | 0.00         |
| 2.50         | 0.11             | 0.00            | 0.00         | 28.50        | 3.92             | 0.77            | 0.00         |
| 3.00         | 0.14             | 0.00            | 0.00         | 29.00        | 3.92             | 0.77            | 0.00         |
| 3.50         | 0.16             | 0.00            | 0.00         | 29.50        | 3.92             | 0.77            | 0.00         |
| 4.00         | 0.19             | 0.00            | 0.00         | 30.00        | 3.92             | 0.77            | 0.00         |
| 4.50         | 0.22             | 0.00            | 0.00         | 30.50        | 3.92             | 0.77            | 0.00         |
| 5.00         | 0.25             | 0.00            | 0.00         | 31.00        | 3.92             | 0.77            | 0.00         |
| 5.50         | 0.28             | 0.00            | 0.00         | 31.50        | 3.92             | 0.77            | 0.00         |
| 6.00         | 0.31             | 0.00            | 0.00         | 32.00        | 3.92             | 0.77            | 0.00         |
| 6.50         | 0.34             | 0.00            | 0.00         | 32.50        | 3.92             | 0.77            | 0.00         |
| 7.00         | 0.38             | 0.00            | 0.00         | 33.00        | 3.92             | 0.77            | 0.00         |
| 7.50         | 0.42             | 0.00            | 0.00         | 33.50        | 3.92             | 0.77            | 0.00         |
| 8.00         | 0.47             | 0.00            | 0.00         | 34.00        | 3.92             | 0.77            | 0.00         |
| 8.50         | 0.52             | 0.00            | 0.00         | 34.50        | 3.92             | 0.77            | 0.00         |
| 9.00         | 0.57             | 0.00            | 0.00         | 35.00        | 3.92             | 0.77            | 0.00         |
| 9.50         | 0.64             | 0.00            | 0.00         | 35.50        | 3.92             | 0.77            | 0.00         |
| 10.00        | 0.71             | 0.00            | 0.00         | 36.00        | 3.92             | 0.77            | 0.00         |
| 10.50        | 0.81             | 0.00            | 0.00         |              |                  |                 |              |
| 11.00        | 0.94             | 0.00            | 0.00         |              |                  |                 |              |
| 11.50        | 1.16             | 0.00            | 0.00         |              |                  |                 |              |
| 12.00        | 1.87             | 0.05            | 0.16         |              |                  |                 |              |
| 12.50        | 2.76             | 0.28            | 0.10         |              |                  |                 |              |
| 13.00        | 2.98             | 0.36            | 0.05         |              |                  |                 |              |
| 13.50        | 3.11             | 0.41            | 0.03         |              |                  |                 |              |
| 14.00        | 3.21             | 0.45            | 0.03         |              |                  |                 |              |
| 14.50        | 3.28             | 0.48            | 0.02         |              |                  |                 |              |
| 15.00        | 3.35             | 0.51            | 0.02         |              |                  |                 |              |
| 15.50        | 3.40             | 0.53            | 0.02         |              |                  |                 |              |
| 16.00        | 3.45             | 0.55            | 0.02         |              |                  |                 |              |
| 16.50        | 3.50             | 0.57            | 0.01         |              |                  |                 |              |
| 17.00        | 3.54             | 0.59            | 0.01         |              |                  |                 |              |
| 17.50        | 3.58             | 0.61            | 0.01         |              |                  |                 |              |
| 18.00        | 3.61             | 0.62            | 0.01         |              |                  |                 |              |
| 18.50        | 3.64             | 0.64            | 0.01         |              |                  |                 |              |
| 19.00        | 3.67             | 0.65            | 0.01         |              |                  |                 |              |
| 19.50        | 3.70             | 0.67            | 0.01         |              |                  |                 |              |
| 20.00        | 3.73             | 0.68            | 0.01         |              |                  |                 |              |
| 20.50        | 3.76             | 0.69            | 0.01         |              |                  |                 |              |
| 21.00        | 3.78             | 0.70            | 0.01         |              |                  |                 |              |
| 21.50        | 3.81             | 0.72            | 0.01         |              |                  |                 |              |
| 22.00        | 3.83             | 0.73            | 0.01         |              |                  |                 |              |
| 22.50        | 3.85             | 0.74            | 0.01         |              |                  |                 |              |
| 23.00        | 3.88             | 0.75            | 0.01         |              |                  |                 |              |
| 23.50        | 3.90             | 0.76            | 0.01         |              |                  |                 |              |
| 24.00        | 3.92             | 0.77            | 0.01         |              |                  |                 |              |
| 24.50        | 3.92             | 0.77            | 0.00         |              |                  |                 |              |
| 25.00        | 3.92             | 0.77            | 0.00         |              |                  |                 |              |
| 25.50        | 3.92             | 0.77            | 0.00         |              |                  |                 |              |

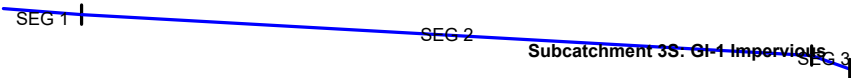
Summary for Subcatchment 3S: GI-1 Impervious

Runoff = 2.21 cfs @ 12.09 hrs, Volume= 6,468 cf, Depth= 3.69"  
Routed to Pond 2P : GI-1

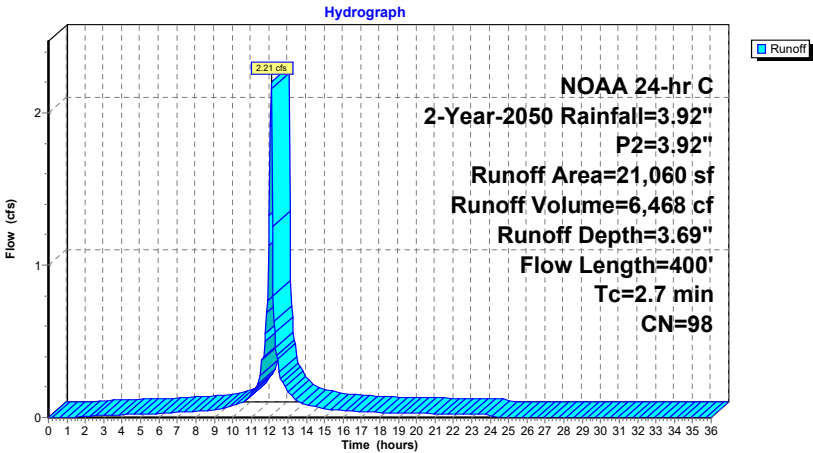
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 21,060    | 98 | Paved parking, HSG A    |
| 21,060    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 0.6      | 37            | 0.0140        | 1.08              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.92"             |
| 1.9      | 345           | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2      | 18            | 0.0630        | 1.76              |                | Shallow Concentrated Flow, SEG 3<br>Short Grass Pasture Kv= 7.0 fps |
| 2.7      | 400           |               |                   |                | Total                                                               |



Subcatchment 3S: GI-1 Impervious



Hydrograph for Subcatchment 3S: GI-1 Impervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         |
| 0.50         | 0.02             | 0.00            | 0.00         |
| 1.00         | 0.04             | 0.00            | 0.00         |
| 1.50         | 0.07             | 0.00            | 0.00         |
| 2.00         | 0.09             | 0.01            | 0.01         |
| 2.50         | 0.11             | 0.02            | 0.01         |
| 3.00         | 0.14             | 0.03            | 0.01         |
| 3.50         | 0.16             | 0.05            | 0.02         |
| 4.00         | 0.19             | 0.06            | 0.02         |
| 4.50         | 0.22             | 0.08            | 0.02         |
| 5.00         | 0.25             | 0.11            | 0.02         |
| 5.50         | 0.28             | 0.13            | 0.02         |
| 6.00         | 0.31             | 0.15            | 0.03         |
| 6.50         | 0.34             | 0.18            | 0.03         |
| 7.00         | 0.38             | 0.21            | 0.03         |
| 7.50         | 0.42             | 0.25            | 0.04         |
| 8.00         | 0.47             | 0.29            | 0.04         |
| 8.50         | 0.52             | 0.34            | 0.05         |
| 9.00         | 0.57             | 0.38            | 0.05         |
| 9.50         | 0.64             | 0.44            | 0.06         |
| 10.00        | 0.71             | 0.52            | 0.08         |
| 10.50        | 0.81             | 0.61            | 0.09         |
| 11.00        | 0.94             | 0.73            | 0.15         |
| 11.50        | 1.16             | 0.94            | 0.25         |
| 12.00        | 1.87             | 1.64            | 1.33         |
| 12.50        | 2.76             | 2.53            | 0.38         |
| 13.00        | 2.98             | 2.75            | 0.17         |
| 13.50        | 3.11             | 2.88            | 0.11         |
| 14.00        | 3.21             | 2.97            | 0.08         |
| 14.50        | 3.28             | 3.05            | 0.07         |
| 15.00        | 3.35             | 3.11            | 0.06         |
| 15.50        | 3.40             | 3.17            | 0.05         |
| 16.00        | 3.45             | 3.22            | 0.05         |
| 16.50        | 3.50             | 3.26            | 0.04         |
| 17.00        | 3.54             | 3.30            | 0.04         |
| 17.50        | 3.58             | 3.34            | 0.04         |
| 18.00        | 3.61             | 3.38            | 0.03         |
| 18.50        | 3.64             | 3.41            | 0.03         |
| 19.00        | 3.67             | 3.44            | 0.03         |
| 19.50        | 3.70             | 3.47            | 0.03         |
| 20.00        | 3.73             | 3.49            | 0.03         |
| 20.50        | 3.76             | 3.52            | 0.03         |
| 21.00        | 3.78             | 3.55            | 0.03         |
| 21.50        | 3.81             | 3.57            | 0.02         |
| 22.00        | 3.83             | 3.60            | 0.02         |
| 22.50        | 3.85             | 3.62            | 0.02         |
| 23.00        | 3.88             | 3.64            | 0.02         |
| 23.50        | 3.90             | 3.66            | 0.02         |
| 24.00        | 3.92             | 3.69            | 0.02         |
| 24.50        | 3.92             | 3.69            | 0.00         |
| 25.00        | 3.92             | 3.69            | 0.00         |
| 25.50        | 3.92             | 3.69            | 0.00         |



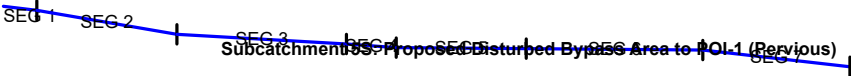
Summary for Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)

Runoff = 0.04 cfs @ 13.99 hrs, Volume= 792 cf, Depth= 0.21"  
Routed to Link 1L : POI-1

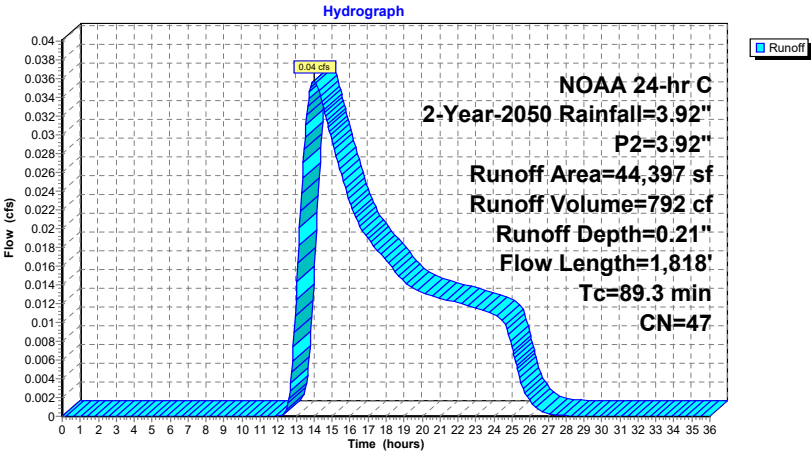
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 28,757    | 39 | >75% Grass cover, Good, HSG A |
| 15,640    | 61 | >75% Grass cover, Good, HSG B |
| 44,397    | 47 | Weighted Average              |
| 44,397    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                               |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------------------------------------|
| 8.4      | 72            | 0.0150        | 0.14              |                | <b>Sheet Flow, SEG 1</b><br>Cultivated: Residue>20% n= 0.170 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 3.8      | 301           | 0.0210        | 1.30              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 8.1      | 364           | 0.0070        | 0.75              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 3.8      | 107           | 0.0090        | 0.47              |                | <b>Shallow Concentrated Flow, SEG 4</b><br>Woodland Kv= 5.0 fps                                           |
| 16.3     | 279           | 0.0010        | 0.28              |                | <b>Shallow Concentrated Flow, SEG 5</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 40.0     | 379           | 0.0010        | 0.16              |                | <b>Shallow Concentrated Flow, SEG 6</b><br>Woodland Kv= 5.0 fps                                           |
| 8.9      | 316           | 0.0140        | 0.59              |                | <b>Shallow Concentrated Flow, SEG 7</b><br>Woodland Kv= 5.0 fps                                           |
| 89.3     | 1,818         | Total         |                   |                |                                                                                                           |



Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)



# 2101ELK-STM Analysis POI-1 - Propose

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## Hydrograph for Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 0.21               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 0.21               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 0.21               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 0.21               | 0.00            |
| 2.00            | 0.09                | 0.00               | 0.00            | 28.00           | 3.92                | 0.21               | 0.00            |
| 2.50            | 0.11                | 0.00               | 0.00            | 28.50           | 3.92                | 0.21               | 0.00            |
| 3.00            | 0.14                | 0.00               | 0.00            | 29.00           | 3.92                | 0.21               | 0.00            |
| 3.50            | 0.16                | 0.00               | 0.00            | 29.50           | 3.92                | 0.21               | 0.00            |
| 4.00            | 0.19                | 0.00               | 0.00            | 30.00           | 3.92                | 0.21               | 0.00            |
| 4.50            | 0.22                | 0.00               | 0.00            | 30.50           | 3.92                | 0.21               | 0.00            |
| 5.00            | 0.25                | 0.00               | 0.00            | 31.00           | 3.92                | 0.21               | 0.00            |
| 5.50            | 0.28                | 0.00               | 0.00            | 31.50           | 3.92                | 0.21               | 0.00            |
| 6.00            | 0.31                | 0.00               | 0.00            | 32.00           | 3.92                | 0.21               | 0.00            |
| 6.50            | 0.34                | 0.00               | 0.00            | 32.50           | 3.92                | 0.21               | 0.00            |
| 7.00            | 0.38                | 0.00               | 0.00            | 33.00           | 3.92                | 0.21               | 0.00            |
| 7.50            | 0.42                | 0.00               | 0.00            | 33.50           | 3.92                | 0.21               | 0.00            |
| 8.00            | 0.47                | 0.00               | 0.00            | 34.00           | 3.92                | 0.21               | 0.00            |
| 8.50            | 0.52                | 0.00               | 0.00            | 34.50           | 3.92                | 0.21               | 0.00            |
| 9.00            | 0.57                | 0.00               | 0.00            | 35.00           | 3.92                | 0.21               | 0.00            |
| 9.50            | 0.64                | 0.00               | 0.00            | 35.50           | 3.92                | 0.21               | 0.00            |
| 10.00           | 0.71                | 0.00               | 0.00            | 36.00           | 3.92                | 0.21               | 0.00            |
| 10.50           | 0.81                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.76                | 0.02               | 0.00            |                 |                     |                    |                 |
| 13.00           | 2.98                | 0.04               | 0.01            |                 |                     |                    |                 |
| 13.50           | 3.11                | 0.06               | 0.03            |                 |                     |                    |                 |
| 14.00           | 3.21                | 0.07               | 0.04            |                 |                     |                    |                 |
| 14.50           | 3.28                | 0.09               | 0.03            |                 |                     |                    |                 |
| 15.00           | 3.35                | 0.10               | 0.03            |                 |                     |                    |                 |
| 15.50           | 3.40                | 0.11               | 0.03            |                 |                     |                    |                 |
| 16.00           | 3.45                | 0.11               | 0.02            |                 |                     |                    |                 |
| 16.50           | 3.50                | 0.12               | 0.02            |                 |                     |                    |                 |
| 17.00           | 3.54                | 0.13               | 0.02            |                 |                     |                    |                 |
| 17.50           | 3.58                | 0.14               | 0.02            |                 |                     |                    |                 |
| 18.00           | 3.61                | 0.15               | 0.02            |                 |                     |                    |                 |
| 18.50           | 3.64                | 0.15               | 0.02            |                 |                     |                    |                 |
| 19.00           | 3.67                | 0.16               | 0.01            |                 |                     |                    |                 |
| 19.50           | 3.70                | 0.16               | 0.01            |                 |                     |                    |                 |
| 20.00           | 3.73                | 0.17               | 0.01            |                 |                     |                    |                 |
| 20.50           | 3.76                | 0.18               | 0.01            |                 |                     |                    |                 |
| 21.00           | 3.78                | 0.18               | 0.01            |                 |                     |                    |                 |
| 21.50           | 3.81                | 0.19               | 0.01            |                 |                     |                    |                 |
| 22.00           | 3.83                | 0.19               | 0.01            |                 |                     |                    |                 |
| 22.50           | 3.85                | 0.20               | 0.01            |                 |                     |                    |                 |
| 23.00           | 3.88                | 0.20               | 0.01            |                 |                     |                    |                 |
| 23.50           | 3.90                | 0.21               | 0.01            |                 |                     |                    |                 |
| 24.00           | 3.92                | 0.21               | 0.01            |                 |                     |                    |                 |
| 24.50           | 3.92                | 0.21               | 0.01            |                 |                     |                    |                 |
| 25.00           | 3.92                | 0.21               | 0.01            |                 |                     |                    |                 |
| 25.50           | 3.92                | 0.21               | 0.00            |                 |                     |                    |                 |

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## Summary for Subcatchment 6S: GI-9 Impervious

Runoff = 4.60 cfs @ 12.08 hrs, Volume= 13,308 cf, Depth= 3.69"  
Routed to Pond 7P : GI-9

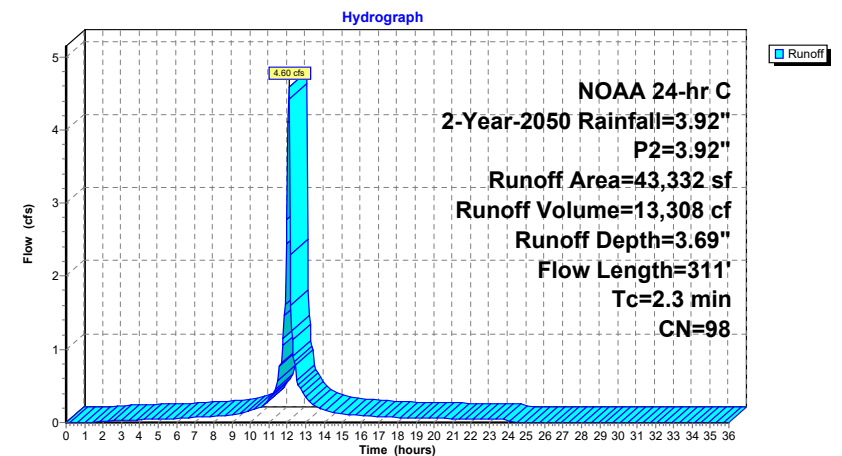
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 43,332    | 98 | Paved parking, HSG A    |
| 43,332    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------|
| 1.0      | 71            | 0.0140        | 1.23              |                | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.92"             |
| 1.2      | 222           | 0.0100        | 2.98              | 0.60           | <b>Channel Flow, SEG 2</b><br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.1      | 18            | 0.0960        | 2.17              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Short Grass Pasture Kv= 7.0 fps |
| 2.3      | 311           | Total         |                   |                |                                                                            |



## Subcatchment 6S: GI-9 Impervious



Hydrograph for Subcatchment 6S: GI-9 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 3.69               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 3.69               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 3.69               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.01            | 27.50           | 3.92                | 3.69               | 0.00            |
| 2.00            | 0.09                | 0.01               | 0.02            | 28.00           | 3.92                | 3.69               | 0.00            |
| 2.50            | 0.11                | 0.02               | 0.02            | 28.50           | 3.92                | 3.69               | 0.00            |
| 3.00            | 0.14                | 0.03               | 0.03            | 29.00           | 3.92                | 3.69               | 0.00            |
| 3.50            | 0.16                | 0.05               | 0.03            | 29.50           | 3.92                | 3.69               | 0.00            |
| 4.00            | 0.19                | 0.06               | 0.04            | 30.00           | 3.92                | 3.69               | 0.00            |
| 4.50            | 0.22                | 0.08               | 0.04            | 30.50           | 3.92                | 3.69               | 0.00            |
| 5.00            | 0.25                | 0.11               | 0.04            | 31.00           | 3.92                | 3.69               | 0.00            |
| 5.50            | 0.28                | 0.13               | 0.05            | 31.50           | 3.92                | 3.69               | 0.00            |
| 6.00            | 0.31                | 0.15               | 0.05            | 32.00           | 3.92                | 3.69               | 0.00            |
| 6.50            | 0.34                | 0.18               | 0.06            | 32.50           | 3.92                | 3.69               | 0.00            |
| 7.00            | 0.38                | 0.21               | 0.07            | 33.00           | 3.92                | 3.69               | 0.00            |
| 7.50            | 0.42                | 0.25               | 0.08            | 33.50           | 3.92                | 3.69               | 0.00            |
| 8.00            | 0.47                | 0.29               | 0.08            | 34.00           | 3.92                | 3.69               | 0.00            |
| 8.50            | 0.52                | 0.34               | 0.09            | 34.50           | 3.92                | 3.69               | 0.00            |
| 9.00            | 0.57                | 0.38               | 0.10            | 35.00           | 3.92                | 3.69               | 0.00            |
| 9.50            | 0.64                | 0.44               | 0.13            | 35.50           | 3.92                | 3.69               | 0.00            |
| 10.00           | 0.71                | 0.52               | 0.16            | 36.00           | 3.92                | 3.69               | 0.00            |
| 10.50           | 0.81                | 0.61               | 0.19            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.73               | 0.30            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.94               | 0.51            |                 |                     |                    |                 |
| 12.00           | 1.87                | 1.64               | 2.77            |                 |                     |                    |                 |
| 12.50           | 2.76                | 2.53               | 0.78            |                 |                     |                    |                 |
| 13.00           | 2.98                | 2.75               | 0.35            |                 |                     |                    |                 |
| 13.50           | 3.11                | 2.88               | 0.22            |                 |                     |                    |                 |
| 14.00           | 3.21                | 2.97               | 0.17            |                 |                     |                    |                 |
| 14.50           | 3.28                | 3.05               | 0.15            |                 |                     |                    |                 |
| 15.00           | 3.35                | 3.11               | 0.12            |                 |                     |                    |                 |
| 15.50           | 3.40                | 3.17               | 0.10            |                 |                     |                    |                 |
| 16.00           | 3.45                | 3.22               | 0.10            |                 |                     |                    |                 |
| 16.50           | 3.50                | 3.26               | 0.09            |                 |                     |                    |                 |
| 17.00           | 3.54                | 3.30               | 0.08            |                 |                     |                    |                 |
| 17.50           | 3.58                | 3.34               | 0.07            |                 |                     |                    |                 |
| 18.00           | 3.61                | 3.38               | 0.06            |                 |                     |                    |                 |
| 18.50           | 3.64                | 3.41               | 0.06            |                 |                     |                    |                 |
| 19.00           | 3.67                | 3.44               | 0.06            |                 |                     |                    |                 |
| 19.50           | 3.70                | 3.47               | 0.06            |                 |                     |                    |                 |
| 20.00           | 3.73                | 3.49               | 0.06            |                 |                     |                    |                 |
| 20.50           | 3.76                | 3.52               | 0.05            |                 |                     |                    |                 |
| 21.00           | 3.78                | 3.55               | 0.05            |                 |                     |                    |                 |
| 21.50           | 3.81                | 3.57               | 0.05            |                 |                     |                    |                 |
| 22.00           | 3.83                | 3.60               | 0.05            |                 |                     |                    |                 |
| 22.50           | 3.85                | 3.62               | 0.05            |                 |                     |                    |                 |
| 23.00           | 3.88                | 3.64               | 0.04            |                 |                     |                    |                 |
| 23.50           | 3.90                | 3.66               | 0.04            |                 |                     |                    |                 |
| 24.00           | 3.92                | 3.69               | 0.05            |                 |                     |                    |                 |
| 24.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 15S: GI-2 Pervious

Runoff = 0.00 cfs @ 23.98 hrs, Volume= 43 cf, Depth= 0.04"  
Routed to Pond 14P : GI-2

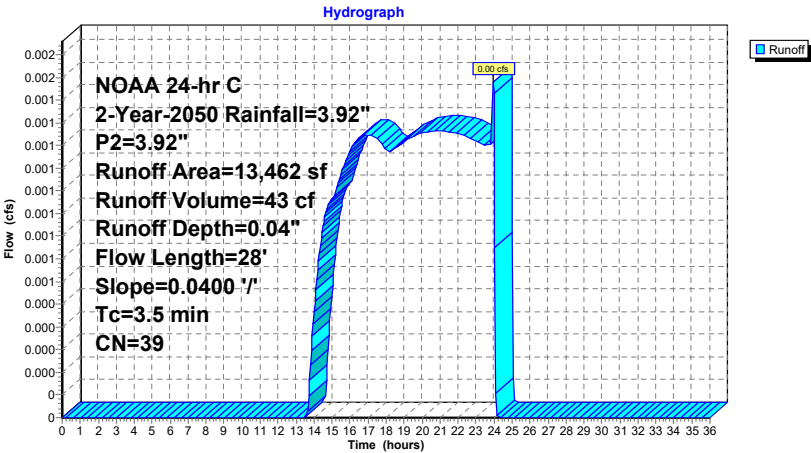
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 13,462    | 39 | >75% Grass cover, Good, HSG A |
| 13,462    |    | 100.00% Pervious Area         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                          |
|-------------|------------------|------------------|----------------------|-------------------|------------------------------------------------------|
| 3.5         | 28               | 0.0400           | 0.13                 |                   | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92" |



Subcatchment 15S: GI-2 Pervious



Hydrograph for Subcatchment 15S: GI-2 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 0.04               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 0.04               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 0.04               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 0.04               | 0.00            |
| 2.00            | 0.09                | 0.00               | 0.00            | 28.00           | 3.92                | 0.04               | 0.00            |
| 2.50            | 0.11                | 0.00               | 0.00            | 28.50           | 3.92                | 0.04               | 0.00            |
| 3.00            | 0.14                | 0.00               | 0.00            | 29.00           | 3.92                | 0.04               | 0.00            |
| 3.50            | 0.16                | 0.00               | 0.00            | 29.50           | 3.92                | 0.04               | 0.00            |
| 4.00            | 0.19                | 0.00               | 0.00            | 30.00           | 3.92                | 0.04               | 0.00            |
| 4.50            | 0.22                | 0.00               | 0.00            | 30.50           | 3.92                | 0.04               | 0.00            |
| 5.00            | 0.25                | 0.00               | 0.00            | 31.00           | 3.92                | 0.04               | 0.00            |
| 5.50            | 0.28                | 0.00               | 0.00            | 31.50           | 3.92                | 0.04               | 0.00            |
| 6.00            | 0.31                | 0.00               | 0.00            | 32.00           | 3.92                | 0.04               | 0.00            |
| 6.50            | 0.34                | 0.00               | 0.00            | 32.50           | 3.92                | 0.04               | 0.00            |
| 7.00            | 0.38                | 0.00               | 0.00            | 33.00           | 3.92                | 0.04               | 0.00            |
| 7.50            | 0.42                | 0.00               | 0.00            | 33.50           | 3.92                | 0.04               | 0.00            |
| 8.00            | 0.47                | 0.00               | 0.00            | 34.00           | 3.92                | 0.04               | 0.00            |
| 8.50            | 0.52                | 0.00               | 0.00            | 34.50           | 3.92                | 0.04               | 0.00            |
| 9.00            | 0.57                | 0.00               | 0.00            | 35.00           | 3.92                | 0.04               | 0.00            |
| 9.50            | 0.64                | 0.00               | 0.00            | 35.50           | 3.92                | 0.04               | 0.00            |
| 10.00           | 0.71                | 0.00               | 0.00            | 36.00           | 3.92                | 0.04               | 0.00            |
| 10.50           | 0.81                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.76                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 2.98                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 3.11                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 3.21                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 3.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 3.35                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 3.40                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 3.45                | 0.01               | 0.00            |                 |                     |                    |                 |
| 16.50           | 3.50                | 0.01               | 0.00            |                 |                     |                    |                 |
| 17.00           | 3.54                | 0.01               | 0.00            |                 |                     |                    |                 |
| 17.50           | 3.58                | 0.01               | 0.00            |                 |                     |                    |                 |
| 18.00           | 3.61                | 0.01               | 0.00            |                 |                     |                    |                 |
| 18.50           | 3.64                | 0.02               | 0.00            |                 |                     |                    |                 |
| 19.00           | 3.67                | 0.02               | 0.00            |                 |                     |                    |                 |
| 19.50           | 3.70                | 0.02               | 0.00            |                 |                     |                    |                 |
| 20.00           | 3.73                | 0.02               | 0.00            |                 |                     |                    |                 |
| 20.50           | 3.76                | 0.02               | 0.00            |                 |                     |                    |                 |
| 21.00           | 3.78                | 0.03               | 0.00            |                 |                     |                    |                 |
| 21.50           | 3.81                | 0.03               | 0.00            |                 |                     |                    |                 |
| 22.00           | 3.83                | 0.03               | 0.00            |                 |                     |                    |                 |
| 22.50           | 3.85                | 0.03               | 0.00            |                 |                     |                    |                 |
| 23.00           | 3.88                | 0.03               | 0.00            |                 |                     |                    |                 |
| 23.50           | 3.90                | 0.04               | 0.00            |                 |                     |                    |                 |
| 24.00           | 3.92                | 0.04               | 0.00            |                 |                     |                    |                 |
| 24.50           | 3.92                | 0.04               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 0.04               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 0.04               | 0.00            |                 |                     |                    |                 |

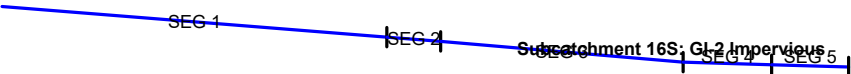
Summary for Subcatchment 16S: GI-2 Impervious

Runoff = 1.40 cfs @ 12.08 hrs, Volume= 4,030 cf, Depth= 3.69"  
Routed to Pond 14P : GI-2

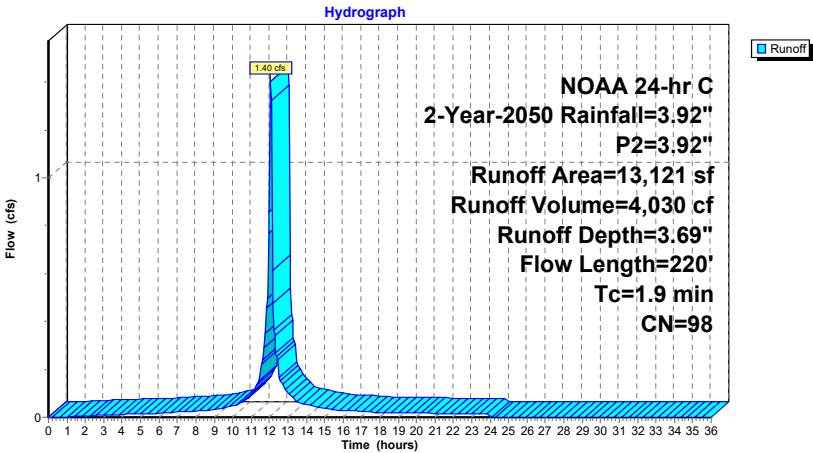
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 13,121    | 98 | Paved parking, HSG A    |
| 13,121    |    | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                     |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------|
| 1.3         | 100              | 0.0140           | 1.32                 |                   | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.92"                                                  |
| 0.1         | 14               | 0.0140           | 2.40                 |                   | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps                                                   |
| 0.3         | 63               | 0.0150           | 3.65                 | 0.73              | <b>Channel Flow, SEG 3</b><br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013                                        |
| 0.1         | 23               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 4</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 Concrete pipe, finished |
| 0.1         | 20               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 5</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012                         |
| 1.9         | 220              | Total            |                      |                   |                                                                                                                 |



Subcatchment 16S: GI-2 Impervious



Hydrograph for Subcatchment 16S: GI-2 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 3.69               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 3.69               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 3.69               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 3.69               | 0.00            |
| 2.00            | 0.09                | 0.01               | 0.00            | 28.00           | 3.92                | 3.69               | 0.00            |
| 2.50            | 0.11                | 0.02               | 0.01            | 28.50           | 3.92                | 3.69               | 0.00            |
| 3.00            | 0.14                | 0.03               | 0.01            | 29.00           | 3.92                | 3.69               | 0.00            |
| 3.50            | 0.16                | 0.05               | 0.01            | 29.50           | 3.92                | 3.69               | 0.00            |
| 4.00            | 0.19                | 0.06               | 0.01            | 30.00           | 3.92                | 3.69               | 0.00            |
| 4.50            | 0.22                | 0.08               | 0.01            | 30.50           | 3.92                | 3.69               | 0.00            |
| 5.00            | 0.25                | 0.11               | 0.01            | 31.00           | 3.92                | 3.69               | 0.00            |
| 5.50            | 0.28                | 0.13               | 0.01            | 31.50           | 3.92                | 3.69               | 0.00            |
| 6.00            | 0.31                | 0.15               | 0.02            | 32.00           | 3.92                | 3.69               | 0.00            |
| 6.50            | 0.34                | 0.18               | 0.02            | 32.50           | 3.92                | 3.69               | 0.00            |
| 7.00            | 0.38                | 0.21               | 0.02            | 33.00           | 3.92                | 3.69               | 0.00            |
| 7.50            | 0.42                | 0.25               | 0.02            | 33.50           | 3.92                | 3.69               | 0.00            |
| 8.00            | 0.47                | 0.29               | 0.03            | 34.00           | 3.92                | 3.69               | 0.00            |
| 8.50            | 0.52                | 0.34               | 0.03            | 34.50           | 3.92                | 3.69               | 0.00            |
| 9.00            | 0.57                | 0.38               | 0.03            | 35.00           | 3.92                | 3.69               | 0.00            |
| 9.50            | 0.64                | 0.44               | 0.04            | 35.50           | 3.92                | 3.69               | 0.00            |
| 10.00           | 0.71                | 0.52               | 0.05            | 36.00           | 3.92                | 3.69               | 0.00            |
| 10.50           | 0.81                | 0.61               | 0.06            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.73               | 0.09            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.94               | 0.16            |                 |                     |                    |                 |
| 12.00           | 1.87                | 1.64               | 0.86            |                 |                     |                    |                 |
| 12.50           | 2.76                | 2.53               | 0.23            |                 |                     |                    |                 |
| 13.00           | 2.98                | 2.75               | 0.11            |                 |                     |                    |                 |
| 13.50           | 3.11                | 2.88               | 0.07            |                 |                     |                    |                 |
| 14.00           | 3.21                | 2.97               | 0.05            |                 |                     |                    |                 |
| 14.50           | 3.28                | 3.05               | 0.04            |                 |                     |                    |                 |
| 15.00           | 3.35                | 3.11               | 0.03            |                 |                     |                    |                 |
| 15.50           | 3.40                | 3.17               | 0.03            |                 |                     |                    |                 |
| 16.00           | 3.45                | 3.22               | 0.03            |                 |                     |                    |                 |
| 16.50           | 3.50                | 3.26               | 0.03            |                 |                     |                    |                 |
| 17.00           | 3.54                | 3.30               | 0.02            |                 |                     |                    |                 |
| 17.50           | 3.58                | 3.34               | 0.02            |                 |                     |                    |                 |
| 18.00           | 3.61                | 3.38               | 0.02            |                 |                     |                    |                 |
| 18.50           | 3.64                | 3.41               | 0.02            |                 |                     |                    |                 |
| 19.00           | 3.67                | 3.44               | 0.02            |                 |                     |                    |                 |
| 19.50           | 3.70                | 3.47               | 0.02            |                 |                     |                    |                 |
| 20.00           | 3.73                | 3.49               | 0.02            |                 |                     |                    |                 |
| 20.50           | 3.76                | 3.52               | 0.02            |                 |                     |                    |                 |
| 21.00           | 3.78                | 3.55               | 0.02            |                 |                     |                    |                 |
| 21.50           | 3.81                | 3.57               | 0.02            |                 |                     |                    |                 |
| 22.00           | 3.83                | 3.60               | 0.01            |                 |                     |                    |                 |
| 22.50           | 3.85                | 3.62               | 0.01            |                 |                     |                    |                 |
| 23.00           | 3.88                | 3.64               | 0.01            |                 |                     |                    |                 |
| 23.50           | 3.90                | 3.66               | 0.01            |                 |                     |                    |                 |
| 24.00           | 3.92                | 3.69               | 0.01            |                 |                     |                    |                 |
| 24.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |

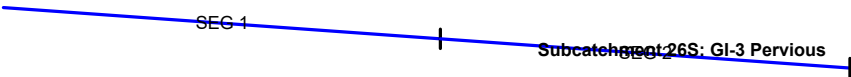
Summary for Subcatchment 26S: GI-3 Pervious

Runoff = 0.19 cfs @ 12.21 hrs, Volume= 978 cf, Depth= 0.50"  
Routed to Pond 28P : GI-3

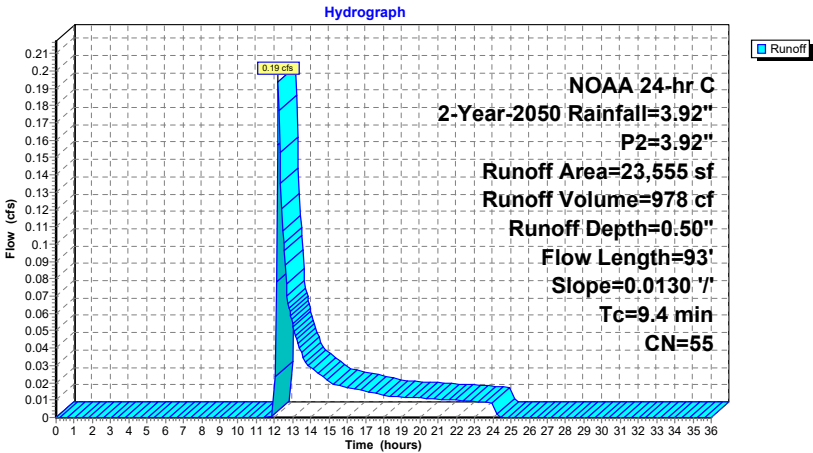
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 6,391     | 39 | >75% Grass cover, Good, HSG A |
| 17,164    | 61 | >75% Grass cover, Good, HSG B |
| 23,555    | 55 | Weighted Average              |
| 23,555    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 8.5      | 48            | 0.0130        | 0.09              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92"                |
| 0.9      | 45            | 0.0130        | 0.80              |                | Shallow Concentrated Flow, SEG 2<br>Short Grass Pasture Kv= 7.0 fps |
| 9.4      | 93            | Total         |                   |                |                                                                     |



Subcatchment 26S: GI-3 Pervious



Hydrograph for Subcatchment 26S: GI-3 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         |
| 0.50         | 0.02             | 0.00            | 0.00         |
| 1.00         | 0.04             | 0.00            | 0.00         |
| 1.50         | 0.07             | 0.00            | 0.00         |
| 2.00         | 0.09             | 0.00            | 0.00         |
| 2.50         | 0.11             | 0.00            | 0.00         |
| 3.00         | 0.14             | 0.00            | 0.00         |
| 3.50         | 0.16             | 0.00            | 0.00         |
| 4.00         | 0.19             | 0.00            | 0.00         |
| 4.50         | 0.22             | 0.00            | 0.00         |
| 5.00         | 0.25             | 0.00            | 0.00         |
| 5.50         | 0.28             | 0.00            | 0.00         |
| 6.00         | 0.31             | 0.00            | 0.00         |
| 6.50         | 0.34             | 0.00            | 0.00         |
| 7.00         | 0.38             | 0.00            | 0.00         |
| 7.50         | 0.42             | 0.00            | 0.00         |
| 8.00         | 0.47             | 0.00            | 0.00         |
| 8.50         | 0.52             | 0.00            | 0.00         |
| 9.00         | 0.57             | 0.00            | 0.00         |
| 9.50         | 0.64             | 0.00            | 0.00         |
| 10.00        | 0.71             | 0.00            | 0.00         |
| 10.50        | 0.81             | 0.00            | 0.00         |
| 11.00        | 0.94             | 0.00            | 0.00         |
| 11.50        | 1.16             | 0.00            | 0.00         |
| 12.00        | 1.87             | 0.01            | 0.00         |
| 12.50        | 2.76             | 0.14            | 0.10         |
| 13.00        | 2.98             | 0.19            | 0.05         |
| 13.50        | 3.11             | 0.23            | 0.04         |
| 14.00        | 3.21             | 0.25            | 0.03         |
| 14.50        | 3.28             | 0.28            | 0.02         |
| 15.00        | 3.35             | 0.30            | 0.02         |
| 15.50        | 3.40             | 0.31            | 0.02         |
| 16.00        | 3.45             | 0.33            | 0.02         |
| 16.50        | 3.50             | 0.34            | 0.02         |
| 17.00        | 3.54             | 0.36            | 0.02         |
| 17.50        | 3.58             | 0.37            | 0.01         |
| 18.00        | 3.61             | 0.38            | 0.01         |
| 18.50        | 3.64             | 0.39            | 0.01         |
| 19.00        | 3.67             | 0.41            | 0.01         |
| 19.50        | 3.70             | 0.42            | 0.01         |
| 20.00        | 3.73             | 0.43            | 0.01         |
| 20.50        | 3.76             | 0.44            | 0.01         |
| 21.00        | 3.78             | 0.45            | 0.01         |
| 21.50        | 3.81             | 0.46            | 0.01         |
| 22.00        | 3.83             | 0.46            | 0.01         |
| 22.50        | 3.85             | 0.47            | 0.01         |
| 23.00        | 3.88             | 0.48            | 0.01         |
| 23.50        | 3.90             | 0.49            | 0.01         |
| 24.00        | 3.92             | 0.50            | 0.01         |
| 24.50        | 3.92             | 0.50            | 0.00         |
| 25.00        | 3.92             | 0.50            | 0.00         |
| 25.50        | 3.92             | 0.50            | 0.00         |

Summary for Subcatchment 27S: GI-3 Impervious

Runoff = 6.18 cfs @ 12.09 hrs, Volume= 18,609 cf, Depth= 3.69"  
Routed to Pond 28P : GI-3

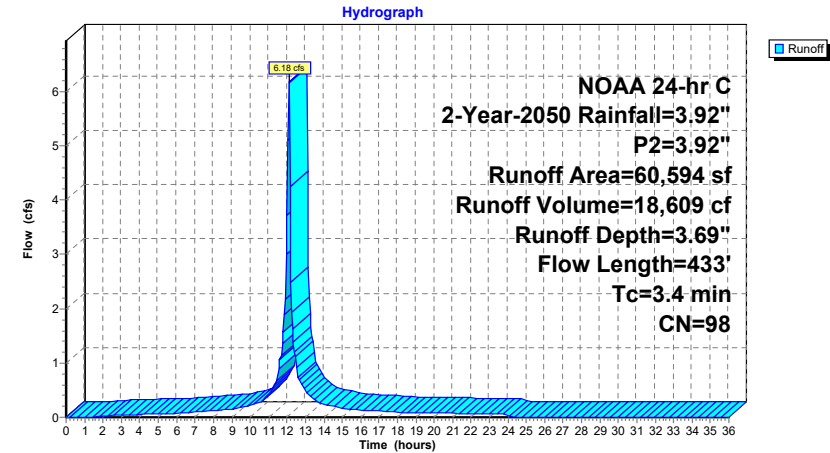
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 56,594    | 98 | Paved parking, HSG A    |
| 4,000     | 98 | Roofs, HSG A            |
| 60,594    | 98 | Weighted Average        |
| 60,594    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                           |
|----------|---------------|---------------|-------------------|----------------|-------------------------------------------------------------------------------------------------------|
| 1.3      | 100           | 0.0140        | 1.32              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.92"                                               |
| 1.9      | 270           | 0.0140        | 2.40              |                | Shallow Concentrated Flow, SEG 2<br>Paved Kv= 20.3 fps                                                |
| 0.0      | 8             | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 3<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013                                     |
| 0.2      | 55            | 0.0050        | 4.03              | 4.95           | Pipe Channel, SEG 4<br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished |
| 3.4      | 433           | Total         |                   |                |                                                                                                       |



Subcatchment 27S: GI-3 Impervious



Hydrograph for Subcatchment 27S: GI-3 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 3.69               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 3.69               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 3.69               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.01            | 27.50           | 3.92                | 3.69               | 0.00            |
| 2.00            | 0.09                | 0.01               | 0.02            | 28.00           | 3.92                | 3.69               | 0.00            |
| 2.50            | 0.11                | 0.02               | 0.03            | 28.50           | 3.92                | 3.69               | 0.00            |
| 3.00            | 0.14                | 0.03               | 0.04            | 29.00           | 3.92                | 3.69               | 0.00            |
| 3.50            | 0.16                | 0.05               | 0.05            | 29.50           | 3.92                | 3.69               | 0.00            |
| 4.00            | 0.19                | 0.06               | 0.05            | 30.00           | 3.92                | 3.69               | 0.00            |
| 4.50            | 0.22                | 0.08               | 0.06            | 30.50           | 3.92                | 3.69               | 0.00            |
| 5.00            | 0.25                | 0.11               | 0.06            | 31.00           | 3.92                | 3.69               | 0.00            |
| 5.50            | 0.28                | 0.13               | 0.07            | 31.50           | 3.92                | 3.69               | 0.00            |
| 6.00            | 0.31                | 0.15               | 0.07            | 32.00           | 3.92                | 3.69               | 0.00            |
| 6.50            | 0.34                | 0.18               | 0.08            | 32.50           | 3.92                | 3.69               | 0.00            |
| 7.00            | 0.38                | 0.21               | 0.09            | 33.00           | 3.92                | 3.69               | 0.00            |
| 7.50            | 0.42                | 0.25               | 0.11            | 33.50           | 3.92                | 3.69               | 0.00            |
| 8.00            | 0.47                | 0.29               | 0.12            | 34.00           | 3.92                | 3.69               | 0.00            |
| 8.50            | 0.52                | 0.34               | 0.13            | 34.50           | 3.92                | 3.69               | 0.00            |
| 9.00            | 0.57                | 0.38               | 0.14            | 35.00           | 3.92                | 3.69               | 0.00            |
| 9.50            | 0.64                | 0.44               | 0.18            | 35.50           | 3.92                | 3.69               | 0.00            |
| 10.00           | 0.71                | 0.52               | 0.22            | 36.00           | 3.92                | 3.69               | 0.00            |
| 10.50           | 0.81                | 0.61               | 0.27            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.73               | 0.42            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.94               | 0.70            |                 |                     |                    |                 |
| 12.00           | 1.87                | 1.64               | 3.73            |                 |                     |                    |                 |
| 12.50           | 2.76                | 2.53               | 1.11            |                 |                     |                    |                 |
| 13.00           | 2.98                | 2.75               | 0.50            |                 |                     |                    |                 |
| 13.50           | 3.11                | 2.88               | 0.31            |                 |                     |                    |                 |
| 14.00           | 3.21                | 2.97               | 0.24            |                 |                     |                    |                 |
| 14.50           | 3.28                | 3.05               | 0.20            |                 |                     |                    |                 |
| 15.00           | 3.35                | 3.11               | 0.16            |                 |                     |                    |                 |
| 15.50           | 3.40                | 3.17               | 0.14            |                 |                     |                    |                 |
| 16.00           | 3.45                | 3.22               | 0.13            |                 |                     |                    |                 |
| 16.50           | 3.50                | 3.26               | 0.12            |                 |                     |                    |                 |
| 17.00           | 3.54                | 3.30               | 0.11            |                 |                     |                    |                 |
| 17.50           | 3.58                | 3.34               | 0.10            |                 |                     |                    |                 |
| 18.00           | 3.61                | 3.38               | 0.09            |                 |                     |                    |                 |
| 18.50           | 3.64                | 3.41               | 0.09            |                 |                     |                    |                 |
| 19.00           | 3.67                | 3.44               | 0.08            |                 |                     |                    |                 |
| 19.50           | 3.70                | 3.47               | 0.08            |                 |                     |                    |                 |
| 20.00           | 3.73                | 3.49               | 0.08            |                 |                     |                    |                 |
| 20.50           | 3.76                | 3.52               | 0.08            |                 |                     |                    |                 |
| 21.00           | 3.78                | 3.55               | 0.07            |                 |                     |                    |                 |
| 21.50           | 3.81                | 3.57               | 0.07            |                 |                     |                    |                 |
| 22.00           | 3.83                | 3.60               | 0.07            |                 |                     |                    |                 |
| 22.50           | 3.85                | 3.62               | 0.06            |                 |                     |                    |                 |
| 23.00           | 3.88                | 3.64               | 0.06            |                 |                     |                    |                 |
| 23.50           | 3.90                | 3.66               | 0.06            |                 |                     |                    |                 |
| 24.00           | 3.92                | 3.69               | 0.07            |                 |                     |                    |                 |
| 24.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 29S: GI-6 Pervious

Runoff = 0.06 cfs @ 12.33 hrs, Volume= 629 cf, Depth= 0.28"  
Routed to Pond 31P : GI-6

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

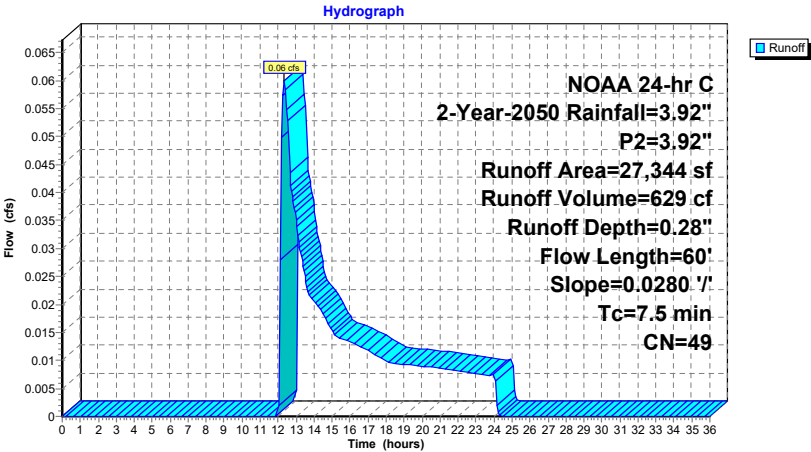
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 15,207    | 39 | >75% Grass cover, Good, HSG A |
| 12,137    | 61 | >75% Grass cover, Good, HSG B |
| 27,344    | 49 | Weighted Average              |
| 27,344    |    | 100.00% Pervious Area         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description       |
|-------------|------------------|------------------|----------------------|-------------------|-------------------|
| 7.5         | 60               | 0.0280           | 0.13                 |                   | Sheet Flow, SEG 1 |

Grass: Dense n= 0.240 P2= 3.92"



Subcatchment 29S: GI-6 Pervious





Hydrograph for Subcatchment 29S: GI-6 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 0.28               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 0.28               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 0.28               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 0.28               | 0.00            |
| 2.00            | 0.09                | 0.00               | 0.00            | 28.00           | 3.92                | 0.28               | 0.00            |
| 2.50            | 0.11                | 0.00               | 0.00            | 28.50           | 3.92                | 0.28               | 0.00            |
| 3.00            | 0.14                | 0.00               | 0.00            | 29.00           | 3.92                | 0.28               | 0.00            |
| 3.50            | 0.16                | 0.00               | 0.00            | 29.50           | 3.92                | 0.28               | 0.00            |
| 4.00            | 0.19                | 0.00               | 0.00            | 30.00           | 3.92                | 0.28               | 0.00            |
| 4.50            | 0.22                | 0.00               | 0.00            | 30.50           | 3.92                | 0.28               | 0.00            |
| 5.00            | 0.25                | 0.00               | 0.00            | 31.00           | 3.92                | 0.28               | 0.00            |
| 5.50            | 0.28                | 0.00               | 0.00            | 31.50           | 3.92                | 0.28               | 0.00            |
| 6.00            | 0.31                | 0.00               | 0.00            | 32.00           | 3.92                | 0.28               | 0.00            |
| 6.50            | 0.34                | 0.00               | 0.00            | 32.50           | 3.92                | 0.28               | 0.00            |
| 7.00            | 0.38                | 0.00               | 0.00            | 33.00           | 3.92                | 0.28               | 0.00            |
| 7.50            | 0.42                | 0.00               | 0.00            | 33.50           | 3.92                | 0.28               | 0.00            |
| 8.00            | 0.47                | 0.00               | 0.00            | 34.00           | 3.92                | 0.28               | 0.00            |
| 8.50            | 0.52                | 0.00               | 0.00            | 34.50           | 3.92                | 0.28               | 0.00            |
| 9.00            | 0.57                | 0.00               | 0.00            | 35.00           | 3.92                | 0.28               | 0.00            |
| 9.50            | 0.64                | 0.00               | 0.00            | 35.50           | 3.92                | 0.28               | 0.00            |
| 10.00           | 0.71                | 0.00               | 0.00            | 36.00           | 3.92                | 0.28               | 0.00            |
| 10.50           | 0.81                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.76                | 0.04               | 0.05            |                 |                     |                    |                 |
| 13.00           | 2.98                | 0.07               | 0.04            |                 |                     |                    |                 |
| 13.50           | 3.11                | 0.09               | 0.03            |                 |                     |                    |                 |
| 14.00           | 3.21                | 0.11               | 0.02            |                 |                     |                    |                 |
| 14.50           | 3.28                | 0.12               | 0.02            |                 |                     |                    |                 |
| 15.00           | 3.35                | 0.14               | 0.02            |                 |                     |                    |                 |
| 15.50           | 3.40                | 0.15               | 0.01            |                 |                     |                    |                 |
| 16.00           | 3.45                | 0.16               | 0.01            |                 |                     |                    |                 |
| 16.50           | 3.50                | 0.17               | 0.01            |                 |                     |                    |                 |
| 17.00           | 3.54                | 0.18               | 0.01            |                 |                     |                    |                 |
| 17.50           | 3.58                | 0.19               | 0.01            |                 |                     |                    |                 |
| 18.00           | 3.61                | 0.20               | 0.01            |                 |                     |                    |                 |
| 18.50           | 3.64                | 0.20               | 0.01            |                 |                     |                    |                 |
| 19.00           | 3.67                | 0.21               | 0.01            |                 |                     |                    |                 |
| 19.50           | 3.70                | 0.22               | 0.01            |                 |                     |                    |                 |
| 20.00           | 3.73                | 0.22               | 0.01            |                 |                     |                    |                 |
| 20.50           | 3.76                | 0.23               | 0.01            |                 |                     |                    |                 |
| 21.00           | 3.78                | 0.24               | 0.01            |                 |                     |                    |                 |
| 21.50           | 3.81                | 0.25               | 0.01            |                 |                     |                    |                 |
| 22.00           | 3.83                | 0.25               | 0.01            |                 |                     |                    |                 |
| 22.50           | 3.85                | 0.26               | 0.01            |                 |                     |                    |                 |
| 23.00           | 3.88                | 0.26               | 0.01            |                 |                     |                    |                 |
| 23.50           | 3.90                | 0.27               | 0.01            |                 |                     |                    |                 |
| 24.00           | 3.92                | 0.28               | 0.01            |                 |                     |                    |                 |
| 24.50           | 3.92                | 0.28               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 0.28               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 0.28               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 30S: GI-6 Impervious

Runoff = 5.92 cfs @ 12.09 hrs, Volume= 17,716 cf, Depth= 3.69"  
Routed to Pond 31P : GI-6

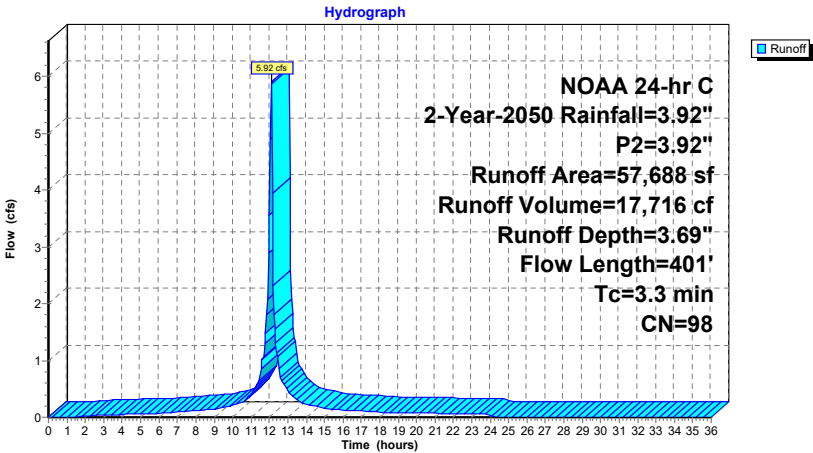
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 57,688    | 98 | Paved parking, HSG A    |
| 57,688    |    | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                             |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------|
| 1.3         | 100              | 0.0140           | 1.32                 |                   | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.92"                          |
| 1.9         | 275              | 0.0140           | 2.40                 |                   | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps                           |
| 0.1         | 26               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 3</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 |
| 3.3         | 401              | Total            |                      |                   |                                                                                         |



Subcatchment 30S: GI-6 Impervious



Hydrograph for Subcatchment 30S: GI-6 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 3.69               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 3.69               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 3.69               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.01            | 27.50           | 3.92                | 3.69               | 0.00            |
| 2.00            | 0.09                | 0.01               | 0.02            | 28.00           | 3.92                | 3.69               | 0.00            |
| 2.50            | 0.11                | 0.02               | 0.03            | 28.50           | 3.92                | 3.69               | 0.00            |
| 3.00            | 0.14                | 0.03               | 0.04            | 29.00           | 3.92                | 3.69               | 0.00            |
| 3.50            | 0.16                | 0.05               | 0.04            | 29.50           | 3.92                | 3.69               | 0.00            |
| 4.00            | 0.19                | 0.06               | 0.05            | 30.00           | 3.92                | 3.69               | 0.00            |
| 4.50            | 0.22                | 0.08               | 0.05            | 30.50           | 3.92                | 3.69               | 0.00            |
| 5.00            | 0.25                | 0.11               | 0.06            | 31.00           | 3.92                | 3.69               | 0.00            |
| 5.50            | 0.28                | 0.13               | 0.06            | 31.50           | 3.92                | 3.69               | 0.00            |
| 6.00            | 0.31                | 0.15               | 0.07            | 32.00           | 3.92                | 3.69               | 0.00            |
| 6.50            | 0.34                | 0.18               | 0.08            | 32.50           | 3.92                | 3.69               | 0.00            |
| 7.00            | 0.38                | 0.21               | 0.09            | 33.00           | 3.92                | 3.69               | 0.00            |
| 7.50            | 0.42                | 0.25               | 0.10            | 33.50           | 3.92                | 3.69               | 0.00            |
| 8.00            | 0.47                | 0.29               | 0.11            | 34.00           | 3.92                | 3.69               | 0.00            |
| 8.50            | 0.52                | 0.34               | 0.12            | 34.50           | 3.92                | 3.69               | 0.00            |
| 9.00            | 0.57                | 0.38               | 0.14            | 35.00           | 3.92                | 3.69               | 0.00            |
| 9.50            | 0.64                | 0.44               | 0.17            | 35.50           | 3.92                | 3.69               | 0.00            |
| 10.00           | 0.71                | 0.52               | 0.21            | 36.00           | 3.92                | 3.69               | 0.00            |
| 10.50           | 0.81                | 0.61               | 0.25            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.73               | 0.40            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.94               | 0.67            |                 |                     |                    |                 |
| 12.00           | 1.87                | 1.64               | 3.56            |                 |                     |                    |                 |
| 12.50           | 2.76                | 2.53               | 1.05            |                 |                     |                    |                 |
| 13.00           | 2.98                | 2.75               | 0.47            |                 |                     |                    |                 |
| 13.50           | 3.11                | 2.88               | 0.29            |                 |                     |                    |                 |
| 14.00           | 3.21                | 2.97               | 0.23            |                 |                     |                    |                 |
| 14.50           | 3.28                | 3.05               | 0.19            |                 |                     |                    |                 |
| 15.00           | 3.35                | 3.11               | 0.15            |                 |                     |                    |                 |
| 15.50           | 3.40                | 3.17               | 0.14            |                 |                     |                    |                 |
| 16.00           | 3.45                | 3.22               | 0.13            |                 |                     |                    |                 |
| 16.50           | 3.50                | 3.26               | 0.12            |                 |                     |                    |                 |
| 17.00           | 3.54                | 3.30               | 0.11            |                 |                     |                    |                 |
| 17.50           | 3.58                | 3.34               | 0.10            |                 |                     |                    |                 |
| 18.00           | 3.61                | 3.38               | 0.09            |                 |                     |                    |                 |
| 18.50           | 3.64                | 3.41               | 0.08            |                 |                     |                    |                 |
| 19.00           | 3.67                | 3.44               | 0.08            |                 |                     |                    |                 |
| 19.50           | 3.70                | 3.47               | 0.08            |                 |                     |                    |                 |
| 20.00           | 3.73                | 3.49               | 0.07            |                 |                     |                    |                 |
| 20.50           | 3.76                | 3.52               | 0.07            |                 |                     |                    |                 |
| 21.00           | 3.78                | 3.55               | 0.07            |                 |                     |                    |                 |
| 21.50           | 3.81                | 3.57               | 0.07            |                 |                     |                    |                 |
| 22.00           | 3.83                | 3.60               | 0.06            |                 |                     |                    |                 |
| 22.50           | 3.85                | 3.62               | 0.06            |                 |                     |                    |                 |
| 23.00           | 3.88                | 3.64               | 0.06            |                 |                     |                    |                 |
| 23.50           | 3.90                | 3.66               | 0.06            |                 |                     |                    |                 |
| 24.00           | 3.92                | 3.69               | 0.07            |                 |                     |                    |                 |
| 24.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 41S: GI-11 Pervious

Runoff = 0.08 cfs @ 12.11 hrs, Volume= 234 cf, Depth= 0.77"  
Routed to Pond 43P : GI-11

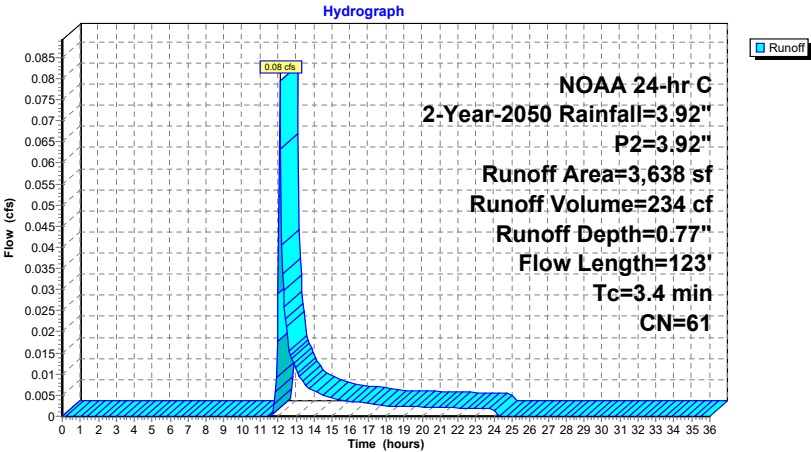
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 3,638     | 61 | >75% Grass cover, Good, HSG B |
| 3,638     |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                    |
|----------|---------------|---------------|-------------------|----------------|--------------------------------------------------------------------------------|
| 2.4      | 25            | 0.0833        | 0.17              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.92"                                 |
| 0.8      | 51            | 0.0130        | 1.12              |                | Sheet Flow,<br>Smooth surfaces n= 0.011 P2= 3.92"                              |
| 0.2      | 36            | 0.0100        | 2.98              | 0.60           | Channel Flow,<br>Area= 0.2 sf Perim= 1.5' r= 0.13'<br>n= 0.013 Asphalt, smooth |
| 0.0      | 11            | 0.3330        | 4.04              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                  |
| 3.4      | 123           | Total         |                   |                |                                                                                |



Subcatchment 41S: GI-11 Pervious



Hydrograph for Subcatchment 41S: GI-11 Pervious

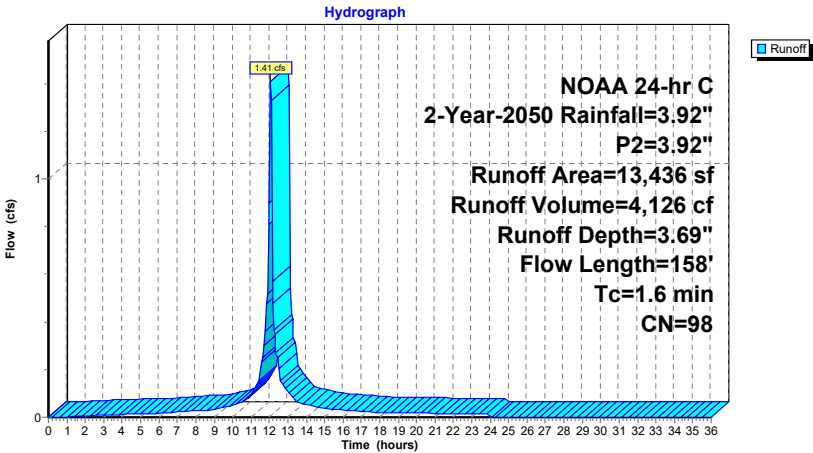
| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 0.77               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 0.77               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 0.77               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 0.77               | 0.00            |
| 2.00            | 0.09                | 0.00               | 0.00            | 28.00           | 3.92                | 0.77               | 0.00            |
| 2.50            | 0.11                | 0.00               | 0.00            | 28.50           | 3.92                | 0.77               | 0.00            |
| 3.00            | 0.14                | 0.00               | 0.00            | 29.00           | 3.92                | 0.77               | 0.00            |
| 3.50            | 0.16                | 0.00               | 0.00            | 29.50           | 3.92                | 0.77               | 0.00            |
| 4.00            | 0.19                | 0.00               | 0.00            | 30.00           | 3.92                | 0.77               | 0.00            |
| 4.50            | 0.22                | 0.00               | 0.00            | 30.50           | 3.92                | 0.77               | 0.00            |
| 5.00            | 0.25                | 0.00               | 0.00            | 31.00           | 3.92                | 0.77               | 0.00            |
| 5.50            | 0.28                | 0.00               | 0.00            | 31.50           | 3.92                | 0.77               | 0.00            |
| 6.00            | 0.31                | 0.00               | 0.00            | 32.00           | 3.92                | 0.77               | 0.00            |
| 6.50            | 0.34                | 0.00               | 0.00            | 32.50           | 3.92                | 0.77               | 0.00            |
| 7.00            | 0.38                | 0.00               | 0.00            | 33.00           | 3.92                | 0.77               | 0.00            |
| 7.50            | 0.42                | 0.00               | 0.00            | 33.50           | 3.92                | 0.77               | 0.00            |
| 8.00            | 0.47                | 0.00               | 0.00            | 34.00           | 3.92                | 0.77               | 0.00            |
| 8.50            | 0.52                | 0.00               | 0.00            | 34.50           | 3.92                | 0.77               | 0.00            |
| 9.00            | 0.57                | 0.00               | 0.00            | 35.00           | 3.92                | 0.77               | 0.00            |
| 9.50            | 0.64                | 0.00               | 0.00            | 35.50           | 3.92                | 0.77               | 0.00            |
| 10.00           | 0.71                | 0.00               | 0.00            | 36.00           | 3.92                | 0.77               | 0.00            |
| 10.50           | 0.81                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.87                | 0.05               | 0.03            |                 |                     |                    |                 |
| 12.50           | 2.76                | 0.28               | 0.02            |                 |                     |                    |                 |
| 13.00           | 2.98                | 0.36               | 0.01            |                 |                     |                    |                 |
| 13.50           | 3.11                | 0.41               | 0.01            |                 |                     |                    |                 |
| 14.00           | 3.21                | 0.45               | 0.01            |                 |                     |                    |                 |
| 14.50           | 3.28                | 0.48               | 0.01            |                 |                     |                    |                 |
| 15.00           | 3.35                | 0.51               | 0.00            |                 |                     |                    |                 |
| 15.50           | 3.40                | 0.53               | 0.00            |                 |                     |                    |                 |
| 16.00           | 3.45                | 0.55               | 0.00            |                 |                     |                    |                 |
| 16.50           | 3.50                | 0.57               | 0.00            |                 |                     |                    |                 |
| 17.00           | 3.54                | 0.59               | 0.00            |                 |                     |                    |                 |
| 17.50           | 3.58                | 0.61               | 0.00            |                 |                     |                    |                 |
| 18.00           | 3.61                | 0.62               | 0.00            |                 |                     |                    |                 |
| 18.50           | 3.64                | 0.64               | 0.00            |                 |                     |                    |                 |
| 19.00           | 3.67                | 0.65               | 0.00            |                 |                     |                    |                 |
| 19.50           | 3.70                | 0.67               | 0.00            |                 |                     |                    |                 |
| 20.00           | 3.73                | 0.68               | 0.00            |                 |                     |                    |                 |
| 20.50           | 3.76                | 0.69               | 0.00            |                 |                     |                    |                 |
| 21.00           | 3.78                | 0.70               | 0.00            |                 |                     |                    |                 |
| 21.50           | 3.81                | 0.72               | 0.00            |                 |                     |                    |                 |
| 22.00           | 3.83                | 0.73               | 0.00            |                 |                     |                    |                 |
| 22.50           | 3.85                | 0.74               | 0.00            |                 |                     |                    |                 |
| 23.00           | 3.88                | 0.75               | 0.00            |                 |                     |                    |                 |
| 23.50           | 3.90                | 0.76               | 0.00            |                 |                     |                    |                 |
| 24.00           | 3.92                | 0.77               | 0.00            |                 |                     |                    |                 |
| 24.50           | 3.92                | 0.77               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 0.77               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 0.77               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 42S: GI-11 Impervious

| Runoff = 1.41 cfs @ 12.07 hrs, Volume= 4,126 cf, Depth= 3.69"                                                                                 |                  |                         |                      |                   |                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------|----------------------|-------------------|---------------------------------------------------------------------------------------|
| Routed to Pond 43P : GI-11                                                                                                                    |                  |                         |                      |                   |                                                                                       |
| Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs<br>NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92" |                  |                         |                      |                   |                                                                                       |
| Area (sf)                                                                                                                                     | CN               | Description             |                      |                   |                                                                                       |
| 13,436                                                                                                                                        | 98               | Paved parking, HSG A    |                      |                   |                                                                                       |
| 13,436                                                                                                                                        |                  | 100.00% Impervious Area |                      |                   |                                                                                       |
| Tc<br>(min)                                                                                                                                   | Length<br>(feet) | Slope<br>(ft/ft)        | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                           |
| 1.3                                                                                                                                           | 100              | 0.0130                  | 1.28                 |                   | <b>Sheet Flow,</b><br>Smooth surfaces n= 0.011 P2= 3.92"                              |
| 0.3                                                                                                                                           | 39               | 0.0130                  | 2.31                 |                   | <b>Shallow Concentrated Flow,</b><br>Paved Kv= 20.3 fps                               |
| 0.0                                                                                                                                           | 8                | 0.0100                  | 6.21                 | 1.24              | <b>Channel Flow,</b><br>Area= 0.2 sf Perim= 0.5' r= 0.40'<br>n= 0.013 Asphalt, smooth |
| 0.0                                                                                                                                           | 11               | 0.3330                  | 4.04                 |                   | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                  |
| 1.6                                                                                                                                           | 158              | Total                   |                      |                   |                                                                                       |



Subcatchment 42S: GI-11 Impervious



Hydrograph for Subcatchment 42S: GI-11 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 3.69               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 3.69               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 3.69               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 3.69               | 0.00            |
| 2.00            | 0.09                | 0.01               | 0.00            | 28.00           | 3.92                | 3.69               | 0.00            |
| 2.50            | 0.11                | 0.02               | 0.01            | 28.50           | 3.92                | 3.69               | 0.00            |
| 3.00            | 0.14                | 0.03               | 0.01            | 29.00           | 3.92                | 3.69               | 0.00            |
| 3.50            | 0.16                | 0.05               | 0.01            | 29.50           | 3.92                | 3.69               | 0.00            |
| 4.00            | 0.19                | 0.06               | 0.01            | 30.00           | 3.92                | 3.69               | 0.00            |
| 4.50            | 0.22                | 0.08               | 0.01            | 30.50           | 3.92                | 3.69               | 0.00            |
| 5.00            | 0.25                | 0.11               | 0.01            | 31.00           | 3.92                | 3.69               | 0.00            |
| 5.50            | 0.28                | 0.13               | 0.01            | 31.50           | 3.92                | 3.69               | 0.00            |
| 6.00            | 0.31                | 0.15               | 0.02            | 32.00           | 3.92                | 3.69               | 0.00            |
| 6.50            | 0.34                | 0.18               | 0.02            | 32.50           | 3.92                | 3.69               | 0.00            |
| 7.00            | 0.38                | 0.21               | 0.02            | 33.00           | 3.92                | 3.69               | 0.00            |
| 7.50            | 0.42                | 0.25               | 0.02            | 33.50           | 3.92                | 3.69               | 0.00            |
| 8.00            | 0.47                | 0.29               | 0.03            | 34.00           | 3.92                | 3.69               | 0.00            |
| 8.50            | 0.52                | 0.34               | 0.03            | 34.50           | 3.92                | 3.69               | 0.00            |
| 9.00            | 0.57                | 0.38               | 0.03            | 35.00           | 3.92                | 3.69               | 0.00            |
| 9.50            | 0.64                | 0.44               | 0.04            | 35.50           | 3.92                | 3.69               | 0.00            |
| 10.00           | 0.71                | 0.52               | 0.05            | 36.00           | 3.92                | 3.69               | 0.00            |
| 10.50           | 0.81                | 0.61               | 0.06            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.73               | 0.09            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.94               | 0.16            |                 |                     |                    |                 |
| 12.00           | 1.87                | 1.64               | 0.89            |                 |                     |                    |                 |
| 12.50           | 2.76                | 2.53               | 0.24            |                 |                     |                    |                 |
| 13.00           | 2.98                | 2.75               | 0.11            |                 |                     |                    |                 |
| 13.50           | 3.11                | 2.88               | 0.07            |                 |                     |                    |                 |
| 14.00           | 3.21                | 2.97               | 0.05            |                 |                     |                    |                 |
| 14.50           | 3.28                | 3.05               | 0.04            |                 |                     |                    |                 |
| 15.00           | 3.35                | 3.11               | 0.04            |                 |                     |                    |                 |
| 15.50           | 3.40                | 3.17               | 0.03            |                 |                     |                    |                 |
| 16.00           | 3.45                | 3.22               | 0.03            |                 |                     |                    |                 |
| 16.50           | 3.50                | 3.26               | 0.03            |                 |                     |                    |                 |
| 17.00           | 3.54                | 3.30               | 0.02            |                 |                     |                    |                 |
| 17.50           | 3.58                | 3.34               | 0.02            |                 |                     |                    |                 |
| 18.00           | 3.61                | 3.38               | 0.02            |                 |                     |                    |                 |
| 18.50           | 3.64                | 3.41               | 0.02            |                 |                     |                    |                 |
| 19.00           | 3.67                | 3.44               | 0.02            |                 |                     |                    |                 |
| 19.50           | 3.70                | 3.47               | 0.02            |                 |                     |                    |                 |
| 20.00           | 3.73                | 3.49               | 0.02            |                 |                     |                    |                 |
| 20.50           | 3.76                | 3.52               | 0.02            |                 |                     |                    |                 |
| 21.00           | 3.78                | 3.55               | 0.02            |                 |                     |                    |                 |
| 21.50           | 3.81                | 3.57               | 0.02            |                 |                     |                    |                 |
| 22.00           | 3.83                | 3.60               | 0.01            |                 |                     |                    |                 |
| 22.50           | 3.85                | 3.62               | 0.01            |                 |                     |                    |                 |
| 23.00           | 3.88                | 3.64               | 0.01            |                 |                     |                    |                 |
| 23.50           | 3.90                | 3.66               | 0.01            |                 |                     |                    |                 |
| 24.00           | 3.92                | 3.69               | 0.01            |                 |                     |                    |                 |
| 24.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 46S: North Undisturbed Area (Pervious)

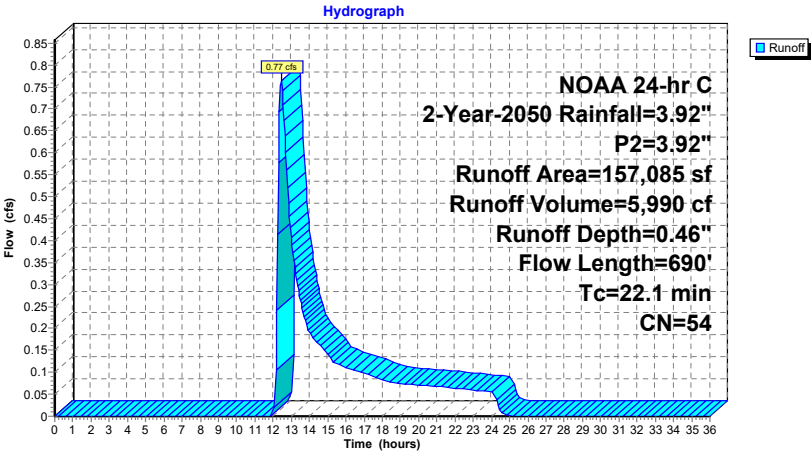
Runoff = 0.77 cfs @ 12.44 hrs, Volume= 5,990 cf, Depth= 0.46"  
Routed to Link 13L : FES

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN            | Description                    |                   |                |                                                                                                                      |
|-----------|---------------|--------------------------------|-------------------|----------------|----------------------------------------------------------------------------------------------------------------------|
| 15,827    | 39            | >75% Grass cover, Good, HSG A  |                   |                |                                                                                                                      |
| 80,837    | 61            | >75% Grass cover, Good, HSG B  |                   |                |                                                                                                                      |
| 30,052    | 32            | Woods/grass comb., Good, HSG A |                   |                |                                                                                                                      |
| 22,227    | 58            | Woods/grass comb., Good, HSG B |                   |                |                                                                                                                      |
| 8,142     | 86            | Fallow, bare soil, HSG B       |                   |                |                                                                                                                      |
| 157,085   | 54            | Weighted Average               |                   |                |                                                                                                                      |
| 157,085   |               | 100.00% Pervious Area          |                   |                |                                                                                                                      |
| Tc (min)  | Length (feet) | Slope (ft/ft)                  | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                          |
| 8.5       | 27            | 0.0120                         | 0.05              |                | <b>Sheet Flow,</b><br>Grass: Bermuda n= 0.410 P2= 3.92"<br>Using McCuen-Spiess flow length                           |
| 1.5       | 67            | 0.0120                         | 0.77              |                | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6      | 319           | 0.0100                         | 0.50              |                | <b>Shallow Concentrated Flow,</b><br>Woodland Kv= 5.0 fps                                                            |
| 0.8       | 49            | 0.0200                         | 0.99              |                | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7       | 228           | 0.0050                         | 5.09              | 16.00          | <b>Pipe Channel,</b><br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.1      | 690           | Total                          |                   |                |                                                                                                                      |



Subcatchment 46S: North Undisturbed Area (Pervious)



Hydrograph for Subcatchment 46S: North Undisturbed Area (Pervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 0.46               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 0.46               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 0.46               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 0.46               | 0.00            |
| 2.00            | 0.09                | 0.00               | 0.00            | 28.00           | 3.92                | 0.46               | 0.00            |
| 2.50            | 0.11                | 0.00               | 0.00            | 28.50           | 3.92                | 0.46               | 0.00            |
| 3.00            | 0.14                | 0.00               | 0.00            | 29.00           | 3.92                | 0.46               | 0.00            |
| 3.50            | 0.16                | 0.00               | 0.00            | 29.50           | 3.92                | 0.46               | 0.00            |
| 4.00            | 0.19                | 0.00               | 0.00            | 30.00           | 3.92                | 0.46               | 0.00            |
| 4.50            | 0.22                | 0.00               | 0.00            | 30.50           | 3.92                | 0.46               | 0.00            |
| 5.00            | 0.25                | 0.00               | 0.00            | 31.00           | 3.92                | 0.46               | 0.00            |
| 5.50            | 0.28                | 0.00               | 0.00            | 31.50           | 3.92                | 0.46               | 0.00            |
| 6.00            | 0.31                | 0.00               | 0.00            | 32.00           | 3.92                | 0.46               | 0.00            |
| 6.50            | 0.34                | 0.00               | 0.00            | 32.50           | 3.92                | 0.46               | 0.00            |
| 7.00            | 0.38                | 0.00               | 0.00            | 33.00           | 3.92                | 0.46               | 0.00            |
| 7.50            | 0.42                | 0.00               | 0.00            | 33.50           | 3.92                | 0.46               | 0.00            |
| 8.00            | 0.47                | 0.00               | 0.00            | 34.00           | 3.92                | 0.46               | 0.00            |
| 8.50            | 0.52                | 0.00               | 0.00            | 34.50           | 3.92                | 0.46               | 0.00            |
| 9.00            | 0.57                | 0.00               | 0.00            | 35.00           | 3.92                | 0.46               | 0.00            |
| 9.50            | 0.64                | 0.00               | 0.00            | 35.50           | 3.92                | 0.46               | 0.00            |
| 10.00           | 0.71                | 0.00               | 0.00            | 36.00           | 3.92                | 0.46               | 0.00            |
| 10.50           | 0.81                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.76                | 0.12               | 0.74            |                 |                     |                    |                 |
| 13.00           | 2.98                | 0.17               | 0.41            |                 |                     |                    |                 |
| 13.50           | 3.11                | 0.20               | 0.26            |                 |                     |                    |                 |
| 14.00           | 3.21                | 0.23               | 0.19            |                 |                     |                    |                 |
| 14.50           | 3.28                | 0.25               | 0.17            |                 |                     |                    |                 |
| 15.00           | 3.35                | 0.27               | 0.14            |                 |                     |                    |                 |
| 15.50           | 3.40                | 0.28               | 0.12            |                 |                     |                    |                 |
| 16.00           | 3.45                | 0.30               | 0.11            |                 |                     |                    |                 |
| 16.50           | 3.50                | 0.31               | 0.11            |                 |                     |                    |                 |
| 17.00           | 3.54                | 0.32               | 0.10            |                 |                     |                    |                 |
| 17.50           | 3.58                | 0.34               | 0.09            |                 |                     |                    |                 |
| 18.00           | 3.61                | 0.35               | 0.08            |                 |                     |                    |                 |
| 18.50           | 3.64                | 0.36               | 0.08            |                 |                     |                    |                 |
| 19.00           | 3.67                | 0.37               | 0.07            |                 |                     |                    |                 |
| 19.50           | 3.70                | 0.38               | 0.07            |                 |                     |                    |                 |
| 20.00           | 3.73                | 0.39               | 0.07            |                 |                     |                    |                 |
| 20.50           | 3.76                | 0.40               | 0.07            |                 |                     |                    |                 |
| 21.00           | 3.78                | 0.41               | 0.07            |                 |                     |                    |                 |
| 21.50           | 3.81                | 0.42               | 0.07            |                 |                     |                    |                 |
| 22.00           | 3.83                | 0.43               | 0.06            |                 |                     |                    |                 |
| 22.50           | 3.85                | 0.43               | 0.06            |                 |                     |                    |                 |
| 23.00           | 3.88                | 0.44               | 0.06            |                 |                     |                    |                 |
| 23.50           | 3.90                | 0.45               | 0.06            |                 |                     |                    |                 |
| 24.00           | 3.92                | 0.46               | 0.06            |                 |                     |                    |                 |
| 24.50           | 3.92                | 0.46               | 0.01            |                 |                     |                    |                 |
| 25.00           | 3.92                | 0.46               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 0.46               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 47S: North Undisturbed Area (Impervious)

Runoff = 2.75 cfs @ 12.31 hrs, Volume= 14,042 cf, Depth= 3.69"  
Routed to Link 13L : FES

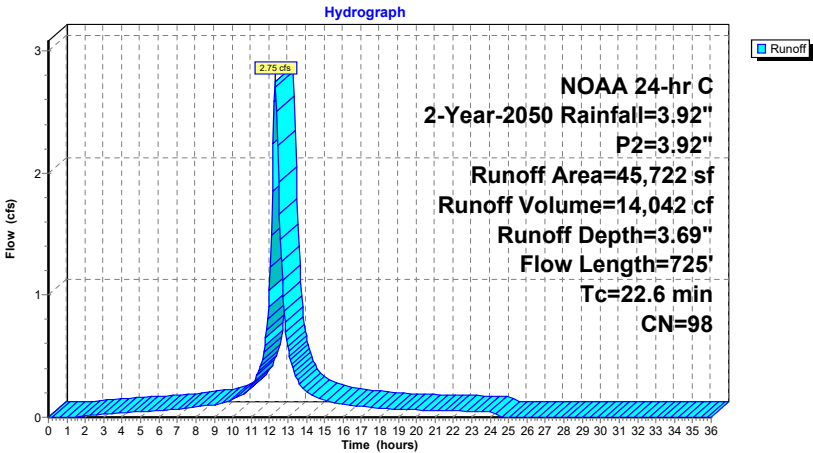
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description                 |
|-----------|----|-----------------------------|
| 45,722    | 98 | Unconnected pavement, HSG A |
| 45,722    |    | 100.00% Impervious Area     |
| 45,722    |    | 100.00% Unconnected         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                          |
|-------------|------------------|------------------|----------------------|-------------------|----------------------------------------------------------------------------------------------------------------------|
| 0.5         | 35               | 0.0200           | 1.23                 |                   | <b>Sheet Flow,</b><br>Smooth surfaces n= 0.011 P2= 3.92"                                                             |
| 8.5         | 27               | 0.0120           | 0.05                 |                   | <b>Sheet Flow,</b><br>Grass: Bermuda n= 0.410 P2= 3.92"<br>Using McCuen-Spiess flow length                           |
| 1.5         | 67               | 0.0120           | 0.77                 |                   | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6        | 319              | 0.0100           | 0.50                 |                   | <b>Shallow Concentrated Flow,</b><br>Woodland Kv= 5.0 fps                                                            |
| 0.8         | 49               | 0.0200           | 0.99                 |                   | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7         | 228              | 0.0050           | 5.09                 | 16.00             | <b>Pipe Channel,</b><br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.6        | 725              | Total            |                      |                   |                                                                                                                      |



Subcatchment 47S: North Undisturbed Area (Impervious)



Hydrograph for Subcatchment 47S: North Undisturbed Area (Impervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 3.69               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 3.69               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 3.69               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 3.69               | 0.00            |
| 2.00            | 0.09                | 0.01               | 0.01            | 28.00           | 3.92                | 3.69               | 0.00            |
| 2.50            | 0.11                | 0.02               | 0.02            | 28.50           | 3.92                | 3.69               | 0.00            |
| 3.00            | 0.14                | 0.03               | 0.03            | 29.00           | 3.92                | 3.69               | 0.00            |
| 3.50            | 0.16                | 0.05               | 0.03            | 29.50           | 3.92                | 3.69               | 0.00            |
| 4.00            | 0.19                | 0.06               | 0.04            | 30.00           | 3.92                | 3.69               | 0.00            |
| 4.50            | 0.22                | 0.08               | 0.04            | 30.50           | 3.92                | 3.69               | 0.00            |
| 5.00            | 0.25                | 0.11               | 0.04            | 31.00           | 3.92                | 3.69               | 0.00            |
| 5.50            | 0.28                | 0.13               | 0.05            | 31.50           | 3.92                | 3.69               | 0.00            |
| 6.00            | 0.31                | 0.15               | 0.05            | 32.00           | 3.92                | 3.69               | 0.00            |
| 6.50            | 0.34                | 0.18               | 0.06            | 32.50           | 3.92                | 3.69               | 0.00            |
| 7.00            | 0.38                | 0.21               | 0.07            | 33.00           | 3.92                | 3.69               | 0.00            |
| 7.50            | 0.42                | 0.25               | 0.08            | 33.50           | 3.92                | 3.69               | 0.00            |
| 8.00            | 0.47                | 0.29               | 0.08            | 34.00           | 3.92                | 3.69               | 0.00            |
| 8.50            | 0.52                | 0.34               | 0.09            | 34.50           | 3.92                | 3.69               | 0.00            |
| 9.00            | 0.57                | 0.38               | 0.10            | 35.00           | 3.92                | 3.69               | 0.00            |
| 9.50            | 0.64                | 0.44               | 0.12            | 35.50           | 3.92                | 3.69               | 0.00            |
| 10.00           | 0.71                | 0.52               | 0.15            | 36.00           | 3.92                | 3.69               | 0.00            |
| 10.50           | 0.81                | 0.61               | 0.18            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.73               | 0.25            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.94               | 0.41            |                 |                     |                    |                 |
| 12.00           | 1.87                | 1.64               | 1.04            |                 |                     |                    |                 |
| 12.50           | 2.76                | 2.53               | 1.93            |                 |                     |                    |                 |
| 13.00           | 2.98                | 2.75               | 0.58            |                 |                     |                    |                 |
| 13.50           | 3.11                | 2.88               | 0.31            |                 |                     |                    |                 |
| 14.00           | 3.21                | 2.97               | 0.21            |                 |                     |                    |                 |
| 14.50           | 3.28                | 3.05               | 0.17            |                 |                     |                    |                 |
| 15.00           | 3.35                | 3.11               | 0.14            |                 |                     |                    |                 |
| 15.50           | 3.40                | 3.17               | 0.12            |                 |                     |                    |                 |
| 16.00           | 3.45                | 3.22               | 0.11            |                 |                     |                    |                 |
| 16.50           | 3.50                | 3.26               | 0.10            |                 |                     |                    |                 |
| 17.00           | 3.54                | 3.30               | 0.09            |                 |                     |                    |                 |
| 17.50           | 3.58                | 3.34               | 0.08            |                 |                     |                    |                 |
| 18.00           | 3.61                | 3.38               | 0.07            |                 |                     |                    |                 |
| 18.50           | 3.64                | 3.41               | 0.07            |                 |                     |                    |                 |
| 19.00           | 3.67                | 3.44               | 0.06            |                 |                     |                    |                 |
| 19.50           | 3.70                | 3.47               | 0.06            |                 |                     |                    |                 |
| 20.00           | 3.73                | 3.49               | 0.06            |                 |                     |                    |                 |
| 20.50           | 3.76                | 3.52               | 0.06            |                 |                     |                    |                 |
| 21.00           | 3.78                | 3.55               | 0.06            |                 |                     |                    |                 |
| 21.50           | 3.81                | 3.57               | 0.05            |                 |                     |                    |                 |
| 22.00           | 3.83                | 3.60               | 0.05            |                 |                     |                    |                 |
| 22.50           | 3.85                | 3.62               | 0.05            |                 |                     |                    |                 |
| 23.00           | 3.88                | 3.64               | 0.05            |                 |                     |                    |                 |
| 23.50           | 3.90                | 3.66               | 0.05            |                 |                     |                    |                 |
| 24.00           | 3.92                | 3.69               | 0.04            |                 |                     |                    |                 |
| 24.50           | 3.92                | 3.69               | 0.01            |                 |                     |                    |                 |
| 25.00           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |



Summary for Pond 2P: GI-1

Inflow Area = 39,122 sf, 53.83% Impervious, Inflow Depth = 2.00" for 2-Year-2050 event  
Inflow = 2.21 cfs @ 12.09 hrs, Volume= 6,525 cf  
Outflow = 0.21 cfs @ 12.79 hrs, Volume= 4,486 cf, Atten= 90%, Lag= 42.2 min  
Primary = 0.21 cfs @ 12.79 hrs, Volume= 4,486 cf  
Routed to Link 13L : FES

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.52' @ 12.79 hrs Surf.Area= 7,982 sf Storage= 4,134 cf

Plug-Flow detention time= 381.2 min calculated for 4,479 cf (69% of inflow)  
Center-of-Mass det. time= 281.9 min ( 1,035.7 - 753.9 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 131.00' | 15,964 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

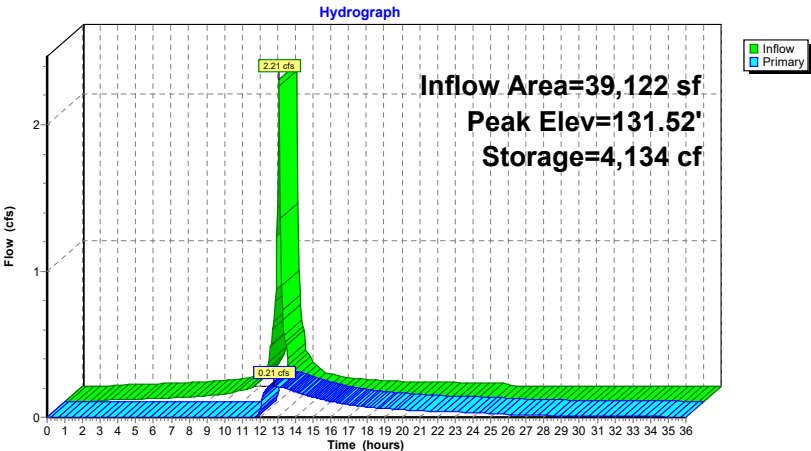
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 131.00           | 7,982             | 0                      | 0                      |
| 132.00           | 7,982             | 7,982                  | 7,982                  |
| 133.00           | 7,982             | 7,982                  | 15,964                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 132.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 131.24' | 0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

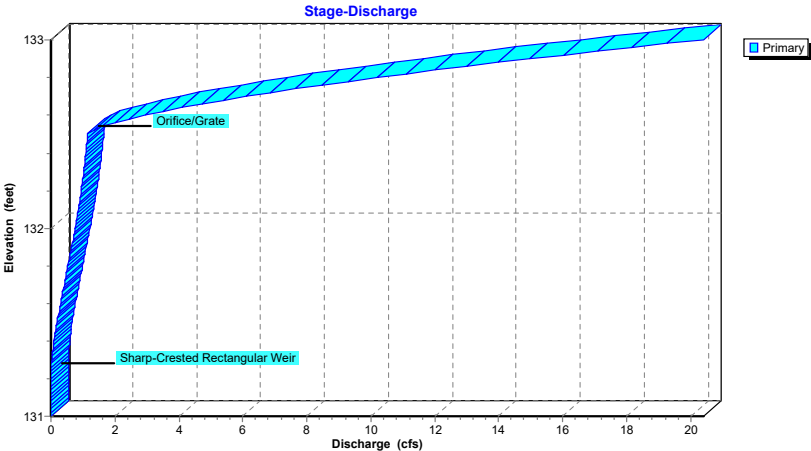
Primary OutFlow Max=0.21 cfs @ 12.79 hrs HW=131.52' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate ( Controls 0.00 cfs)  
2=Sharp-Crested Rectangular Weir(Weir Controls 0.21 cfs @ 1.72 fps)



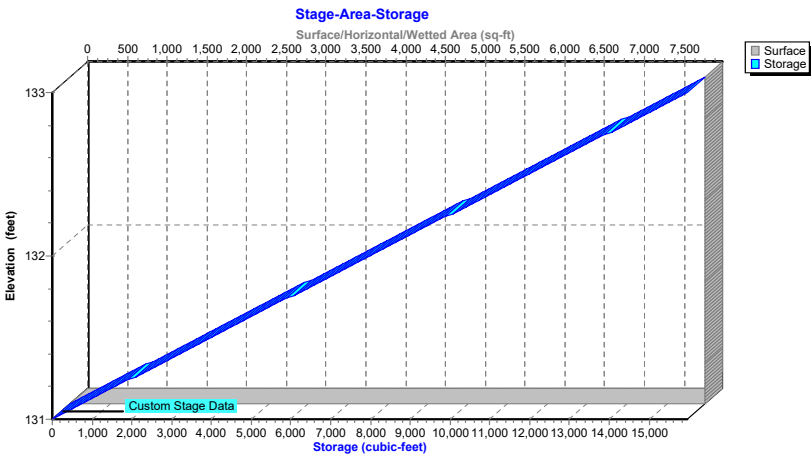
Pond 2P: GI-1



Pond 2P: GI-1



Pond 2P: GI-1



Hydrograph for Pond 2P: GI-1

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 131.00           | 0.00          |
| 1.00         | 0.00         | 0                    | 131.00           | 0.00          |
| 2.00         | 0.01         | 15                   | 131.00           | 0.00          |
| 3.00         | 0.01         | 53                   | 131.01           | 0.00          |
| 4.00         | 0.02         | 110                  | 131.01           | 0.00          |
| 5.00         | 0.02         | 182                  | 131.02           | 0.00          |
| 6.00         | 0.03         | 266                  | 131.03           | 0.00          |
| 7.00         | 0.03         | 370                  | 131.05           | 0.00          |
| 8.00         | 0.04         | 504                  | 131.06           | 0.00          |
| 9.00         | 0.05         | 667                  | 131.08           | 0.00          |
| 10.00        | 0.08         | 896                  | 131.11           | 0.00          |
| 11.00        | 0.15         | 1,266                | 131.16           | 0.00          |
| 12.00        | 1.33         | 2,675                | 131.34           | 0.05          |
| 13.00        | 0.17         | 4,118                | 131.52           | 0.21          |
| 14.00        | 0.09         | 3,829                | 131.48           | 0.17          |
| 15.00        | 0.06         | 3,530                | 131.44           | 0.14          |
| 16.00        | 0.05         | 3,280                | 131.41           | 0.11          |
| 17.00        | 0.04         | 3,091                | 131.39           | 0.09          |
| 18.00        | 0.03         | 2,940                | 131.37           | 0.07          |
| 19.00        | 0.03         | 2,819                | 131.35           | 0.06          |
| 20.00        | 0.03         | 2,728                | 131.34           | 0.05          |
| 21.00        | 0.03         | 2,657                | 131.33           | 0.04          |
| 22.00        | 0.02         | 2,599                | 131.33           | 0.04          |
| 23.00        | 0.02         | 2,551                | 131.32           | 0.04          |
| 24.00        | 0.03         | 2,509                | 131.31           | 0.03          |
| 25.00        | 0.00         | 2,412                | 131.30           | 0.02          |
| 26.00        | 0.00         | 2,333                | 131.29           | 0.02          |
| 27.00        | 0.00         | 2,272                | 131.28           | 0.02          |
| 28.00        | 0.00         | 2,223                | 131.28           | 0.01          |
| 29.00        | 0.00         | 2,184                | 131.27           | 0.01          |
| 30.00        | 0.00         | 2,151                | 131.27           | 0.01          |
| 31.00        | 0.00         | 2,124                | 131.27           | 0.01          |
| 32.00        | 0.00         | 2,102                | 131.26           | 0.01          |
| 33.00        | 0.00         | 2,082                | 131.26           | 0.00          |
| 34.00        | 0.00         | 2,066                | 131.26           | 0.00          |
| 35.00        | 0.00         | 2,052                | 131.26           | 0.00          |
| 36.00        | 0.00         | 2,040                | 131.26           | 0.00          |

Stage-Discharge for Pond 2P: GI-1

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 131.00              | 0.00             | 131.52              | 0.22             | 132.04              | 0.80             | 132.56              | 2.01             |
| 131.01              | 0.00             | 131.53              | 0.23             | 132.05              | 0.81             | 132.57              | 2.22             |
| 131.02              | 0.00             | 131.54              | 0.24             | 132.06              | 0.82             | 132.58              | 2.45             |
| 131.03              | 0.00             | 131.55              | 0.25             | 132.07              | 0.83             | 132.59              | 2.69             |
| 131.04              | 0.00             | 131.56              | 0.26             | 132.08              | 0.84             | 132.60              | 2.95             |
| 131.05              | 0.00             | 131.57              | 0.27             | 132.09              | 0.85             | 132.61              | 3.22             |
| 131.06              | 0.00             | 131.58              | 0.28             | 132.10              | 0.86             | 132.62              | 3.50             |
| 131.07              | 0.00             | 131.59              | 0.29             | 132.11              | 0.87             | 132.63              | 3.79             |
| 131.08              | 0.00             | 131.60              | 0.30             | 132.12              | 0.87             | 132.64              | 4.09             |
| 131.09              | 0.00             | 131.61              | 0.31             | 132.13              | 0.88             | 132.65              | 4.41             |
| 131.10              | 0.00             | 131.62              | 0.32             | 132.14              | 0.89             | 132.66              | 4.73             |
| 131.11              | 0.00             | 131.63              | 0.34             | 132.15              | 0.90             | 132.67              | 5.07             |
| 131.12              | 0.00             | 131.64              | 0.35             | 132.16              | 0.91             | 132.68              | 5.41             |
| 131.13              | 0.00             | 131.65              | 0.36             | 132.17              | 0.92             | 132.69              | 5.76             |
| 131.14              | 0.00             | 131.66              | 0.37             | 132.18              | 0.93             | 132.70              | 6.12             |
| 131.15              | 0.00             | 131.67              | 0.38             | 132.19              | 0.94             | 132.71              | 6.49             |
| 131.16              | 0.00             | 131.68              | 0.39             | 132.20              | 0.95             | 132.72              | 6.87             |
| 131.17              | 0.00             | 131.69              | 0.40             | 132.21              | 0.96             | 132.73              | 7.26             |
| 131.18              | 0.00             | 131.70              | 0.42             | 132.22              | 0.96             | 132.74              | 7.65             |
| 131.19              | 0.00             | 131.71              | 0.43             | 132.23              | 0.97             | 132.75              | 8.06             |
| 131.20              | 0.00             | 131.72              | 0.44             | 132.24              | 0.98             | 132.76              | 8.47             |
| 131.21              | 0.00             | 131.73              | 0.45             | 132.25              | 0.99             | 132.77              | 8.89             |
| 131.22              | 0.00             | 131.74              | 0.46             | 132.26              | 1.00             | 132.78              | 9.31             |
| 131.23              | 0.00             | 131.75              | 0.47             | 132.27              | 1.00             | 132.79              | 9.75             |
| 131.24              | 0.00             | 131.76              | 0.49             | 132.28              | 1.01             | 132.80              | 10.19            |
| 131.25              | 0.00             | 131.77              | 0.50             | 132.29              | 1.02             | 132.81              | 10.64            |
| 131.26              | 0.00             | 131.78              | 0.51             | 132.30              | 1.03             | 132.82              | 11.09            |
| 131.27              | 0.01             | 131.79              | 0.52             | 132.31              | 1.04             | 132.83              | 11.56            |
| 131.28              | 0.01             | 131.80              | 0.53             | 132.32              | 1.04             | 132.84              | 12.03            |
| 131.29              | 0.02             | 131.81              | 0.54             | 132.33              | 1.05             | 132.85              | 12.50            |
| 131.30              | 0.02             | 131.82              | 0.55             | 132.34              | 1.06             | 132.86              | 12.99            |
| 131.31              | 0.03             | 131.83              | 0.57             | 132.35              | 1.06             | 132.87              | 13.48            |
| 131.32              | 0.04             | 131.84              | 0.58             | 132.36              | 1.07             | 132.88              | 13.97            |
| 131.33              | 0.04             | 131.85              | 0.59             | 132.37              | 1.08             | 132.89              | 14.48            |
| 131.34              | 0.05             | 131.86              | 0.60             | 132.38              | 1.08             | 132.90              | 14.98            |
| 131.35              | 0.06             | 131.87              | 0.61             | 132.39              | 1.09             | 132.91              | 15.50            |
| 131.36              | 0.06             | 131.88              | 0.62             | 132.40              | 1.09             | 132.92              | 16.02            |
| 131.37              | 0.07             | 131.89              | 0.63             | 132.41              | 1.10             | 132.93              | 16.55            |
| 131.38              | 0.08             | 131.90              | 0.65             | 132.42              | 1.11             | 132.94              | 17.08            |
| 131.39              | 0.09             | 131.91              | 0.66             | 132.43              | 1.11             | 132.95              | 17.62            |
| 131.40              | 0.10             | 131.92              | 0.67             | 132.44              | 1.12             | 132.96              | 18.17            |
| 131.41              | 0.11             | 131.93              | 0.68             | 132.45              | 1.12             | 132.97              | 18.72            |
| 131.42              | 0.12             | 131.94              | 0.69             | 132.46              | 1.13             | 132.98              | 19.28            |
| 131.43              | 0.13             | 131.95              | 0.70             | 132.47              | 1.13             | 132.99              | 19.84            |
| 131.44              | 0.13             | 131.96              | 0.71             | 132.48              | 1.14             | 133.00              | 20.41            |
| 131.45              | 0.14             | 131.97              | 0.72             | 132.49              | 1.14             |                     |                  |
| 131.46              | 0.15             | 131.98              | 0.73             | 132.50              | 1.16             |                     |                  |
| 131.47              | 0.16             | 131.99              | 0.74             | 132.51              | 1.22             |                     |                  |
| 131.48              | 0.17             | 132.00              | 0.75             | 132.52              | 1.33             |                     |                  |
| 131.49              | 0.18             | 132.01              | 0.76             | 132.53              | 1.47             |                     |                  |
| 131.50              | 0.19             | 132.02              | 0.77             | 132.54              | 1.63             |                     |                  |
| 131.51              | 0.20             | 132.03              | 0.79             | 132.55              | 1.81             |                     |                  |

Stage-Area-Storage for Pond 2P: GI-1

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 131.00              | 7,982              | 0                       | 132.04              | 7,982              | 8,301                   |
| 131.02              | 7,982              | 160                     | 132.06              | 7,982              | 8,461                   |
| 131.04              | 7,982              | 319                     | 132.08              | 7,982              | 8,621                   |
| 131.06              | 7,982              | 479                     | 132.10              | 7,982              | 8,780                   |
| 131.08              | 7,982              | 639                     | 132.12              | 7,982              | 8,940                   |
| 131.10              | 7,982              | 798                     | 132.14              | 7,982              | 9,099                   |
| 131.12              | 7,982              | 958                     | 132.16              | 7,982              | 9,259                   |
| 131.14              | 7,982              | 1,117                   | 132.18              | 7,982              | 9,419                   |
| 131.16              | 7,982              | 1,277                   | 132.20              | 7,982              | 9,578                   |
| 131.18              | 7,982              | 1,437                   | 132.22              | 7,982              | 9,738                   |
| 131.20              | 7,982              | 1,596                   | 132.24              | 7,982              | 9,898                   |
| 131.22              | 7,982              | 1,756                   | 132.26              | 7,982              | 10,057                  |
| 131.24              | 7,982              | 1,916                   | 132.28              | 7,982              | 10,217                  |
| 131.26              | 7,982              | 2,075                   | 132.30              | 7,982              | 10,377                  |
| 131.28              | 7,982              | 2,235                   | 132.32              | 7,982              | 10,536                  |
| 131.30              | 7,982              | 2,395                   | 132.34              | 7,982              | 10,696                  |
| 131.32              | 7,982              | 2,554                   | 132.36              | 7,982              | 10,856                  |
| 131.34              | 7,982              | 2,714                   | 132.38              | 7,982              | 11,015                  |
| 131.36              | 7,982              | 2,874                   | 132.40              | 7,982              | 11,175                  |
| 131.38              | 7,982              | 3,033                   | 132.42              | 7,982              | 11,334                  |
| 131.40              | 7,982              | 3,193                   | 132.44              | 7,982              | 11,494                  |
| 131.42              | 7,982              | 3,352                   | 132.46              | 7,982              | 11,654                  |
| 131.44              | 7,982              | 3,512                   | 132.48              | 7,982              | 11,813                  |
| 131.46              | 7,982              | 3,672                   | 132.50              | 7,982              | 11,973                  |
| 131.48              | 7,982              | 3,831                   | 132.52              | 7,982              | 12,133                  |
| 131.50              | 7,982              | 3,991                   | 132.54              | 7,982              | 12,292                  |
| 131.52              | 7,982              | 4,151                   | 132.56              | 7,982              | 12,452                  |
| 131.54              | 7,982              | 4,310                   | 132.58              | 7,982              | 12,612                  |
| 131.56              | 7,982              | 4,470                   | 132.60              | 7,982              | 12,771                  |
| 131.58              | 7,982              | 4,630                   | 132.62              | 7,982              | 12,931                  |
| 131.60              | 7,982              | 4,789                   | 132.64              | 7,982              | 13,090                  |
| 131.62              | 7,982              | 4,949                   | 132.66              | 7,982              | 13,250                  |
| 131.64              | 7,982              | 5,108                   | 132.68              | 7,982              | 13,410                  |
| 131.66              | 7,982              | 5,268                   | 132.70              | 7,982              | 13,569                  |
| 131.68              | 7,982              | 5,428                   | 132.72              | 7,982              | 13,729                  |
| 131.70              | 7,982              | 5,587                   | 132.74              | 7,982              | 13,889                  |
| 131.72              | 7,982              | 5,747                   | 132.76              | 7,982              | 14,048                  |
| 131.74              | 7,982              | 5,907                   | 132.78              | 7,982              | 14,208                  |
| 131.76              | 7,982              | 6,066                   | 132.80              | 7,982              | 14,368                  |
| 131.78              | 7,982              | 6,226                   | 132.82              | 7,982              | 14,527                  |
| 131.80              | 7,982              | 6,386                   | 132.84              | 7,982              | 14,687                  |
| 131.82              | 7,982              | 6,545                   | 132.86              | 7,982              | 14,847                  |
| 131.84              | 7,982              | 6,705                   | 132.88              | 7,982              | 15,006                  |
| 131.86              | 7,982              | 6,865                   | 132.90              | 7,982              | 15,166                  |
| 131.88              | 7,982              | 7,024                   | 132.92              | 7,982              | 15,325                  |
| 131.90              | 7,982              | 7,184                   | 132.94              | 7,982              | 15,485                  |
| 131.92              | 7,982              | 7,343                   | 132.96              | 7,982              | 15,645                  |
| 131.94              | 7,982              | 7,503                   | 132.98              | 7,982              | 15,804                  |
| 131.96              | 7,982              | 7,663                   | 133.00              | 7,982              | 15,964                  |
| 131.98              | 7,982              | 7,822                   |                     |                    |                         |
| 132.00              | 7,982              | 7,982                   |                     |                    |                         |
| 132.02              | 7,982              | 8,142                   |                     |                    |                         |

Summary for Pond 7P: GI-9

Inflow Area = 59,364 sf, 72.99% Impervious, Inflow Depth = 2.90" for 2-Year-2050 event  
Inflow = 4.98 cfs @ 12.08 hrs, Volume= 14,339 cf  
Outflow = 0.51 cfs @ 12.75 hrs, Volume= 10,381 cf, Atten= 90%, Lag= 39.8 min  
Primary = 0.51 cfs @ 12.75 hrs, Volume= 10,381 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 128.95' @ 12.75 hrs Surf.Area= 9,141 sf Storage= 8,719 cf

Plug-Flow detention time= 354.8 min calculated for 10,381 cf (72% of inflow)  
Center-of-Mass det. time= 258.7 min ( 1,018.9 - 760.2 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 128.00' | 27,423 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

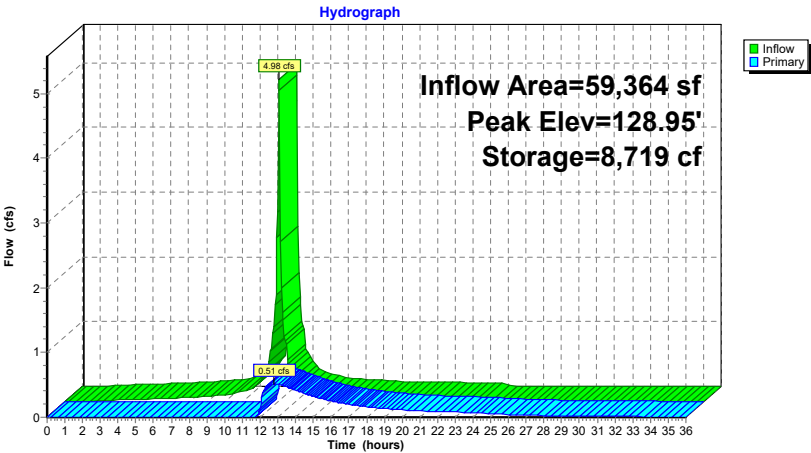
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 128.00           | 9,141             | 0                      | 0                      |
| 131.00           | 9,141             | 27,423                 | 27,423                 |

| Device | Routing | Invert  | Outlet Devices                                                |
|--------|---------|---------|---------------------------------------------------------------|
| #1     | Primary | 128.41' | 0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

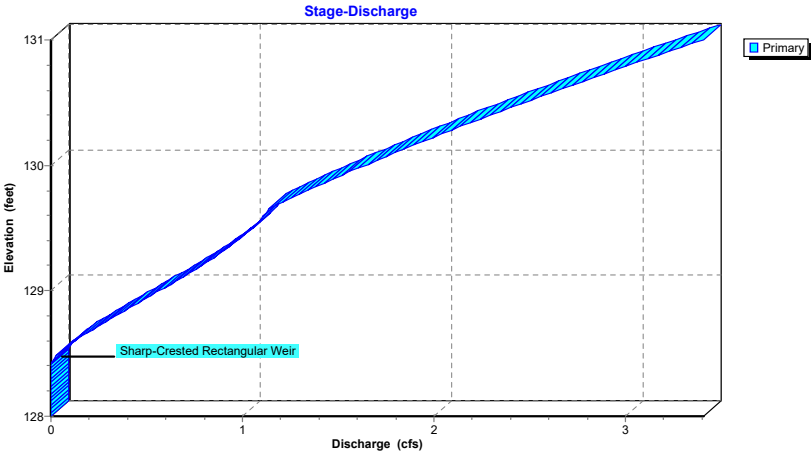
Primary OutFlow Max=0.51 cfs @ 12.75 hrs HW=128.95' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir(Weir Controls 0.51 cfs @ 2.41 fps)

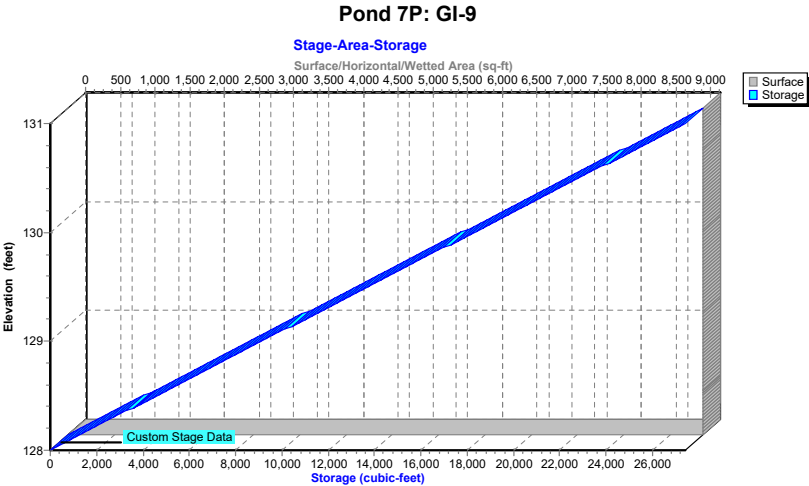


Pond 7P: GI-9



Pond 7P: GI-9





Hydrograph for Pond 7P: GI-9

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 128.00           | 0.00          |
| 1.00         | 0.00         | 0                    | 128.00           | 0.00          |
| 2.00         | 0.02         | 31                   | 128.00           | 0.00          |
| 3.00         | 0.03         | 110                  | 128.01           | 0.00          |
| 4.00         | 0.04         | 227                  | 128.02           | 0.00          |
| 5.00         | 0.04         | 375                  | 128.04           | 0.00          |
| 6.00         | 0.05         | 548                  | 128.06           | 0.00          |
| 7.00         | 0.07         | 763                  | 128.08           | 0.00          |
| 8.00         | 0.08         | 1,038                | 128.11           | 0.00          |
| 9.00         | 0.10         | 1,374                | 128.15           | 0.00          |
| 10.00        | 0.16         | 1,847                | 128.20           | 0.00          |
| 11.00        | 0.30         | 2,611                | 128.29           | 0.00          |
| 12.00        | 2.93         | 5,597                | 128.61           | 0.14          |
| 13.00        | 0.40         | 8,666                | 128.95           | 0.51          |
| 14.00        | 0.20         | 7,950                | 128.87           | 0.42          |
| 15.00        | 0.13         | 7,221                | 128.79           | 0.32          |
| 16.00        | 0.11         | 6,623                | 128.72           | 0.25          |
| 17.00        | 0.09         | 6,182                | 128.68           | 0.20          |
| 18.00        | 0.08         | 5,836                | 128.64           | 0.16          |
| 19.00        | 0.07         | 5,566                | 128.61           | 0.13          |
| 20.00        | 0.07         | 5,368                | 128.59           | 0.11          |
| 21.00        | 0.06         | 5,216                | 128.57           | 0.10          |
| 22.00        | 0.06         | 5,094                | 128.56           | 0.09          |
| 23.00        | 0.05         | 4,994                | 128.55           | 0.08          |
| 24.00        | 0.06         | 4,910                | 128.54           | 0.07          |
| 25.00        | 0.00         | 4,697                | 128.51           | 0.05          |
| 26.00        | 0.00         | 4,533                | 128.50           | 0.04          |
| 27.00        | 0.00         | 4,407                | 128.48           | 0.03          |
| 28.00        | 0.00         | 4,308                | 128.47           | 0.02          |
| 29.00        | 0.00         | 4,230                | 128.46           | 0.02          |
| 30.00        | 0.00         | 4,167                | 128.46           | 0.02          |
| 31.00        | 0.00         | 4,116                | 128.45           | 0.01          |
| 32.00        | 0.00         | 4,073                | 128.45           | 0.01          |
| 33.00        | 0.00         | 4,037                | 128.44           | 0.01          |
| 34.00        | 0.00         | 4,007                | 128.44           | 0.01          |
| 35.00        | 0.00         | 3,981                | 128.44           | 0.01          |
| 36.00        | 0.00         | 3,959                | 128.43           | 0.01          |

**2101ELK-STM Analysis POI-1 - Propose**VOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

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**Stage-Discharge for Pond 7P: GI-9**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 128.00              | 0.00             | 129.04              | 0.61             | 130.08              | 1.76             |
| 128.02              | 0.00             | 129.06              | 0.63             | 130.10              | 1.80             |
| 128.04              | 0.00             | 129.08              | 0.66             | 130.12              | 1.83             |
| 128.06              | 0.00             | 129.10              | 0.68             | 130.14              | 1.86             |
| 128.08              | 0.00             | 129.12              | 0.70             | 130.16              | 1.89             |
| 128.10              | 0.00             | 129.14              | 0.72             | 130.18              | 1.93             |
| 128.12              | 0.00             | 129.16              | 0.74             | 130.20              | 1.96             |
| 128.14              | 0.00             | 129.18              | 0.76             | 130.22              | 1.99             |
| 128.16              | 0.00             | 129.20              | 0.79             | 130.24              | 2.02             |
| 128.18              | 0.00             | 129.22              | 0.81             | 130.26              | 2.06             |
| 128.20              | 0.00             | 129.24              | 0.83             | 130.28              | 2.09             |
| 128.22              | 0.00             | 129.26              | 0.85             | 130.30              | 2.12             |
| 128.24              | 0.00             | 129.28              | 0.87             | 130.32              | 2.16             |
| 128.26              | 0.00             | 129.30              | 0.88             | 130.34              | 2.19             |
| 128.28              | 0.00             | 129.32              | 0.90             | 130.36              | 2.23             |
| 128.30              | 0.00             | 129.34              | 0.92             | 130.38              | 2.26             |
| 128.32              | 0.00             | 129.36              | 0.94             | 130.40              | 2.29             |
| 128.34              | 0.00             | 129.38              | 0.96             | 130.42              | 2.33             |
| 128.36              | 0.00             | 129.40              | 0.97             | 130.44              | 2.36             |
| 128.38              | 0.00             | 129.42              | 0.99             | 130.46              | 2.40             |
| 128.40              | 0.00             | 129.44              | 1.00             | 130.48              | 2.43             |
| 128.42              | 0.00             | 129.46              | 1.02             | 130.50              | 2.47             |
| 128.44              | 0.01             | 129.48              | 1.04             | 130.52              | 2.51             |
| 128.46              | 0.02             | 129.50              | 1.05             | 130.54              | 2.54             |
| 128.48              | 0.03             | 129.52              | 1.06             | 130.56              | 2.58             |
| 128.50              | 0.04             | 129.54              | 1.08             | 130.58              | 2.61             |
| 128.52              | 0.06             | 129.56              | 1.09             | 130.60              | 2.65             |
| 128.54              | 0.07             | 129.58              | 1.10             | 130.62              | 2.69             |
| 128.56              | 0.09             | 129.60              | 1.11             | 130.64              | 2.72             |
| 128.58              | 0.11             | 129.62              | 1.12             | 130.66              | 2.76             |
| 128.60              | 0.13             | 129.64              | 1.13             | 130.68              | 2.80             |
| 128.62              | 0.14             | 129.66              | 1.14             | 130.70              | 2.83             |
| 128.64              | 0.16             | 129.68              | 1.17             | 130.72              | 2.87             |
| 128.66              | 0.18             | 129.70              | 1.20             | 130.74              | 2.91             |
| 128.68              | 0.20             | 129.72              | 1.23             | 130.76              | 2.95             |
| 128.70              | 0.23             | 129.74              | 1.25             | 130.78              | 2.98             |
| 128.72              | 0.25             | 129.76              | 1.28             | 130.80              | 3.02             |
| 128.74              | 0.27             | 129.78              | 1.31             | 130.82              | 3.06             |
| 128.76              | 0.29             | 129.80              | 1.34             | 130.84              | 3.10             |
| 128.78              | 0.31             | 129.82              | 1.37             | 130.86              | 3.13             |
| 128.80              | 0.34             | 129.84              | 1.40             | 130.88              | 3.17             |
| 128.82              | 0.36             | 129.86              | 1.43             | 130.90              | 3.21             |
| 128.84              | 0.38             | 129.88              | 1.46             | 130.92              | 3.25             |
| 128.86              | 0.40             | 129.90              | 1.49             | 130.94              | 3.29             |
| 128.88              | 0.43             | 129.92              | 1.52             | 130.96              | 3.33             |
| 128.90              | 0.45             | 129.94              | 1.55             | 130.98              | 3.37             |
| 128.92              | 0.47             | 129.96              | 1.58             | 131.00              | <b>3.41</b>      |
| 128.94              | 0.50             | 129.98              | 1.61             |                     |                  |
| 128.96              | 0.52             | 130.00              | 1.64             |                     |                  |
| 128.98              | 0.54             | 130.02              | 1.67             |                     |                  |
| 129.00              | 0.57             | 130.04              | 1.70             |                     |                  |
| 129.02              | 0.59             | 130.06              | 1.73             |                     |                  |

**2101ELK-STM Analysis POI-1 - Propose**VOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

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**Stage-Area-Storage for Pond 7P: GI-9**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 128.00              | <b>9,141</b>       | 0                       | 130.60              | 9,141              | 23,767                  |
| 128.05              | 9,141              | 457                     | 130.65              | 9,141              | 24,224                  |
| 128.10              | 9,141              | 914                     | 130.70              | 9,141              | 24,681                  |
| 128.15              | 9,141              | 1,371                   | 130.75              | 9,141              | 25,138                  |
| 128.20              | 9,141              | 1,828                   | 130.80              | 9,141              | 25,595                  |
| 128.25              | 9,141              | 2,285                   | 130.85              | 9,141              | 26,052                  |
| 128.30              | 9,141              | 2,742                   | 130.90              | 9,141              | 26,509                  |
| 128.35              | 9,141              | 3,199                   | 130.95              | 9,141              | 26,966                  |
| 128.40              | 9,141              | 3,656                   | 131.00              | 9,141              | <b>27,423</b>           |
| 128.45              | 9,141              | 4,113                   |                     |                    |                         |
| 128.50              | 9,141              | 4,571                   |                     |                    |                         |
| 128.55              | 9,141              | 5,028                   |                     |                    |                         |
| 128.60              | 9,141              | 5,485                   |                     |                    |                         |
| 128.65              | 9,141              | 5,942                   |                     |                    |                         |
| 128.70              | 9,141              | 6,399                   |                     |                    |                         |
| 128.75              | 9,141              | 6,856                   |                     |                    |                         |
| 128.80              | 9,141              | 7,313                   |                     |                    |                         |
| 128.85              | 9,141              | 7,770                   |                     |                    |                         |
| 128.90              | 9,141              | 8,227                   |                     |                    |                         |
| 128.95              | 9,141              | 8,684                   |                     |                    |                         |
| 129.00              | 9,141              | 9,141                   |                     |                    |                         |
| 129.05              | 9,141              | 9,598                   |                     |                    |                         |
| 129.10              | 9,141              | 10,055                  |                     |                    |                         |
| 129.15              | 9,141              | 10,512                  |                     |                    |                         |
| 129.20              | 9,141              | 10,969                  |                     |                    |                         |
| 129.25              | 9,141              | 11,426                  |                     |                    |                         |
| 129.30              | 9,141              | 11,883                  |                     |                    |                         |
| 129.35              | 9,141              | 12,340                  |                     |                    |                         |
| 129.40              | 9,141              | 12,797                  |                     |                    |                         |
| 129.45              | 9,141              | 13,254                  |                     |                    |                         |
| 129.50              | 9,141              | 13,712                  |                     |                    |                         |
| 129.55              | 9,141              | 14,169                  |                     |                    |                         |
| 129.60              | 9,141              | 14,626                  |                     |                    |                         |
| 129.65              | 9,141              | 15,083                  |                     |                    |                         |
| 129.70              | 9,141              | 15,540                  |                     |                    |                         |
| 129.75              | 9,141              | 15,997                  |                     |                    |                         |
| 129.80              | 9,141              | 16,454                  |                     |                    |                         |
| 129.85              | 9,141              | 16,911                  |                     |                    |                         |
| 129.90              | 9,141              | 17,368                  |                     |                    |                         |
| 129.95              | 9,141              | 17,825                  |                     |                    |                         |
| 130.00              | 9,141              | 18,282                  |                     |                    |                         |
| 130.05              | 9,141              | 18,739                  |                     |                    |                         |
| 130.10              | 9,141              | 19,196                  |                     |                    |                         |
| 130.15              | 9,141              | 19,653                  |                     |                    |                         |
| 130.20              | 9,141              | 20,110                  |                     |                    |                         |
| 130.25              | 9,141              | 20,567                  |                     |                    |                         |
| 130.30              | 9,141              | 21,024                  |                     |                    |                         |
| 130.35              | 9,141              | 21,481                  |                     |                    |                         |
| 130.40              | 9,141              | 21,938                  |                     |                    |                         |
| 130.45              | 9,141              | 22,395                  |                     |                    |                         |
| 130.50              | 9,141              | 22,853                  |                     |                    |                         |
| 130.55              | 9,141              | 23,310                  |                     |                    |                         |

Summary for Pond 14P: GI-2

Inflow Area = 26,583 sf, 49.36% Impervious, Inflow Depth = 1.84" for 2-Year-2050 event  
Inflow = 1.40 cfs @ 12.08 hrs, Volume= 4,072 cf  
Outflow = 0.15 cfs @ 12.65 hrs, Volume= 2,797 cf, Atten= 89%, Lag= 34.3 min  
Primary = 0.15 cfs @ 12.65 hrs, Volume= 2,797 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 130.36' @ 12.65 hrs Surf.Area= 7,126 sf Storage= 2,539 cf

Plug-Flow detention time= 364.4 min calculated for 2,793 cf (69% of inflow)  
Center-of-Mass det. time= 264.5 min ( 1,018.3 - 753.8 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 14,252 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

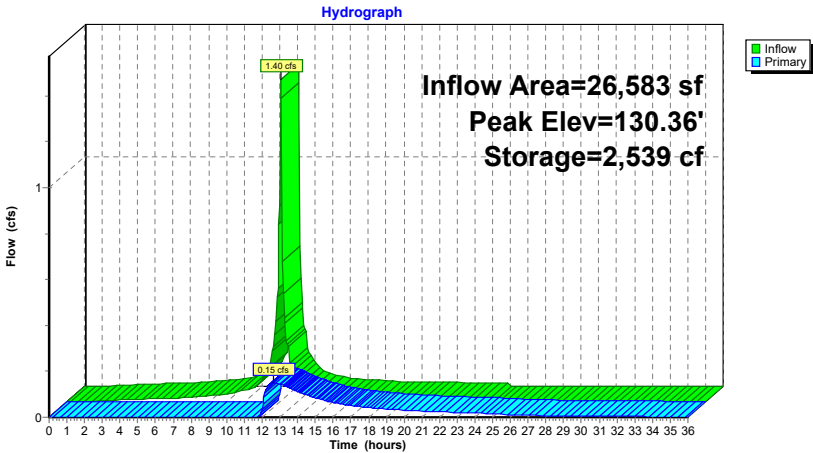
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 7,126             | 0                      | 0                      |
| 131.00           | 7,126             | 7,126                  | 7,126                  |
| 132.00           | 7,126             | 7,126                  | 14,252                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 130.17' | 0.6' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |
| #2     | Primary | 131.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |

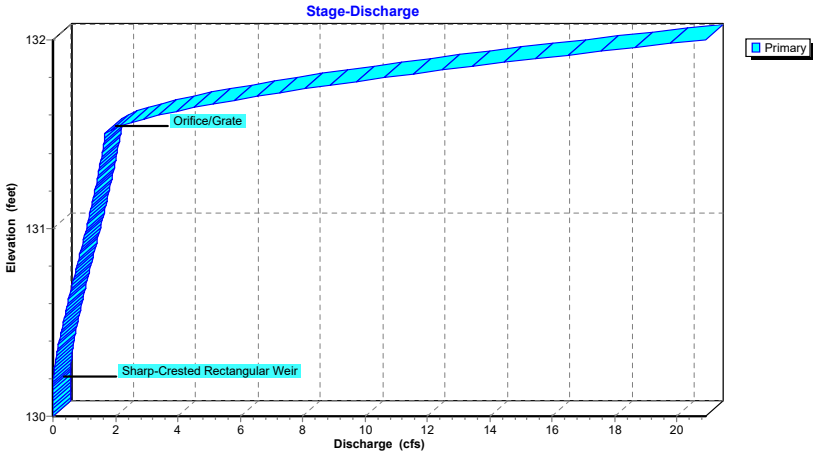
Primary OutFlow Max=0.15 cfs @ 12.65 hrs HW=130.36' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir (Weir Controls 0.15 cfs @ 1.41 fps)  
2=Orifice/Grate ( Controls 0.00 cfs)



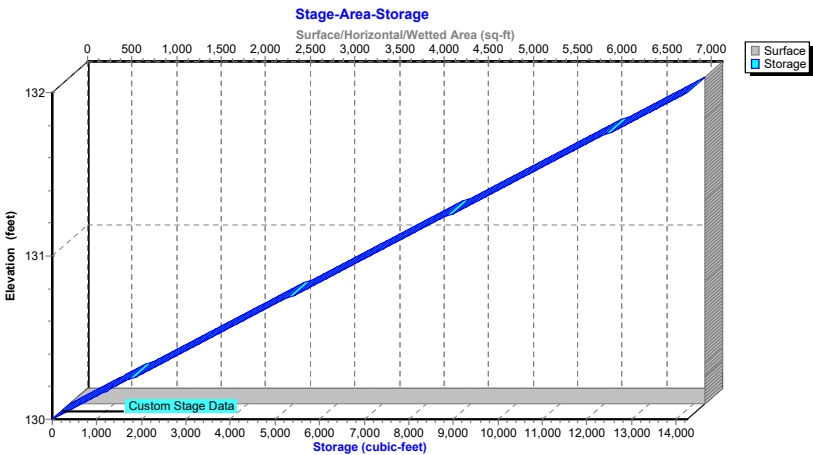
Pond 14P: GI-2



Pond 14P: GI-2



Pond 14P: GI-2



Hydrograph for Pond 14P: GI-2

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 2.00         | 0.00         | 9                    | 130.00           | 0.00          |
| 3.00         | 0.01         | 34                   | 130.00           | 0.00          |
| 4.00         | 0.01         | 69                   | 130.01           | 0.00          |
| 5.00         | 0.01         | 114                  | 130.02           | 0.00          |
| 6.00         | 0.02         | 166                  | 130.02           | 0.00          |
| 7.00         | 0.02         | 232                  | 130.03           | 0.00          |
| 8.00         | 0.03         | 315                  | 130.04           | 0.00          |
| 9.00         | 0.03         | 417                  | 130.06           | 0.00          |
| 10.00        | 0.05         | 560                  | 130.08           | 0.00          |
| 11.00        | 0.09         | 793                  | 130.11           | 0.00          |
| 12.00        | 0.86         | 1,703                | 130.24           | 0.03          |
| 13.00        | 0.11         | 2,514                | 130.35           | 0.14          |
| 14.00        | 0.05         | 2,304                | 130.32           | 0.11          |
| 15.00        | 0.04         | 2,112                | 130.30           | 0.08          |
| 16.00        | 0.03         | 1,963                | 130.28           | 0.06          |
| 17.00        | 0.03         | 1,855                | 130.26           | 0.05          |
| 18.00        | 0.02         | 1,770                | 130.25           | 0.04          |
| 19.00        | 0.02         | 1,704                | 130.24           | 0.03          |
| 20.00        | 0.02         | 1,655                | 130.23           | 0.03          |
| 21.00        | 0.02         | 1,618                | 130.23           | 0.03          |
| 22.00        | 0.02         | 1,588                | 130.22           | 0.02          |
| 23.00        | 0.01         | 1,562                | 130.22           | 0.02          |
| 24.00        | 0.02         | 1,541                | 130.22           | 0.02          |
| 25.00        | 0.00         | 1,483                | 130.21           | 0.01          |
| 26.00        | 0.00         | 1,437                | 130.20           | 0.01          |
| 27.00        | 0.00         | 1,402                | 130.20           | 0.01          |
| 28.00        | 0.00         | 1,375                | 130.19           | 0.01          |
| 29.00        | 0.00         | 1,353                | 130.19           | 0.01          |
| 30.00        | 0.00         | 1,335                | 130.19           | 0.00          |
| 31.00        | 0.00         | 1,321                | 130.19           | 0.00          |
| 32.00        | 0.00         | 1,308                | 130.18           | 0.00          |
| 33.00        | 0.00         | 1,298                | 130.18           | 0.00          |
| 34.00        | 0.00         | 1,289                | 130.18           | 0.00          |
| 35.00        | 0.00         | 1,282                | 130.18           | 0.00          |
| 36.00        | 0.00         | 1,276                | 130.18           | 0.00          |



**2101ELK-STM Analysis POI-1 - Propose**VOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

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**Stage-Discharge for Pond 14P: GI-2**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.36             | 131.04              | 1.13             | 131.56              | 2.49             |
| 130.01              | 0.00             | 130.53              | 0.37             | 131.05              | 1.14             | 131.57              | 2.70             |
| 130.02              | 0.00             | 130.54              | 0.39             | 131.06              | 1.16             | 131.58              | 2.92             |
| 130.03              | 0.00             | 130.55              | 0.40             | 131.07              | 1.17             | 131.59              | 3.16             |
| 130.04              | 0.00             | 130.56              | 0.42             | 131.08              | 1.19             | 131.60              | 3.41             |
| 130.05              | 0.00             | 130.57              | 0.43             | 131.09              | 1.20             | 131.61              | 3.67             |
| 130.06              | 0.00             | 130.58              | 0.44             | 131.10              | 1.21             | 131.62              | 3.94             |
| 130.07              | 0.00             | 130.59              | 0.46             | 131.11              | 1.23             | 131.63              | 4.23             |
| 130.08              | 0.00             | 130.60              | 0.47             | 131.12              | 1.24             | 131.64              | 4.52             |
| 130.09              | 0.00             | 130.61              | 0.49             | 131.13              | 1.25             | 131.65              | 4.83             |
| 130.10              | 0.00             | 130.62              | 0.50             | 131.14              | 1.27             | 131.66              | 5.14             |
| 130.11              | 0.00             | 130.63              | 0.52             | 131.15              | 1.28             | 131.67              | 5.47             |
| 130.12              | 0.00             | 130.64              | 0.53             | 131.16              | 1.29             | 131.68              | 5.82             |
| 130.13              | 0.00             | 130.65              | 0.55             | 131.17              | 1.31             | 131.69              | 6.17             |
| 130.14              | 0.00             | 130.66              | 0.56             | 131.18              | 1.32             | 131.70              | 6.54             |
| 130.15              | 0.00             | 130.67              | 0.58             | 131.19              | 1.33             | 131.71              | 6.91             |
| 130.16              | 0.00             | 130.68              | 0.59             | 131.20              | 1.35             | 131.72              | 7.29             |
| 130.17              | 0.00             | 130.69              | 0.61             | 131.21              | 1.36             | 131.73              | 7.68             |
| 130.18              | 0.00             | 130.70              | 0.62             | 131.22              | 1.37             | 131.74              | 8.08             |
| 130.19              | 0.01             | 130.71              | 0.64             | 131.23              | 1.38             | 131.75              | 8.49             |
| 130.20              | 0.01             | 130.72              | 0.65             | 131.24              | 1.40             | 131.76              | 8.90             |
| 130.21              | 0.02             | 130.73              | 0.67             | 131.25              | 1.41             | 131.77              | 9.33             |
| 130.22              | 0.02             | 130.74              | 0.68             | 131.26              | 1.42             | 131.78              | 9.76             |
| 130.23              | 0.03             | 130.75              | 0.70             | 131.27              | 1.43             | 131.79              | 10.19            |
| 130.24              | 0.04             | 130.76              | 0.71             | 131.28              | 1.45             | 131.80              | 10.64            |
| 130.25              | 0.04             | 130.77              | 0.73             | 131.29              | 1.46             | 131.81              | 11.09            |
| 130.26              | 0.05             | 130.78              | 0.74             | 131.30              | 1.47             | 131.82              | 11.55            |
| 130.27              | 0.06             | 130.79              | 0.76             | 131.31              | 1.48             | 131.83              | 12.02            |
| 130.28              | 0.07             | 130.80              | 0.78             | 131.32              | 1.49             | 131.84              | 12.49            |
| 130.29              | 0.08             | 130.81              | 0.79             | 131.33              | 1.50             | 131.85              | 12.97            |
| 130.30              | 0.09             | 130.82              | 0.81             | 131.34              | 1.51             | 131.86              | 13.46            |
| 130.31              | 0.10             | 130.83              | 0.82             | 131.35              | 1.53             | 131.87              | 13.95            |
| 130.32              | 0.11             | 130.84              | 0.84             | 131.36              | 1.54             | 131.88              | 14.45            |
| 130.33              | 0.12             | 130.85              | 0.85             | 131.37              | 1.55             | 131.89              | 14.96            |
| 130.34              | 0.13             | 130.86              | 0.87             | 131.38              | 1.56             | 131.90              | 15.47            |
| 130.35              | 0.14             | 130.87              | 0.88             | 131.39              | 1.57             | 131.91              | 15.99            |
| 130.36              | 0.15             | 130.88              | 0.90             | 131.40              | 1.58             | 131.92              | 16.51            |
| 130.37              | 0.16             | 130.89              | 0.91             | 131.41              | 1.59             | 131.93              | 17.04            |
| 130.38              | 0.18             | 130.90              | 0.93             | 131.42              | 1.60             | 131.94              | 17.58            |
| 130.39              | 0.19             | 130.91              | 0.94             | 131.43              | 1.61             | 131.95              | 18.12            |
| 130.40              | 0.20             | 130.92              | 0.96             | 131.44              | 1.62             | 131.96              | 18.67            |
| 130.41              | 0.21             | 130.93              | 0.97             | 131.45              | 1.63             | 131.97              | 19.23            |
| 130.42              | 0.22             | 130.94              | 0.99             | 131.46              | 1.64             | 131.98              | 19.79            |
| 130.43              | 0.24             | 130.95              | 1.00             | 131.47              | 1.65             | 131.99              | 20.35            |
| 130.44              | 0.25             | 130.96              | 1.01             | 131.48              | 1.66             | 132.00              | <b>20.93</b>     |
| 130.45              | 0.26             | 130.97              | 1.03             | 131.49              | 1.67             |                     |                  |
| 130.46              | 0.28             | 130.98              | 1.04             | 131.50              | 1.68             |                     |                  |
| 130.47              | 0.29             | 130.99              | 1.06             | 131.51              | 1.74             |                     |                  |
| 130.48              | 0.30             | 131.00              | 1.07             | 131.52              | 1.84             |                     |                  |
| 130.49              | 0.32             | 131.01              | 1.09             | 131.53              | 1.97             |                     |                  |
| 130.50              | 0.33             | 131.02              | 1.10             | 131.54              | 2.13             |                     |                  |
| 130.51              | 0.34             | 131.03              | 1.12             | 131.55              | 2.30             |                     |                  |

**2101ELK-STM Analysis POI-1 - Propose**VOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 14P: GI-2**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | <b>7,126</b>       | 0                       | 131.04              | 7,126              | 7,411                   |
| 130.02              | 7,126              | 143                     | 131.06              | 7,126              | 7,554                   |
| 130.04              | 7,126              | 285                     | 131.08              | 7,126              | 7,696                   |
| 130.06              | 7,126              | 428                     | 131.10              | 7,126              | 7,839                   |
| 130.08              | 7,126              | 570                     | 131.12              | 7,126              | 7,981                   |
| 130.10              | 7,126              | 713                     | 131.14              | 7,126              | 8,124                   |
| 130.12              | 7,126              | 855                     | 131.16              | 7,126              | 8,266                   |
| 130.14              | 7,126              | 998                     | 131.18              | 7,126              | 8,409                   |
| 130.16              | 7,126              | 1,140                   | 131.20              | 7,126              | 8,551                   |
| 130.18              | 7,126              | 1,283                   | 131.22              | 7,126              | 8,694                   |
| 130.20              | 7,126              | 1,425                   | 131.24              | 7,126              | 8,836                   |
| 130.22              | 7,126              | 1,568                   | 131.26              | 7,126              | 8,979                   |
| 130.24              | 7,126              | 1,710                   | 131.28              | 7,126              | 9,121                   |
| 130.26              | 7,126              | 1,853                   | 131.30              | 7,126              | 9,264                   |
| 130.28              | 7,126              | 1,995                   | 131.32              | 7,126              | 9,406                   |
| 130.30              | 7,126              | 2,138                   | 131.34              | 7,126              | 9,549                   |
| 130.32              | 7,126              | 2,280                   | 131.36              | 7,126              | 9,691                   |
| 130.34              | 7,126              | 2,423                   | 131.38              | 7,126              | 9,834                   |
| 130.36              | 7,126              | 2,565                   | 131.40              | 7,126              | 9,976                   |
| 130.38              | 7,126              | 2,708                   | 131.42              | 7,126              | 10,119                  |
| 130.40              | 7,126              | 2,850                   | 131.44              | 7,126              | 10,261                  |
| 130.42              | 7,126              | 2,993                   | 131.46              | 7,126              | 10,404                  |
| 130.44              | 7,126              | 3,135                   | 131.48              | 7,126              | 10,546                  |
| 130.46              | 7,126              | 3,278                   | 131.50              | 7,126              | 10,689                  |
| 130.48              | 7,126              | 3,420                   | 131.52              | 7,126              | 10,832                  |
| 130.50              | 7,126              | 3,563                   | 131.54              | 7,126              | 10,974                  |
| 130.52              | 7,126              | 3,706                   | 131.56              | 7,126              | 11,117                  |
| 130.54              | 7,126              | 3,848                   | 131.58              | 7,126              | 11,259                  |
| 130.56              | 7,126              | 3,991                   | 131.60              | 7,126              | 11,402                  |
| 130.58              | 7,126              | 4,133                   | 131.62              | 7,126              | 11,544                  |
| 130.60              | 7,126              | 4,276                   | 131.64              | 7,126              | 11,687                  |
| 130.62              | 7,126              | 4,418                   | 131.66              | 7,126              | 11,829                  |
| 130.64              | 7,126              | 4,561                   | 131.68              | 7,126              | 11,972                  |
| 130.66              | 7,126              | 4,703                   | 131.70              | 7,126              | 12,114                  |
| 130.68              | 7,126              | 4,846                   | 131.72              | 7,126              | 12,257                  |
| 130.70              | 7,126              | 4,988                   | 131.74              | 7,126              | 12,399                  |
| 130.72              | 7,126              | 5,131                   | 131.76              | 7,126              | 12,542                  |
| 130.74              | 7,126              | 5,273                   | 131.78              | 7,126              | 12,684                  |
| 130.76              | 7,126              | 5,416                   | 131.80              | 7,126              | 12,827                  |
| 130.78              | 7,126              | 5,558                   | 131.82              | 7,126              | 12,969                  |
| 130.80              | 7,126              | 5,701                   | 131.84              | 7,126              | 13,112                  |
| 130.82              | 7,126              | 5,843                   | 131.86              | 7,126              | 13,254                  |
| 130.84              | 7,126              | 5,986                   | 131.88              | 7,126              | 13,397                  |
| 130.86              | 7,126              | 6,128                   | 131.90              | 7,126              | 13,539                  |
| 130.88              | 7,126              | 6,271                   | 131.92              | 7,126              | 13,682                  |
| 130.90              | 7,126              | 6,413                   | 131.94              | 7,126              | 13,824                  |
| 130.92              | 7,126              | 6,556                   | 131.96              | 7,126              | 13,967                  |
| 130.94              | 7,126              | 6,698                   | 131.98              | 7,126              | 14,109                  |
| 130.96              | 7,126              | 6,841                   | 132.00              | 7,126              | <b>14,252</b>           |
| 130.98              | 7,126              | 6,983                   |                     |                    |                         |
| 131.00              | 7,126              | 7,126                   |                     |                    |                         |
| 131.02              | 7,126              | 7,269                   |                     |                    |                         |

Summary for Pond 28P: GI-3

Inflow Area = 84,149 sf, 72.01% Impervious, Inflow Depth = 2.79" for 2-Year-2050 event  
Inflow = 6.25 cfs @ 12.09 hrs, Volume= 19,587 cf  
Outflow = 0.28 cfs @ 13.98 hrs, Volume= 8,055 cf, Atten= 96%, Lag= 112.9 min  
Primary = 0.28 cfs @ 13.98 hrs, Volume= 8,055 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.29' @ 13.98 hrs Surf.Area= 11,000 sf Storage= 14,148 cf

Plug-Flow detention time= 500.8 min calculated for 8,044 cf (41% of inflow)  
Center-of-Mass det. time= 348.2 min ( 1,108.0 - 759.8 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 22,000 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

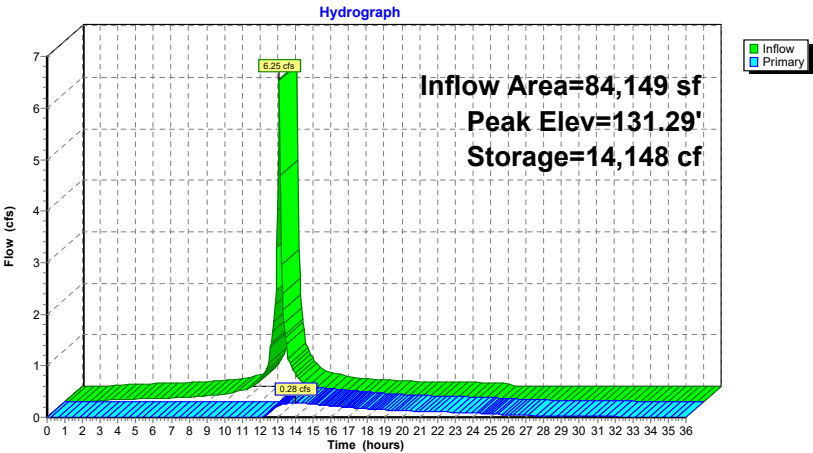
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 11,000            | 0                      | 0                      |
| 131.00           | 11,000            | 11,000                 | 11,000                 |
| 132.00           | 11,000            | 11,000                 | 22,000                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 131.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 131.03' | 0.7' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

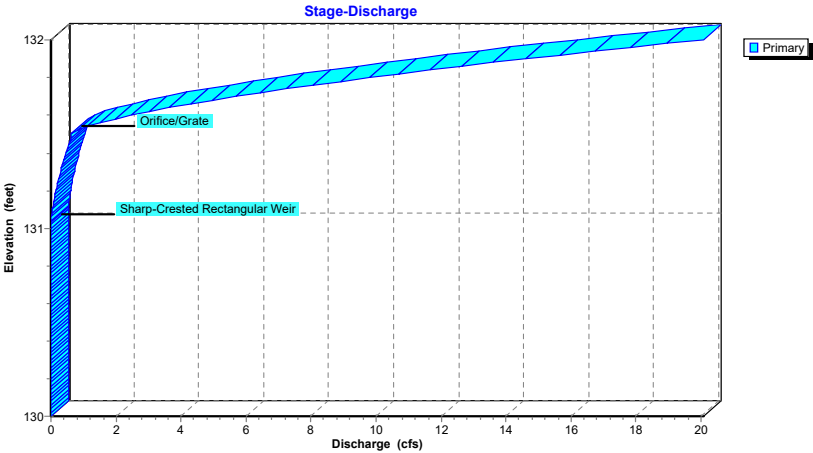
Primary OutFlow Max=0.28 cfs @ 13.98 hrs HW=131.29' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate ( Controls 0.00 cfs)  
2=Sharp-Crested Rectangular Weir(Weir Controls 0.28 cfs @ 1.66 fps)



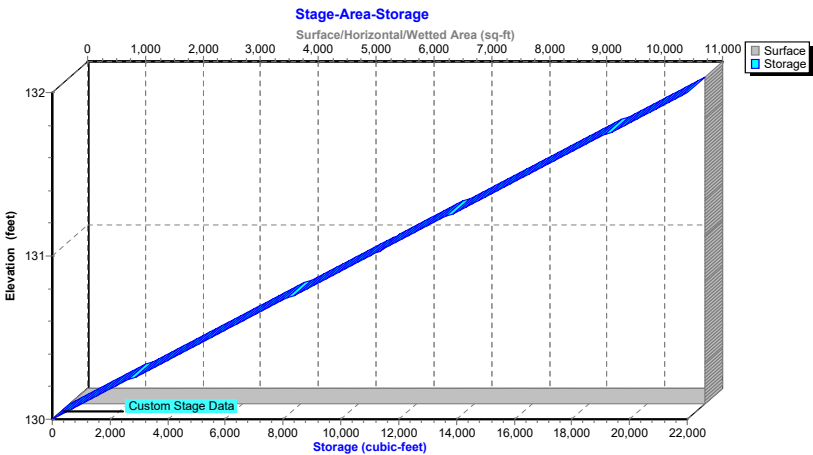
Pond 28P: GI-3



Pond 28P: GI-3



Pond 28P: GI-3



Hydrograph for Pond 28P: GI-3

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 2.00         | 0.02         | 42                   | 130.00           | 0.00          |
| 3.00         | 0.04         | 152                  | 130.01           | 0.00          |
| 4.00         | 0.05         | 315                  | 130.03           | 0.00          |
| 5.00         | 0.06         | 520                  | 130.05           | 0.00          |
| 6.00         | 0.07         | 762                  | 130.07           | 0.00          |
| 7.00         | 0.09         | 1,062                | 130.10           | 0.00          |
| 8.00         | 0.12         | 1,445                | 130.13           | 0.00          |
| 9.00         | 0.14         | 1,913                | 130.17           | 0.00          |
| 10.00        | 0.22         | 2,570                | 130.23           | 0.00          |
| 11.00        | 0.42         | 3,625                | 130.33           | 0.00          |
| 12.00        | 3.73         | 7,596                | 130.69           | 0.00          |
| 13.00        | 0.55         | 13,771               | 131.25           | 0.22          |
| 14.00        | 0.27         | 14,148               | 131.29           | 0.28          |
| 15.00        | 0.18         | 14,004               | 131.27           | 0.26          |
| 16.00        | 0.15         | 13,740               | 131.25           | 0.22          |
| 17.00        | 0.13         | 13,505               | 131.23           | 0.19          |
| 18.00        | 0.10         | 13,286               | 131.21           | 0.16          |
| 19.00        | 0.10         | 13,096               | 131.19           | 0.14          |
| 20.00        | 0.09         | 12,952               | 131.18           | 0.12          |
| 21.00        | 0.08         | 12,838               | 131.17           | 0.11          |
| 22.00        | 0.08         | 12,743               | 131.16           | 0.10          |
| 23.00        | 0.07         | 12,660               | 131.15           | 0.09          |
| 24.00        | 0.08         | 12,586               | 131.14           | 0.09          |
| 25.00        | 0.00         | 12,339               | 131.12           | 0.06          |
| 26.00        | 0.00         | 12,148               | 131.10           | 0.05          |
| 27.00        | 0.00         | 12,006               | 131.09           | 0.03          |
| 28.00        | 0.00         | 11,897               | 131.08           | 0.03          |
| 29.00        | 0.00         | 11,813               | 131.07           | 0.02          |
| 30.00        | 0.00         | 11,746               | 131.07           | 0.02          |
| 31.00        | 0.00         | 11,692               | 131.06           | 0.01          |
| 32.00        | 0.00         | 11,648               | 131.06           | 0.01          |
| 33.00        | 0.00         | 11,611               | 131.06           | 0.01          |
| 34.00        | 0.00         | 11,580               | 131.05           | 0.01          |
| 35.00        | 0.00         | 11,554               | 131.05           | 0.01          |
| 36.00        | 0.00         | 11,532               | 131.05           | 0.01          |

Stage-Discharge for Pond 28P: GI-3

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.00             | 131.04              | 0.00             | 131.56              | 1.52             |
| 130.01              | 0.00             | 130.53              | 0.00             | 131.05              | 0.01             | 131.57              | 1.74             |
| 130.02              | 0.00             | 130.54              | 0.00             | 131.06              | 0.01             | 131.58              | 1.97             |
| 130.03              | 0.00             | 130.55              | 0.00             | 131.07              | 0.02             | 131.59              | 2.22             |
| 130.04              | 0.00             | 130.56              | 0.00             | 131.08              | 0.03             | 131.60              | 2.48             |
| 130.05              | 0.00             | 130.57              | 0.00             | 131.09              | 0.03             | 131.61              | 2.75             |
| 130.06              | 0.00             | 130.58              | 0.00             | 131.10              | 0.04             | 131.62              | 3.04             |
| 130.07              | 0.00             | 130.59              | 0.00             | 131.11              | 0.05             | 131.63              | 3.33             |
| 130.08              | 0.00             | 130.60              | 0.00             | 131.12              | 0.06             | 131.64              | 3.64             |
| 130.09              | 0.00             | 130.61              | 0.00             | 131.13              | 0.07             | 131.65              | 3.96             |
| 130.10              | 0.00             | 130.62              | 0.00             | 131.14              | 0.08             | 131.66              | 4.29             |
| 130.11              | 0.00             | 130.63              | 0.00             | 131.15              | 0.09             | 131.67              | 4.62             |
| 130.12              | 0.00             | 130.64              | 0.00             | 131.16              | 0.10             | 131.68              | 4.97             |
| 130.13              | 0.00             | 130.65              | 0.00             | 131.17              | 0.12             | 131.69              | 5.33             |
| 130.14              | 0.00             | 130.66              | 0.00             | 131.18              | 0.13             | 131.70              | 5.69             |
| 130.15              | 0.00             | 130.67              | 0.00             | 131.19              | 0.14             | 131.71              | 6.07             |
| 130.16              | 0.00             | 130.68              | 0.00             | 131.20              | 0.15             | 131.72              | 6.45             |
| 130.17              | 0.00             | 130.69              | 0.00             | 131.21              | 0.17             | 131.73              | 6.84             |
| 130.18              | 0.00             | 130.70              | 0.00             | 131.22              | 0.18             | 131.74              | 7.24             |
| 130.19              | 0.00             | 130.71              | 0.00             | 131.23              | 0.19             | 131.75              | 7.65             |
| 130.20              | 0.00             | 130.72              | 0.00             | 131.24              | 0.21             | 131.76              | 8.07             |
| 130.21              | 0.00             | 130.73              | 0.00             | 131.25              | 0.22             | 131.77              | 8.49             |
| 130.22              | 0.00             | 130.74              | 0.00             | 131.26              | 0.24             | 131.78              | 8.92             |
| 130.23              | 0.00             | 130.75              | 0.00             | 131.27              | 0.25             | 131.79              | 9.36             |
| 130.24              | 0.00             | 130.76              | 0.00             | 131.28              | 0.27             | 131.80              | 9.80             |
| 130.25              | 0.00             | 130.77              | 0.00             | 131.29              | 0.28             | 131.81              | 10.26            |
| 130.26              | 0.00             | 130.78              | 0.00             | 131.30              | 0.30             | 131.82              | 10.72            |
| 130.27              | 0.00             | 130.79              | 0.00             | 131.31              | 0.31             | 131.83              | 11.18            |
| 130.28              | 0.00             | 130.80              | 0.00             | 131.32              | 0.33             | 131.84              | 11.66            |
| 130.29              | 0.00             | 130.81              | 0.00             | 131.33              | 0.34             | 131.85              | 12.13            |
| 130.30              | 0.00             | 130.82              | 0.00             | 131.34              | 0.36             | 131.86              | 12.62            |
| 130.31              | 0.00             | 130.83              | 0.00             | 131.35              | 0.38             | 131.87              | 13.11            |
| 130.32              | 0.00             | 130.84              | 0.00             | 131.36              | 0.39             | 131.88              | 13.61            |
| 130.33              | 0.00             | 130.85              | 0.00             | 131.37              | 0.41             | 131.89              | 14.12            |
| 130.34              | 0.00             | 130.86              | 0.00             | 131.38              | 0.43             | 131.90              | 14.63            |
| 130.35              | 0.00             | 130.87              | 0.00             | 131.39              | 0.44             | 131.91              | 15.15            |
| 130.36              | 0.00             | 130.88              | 0.00             | 131.40              | 0.46             | 131.92              | 15.67            |
| 130.37              | 0.00             | 130.89              | 0.00             | 131.41              | 0.48             | 131.93              | 16.20            |
| 130.38              | 0.00             | 130.90              | 0.00             | 131.42              | 0.50             | 131.94              | 16.74            |
| 130.39              | 0.00             | 130.91              | 0.00             | 131.43              | 0.51             | 131.95              | 17.28            |
| 130.40              | 0.00             | 130.92              | 0.00             | 131.44              | 0.53             | 131.96              | 17.83            |
| 130.41              | 0.00             | 130.93              | 0.00             | 131.45              | 0.55             | 131.97              | 18.38            |
| 130.42              | 0.00             | 130.94              | 0.00             | 131.46              | 0.57             | 131.98              | 18.94            |
| 130.43              | 0.00             | 130.95              | 0.00             | 131.47              | 0.58             | 131.99              | 19.51            |
| 130.44              | 0.00             | 130.96              | 0.00             | 131.48              | 0.60             | 132.00              | 20.08            |
| 130.45              | 0.00             | 130.97              | 0.00             | 131.49              | 0.62             |                     |                  |
| 130.46              | 0.00             | 130.98              | 0.00             | 131.50              | 0.64             |                     |                  |
| 130.47              | 0.00             | 130.99              | 0.00             | 131.51              | 0.71             |                     |                  |
| 130.48              | 0.00             | 131.00              | 0.00             | 131.52              | 0.82             |                     |                  |
| 130.49              | 0.00             | 131.01              | 0.00             | 131.53              | 0.97             |                     |                  |
| 130.50              | 0.00             | 131.02              | 0.00             | 131.54              | 1.13             |                     |                  |
| 130.51              | 0.00             | 131.03              | 0.00             | 131.55              | 1.32             |                     |                  |

Stage-Area-Storage for Pond 28P: GI-3

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | 11,000             | 0                       | 131.04              | 11,000             | 11,440                  |
| 130.02              | 11,000             | 220                     | 131.06              | 11,000             | 11,660                  |
| 130.04              | 11,000             | 440                     | 131.08              | 11,000             | 11,880                  |
| 130.06              | 11,000             | 660                     | 131.10              | 11,000             | 12,100                  |
| 130.08              | 11,000             | 880                     | 131.12              | 11,000             | 12,320                  |
| 130.10              | 11,000             | 1,100                   | 131.14              | 11,000             | 12,540                  |
| 130.12              | 11,000             | 1,320                   | 131.16              | 11,000             | 12,760                  |
| 130.14              | 11,000             | 1,540                   | 131.18              | 11,000             | 12,980                  |
| 130.16              | 11,000             | 1,760                   | 131.20              | 11,000             | 13,200                  |
| 130.18              | 11,000             | 1,980                   | 131.22              | 11,000             | 13,420                  |
| 130.20              | 11,000             | 2,200                   | 131.24              | 11,000             | 13,640                  |
| 130.22              | 11,000             | 2,420                   | 131.26              | 11,000             | 13,860                  |
| 130.24              | 11,000             | 2,640                   | 131.28              | 11,000             | 14,080                  |
| 130.26              | 11,000             | 2,860                   | 131.30              | 11,000             | 14,300                  |
| 130.28              | 11,000             | 3,080                   | 131.32              | 11,000             | 14,520                  |
| 130.30              | 11,000             | 3,300                   | 131.34              | 11,000             | 14,740                  |
| 130.32              | 11,000             | 3,520                   | 131.36              | 11,000             | 14,960                  |
| 130.34              | 11,000             | 3,740                   | 131.38              | 11,000             | 15,180                  |
| 130.36              | 11,000             | 3,960                   | 131.40              | 11,000             | 15,400                  |
| 130.38              | 11,000             | 4,180                   | 131.42              | 11,000             | 15,620                  |
| 130.40              | 11,000             | 4,400                   | 131.44              | 11,000             | 15,840                  |
| 130.42              | 11,000             | 4,620                   | 131.46              | 11,000             | 16,060                  |
| 130.44              | 11,000             | 4,840                   | 131.48              | 11,000             | 16,280                  |
| 130.46              | 11,000             | 5,060                   | 131.50              | 11,000             | 16,500                  |
| 130.48              | 11,000             | 5,280                   | 131.52              | 11,000             | 16,720                  |
| 130.50              | 11,000             | 5,500                   | 131.54              | 11,000             | 16,940                  |
| 130.52              | 11,000             | 5,720                   | 131.56              | 11,000             | 17,160                  |
| 130.54              | 11,000             | 5,940                   | 131.58              | 11,000             | 17,380                  |
| 130.56              | 11,000             | 6,160                   | 131.60              | 11,000             | 17,600                  |
| 130.58              | 11,000             | 6,380                   | 131.62              | 11,000             | 17,820                  |
| 130.60              | 11,000             | 6,600                   | 131.64              | 11,000             | 18,040                  |
| 130.62              | 11,000             | 6,820                   | 131.66              | 11,000             | 18,260                  |
| 130.64              | 11,000             | 7,040                   | 131.68              | 11,000             | 18,480                  |
| 130.66              | 11,000             | 7,260                   | 131.70              | 11,000             | 18,700                  |
| 130.68              | 11,000             | 7,480                   | 131.72              | 11,000             | 18,920                  |
| 130.70              | 11,000             | 7,700                   | 131.74              | 11,000             | 19,140                  |
| 130.72              | 11,000             | 7,920                   | 131.76              | 11,000             | 19,360                  |
| 130.74              | 11,000             | 8,140                   | 131.78              | 11,000             | 19,580                  |
| 130.76              | 11,000             | 8,360                   | 131.80              | 11,000             | 19,800                  |
| 130.78              | 11,000             | 8,580                   | 131.82              | 11,000             | 20,020                  |
| 130.80              | 11,000             | 8,800                   | 131.84              | 11,000             | 20,240                  |
| 130.82              | 11,000             | 9,020                   | 131.86              | 11,000             | 20,460                  |
| 130.84              | 11,000             | 9,240                   | 131.88              | 11,000             | 20,680                  |
| 130.86              | 11,000             | 9,460                   | 131.90              | 11,000             | 20,900                  |
| 130.88              | 11,000             | 9,680                   | 131.92              | 11,000             | 21,120                  |
| 130.90              | 11,000             | 9,900                   | 131.94              | 11,000             | 21,340                  |
| 130.92              | 11,000             | 10,120                  | 131.96              | 11,000             | 21,560                  |
| 130.94              | 11,000             | 10,340                  | 131.98              | 11,000             | 21,780                  |
| 130.96              | 11,000             | 10,560                  | 132.00              | 11,000             | 22,000                  |
| 130.98              | 11,000             | 10,780                  |                     |                    |                         |
| 131.00              | 11,000             | 11,000                  |                     |                    |                         |
| 131.02              | 11,000             | 11,220                  |                     |                    |                         |

Summary for Pond 31P: GI-6

Inflow Area = 85,032 sf, 67.84% Impervious, Inflow Depth = 2.59" for 2-Year-2050 event  
Inflow = 5.92 cfs @ 12.09 hrs, Volume= 18,345 cf  
Outflow = 0.29 cfs @ 13.59 hrs, Volume= 9,736 cf, Atten= 95%, Lag= 90.0 min  
Primary = 0.29 cfs @ 13.59 hrs, Volume= 9,736 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 130.64' @ 13.59 hrs Surf.Area= 20,000 sf Storage= 12,832 cf

Plug-Flow detention time= 505.9 min calculated for 9,722 cf (53% of inflow)  
Center-of-Mass det. time= 380.0 min ( 1,138.4 - 758.4 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 40,000 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

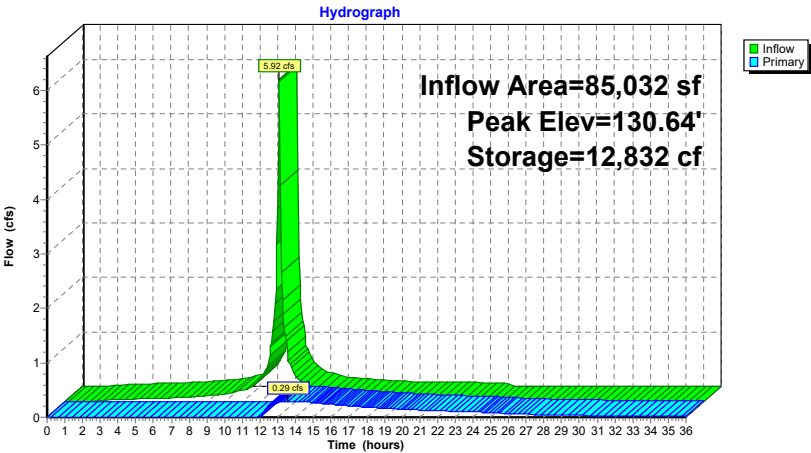
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 20,000            | 0                      | 0                      |
| 131.00           | 20,000            | 20,000                 | 20,000                 |
| 132.00           | 20,000            | 20,000                 | 40,000                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 131.80' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 130.40' | 0.8' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

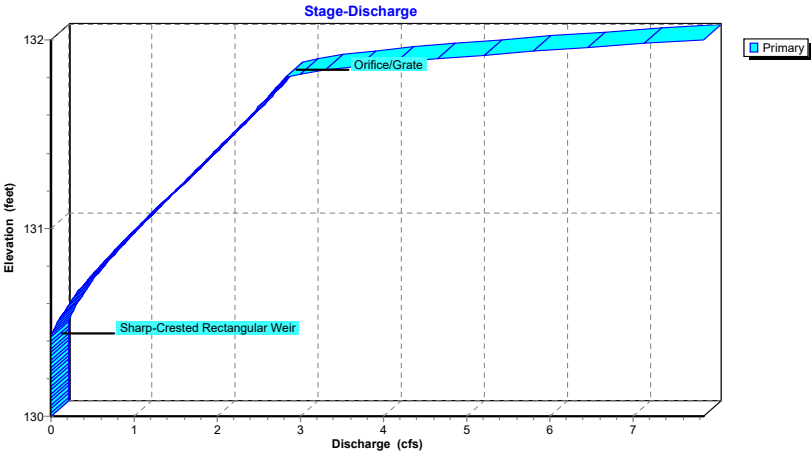
Primary OutFlow Max=0.29 cfs @ 13.59 hrs HW=130.64' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate ( Controls 0.00 cfs)  
2=Sharp-Crested Rectangular Weir(Weir Controls 0.29 cfs @ 1.61 fps)



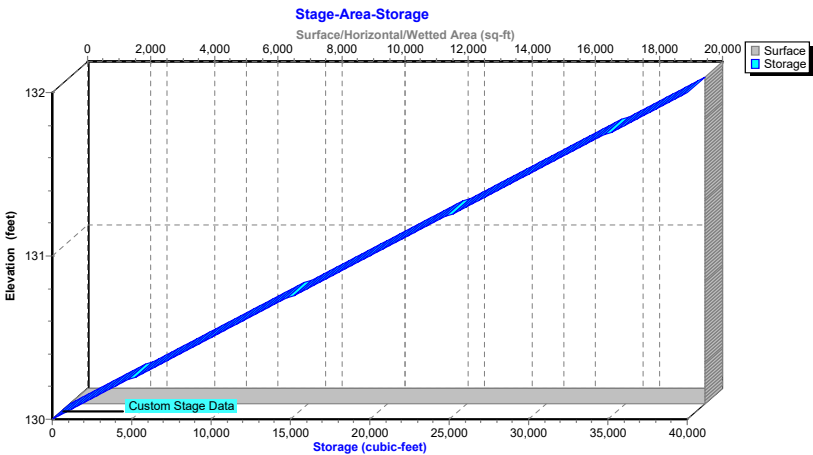
Pond 31P: GI-6



Pond 31P: GI-6



Pond 31P: GI-6



Hydrograph for Pond 31P: GI-6

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 2.00         | 0.02         | 40                   | 130.00           | 0.00          |
| 3.00         | 0.04         | 145                  | 130.01           | 0.00          |
| 4.00         | 0.05         | 300                  | 130.01           | 0.00          |
| 5.00         | 0.06         | 496                  | 130.02           | 0.00          |
| 6.00         | 0.07         | 726                  | 130.04           | 0.00          |
| 7.00         | 0.09         | 1,011                | 130.05           | 0.00          |
| 8.00         | 0.11         | 1,376                | 130.07           | 0.00          |
| 9.00         | 0.14         | 1,822                | 130.09           | 0.00          |
| 10.00        | 0.21         | 2,448                | 130.12           | 0.00          |
| 11.00        | 0.40         | 3,453                | 130.17           | 0.00          |
| 12.00        | 3.56         | 7,250                | 130.36           | 0.00          |
| 13.00        | 0.51         | 12,620               | 130.63           | 0.27          |
| 14.00        | 0.25         | 12,802               | 130.64           | 0.29          |
| 15.00        | 0.17         | 12,554               | 130.63           | 0.27          |
| 16.00        | 0.14         | 12,192               | 130.61           | 0.24          |
| 17.00        | 0.12         | 11,853               | 130.59           | 0.21          |
| 18.00        | 0.10         | 11,528               | 130.58           | 0.19          |
| 19.00        | 0.09         | 11,232               | 130.56           | 0.16          |
| 20.00        | 0.08         | 10,987               | 130.55           | 0.15          |
| 21.00        | 0.08         | 10,780               | 130.54           | 0.13          |
| 22.00        | 0.07         | 10,601               | 130.53           | 0.12          |
| 23.00        | 0.07         | 10,442               | 130.52           | 0.11          |
| 24.00        | 0.07         | 10,300               | 130.51           | 0.10          |
| 25.00        | 0.00         | 9,993                | 130.50           | 0.08          |
| 26.00        | 0.00         | 9,732                | 130.49           | 0.07          |
| 27.00        | 0.00         | 9,519                | 130.48           | 0.05          |
| 28.00        | 0.00         | 9,342                | 130.47           | 0.04          |
| 29.00        | 0.00         | 9,195                | 130.46           | 0.04          |
| 30.00        | 0.00         | 9,070                | 130.45           | 0.03          |
| 31.00        | 0.00         | 8,963                | 130.45           | 0.03          |
| 32.00        | 0.00         | 8,872                | 130.44           | 0.02          |
| 33.00        | 0.00         | 8,793                | 130.44           | 0.02          |
| 34.00        | 0.00         | 8,724                | 130.44           | 0.02          |
| 35.00        | 0.00         | 8,664                | 130.43           | 0.02          |
| 36.00        | 0.00         | 8,611                | 130.43           | 0.01          |

Stage-Discharge for Pond 31P: GI-6

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.11             | 131.04              | 1.13             | 131.56              | 2.32             |
| 130.01              | 0.00             | 130.53              | 0.12             | 131.05              | 1.15             | 131.57              | 2.34             |
| 130.02              | 0.00             | 130.54              | 0.13             | 131.06              | 1.17             | 131.58              | 2.36             |
| 130.03              | 0.00             | 130.55              | 0.15             | 131.07              | 1.19             | 131.59              | 2.39             |
| 130.04              | 0.00             | 130.56              | 0.16             | 131.08              | 1.22             | 131.60              | 2.41             |
| 130.05              | 0.00             | 130.57              | 0.18             | 131.09              | 1.24             | 131.61              | 2.43             |
| 130.06              | 0.00             | 130.58              | 0.19             | 131.10              | 1.26             | 131.62              | 2.45             |
| 130.07              | 0.00             | 130.59              | 0.21             | 131.11              | 1.29             | 131.63              | 2.47             |
| 130.08              | 0.00             | 130.60              | 0.22             | 131.12              | 1.31             | 131.64              | 2.49             |
| 130.09              | 0.00             | 130.61              | 0.24             | 131.13              | 1.33             | 131.65              | 2.51             |
| 130.10              | 0.00             | 130.62              | 0.26             | 131.14              | 1.36             | 131.66              | 2.53             |
| 130.11              | 0.00             | 130.63              | 0.27             | 131.15              | 1.38             | 131.67              | 2.56             |
| 130.12              | 0.00             | 130.64              | 0.29             | 131.16              | 1.40             | 131.68              | 2.58             |
| 130.13              | 0.00             | 130.65              | 0.31             | 131.17              | 1.43             | 131.69              | 2.60             |
| 130.14              | 0.00             | 130.66              | 0.32             | 131.18              | 1.45             | 131.70              | 2.62             |
| 130.15              | 0.00             | 130.67              | 0.34             | 131.19              | 1.47             | 131.71              | 2.64             |
| 130.16              | 0.00             | 130.68              | 0.36             | 131.20              | 1.50             | 131.72              | 2.66             |
| 130.17              | 0.00             | 130.69              | 0.38             | 131.21              | 1.52             | 131.73              | 2.68             |
| 130.18              | 0.00             | 130.70              | 0.40             | 131.22              | 1.54             | 131.74              | 2.70             |
| 130.19              | 0.00             | 130.71              | 0.42             | 131.23              | 1.57             | 131.75              | 2.72             |
| 130.20              | 0.00             | 130.72              | 0.44             | 131.24              | 1.59             | 131.76              | 2.74             |
| 130.21              | 0.00             | 130.73              | 0.46             | 131.25              | 1.61             | 131.77              | 2.76             |
| 130.22              | 0.00             | 130.74              | 0.47             | 131.26              | 1.64             | 131.78              | 2.78             |
| 130.23              | 0.00             | 130.75              | 0.49             | 131.27              | 1.66             | 131.79              | 2.80             |
| 130.24              | 0.00             | 130.76              | 0.51             | 131.28              | 1.68             | 131.80              | 2.82             |
| 130.25              | 0.00             | 130.77              | 0.53             | 131.29              | 1.71             | 131.81              | 2.89             |
| 130.26              | 0.00             | 130.78              | 0.55             | 131.30              | 1.73             | 131.82              | 3.00             |
| 130.27              | 0.00             | 130.79              | 0.58             | 131.31              | 1.75             | 131.83              | 3.15             |
| 130.28              | 0.00             | 130.80              | 0.60             | 131.32              | 1.78             | 131.84              | 3.31             |
| 130.29              | 0.00             | 130.81              | 0.62             | 131.33              | 1.80             | 131.85              | 3.50             |
| 130.30              | 0.00             | 130.82              | 0.64             | 131.34              | 1.82             | 131.86              | 3.70             |
| 130.31              | 0.00             | 130.83              | 0.66             | 131.35              | 1.85             | 131.87              | 3.92             |
| 130.32              | 0.00             | 130.84              | 0.68             | 131.36              | 1.87             | 131.88              | 4.15             |
| 130.33              | 0.00             | 130.85              | 0.70             | 131.37              | 1.89             | 131.89              | 4.40             |
| 130.34              | 0.00             | 130.86              | 0.72             | 131.38              | 1.92             | 131.90              | 4.66             |
| 130.35              | 0.00             | 130.87              | 0.74             | 131.39              | 1.94             | 131.91              | 4.93             |
| 130.36              | 0.00             | 130.88              | 0.77             | 131.40              | 1.96             | 131.92              | 5.21             |
| 130.37              | 0.00             | 130.89              | 0.79             | 131.41              | 1.98             | 131.93              | 5.51             |
| 130.38              | 0.00             | 130.90              | 0.81             | 131.42              | 2.01             | 131.94              | 5.82             |
| 130.39              | 0.00             | 130.91              | 0.83             | 131.43              | 2.03             | 131.95              | 6.13             |
| 130.40              | 0.00             | 130.92              | 0.85             | 131.44              | 2.05             | 131.96              | 6.46             |
| 130.41              | 0.00             | 130.93              | 0.88             | 131.45              | 2.08             | 131.97              | 6.79             |
| 130.42              | 0.01             | 130.94              | 0.90             | 131.46              | 2.10             | 131.98              | 7.14             |
| 130.43              | 0.01             | 130.95              | 0.92             | 131.47              | 2.12             | 131.99              | 7.49             |
| 130.44              | 0.02             | 130.96              | 0.94             | 131.48              | 2.14             | 132.00              | 7.86             |
| 130.45              | 0.03             | 130.97              | 0.97             | 131.49              | 2.17             |                     |                  |
| 130.46              | 0.04             | 130.98              | 0.99             | 131.50              | 2.19             |                     |                  |
| 130.47              | 0.05             | 130.99              | 1.01             | 131.51              | 2.21             |                     |                  |
| 130.48              | 0.06             | 131.00              | 1.03             | 131.52              | 2.23             |                     |                  |
| 130.49              | 0.07             | 131.01              | 1.06             | 131.53              | 2.25             |                     |                  |
| 130.50              | 0.08             | 131.02              | 1.08             | 131.54              | 2.28             |                     |                  |
| 130.51              | 0.09             | 131.03              | 1.10             | 131.55              | 2.30             |                     |                  |

Stage-Area-Storage for Pond 31P: GI-6

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | 20,000             | 0                       | 131.04              | 20,000             | 20,800                  |
| 130.02              | 20,000             | 400                     | 131.06              | 20,000             | 21,200                  |
| 130.04              | 20,000             | 800                     | 131.08              | 20,000             | 21,600                  |
| 130.06              | 20,000             | 1,200                   | 131.10              | 20,000             | 22,000                  |
| 130.08              | 20,000             | 1,600                   | 131.12              | 20,000             | 22,400                  |
| 130.10              | 20,000             | 2,000                   | 131.14              | 20,000             | 22,800                  |
| 130.12              | 20,000             | 2,400                   | 131.16              | 20,000             | 23,200                  |
| 130.14              | 20,000             | 2,800                   | 131.18              | 20,000             | 23,600                  |
| 130.16              | 20,000             | 3,200                   | 131.20              | 20,000             | 24,000                  |
| 130.18              | 20,000             | 3,600                   | 131.22              | 20,000             | 24,400                  |
| 130.20              | 20,000             | 4,000                   | 131.24              | 20,000             | 24,800                  |
| 130.22              | 20,000             | 4,400                   | 131.26              | 20,000             | 25,200                  |
| 130.24              | 20,000             | 4,800                   | 131.28              | 20,000             | 25,600                  |
| 130.26              | 20,000             | 5,200                   | 131.30              | 20,000             | 26,000                  |
| 130.28              | 20,000             | 5,600                   | 131.32              | 20,000             | 26,400                  |
| 130.30              | 20,000             | 6,000                   | 131.34              | 20,000             | 26,800                  |
| 130.32              | 20,000             | 6,400                   | 131.36              | 20,000             | 27,200                  |
| 130.34              | 20,000             | 6,800                   | 131.38              | 20,000             | 27,600                  |
| 130.36              | 20,000             | 7,200                   | 131.40              | 20,000             | 28,000                  |
| 130.38              | 20,000             | 7,600                   | 131.42              | 20,000             | 28,400                  |
| 130.40              | 20,000             | 8,000                   | 131.44              | 20,000             | 28,800                  |
| 130.42              | 20,000             | 8,400                   | 131.46              | 20,000             | 29,200                  |
| 130.44              | 20,000             | 8,800                   | 131.48              | 20,000             | 29,600                  |
| 130.46              | 20,000             | 9,200                   | 131.50              | 20,000             | 30,000                  |
| 130.48              | 20,000             | 9,600                   | 131.52              | 20,000             | 30,400                  |
| 130.50              | 20,000             | 10,000                  | 131.54              | 20,000             | 30,800                  |
| 130.52              | 20,000             | 10,400                  | 131.56              | 20,000             | 31,200                  |
| 130.54              | 20,000             | 10,800                  | 131.58              | 20,000             | 31,600                  |
| 130.56              | 20,000             | 11,200                  | 131.60              | 20,000             | 32,000                  |
| 130.58              | 20,000             | 11,600                  | 131.62              | 20,000             | 32,400                  |
| 130.60              | 20,000             | 12,000                  | 131.64              | 20,000             | 32,800                  |
| 130.62              | 20,000             | 12,400                  | 131.66              | 20,000             | 33,200                  |
| 130.64              | 20,000             | 12,800                  | 131.68              | 20,000             | 33,600                  |
| 130.66              | 20,000             | 13,200                  | 131.70              | 20,000             | 34,000                  |
| 130.68              | 20,000             | 13,600                  | 131.72              | 20,000             | 34,400                  |
| 130.70              | 20,000             | 14,000                  | 131.74              | 20,000             | 34,800                  |
| 130.72              | 20,000             | 14,400                  | 131.76              | 20,000             | 35,200                  |
| 130.74              | 20,000             | 14,800                  | 131.78              | 20,000             | 35,600                  |
| 130.76              | 20,000             | 15,200                  | 131.80              | 20,000             | 36,000                  |
| 130.78              | 20,000             | 15,600                  | 131.82              | 20,000             | 36,400                  |
| 130.80              | 20,000             | 16,000                  | 131.84              | 20,000             | 36,800                  |
| 130.82              | 20,000             | 16,400                  | 131.86              | 20,000             | 37,200                  |
| 130.84              | 20,000             | 16,800                  | 131.88              | 20,000             | 37,600                  |
| 130.86              | 20,000             | 17,200                  | 131.90              | 20,000             | 38,000                  |
| 130.88              | 20,000             | 17,600                  | 131.92              | 20,000             | 38,400                  |
| 130.90              | 20,000             | 18,000                  | 131.94              | 20,000             | 38,800                  |
| 130.92              | 20,000             | 18,400                  | 131.96              | 20,000             | 39,200                  |
| 130.94              | 20,000             | 18,800                  | 131.98              | 20,000             | 39,600                  |
| 130.96              | 20,000             | 19,200                  | 132.00              | 20,000             | 40,000                  |
| 130.98              | 20,000             | 19,600                  |                     |                    |                         |
| 131.00              | 20,000             | 20,000                  |                     |                    |                         |
| 131.02              | 20,000             | 20,400                  |                     |                    |                         |

Summary for Pond 43P: GI-11

Inflow Area = 17,074 sf, 78.69% Impervious, Inflow Depth = 3.06" for 2-Year-2050 event  
Inflow = 1.47 cfs @ 12.07 hrs, Volume= 4,360 cf  
Outflow = 0.56 cfs @ 12.18 hrs, Volume= 3,173 cf, Atten= 62%, Lag= 6.5 min  
Primary = 0.56 cfs @ 12.18 hrs, Volume= 3,173 cf  
Routed to Link 13L : FES

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.47' @ 12.18 hrs Surf.Area= 2,193 sf Storage= 2,120 cf

Plug-Flow detention time= 219.0 min calculated for 3,173 cf (73% of inflow)  
Center-of-Mass det. time= 124.2 min ( 881.3 - 757.0 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.50' | 4,386 cf      | Custom Stage Data (Prismatic) Listed below (Recalc) |

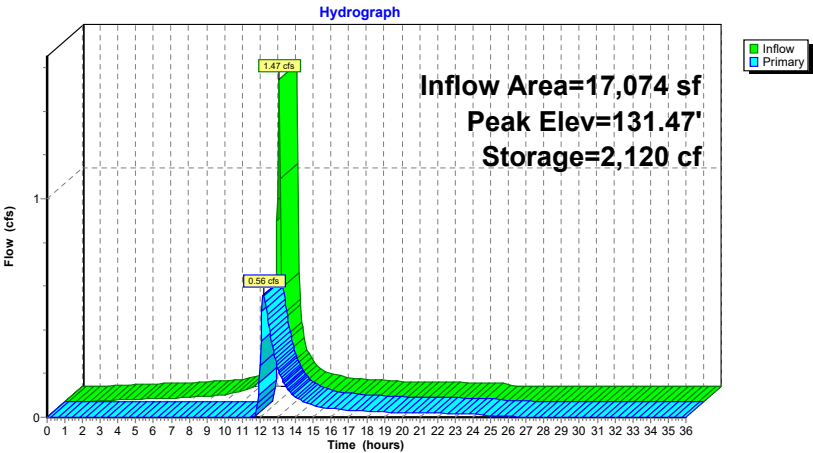
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.50           | 2,193             | 0                      | 0                      |
| 132.50           | 2,193             | 4,386                  | 4,386                  |

| Device | Routing | Invert  | Outlet Devices                                                |
|--------|---------|---------|---------------------------------------------------------------|
| #1     | Primary | 131.04' | 0.7' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

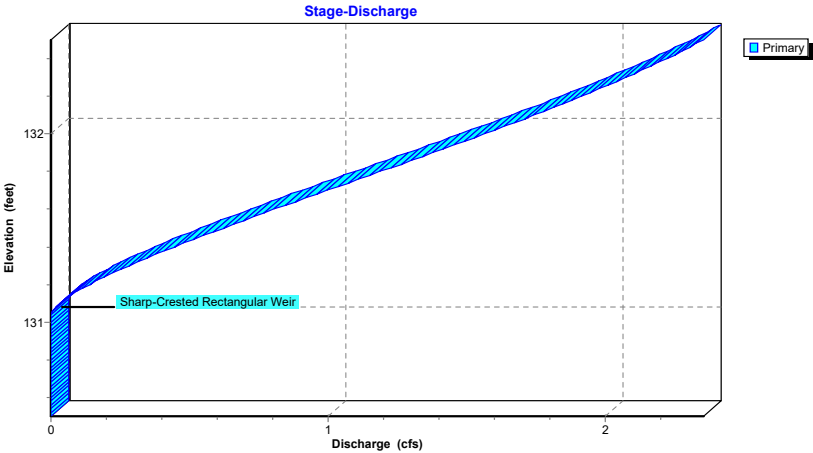
Primary OutFlow Max=0.56 cfs @ 12.18 hrs HW=131.47' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir(Weir Controls 0.56 cfs @ 2.13 fps)



Pond 43P: GI-11

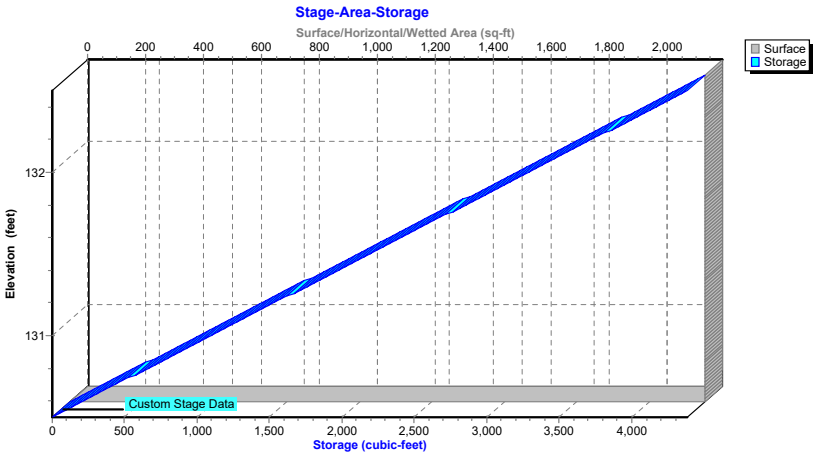


Pond 43P: GI-11





Pond 43P: GI-11



Hydrograph for Pond 43P: GI-11

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.50           | 0.00          |
| 1.00         | 0.00         | 0                    | 130.50           | 0.00          |
| 2.00         | 0.00         | 10                   | 130.50           | 0.00          |
| 3.00         | 0.01         | 35                   | 130.52           | 0.00          |
| 4.00         | 0.01         | 71                   | 130.53           | 0.00          |
| 5.00         | 0.01         | 117                  | 130.55           | 0.00          |
| 6.00         | 0.02         | 171                  | 130.58           | 0.00          |
| 7.00         | 0.02         | 238                  | 130.61           | 0.00          |
| 8.00         | 0.03         | 323                  | 130.65           | 0.00          |
| 9.00         | 0.03         | 427                  | 130.69           | 0.00          |
| 10.00        | 0.05         | 575                  | 130.76           | 0.00          |
| 11.00        | 0.09         | 813                  | 130.87           | 0.00          |
| 12.00        | 0.92         | 1,689                | 131.27           | 0.24          |
| 13.00        | 0.12         | 1,670                | 131.26           | 0.22          |
| 14.00        | 0.06         | 1,445                | 131.16           | 0.09          |
| 15.00        | 0.04         | 1,370                | 131.12           | 0.06          |
| 16.00        | 0.03         | 1,333                | 131.11           | 0.04          |
| 17.00        | 0.03         | 1,314                | 131.10           | 0.03          |
| 18.00        | 0.02         | 1,298                | 131.09           | 0.03          |
| 19.00        | 0.02         | 1,287                | 131.09           | 0.02          |
| 20.00        | 0.02         | 1,281                | 131.08           | 0.02          |
| 21.00        | 0.02         | 1,276                | 131.08           | 0.02          |
| 22.00        | 0.02         | 1,272                | 131.08           | 0.02          |
| 23.00        | 0.02         | 1,267                | 131.08           | 0.02          |
| 24.00        | 0.02         | 1,264                | 131.08           | 0.02          |
| 25.00        | 0.00         | 1,228                | 131.06           | 0.01          |
| 26.00        | 0.00         | 1,212                | 131.05           | 0.00          |
| 27.00        | 0.00         | 1,203                | 131.05           | 0.00          |
| 28.00        | 0.00         | 1,198                | 131.05           | 0.00          |
| 29.00        | 0.00         | 1,195                | 131.04           | 0.00          |
| 30.00        | 0.00         | 1,192                | 131.04           | 0.00          |
| 31.00        | 0.00         | 1,191                | 131.04           | 0.00          |
| 32.00        | 0.00         | 1,190                | 131.04           | 0.00          |
| 33.00        | 0.00         | 1,189                | 131.04           | 0.00          |
| 34.00        | 0.00         | 1,188                | 131.04           | 0.00          |
| 35.00        | 0.00         | 1,188                | 131.04           | 0.00          |
| 36.00        | 0.00         | 1,187                | 131.04           | 0.00          |

**2101ELK-STM Analysis POI-1 - Propose**VOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

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**Stage-Discharge for Pond 43P: GI-11**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.50              | 0.00             | 131.02              | 0.00             | 131.54              | 0.69             | 132.06              | 1.67             |
| 130.51              | 0.00             | 131.03              | 0.00             | 131.55              | 0.71             | 132.07              | 1.69             |
| 130.52              | 0.00             | 131.04              | 0.00             | 131.56              | 0.73             | 132.08              | 1.71             |
| 130.53              | 0.00             | 131.05              | 0.00             | 131.57              | 0.75             | 132.09              | 1.72             |
| 130.54              | 0.00             | 131.06              | 0.01             | 131.58              | 0.77             | 132.10              | 1.74             |
| 130.55              | 0.00             | 131.07              | 0.01             | 131.59              | 0.79             | 132.11              | 1.76             |
| 130.56              | 0.00             | 131.08              | 0.02             | 131.60              | 0.81             | 132.12              | 1.78             |
| 130.57              | 0.00             | 131.09              | 0.03             | 131.61              | 0.82             | 132.13              | 1.79             |
| 130.58              | 0.00             | 131.10              | 0.03             | 131.62              | 0.84             | 132.14              | 1.81             |
| 130.59              | 0.00             | 131.11              | 0.04             | 131.63              | 0.86             | 132.15              | 1.83             |
| 130.60              | 0.00             | 131.12              | 0.05             | 131.64              | 0.88             | 132.16              | 1.84             |
| 130.61              | 0.00             | 131.13              | 0.06             | 131.65              | 0.90             | 132.17              | 1.86             |
| 130.62              | 0.00             | 131.14              | 0.07             | 131.66              | 0.92             | 132.18              | 1.88             |
| 130.63              | 0.00             | 131.15              | 0.08             | 131.67              | 0.94             | 132.19              | 1.90             |
| 130.64              | 0.00             | 131.16              | 0.09             | 131.68              | 0.96             | 132.20              | 1.91             |
| 130.65              | 0.00             | 131.17              | 0.10             | 131.69              | 0.98             | 132.21              | 1.93             |
| 130.66              | 0.00             | 131.18              | 0.12             | 131.70              | 1.00             | 132.22              | 1.94             |
| 130.67              | 0.00             | 131.19              | 0.13             | 131.71              | 1.02             | 132.23              | 1.96             |
| 130.68              | 0.00             | 131.20              | 0.14             | 131.72              | 1.03             | 132.24              | 1.98             |
| 130.69              | 0.00             | 131.21              | 0.15             | 131.73              | 1.05             | 132.25              | 1.99             |
| 130.70              | 0.00             | 131.22              | 0.17             | 131.74              | 1.07             | 132.26              | 2.01             |
| 130.71              | 0.00             | 131.23              | 0.18             | 131.75              | 1.09             | 132.27              | 2.03             |
| 130.72              | 0.00             | 131.24              | 0.19             | 131.76              | 1.11             | 132.28              | 2.04             |
| 130.73              | 0.00             | 131.25              | 0.21             | 131.77              | 1.13             | 132.29              | 2.06             |
| 130.74              | 0.00             | 131.26              | 0.22             | 131.78              | 1.15             | 132.30              | 2.07             |
| 130.75              | 0.00             | 131.27              | 0.24             | 131.79              | 1.17             | 132.31              | 2.09             |
| 130.76              | 0.00             | 131.28              | 0.25             | 131.80              | 1.19             | 132.32              | 2.10             |
| 130.77              | 0.00             | 131.29              | 0.27             | 131.81              | 1.21             | 132.33              | 2.12             |
| 130.78              | 0.00             | 131.30              | 0.28             | 131.82              | 1.23             | 132.34              | 2.13             |
| 130.79              | 0.00             | 131.31              | 0.30             | 131.83              | 1.24             | 132.35              | 2.15             |
| 130.80              | 0.00             | 131.32              | 0.31             | 131.84              | 1.26             | 132.36              | 2.16             |
| 130.81              | 0.00             | 131.33              | 0.33             | 131.85              | 1.28             | 132.37              | 2.18             |
| 130.82              | 0.00             | 131.34              | 0.34             | 131.86              | 1.30             | 132.38              | 2.19             |
| 130.83              | 0.00             | 131.35              | 0.36             | 131.87              | 1.32             | 132.39              | 2.21             |
| 130.84              | 0.00             | 131.36              | 0.38             | 131.88              | 1.34             | 132.40              | 2.22             |
| 130.85              | 0.00             | 131.37              | 0.39             | 131.89              | 1.36             | 132.41              | 2.23             |
| 130.86              | 0.00             | 131.38              | 0.41             | 131.90              | 1.38             | 132.42              | 2.25             |
| 130.87              | 0.00             | 131.39              | 0.43             | 131.91              | 1.40             | 132.43              | 2.26             |
| 130.88              | 0.00             | 131.40              | 0.44             | 131.92              | 1.41             | 132.44              | 2.28             |
| 130.89              | 0.00             | 131.41              | 0.46             | 131.93              | 1.43             | 132.45              | 2.29             |
| 130.90              | 0.00             | 131.42              | 0.48             | 131.94              | 1.45             | 132.46              | 2.30             |
| 130.91              | 0.00             | 131.43              | 0.50             | 131.95              | 1.47             | 132.47              | 2.32             |
| 130.92              | 0.00             | 131.44              | 0.51             | 131.96              | 1.49             | 132.48              | 2.33             |
| 130.93              | 0.00             | 131.45              | 0.53             | 131.97              | 1.51             | 132.49              | 2.34             |
| 130.94              | 0.00             | 131.46              | 0.55             | 131.98              | 1.53             | 132.50              | 2.35             |
| 130.95              | 0.00             | 131.47              | 0.57             | 131.99              | 1.54             |                     |                  |
| 130.96              | 0.00             | 131.48              | 0.58             | 132.00              | 1.56             |                     |                  |
| 130.97              | 0.00             | 131.49              | 0.60             | 132.01              | 1.58             |                     |                  |
| 130.98              | 0.00             | 131.50              | 0.62             | 132.02              | 1.60             |                     |                  |
| 130.99              | 0.00             | 131.51              | 0.64             | 132.03              | 1.62             |                     |                  |
| 131.00              | 0.00             | 131.52              | 0.66             | 132.04              | 1.64             |                     |                  |
| 131.01              | 0.00             | 131.53              | 0.68             | 132.05              | 1.65             |                     |                  |

**2101ELK-STM Analysis POI-1 - Propose**VOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

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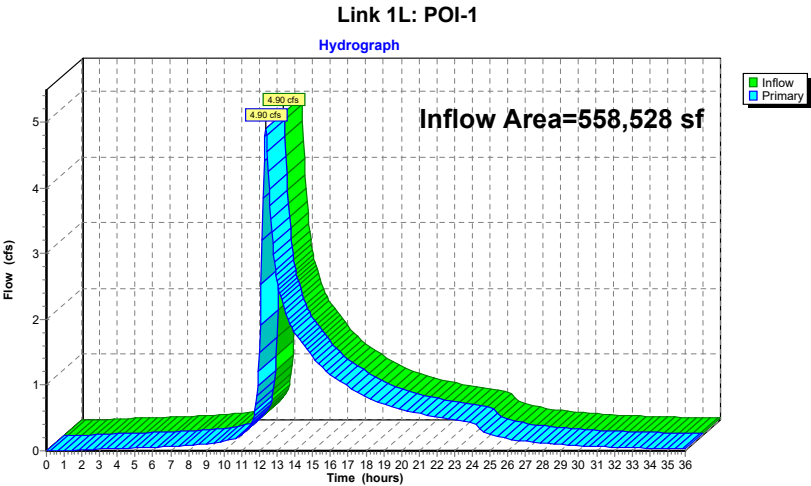
**Stage-Area-Storage for Pond 43P: GI-11**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.50              | 2,193              | 0                       | 131.54              | 2,193              | 2,281                   |
| 130.52              | 2,193              | 44                      | 131.56              | 2,193              | 2,325                   |
| 130.54              | 2,193              | 88                      | 131.58              | 2,193              | 2,368                   |
| 130.56              | 2,193              | 132                     | 131.60              | 2,193              | 2,412                   |
| 130.58              | 2,193              | 175                     | 131.62              | 2,193              | 2,456                   |
| 130.60              | 2,193              | 219                     | 131.64              | 2,193              | 2,500                   |
| 130.62              | 2,193              | 263                     | 131.66              | 2,193              | 2,544                   |
| 130.64              | 2,193              | 307                     | 131.68              | 2,193              | 2,588                   |
| 130.66              | 2,193              | 351                     | 131.70              | 2,193              | 2,632                   |
| 130.68              | 2,193              | 395                     | 131.72              | 2,193              | 2,675                   |
| 130.70              | 2,193              | 439                     | 131.74              | 2,193              | 2,719                   |
| 130.72              | 2,193              | 482                     | 131.76              | 2,193              | 2,763                   |
| 130.74              | 2,193              | 526                     | 131.78              | 2,193              | 2,807                   |
| 130.76              | 2,193              | 570                     | 131.80              | 2,193              | 2,851                   |
| 130.78              | 2,193              | 614                     | 131.82              | 2,193              | 2,895                   |
| 130.80              | 2,193              | 658                     | 131.84              | 2,193              | 2,939                   |
| 130.82              | 2,193              | 702                     | 131.86              | 2,193              | 2,982                   |
| 130.84              | 2,193              | 746                     | 131.88              | 2,193              | 3,026                   |
| 130.86              | 2,193              | 789                     | 131.90              | 2,193              | 3,070                   |
| 130.88              | 2,193              | 833                     | 131.92              | 2,193              | 3,114                   |
| 130.90              | 2,193              | 877                     | 131.94              | 2,193              | 3,158                   |
| 130.92              | 2,193              | 921                     | 131.96              | 2,193              | 3,202                   |
| 130.94              | 2,193              | 965                     | 131.98              | 2,193              | 3,246                   |
| 130.96              | 2,193              | 1,009                   | 132.00              | 2,193              | 3,290                   |
| 130.98              | 2,193              | 1,053                   | 132.02              | 2,193              | 3,333                   |
| 131.00              | 2,193              | 1,097                   | 132.04              | 2,193              | 3,377                   |
| 131.02              | 2,193              | 1,140                   | 132.06              | 2,193              | 3,421                   |
| 131.04              | 2,193              | 1,184                   | 132.08              | 2,193              | 3,465                   |
| 131.06              | 2,193              | 1,228                   | 132.10              | 2,193              | 3,509                   |
| 131.08              | 2,193              | 1,272                   | 132.12              | 2,193              | 3,553                   |
| 131.10              | 2,193              | 1,316                   | 132.14              | 2,193              | 3,597                   |
| 131.12              | 2,193              | 1,360                   | 132.16              | 2,193              | 3,640                   |
| 131.14              | 2,193              | 1,404                   | 132.18              | 2,193              | 3,684                   |
| 131.16              | 2,193              | 1,447                   | 132.20              | 2,193              | 3,728                   |
| 131.18              | 2,193              | 1,491                   | 132.22              | 2,193              | 3,772                   |
| 131.20              | 2,193              | 1,535                   | 132.24              | 2,193              | 3,816                   |
| 131.22              | 2,193              | 1,579                   | 132.26              | 2,193              | 3,860                   |
| 131.24              | 2,193              | 1,623                   | 132.28              | 2,193              | 3,904                   |
| 131.26              | 2,193              | 1,667                   | 132.30              | 2,193              | 3,947                   |
| 131.28              | 2,193              | 1,711                   | 132.32              | 2,193              | 3,991                   |
| 131.30              | 2,193              | 1,754                   | 132.34              | 2,193              | 4,035                   |
| 131.32              | 2,193              | 1,798                   | 132.36              | 2,193              | 4,079                   |
| 131.34              | 2,193              | 1,842                   | 132.38              | 2,193              | 4,123                   |
| 131.36              | 2,193              | 1,886                   | 132.40              | 2,193              | 4,167                   |
| 131.38              | 2,193              | 1,930                   | 132.42              | 2,193              | 4,211                   |
| 131.40              | 2,193              | 1,974                   | 132.44              | 2,193              | 4,254                   |
| 131.42              | 2,193              | 2,018                   | 132.46              | 2,193              | 4,298                   |
| 131.44              | 2,193              | 2,061                   | 132.48              | 2,193              | 4,342                   |
| 131.46              | 2,193              | 2,105                   | 132.50              | 2,193              | 4,386                   |
| 131.48              | 2,193              | 2,149                   |                     |                    |                         |
| 131.50              | 2,193              | 2,193                   |                     |                    |                         |
| 131.52              | 2,193              | 2,237                   |                     |                    |                         |

Summary for Link 1L: POI-1

Inflow Area = 558,528 sf, 45.65% Impervious, Inflow Depth > 1.28" for 2-Year-2050 event  
Inflow = 4.90 cfs @ 12.35 hrs, Volume= 59,451 cf  
Primary = 4.90 cfs @ 12.35 hrs, Volume= 59,451 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs



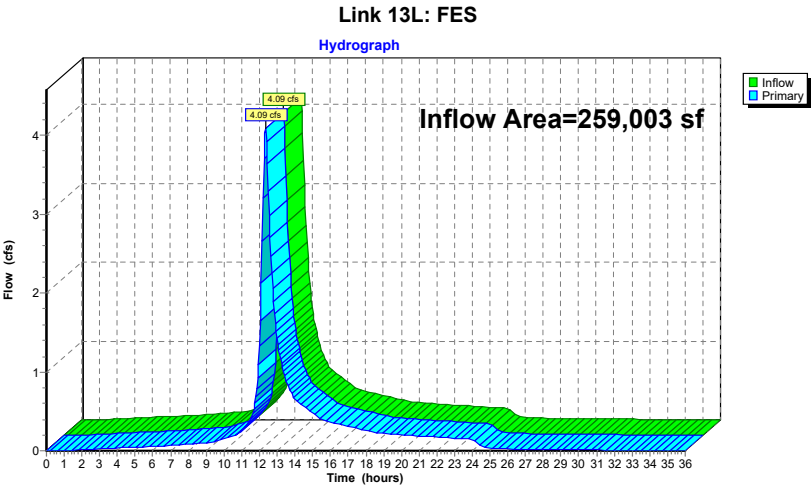
Hydrograph for Link 1L: POI-1

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.19         | 0.00             | 0.19          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.16         | 0.00             | 0.16          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.14         | 0.00             | 0.14          |
| 1.50         | 0.00         | 0.00             | 0.00          | 27.50        | 0.13         | 0.00             | 0.13          |
| 2.00         | 0.01         | 0.00             | 0.01          | 28.00        | 0.12         | 0.00             | 0.12          |
| 2.50         | 0.02         | 0.00             | 0.02          | 28.50        | 0.10         | 0.00             | 0.10          |
| 3.00         | 0.03         | 0.00             | 0.03          | 29.00        | 0.09         | 0.00             | 0.09          |
| 3.50         | 0.03         | 0.00             | 0.03          | 29.50        | 0.09         | 0.00             | 0.09          |
| 4.00         | 0.04         | 0.00             | 0.04          | 30.00        | 0.08         | 0.00             | 0.08          |
| 4.50         | 0.04         | 0.00             | 0.04          | 30.50        | 0.07         | 0.00             | 0.07          |
| 5.00         | 0.04         | 0.00             | 0.04          | 31.00        | 0.06         | 0.00             | 0.06          |
| 5.50         | 0.05         | 0.00             | 0.05          | 31.50        | 0.06         | 0.00             | 0.06          |
| 6.00         | 0.05         | 0.00             | 0.05          | 32.00        | 0.05         | 0.00             | 0.05          |
| 6.50         | 0.06         | 0.00             | 0.06          | 32.50        | 0.05         | 0.00             | 0.05          |
| 7.00         | 0.07         | 0.00             | 0.07          | 33.00        | 0.05         | 0.00             | 0.05          |
| 7.50         | 0.08         | 0.00             | 0.08          | 33.50        | 0.04         | 0.00             | 0.04          |
| 8.00         | 0.08         | 0.00             | 0.08          | 34.00        | 0.04         | 0.00             | 0.04          |
| 8.50         | 0.09         | 0.00             | 0.09          | 34.50        | 0.04         | 0.00             | 0.04          |
| 9.00         | 0.10         | 0.00             | 0.10          | 35.00        | 0.03         | 0.00             | 0.03          |
| 9.50         | 0.12         | 0.00             | 0.12          | 35.50        | 0.03         | 0.00             | 0.03          |
| 10.00        | 0.15         | 0.00             | 0.15          | 36.00        | 0.03         | 0.00             | 0.03          |
| 10.50        | 0.18         | 0.00             | 0.18          |              |              |                  |               |
| 11.00        | 0.25         | 0.00             | 0.25          |              |              |                  |               |
| 11.50        | 0.41         | 0.00             | 0.41          |              |              |                  |               |
| 12.00        | 1.50         | 0.00             | 1.50          |              |              |                  |               |
| 12.50        | 4.25         | 0.00             | 4.25          |              |              |                  |               |
| 13.00        | 2.58         | 0.00             | 2.58          |              |              |                  |               |
| 13.50        | 2.09         | 0.00             | 2.09          |              |              |                  |               |
| 14.00        | 1.79         | 0.00             | 1.79          |              |              |                  |               |
| 14.50        | 1.61         | 0.00             | 1.61          |              |              |                  |               |
| 15.00        | 1.44         | 0.00             | 1.44          |              |              |                  |               |
| 15.50        | 1.28         | 0.00             | 1.28          |              |              |                  |               |
| 16.00        | 1.16         | 0.00             | 1.16          |              |              |                  |               |
| 16.50        | 1.07         | 0.00             | 1.07          |              |              |                  |               |
| 17.00        | 0.98         | 0.00             | 0.98          |              |              |                  |               |
| 17.50        | 0.90         | 0.00             | 0.90          |              |              |                  |               |
| 18.00        | 0.82         | 0.00             | 0.82          |              |              |                  |               |
| 18.50        | 0.76         | 0.00             | 0.76          |              |              |                  |               |
| 19.00        | 0.71         | 0.00             | 0.71          |              |              |                  |               |
| 19.50        | 0.67         | 0.00             | 0.67          |              |              |                  |               |
| 20.00        | 0.63         | 0.00             | 0.63          |              |              |                  |               |
| 20.50        | 0.60         | 0.00             | 0.60          |              |              |                  |               |
| 21.00        | 0.57         | 0.00             | 0.57          |              |              |                  |               |
| 21.50        | 0.54         | 0.00             | 0.54          |              |              |                  |               |
| 22.00        | 0.52         | 0.00             | 0.52          |              |              |                  |               |
| 22.50        | 0.49         | 0.00             | 0.49          |              |              |                  |               |
| 23.00        | 0.47         | 0.00             | 0.47          |              |              |                  |               |
| 23.50        | 0.45         | 0.00             | 0.45          |              |              |                  |               |
| 24.00        | 0.43         | 0.00             | 0.43          |              |              |                  |               |
| 24.50        | 0.30         | 0.00             | 0.30          |              |              |                  |               |
| 25.00        | 0.25         | 0.00             | 0.25          |              |              |                  |               |
| 25.50        | 0.21         | 0.00             | 0.21          |              |              |                  |               |

Summary for Link 13L: FES

Inflow Area = 259,003 sf, 30.97% Impervious, Inflow Depth > 1.28" for 2-Year-2050 event  
Inflow = 4.09 cfs @ 12.34 hrs, Volume= 27,690 cf  
Primary = 4.09 cfs @ 12.34 hrs, Volume= 27,690 cf, Atten= 0%, Lag= 0.0 min  
Routed to Link 1L : POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs



Hydrograph for Link 13L: FES

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.02         | 0.00             | 0.02          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.02         | 0.00             | 0.02          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.02         | 0.00             | 0.02          |
| 1.50         | 0.00         | 0.00             | 0.00          | 27.50        | 0.01         | 0.00             | 0.01          |
| 2.00         | 0.01         | 0.00             | 0.01          | 28.00        | 0.01         | 0.00             | 0.01          |
| 2.50         | 0.02         | 0.00             | 0.02          | 28.50        | 0.01         | 0.00             | 0.01          |
| 3.00         | 0.03         | 0.00             | 0.03          | 29.00        | 0.01         | 0.00             | 0.01          |
| 3.50         | 0.03         | 0.00             | 0.03          | 29.50        | 0.01         | 0.00             | 0.01          |
| 4.00         | 0.04         | 0.00             | 0.04          | 30.00        | 0.01         | 0.00             | 0.01          |
| 4.50         | 0.04         | 0.00             | 0.04          | 30.50        | 0.01         | 0.00             | 0.01          |
| 5.00         | 0.04         | 0.00             | 0.04          | 31.00        | 0.01         | 0.00             | 0.01          |
| 5.50         | 0.05         | 0.00             | 0.05          | 31.50        | 0.01         | 0.00             | 0.01          |
| 6.00         | 0.05         | 0.00             | 0.05          | 32.00        | 0.01         | 0.00             | 0.01          |
| 6.50         | 0.06         | 0.00             | 0.06          | 32.50        | 0.01         | 0.00             | 0.01          |
| 7.00         | 0.07         | 0.00             | 0.07          | 33.00        | 0.01         | 0.00             | 0.01          |
| 7.50         | 0.08         | 0.00             | 0.08          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.08         | 0.00             | 0.08          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.09         | 0.00             | 0.09          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.10         | 0.00             | 0.10          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.12         | 0.00             | 0.12          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.15         | 0.00             | 0.15          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.18         | 0.00             | 0.18          |              |              |                  |               |
| 11.00        | 0.25         | 0.00             | 0.25          |              |              |                  |               |
| 11.50        | 0.41         | 0.00             | 0.41          |              |              |                  |               |
| 12.00        | 1.32         | 0.00             | 1.32          |              |              |                  |               |
| 12.50        | 3.29         | 0.00             | 3.29          |              |              |                  |               |
| 13.00        | 1.42         | 0.00             | 1.42          |              |              |                  |               |
| 13.50        | 0.91         | 0.00             | 0.91          |              |              |                  |               |
| 14.00        | 0.66         | 0.00             | 0.66          |              |              |                  |               |
| 14.50        | 0.56         | 0.00             | 0.56          |              |              |                  |               |
| 15.00        | 0.47         | 0.00             | 0.47          |              |              |                  |               |
| 15.50        | 0.40         | 0.00             | 0.40          |              |              |                  |               |
| 16.00        | 0.37         | 0.00             | 0.37          |              |              |                  |               |
| 16.50        | 0.34         | 0.00             | 0.34          |              |              |                  |               |
| 17.00        | 0.31         | 0.00             | 0.31          |              |              |                  |               |
| 17.50        | 0.28         | 0.00             | 0.28          |              |              |                  |               |
| 18.00        | 0.25         | 0.00             | 0.25          |              |              |                  |               |
| 18.50        | 0.23         | 0.00             | 0.23          |              |              |                  |               |
| 19.00        | 0.22         | 0.00             | 0.22          |              |              |                  |               |
| 19.50        | 0.21         | 0.00             | 0.21          |              |              |                  |               |
| 20.00        | 0.20         | 0.00             | 0.20          |              |              |                  |               |
| 20.50        | 0.20         | 0.00             | 0.20          |              |              |                  |               |
| 21.00        | 0.19         | 0.00             | 0.19          |              |              |                  |               |
| 21.50        | 0.18         | 0.00             | 0.18          |              |              |                  |               |
| 22.00        | 0.17         | 0.00             | 0.17          |              |              |                  |               |
| 22.50        | 0.17         | 0.00             | 0.17          |              |              |                  |               |
| 23.00        | 0.16         | 0.00             | 0.16          |              |              |                  |               |
| 23.50        | 0.15         | 0.00             | 0.15          |              |              |                  |               |
| 24.00        | 0.15         | 0.00             | 0.15          |              |              |                  |               |
| 24.50        | 0.05         | 0.00             | 0.05          |              |              |                  |               |
| 25.00        | 0.03         | 0.00             | 0.03          |              |              |                  |               |
| 25.50        | 0.03         | 0.00             | 0.03          |              |              |                  |               |

**2101ELK-STM Analysis POI-1 - Proposed NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"**

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Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

|                                           |                                                                                                                                         |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Subcatchment1S: GI-1 Pervious</b>      | Runoff Area=18,062 sf 0.00% Impervious Runoff Depth=0.51"<br>Flow Length=68' Slope=0.0330 '/' Tc=7.8 min CN=39 Runoff=0.09 cfs 764 cf   |
| <b>Subcatchment2S: GI-9 Pervious</b>      | Runoff Area=16,032 sf 0.00% Impervious Runoff Depth=2.15"<br>Flow Length=17' Slope=0.0960 '/' Tc=1.7 min CN=61 Runoff=1.18 cfs 2,869 cf |
| <b>Subcatchment3S: GI-1 Impervious</b>    | Runoff Area=21,060 sf 100.00% Impervious Runoff Depth=5.97"<br>Flow Length=400' Tc=2.7 min CN=98 Runoff=3.51 cfs 10,480 cf              |
| <b>Subcatchment5S: Proposed Disturbed</b> | Runoff Area=44,397 sf 0.00% Impervious Runoff Depth=1.03"<br>Flow Length=1,818' Tc=89.3 min CN=47 Runoff=0.29 cfs 3,799 cf              |
| <b>Subcatchment6S: GI-9 Impervious</b>    | Runoff Area=43,332 sf 100.00% Impervious Runoff Depth=5.97"<br>Flow Length=311' Tc=2.3 min CN=98 Runoff=7.32 cfs 21,564 cf              |
| <b>Subcatchment15S: GI-2 Pervious</b>     | Runoff Area=13,462 sf 0.00% Impervious Runoff Depth=0.51"<br>Flow Length=28' Slope=0.0400 '/' Tc=3.5 min CN=39 Runoff=0.08 cfs 569 cf   |
| <b>Subcatchment16S: GI-2 Impervious</b>   | Runoff Area=13,121 sf 100.00% Impervious Runoff Depth=5.97"<br>Flow Length=220' Tc=1.9 min CN=98 Runoff=2.23 cfs 6,529 cf               |
| <b>Subcatchment26S: GI-3 Pervious</b>     | Runoff Area=23,555 sf 0.00% Impervious Runoff Depth=1.64"<br>Flow Length=93' Slope=0.0130 '/' Tc=9.4 min CN=55 Runoff=0.92 cfs 3,219 cf |
| <b>Subcatchment27S: GI-3 Impervious</b>   | Runoff Area=60,594 sf 100.00% Impervious Runoff Depth=5.97"<br>Flow Length=433' Tc=3.4 min CN=98 Runoff=9.85 cfs 30,154 cf              |
| <b>Subcatchment29S: GI-6 Pervious</b>     | Runoff Area=27,344 sf 0.00% Impervious Runoff Depth=1.17"<br>Flow Length=60' Slope=0.0280 '/' Tc=7.5 min CN=49 Runoff=0.76 cfs 2,672 cf |
| <b>Subcatchment30S: GI-6 Impervious</b>   | Runoff Area=57,688 sf 100.00% Impervious Runoff Depth=5.97"<br>Flow Length=401' Tc=3.3 min CN=98 Runoff=9.42 cfs 28,708 cf              |
| <b>Subcatchment41S: GI-11 Pervious</b>    | Runoff Area=3,638 sf 0.00% Impervious Runoff Depth=2.15"<br>Flow Length=123' Tc=3.4 min CN=61 Runoff=0.25 cfs 651 cf                    |
| <b>Subcatchment42S: GI-11 Impervious</b>  | Runoff Area=13,436 sf 100.00% Impervious Runoff Depth=5.97"<br>Flow Length=158' Tc=1.6 min CN=98 Runoff=2.24 cfs 6,686 cf               |
| <b>Subcatchment46S: North Undisturbed</b> | Runoff Area=157,085 sf 0.00% Impervious Runoff Depth=1.56"<br>Flow Length=690' Tc=22.1 min CN=54 Runoff=4.02 cfs 20,409 cf              |
| <b>Subcatchment47S: North Undisturbed</b> | Runoff Area=45,722 sf 100.00% Impervious Runoff Depth=5.97"<br>Flow Length=725' Tc=22.6 min CN=98 Runoff=4.38 cfs 22,753 cf             |
| <b>Pond 2P: GI-1</b>                      | Peak Elev=131.79' Storage=6,266 cf Inflow=3.52 cfs 11,244 cf<br>Outflow=0.51 cfs 9,182 cf                                               |

**2101ELK-STM Analysis POI-1 - Proposed NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"**

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|                        |                                                                                              |
|------------------------|----------------------------------------------------------------------------------------------|
| <b>Pond 7P: GI-9</b>   | Peak Elev=129.51' Storage=13,795 cf Inflow=8.50 cfs 24,432 cf<br>Outflow=1.06 cfs 20,441 cf  |
| <b>Pond 14P: GI-2</b>  | Peak Elev=130.53' Storage=3,809 cf Inflow=2.27 cfs 7,099 cf<br>Outflow=0.38 cfs 5,812 cf     |
| <b>Pond 28P: GI-3</b>  | Peak Elev=131.64' Storage=18,048 cf Inflow=10.46 cfs 33,373 cf<br>Outflow=3.66 cfs 21,812 cf |
| <b>Pond 31P: GI-6</b>  | Peak Elev=130.98' Storage=19,504 cf Inflow=9.93 cfs 31,379 cf<br>Outflow=0.98 cfs 22,646 cf  |
| <b>Pond 43P: GI-11</b> | Peak Elev=131.79' Storage=2,819 cf Inflow=2.52 cfs 7,337 cf<br>Outflow=1.16 cfs 6,150 cf     |
| <b>Link 1L: POI-1</b>  | Inflow=15.55 cfs 133,003 cf<br>Primary=15.55 cfs 133,003 cf                                  |
| <b>Link 13L: FES</b>   | Inflow=9.80 cfs 58,494 cf<br>Primary=9.80 cfs 58,494 cf                                      |

**Total Runoff Area = 558,528 sf Runoff Volume = 161,825 cf Average Runoff Depth = 3.48"**  
**54.35% Pervious = 303,575 sf 45.65% Impervious = 254,953 sf**

Summary for Subcatchment 1S: GI-1 Pervious

Runoff = 0.09 cfs @ 12.24 hrs, Volume= 764 cf, Depth= 0.51"  
Routed to Pond 2P : GI-1

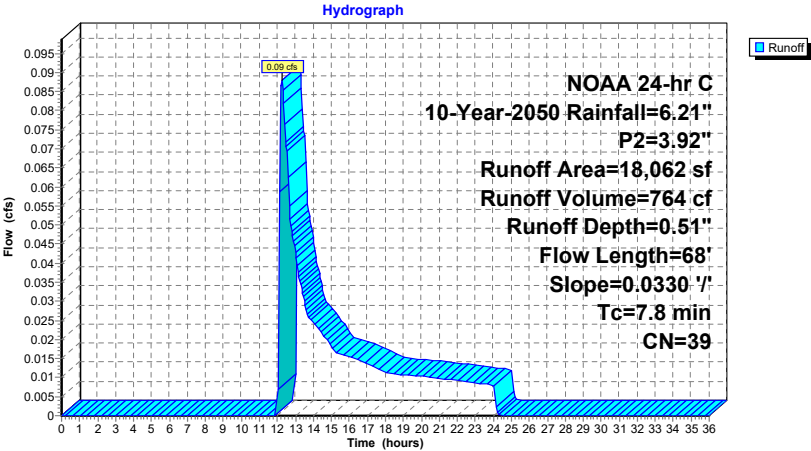
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 18,062    | 39 | >75% Grass cover, Good, HSG A |
| 18,062    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                          |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------|
| 7.8      | 68            | 0.0330        | 0.15              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92" |



Subcatchment 1S: GI-1 Pervious



Hydrograph for Subcatchment 1S: GI-1 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 6.21             | 0.51            | 0.00         |
| 0.50         | 0.03             | 0.00            | 0.00         | 26.50        | 6.21             | 0.51            | 0.00         |
| 1.00         | 0.07             | 0.00            | 0.00         | 27.00        | 6.21             | 0.51            | 0.00         |
| 1.50         | 0.10             | 0.00            | 0.00         | 27.50        | 6.21             | 0.51            | 0.00         |
| 2.00         | 0.14             | 0.00            | 0.00         | 28.00        | 6.21             | 0.51            | 0.00         |
| 2.50         | 0.18             | 0.00            | 0.00         | 28.50        | 6.21             | 0.51            | 0.00         |
| 3.00         | 0.22             | 0.00            | 0.00         | 29.00        | 6.21             | 0.51            | 0.00         |
| 3.50         | 0.26             | 0.00            | 0.00         | 29.50        | 6.21             | 0.51            | 0.00         |
| 4.00         | 0.30             | 0.00            | 0.00         | 30.00        | 6.21             | 0.51            | 0.00         |
| 4.50         | 0.35             | 0.00            | 0.00         | 30.50        | 6.21             | 0.51            | 0.00         |
| 5.00         | 0.39             | 0.00            | 0.00         | 31.00        | 6.21             | 0.51            | 0.00         |
| 5.50         | 0.44             | 0.00            | 0.00         | 31.50        | 6.21             | 0.51            | 0.00         |
| 6.00         | 0.49             | 0.00            | 0.00         | 32.00        | 6.21             | 0.51            | 0.00         |
| 6.50         | 0.55             | 0.00            | 0.00         | 32.50        | 6.21             | 0.51            | 0.00         |
| 7.00         | 0.61             | 0.00            | 0.00         | 33.00        | 6.21             | 0.51            | 0.00         |
| 7.50         | 0.67             | 0.00            | 0.00         | 33.50        | 6.21             | 0.51            | 0.00         |
| 8.00         | 0.74             | 0.00            | 0.00         | 34.00        | 6.21             | 0.51            | 0.00         |
| 8.50         | 0.82             | 0.00            | 0.00         | 34.50        | 6.21             | 0.51            | 0.00         |
| 9.00         | 0.91             | 0.00            | 0.00         | 35.00        | 6.21             | 0.51            | 0.00         |
| 9.50         | 1.01             | 0.00            | 0.00         | 35.50        | 6.21             | 0.51            | 0.00         |
| 10.00        | 1.13             | 0.00            | 0.00         | 36.00        | 6.21             | 0.51            | 0.00         |
| 10.50        | 1.28             | 0.00            | 0.00         |              |                  |                 |              |
| 11.00        | 1.49             | 0.00            | 0.00         |              |                  |                 |              |
| 11.50        | 1.84             | 0.00            | 0.00         |              |                  |                 |              |
| 12.00        | 2.96             | 0.00            | 0.00         |              |                  |                 |              |
| 12.50        | 4.37             | 0.09            | 0.07         |              |                  |                 |              |
| 13.00        | 4.72             | 0.15            | 0.04         |              |                  |                 |              |
| 13.50        | 4.93             | 0.19            | 0.03         |              |                  |                 |              |
| 14.00        | 5.08             | 0.22            | 0.02         |              |                  |                 |              |
| 14.50        | 5.20             | 0.24            | 0.02         |              |                  |                 |              |
| 15.00        | 5.30             | 0.27            | 0.02         |              |                  |                 |              |
| 15.50        | 5.39             | 0.29            | 0.02         |              |                  |                 |              |
| 16.00        | 5.47             | 0.30            | 0.02         |              |                  |                 |              |
| 16.50        | 5.54             | 0.32            | 0.01         |              |                  |                 |              |
| 17.00        | 5.60             | 0.34            | 0.01         |              |                  |                 |              |
| 17.50        | 5.66             | 0.35            | 0.01         |              |                  |                 |              |
| 18.00        | 5.72             | 0.37            | 0.01         |              |                  |                 |              |
| 18.50        | 5.77             | 0.38            | 0.01         |              |                  |                 |              |
| 19.00        | 5.82             | 0.39            | 0.01         |              |                  |                 |              |
| 19.50        | 5.86             | 0.41            | 0.01         |              |                  |                 |              |
| 20.00        | 5.91             | 0.42            | 0.01         |              |                  |                 |              |
| 20.50        | 5.95             | 0.43            | 0.01         |              |                  |                 |              |
| 21.00        | 5.99             | 0.44            | 0.01         |              |                  |                 |              |
| 21.50        | 6.03             | 0.45            | 0.01         |              |                  |                 |              |
| 22.00        | 6.07             | 0.47            | 0.01         |              |                  |                 |              |
| 22.50        | 6.11             | 0.48            | 0.01         |              |                  |                 |              |
| 23.00        | 6.14             | 0.49            | 0.01         |              |                  |                 |              |
| 23.50        | 6.18             | 0.50            | 0.01         |              |                  |                 |              |
| 24.00        | 6.21             | 0.51            | 0.01         |              |                  |                 |              |
| 24.50        | 6.21             | 0.51            | 0.00         |              |                  |                 |              |
| 25.00        | 6.21             | 0.51            | 0.00         |              |                  |                 |              |
| 25.50        | 6.21             | 0.51            | 0.00         |              |                  |                 |              |

Summary for Subcatchment 2S: GI-9 Pervious

Runoff = 1.18 cfs @ 12.08 hrs, Volume= 2,869 cf, Depth= 2.15"  
Routed to Pond 7P : GI-9

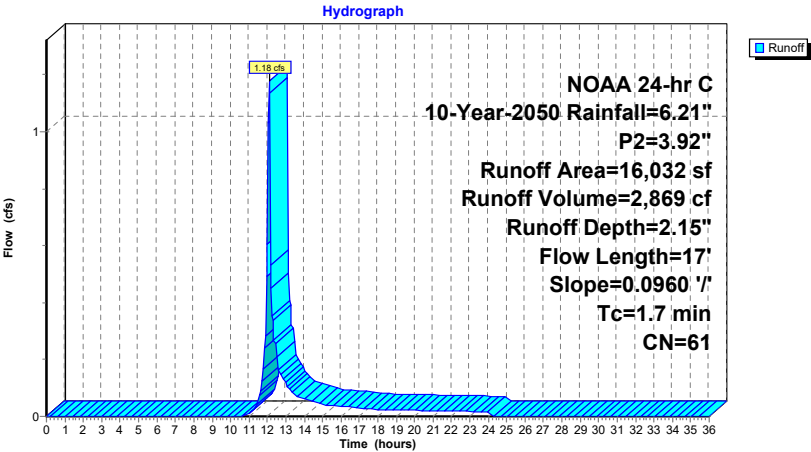
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 154       | 39 | >75% Grass cover, Good, HSG A |
| 15,878    | 61 | >75% Grass cover, Good, HSG B |
| 16,032    | 61 | Weighted Average              |
| 16,032    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                    |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------|
| 1.7      | 17            | 0.0960        | 0.17              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.92" |



Subcatchment 2S: GI-9 Pervious



Hydrograph for Subcatchment 2S: GI-9 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         |
| 0.50         | 0.03             | 0.00            | 0.00         |
| 1.00         | 0.07             | 0.00            | 0.00         |
| 1.50         | 0.10             | 0.00            | 0.00         |
| 2.00         | 0.14             | 0.00            | 0.00         |
| 2.50         | 0.18             | 0.00            | 0.00         |
| 3.00         | 0.22             | 0.00            | 0.00         |
| 3.50         | 0.26             | 0.00            | 0.00         |
| 4.00         | 0.30             | 0.00            | 0.00         |
| 4.50         | 0.35             | 0.00            | 0.00         |
| 5.00         | 0.39             | 0.00            | 0.00         |
| 5.50         | 0.44             | 0.00            | 0.00         |
| 6.00         | 0.49             | 0.00            | 0.00         |
| 6.50         | 0.55             | 0.00            | 0.00         |
| 7.00         | 0.61             | 0.00            | 0.00         |
| 7.50         | 0.67             | 0.00            | 0.00         |
| 8.00         | 0.74             | 0.00            | 0.00         |
| 8.50         | 0.82             | 0.00            | 0.00         |
| 9.00         | 0.91             | 0.00            | 0.00         |
| 9.50         | 1.01             | 0.00            | 0.00         |
| 10.00        | 1.13             | 0.00            | 0.00         |
| 10.50        | 1.28             | 0.00            | 0.00         |
| 11.00        | 1.49             | 0.01            | 0.01         |
| 11.50        | 1.84             | 0.04            | 0.05         |
| 12.00        | 2.96             | 0.35            | 0.60         |
| 12.50        | 4.37             | 1.01            | 0.25         |
| 13.00        | 4.72             | 1.20            | 0.12         |
| 13.50        | 4.93             | 1.33            | 0.08         |
| 14.00        | 5.08             | 1.42            | 0.06         |
| 14.50        | 5.20             | 1.49            | 0.05         |
| 15.00        | 5.30             | 1.55            | 0.04         |
| 15.50        | 5.39             | 1.61            | 0.04         |
| 16.00        | 5.47             | 1.66            | 0.04         |
| 16.50        | 5.54             | 1.70            | 0.03         |
| 17.00        | 5.60             | 1.75            | 0.03         |
| 17.50        | 5.66             | 1.78            | 0.03         |
| 18.00        | 5.72             | 1.82            | 0.02         |
| 18.50        | 5.77             | 1.85            | 0.02         |
| 19.00        | 5.82             | 1.88            | 0.02         |
| 19.50        | 5.86             | 1.91            | 0.02         |
| 20.00        | 5.91             | 1.94            | 0.02         |
| 20.50        | 5.95             | 1.97            | 0.02         |
| 21.00        | 5.99             | 2.00            | 0.02         |
| 21.50        | 6.03             | 2.03            | 0.02         |
| 22.00        | 6.07             | 2.05            | 0.02         |
| 22.50        | 6.11             | 2.08            | 0.02         |
| 23.00        | 6.14             | 2.10            | 0.02         |
| 23.50        | 6.18             | 2.12            | 0.02         |
| 24.00        | 6.21             | 2.15            | 0.02         |
| 24.50        | 6.21             | 2.15            | 0.00         |
| 25.00        | 6.21             | 2.15            | 0.00         |
| 25.50        | 6.21             | 2.15            | 0.00         |

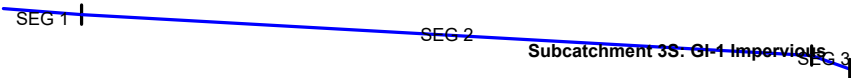
Summary for Subcatchment 3S: GI-1 Impervious

Runoff = 3.51 cfs @ 12.09 hrs, Volume= 10,480 cf, Depth= 5.97"  
Routed to Pond 2P : GI-1

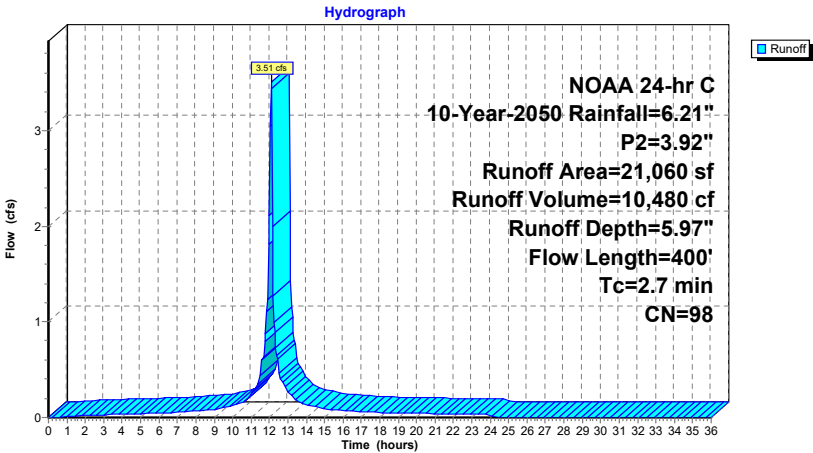
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 21,060    | 98 | Paved parking, HSG A    |
| 21,060    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 0.6      | 37            | 0.0140        | 1.08              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.92"             |
| 1.9      | 345           | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2      | 18            | 0.0630        | 1.76              |                | Shallow Concentrated Flow, SEG 3<br>Short Grass Pasture Kv= 7.0 fps |
| 2.7      | 400           |               |                   |                | Total                                                               |



Subcatchment 3S: GI-1 Impervious



Hydrograph for Subcatchment 3S: GI-1 Impervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 6.21             | 5.97            | 0.00         |
| 0.50         | 0.03             | 0.00            | 0.00         | 26.50        | 6.21             | 5.97            | 0.00         |
| 1.00         | 0.07             | 0.00            | 0.01         | 27.00        | 6.21             | 5.97            | 0.00         |
| 1.50         | 0.10             | 0.01            | 0.01         | 27.50        | 6.21             | 5.97            | 0.00         |
| 2.00         | 0.14             | 0.03            | 0.02         | 28.00        | 6.21             | 5.97            | 0.00         |
| 2.50         | 0.18             | 0.06            | 0.02         | 28.50        | 6.21             | 5.97            | 0.00         |
| 3.00         | 0.22             | 0.08            | 0.03         | 29.00        | 6.21             | 5.97            | 0.00         |
| 3.50         | 0.26             | 0.11            | 0.03         | 29.50        | 6.21             | 5.97            | 0.00         |
| 4.00         | 0.30             | 0.15            | 0.03         | 30.00        | 6.21             | 5.97            | 0.00         |
| 4.50         | 0.35             | 0.19            | 0.04         | 30.50        | 6.21             | 5.97            | 0.00         |
| 5.00         | 0.39             | 0.22            | 0.04         | 31.00        | 6.21             | 5.97            | 0.00         |
| 5.50         | 0.44             | 0.27            | 0.04         | 31.50        | 6.21             | 5.97            | 0.00         |
| 6.00         | 0.49             | 0.31            | 0.04         | 32.00        | 6.21             | 5.97            | 0.00         |
| 6.50         | 0.55             | 0.36            | 0.05         | 32.50        | 6.21             | 5.97            | 0.00         |
| 7.00         | 0.61             | 0.41            | 0.06         | 33.00        | 6.21             | 5.97            | 0.00         |
| 7.50         | 0.67             | 0.48            | 0.06         | 33.50        | 6.21             | 5.97            | 0.00         |
| 8.00         | 0.74             | 0.55            | 0.07         | 34.00        | 6.21             | 5.97            | 0.00         |
| 8.50         | 0.82             | 0.62            | 0.08         | 34.50        | 6.21             | 5.97            | 0.00         |
| 9.00         | 0.91             | 0.70            | 0.08         | 35.00        | 6.21             | 5.97            | 0.00         |
| 9.50         | 1.01             | 0.80            | 0.10         | 35.50        | 6.21             | 5.97            | 0.00         |
| 10.00        | 1.13             | 0.92            | 0.13         | 36.00        | 6.21             | 5.97            | 0.00         |
| 10.50        | 1.28             | 1.06            | 0.15         |              |                  |                 |              |
| 11.00        | 1.49             | 1.27            | 0.24         |              |                  |                 |              |
| 11.50        | 1.84             | 1.61            | 0.40         |              |                  |                 |              |
| 12.00        | 2.96             | 2.73            | 2.12         |              |                  |                 |              |
| 12.50        | 4.37             | 4.14            | 0.61         |              |                  |                 |              |
| 13.00        | 4.72             | 4.48            | 0.27         |              |                  |                 |              |
| 13.50        | 4.93             | 4.69            | 0.17         |              |                  |                 |              |
| 14.00        | 5.08             | 4.84            | 0.13         |              |                  |                 |              |
| 14.50        | 5.20             | 4.96            | 0.11         |              |                  |                 |              |
| 15.00        | 5.30             | 5.07            | 0.09         |              |                  |                 |              |
| 15.50        | 5.39             | 5.15            | 0.08         |              |                  |                 |              |
| 16.00        | 5.47             | 5.23            | 0.07         |              |                  |                 |              |
| 16.50        | 5.54             | 5.30            | 0.07         |              |                  |                 |              |
| 17.00        | 5.60             | 5.37            | 0.06         |              |                  |                 |              |
| 17.50        | 5.66             | 5.43            | 0.06         |              |                  |                 |              |
| 18.00        | 5.72             | 5.48            | 0.05         |              |                  |                 |              |
| 18.50        | 5.77             | 5.53            | 0.05         |              |                  |                 |              |
| 19.00        | 5.82             | 5.58            | 0.05         |              |                  |                 |              |
| 19.50        | 5.86             | 5.62            | 0.04         |              |                  |                 |              |
| 20.00        | 5.91             | 5.67            | 0.04         |              |                  |                 |              |
| 20.50        | 5.95             | 5.71            | 0.04         |              |                  |                 |              |
| 21.00        | 5.99             | 5.75            | 0.04         |              |                  |                 |              |
| 21.50        | 6.03             | 5.79            | 0.04         |              |                  |                 |              |
| 22.00        | 6.07             | 5.83            | 0.04         |              |                  |                 |              |
| 22.50        | 6.11             | 5.87            | 0.04         |              |                  |                 |              |
| 23.00        | 6.14             | 5.90            | 0.03         |              |                  |                 |              |
| 23.50        | 6.18             | 5.94            | 0.03         |              |                  |                 |              |
| 24.00        | 6.21             | 5.97            | 0.04         |              |                  |                 |              |
| 24.50        | 6.21             | 5.97            | 0.00         |              |                  |                 |              |
| 25.00        | 6.21             | 5.97            | 0.00         |              |                  |                 |              |
| 25.50        | 6.21             | 5.97            | 0.00         |              |                  |                 |              |



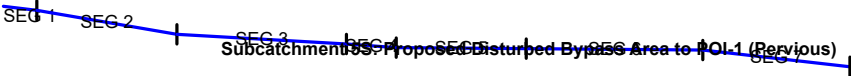
Summary for Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)

Runoff = 0.29 cfs @ 13.45 hrs, Volume= 3,799 cf, Depth= 1.03"  
Routed to Link 1L : POI-1

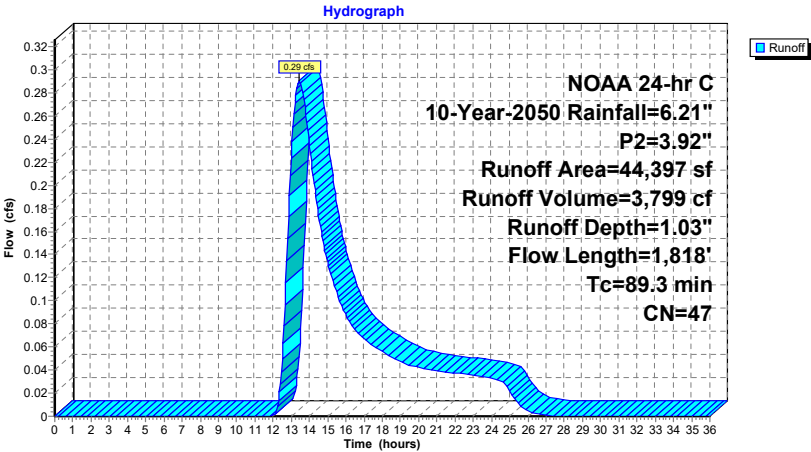
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 28,757    | 39 | >75% Grass cover, Good, HSG A |
| 15,640    | 61 | >75% Grass cover, Good, HSG B |
| 44,397    | 47 | Weighted Average              |
| 44,397    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 8.4      | 72            | 0.0150        | 0.14              |                | Sheet Flow, SEG 1<br>Cultivated: Residue>20% n= 0.170 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 3.8      | 301           | 0.0210        | 1.30              |                | Shallow Concentrated Flow, SEG 2<br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 8.1      | 364           | 0.0070        | 0.75              |                | Shallow Concentrated Flow, SEG 3<br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 3.8      | 107           | 0.0090        | 0.47              |                | Shallow Concentrated Flow, SEG 4<br>Woodland Kv= 5.0 fps                                           |
| 16.3     | 279           | 0.0010        | 0.28              |                | Shallow Concentrated Flow, SEG 5<br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 40.0     | 379           | 0.0010        | 0.16              |                | Shallow Concentrated Flow, SEG 6<br>Woodland Kv= 5.0 fps                                           |
| 8.9      | 316           | 0.0140        | 0.59              |                | Shallow Concentrated Flow, SEG 7<br>Woodland Kv= 5.0 fps                                           |
| 89.3     | 1,818         | Total         |                   |                |                                                                                                    |



Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)



# 2101ELK-STM Analysis POI-1 - Proposed NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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## Hydrograph for Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 6.21             | 1.03            | 0.00         |
| 0.50         | 0.03             | 0.00            | 0.00         | 26.50        | 6.21             | 1.03            | 0.00         |
| 1.00         | 0.07             | 0.00            | 0.00         | 27.00        | 6.21             | 1.03            | 0.00         |
| 1.50         | 0.10             | 0.00            | 0.00         | 27.50        | 6.21             | 1.03            | 0.00         |
| 2.00         | 0.14             | 0.00            | 0.00         | 28.00        | 6.21             | 1.03            | 0.00         |
| 2.50         | 0.18             | 0.00            | 0.00         | 28.50        | 6.21             | 1.03            | 0.00         |
| 3.00         | 0.22             | 0.00            | 0.00         | 29.00        | 6.21             | 1.03            | 0.00         |
| 3.50         | 0.26             | 0.00            | 0.00         | 29.50        | 6.21             | 1.03            | 0.00         |
| 4.00         | 0.30             | 0.00            | 0.00         | 30.00        | 6.21             | 1.03            | 0.00         |
| 4.50         | 0.35             | 0.00            | 0.00         | 30.50        | 6.21             | 1.03            | 0.00         |
| 5.00         | 0.39             | 0.00            | 0.00         | 31.00        | 6.21             | 1.03            | 0.00         |
| 5.50         | 0.44             | 0.00            | 0.00         | 31.50        | 6.21             | 1.03            | 0.00         |
| 6.00         | 0.49             | 0.00            | 0.00         | 32.00        | 6.21             | 1.03            | 0.00         |
| 6.50         | 0.55             | 0.00            | 0.00         | 32.50        | 6.21             | 1.03            | 0.00         |
| 7.00         | 0.61             | 0.00            | 0.00         | 33.00        | 6.21             | 1.03            | 0.00         |
| 7.50         | 0.67             | 0.00            | 0.00         | 33.50        | 6.21             | 1.03            | 0.00         |
| 8.00         | 0.74             | 0.00            | 0.00         | 34.00        | 6.21             | 1.03            | 0.00         |
| 8.50         | 0.82             | 0.00            | 0.00         | 34.50        | 6.21             | 1.03            | 0.00         |
| 9.00         | 0.91             | 0.00            | 0.00         | 35.00        | 6.21             | 1.03            | 0.00         |
| 9.50         | 1.01             | 0.00            | 0.00         | 35.50        | 6.21             | 1.03            | 0.00         |
| 10.00        | 1.13             | 0.00            | 0.00         | 36.00        | 6.21             | 1.03            | 0.00         |
| 10.50        | 1.28             | 0.00            | 0.00         |              |                  |                 |              |
| 11.00        | 1.49             | 0.00            | 0.00         |              |                  |                 |              |
| 11.50        | 1.84             | 0.00            | 0.00         |              |                  |                 |              |
| 12.00        | 2.96             | 0.04            | 0.00         |              |                  |                 |              |
| 12.50        | 4.37             | 0.34            | 0.05         |              |                  |                 |              |
| 13.00        | 4.72             | 0.44            | 0.22         |              |                  |                 |              |
| 13.50        | 4.93             | 0.51            | 0.29         |              |                  |                 |              |
| 14.00        | 5.08             | 0.57            | 0.23         |              |                  |                 |              |
| 14.50        | 5.20             | 0.61            | 0.17         |              |                  |                 |              |
| 15.00        | 5.30             | 0.65            | 0.13         |              |                  |                 |              |
| 15.50        | 5.39             | 0.68            | 0.11         |              |                  |                 |              |
| 16.00        | 5.47             | 0.71            | 0.09         |              |                  |                 |              |
| 16.50        | 5.54             | 0.74            | 0.08         |              |                  |                 |              |
| 17.00        | 5.60             | 0.77            | 0.07         |              |                  |                 |              |
| 17.50        | 5.66             | 0.79            | 0.06         |              |                  |                 |              |
| 18.00        | 5.72             | 0.81            | 0.06         |              |                  |                 |              |
| 18.50        | 5.77             | 0.83            | 0.05         |              |                  |                 |              |
| 19.00        | 5.82             | 0.85            | 0.05         |              |                  |                 |              |
| 19.50        | 5.86             | 0.87            | 0.04         |              |                  |                 |              |
| 20.00        | 5.91             | 0.89            | 0.04         |              |                  |                 |              |
| 20.50        | 5.95             | 0.91            | 0.04         |              |                  |                 |              |
| 21.00        | 5.99             | 0.93            | 0.04         |              |                  |                 |              |
| 21.50        | 6.03             | 0.95            | 0.04         |              |                  |                 |              |
| 22.00        | 6.07             | 0.96            | 0.04         |              |                  |                 |              |
| 22.50        | 6.11             | 0.98            | 0.04         |              |                  |                 |              |
| 23.00        | 6.14             | 1.00            | 0.04         |              |                  |                 |              |
| 23.50        | 6.18             | 1.01            | 0.03         |              |                  |                 |              |
| 24.00        | 6.21             | 1.03            | 0.03         |              |                  |                 |              |
| 24.50        | 6.21             | 1.03            | 0.03         |              |                  |                 |              |
| 25.00        | 6.21             | 1.03            | 0.02         |              |                  |                 |              |
| 25.50        | 6.21             | 1.03            | 0.01         |              |                  |                 |              |

# 2101ELK-STM Analysis POI-1 - Proposed NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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## Summary for Subcatchment 6S: GI-9 Impervious

Runoff = 7.32 cfs @ 12.08 hrs, Volume= 21,564 cf, Depth= 5.97"  
Routed to Pond 7P : GI-9

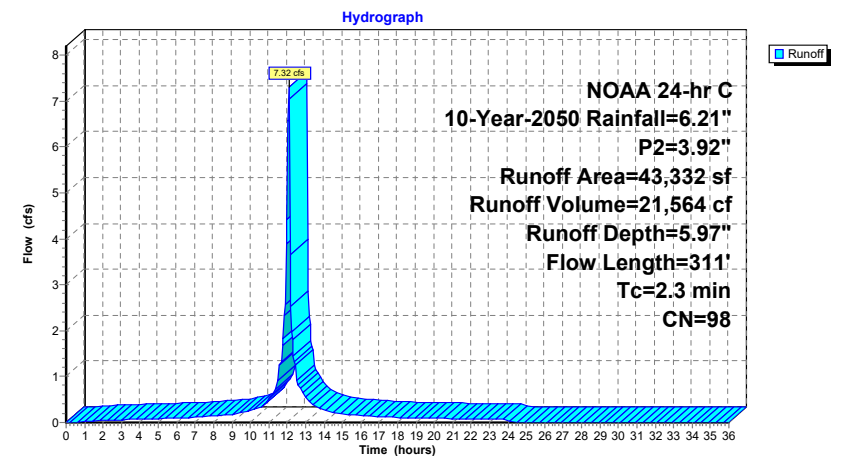
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 43,332    | 98 | Paved parking, HSG A    |
| 43,332    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 1.0      | 71            | 0.0140        | 1.23              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.92"             |
| 1.2      | 222           | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.1      | 18            | 0.0960        | 2.17              |                | Shallow Concentrated Flow, SEG 3<br>Short Grass Pasture Kv= 7.0 fps |
| 2.3      | 311           | Total         |                   |                |                                                                     |



## Subcatchment 6S: GI-9 Impervious



Hydrograph for Subcatchment 6S: GI-9 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 5.97               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 5.97               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.01            | 27.00           | 6.21                | 5.97               | 0.00            |
| 1.50            | 0.10                | 0.01               | 0.03            | 27.50           | 6.21                | 5.97               | 0.00            |
| 2.00            | 0.14                | 0.03               | 0.04            | 28.00           | 6.21                | 5.97               | 0.00            |
| 2.50            | 0.18                | 0.06               | 0.05            | 28.50           | 6.21                | 5.97               | 0.00            |
| 3.00            | 0.22                | 0.08               | 0.06            | 29.00           | 6.21                | 5.97               | 0.00            |
| 3.50            | 0.26                | 0.11               | 0.07            | 29.50           | 6.21                | 5.97               | 0.00            |
| 4.00            | 0.30                | 0.15               | 0.07            | 30.00           | 6.21                | 5.97               | 0.00            |
| 4.50            | 0.35                | 0.19               | 0.08            | 30.50           | 6.21                | 5.97               | 0.00            |
| 5.00            | 0.39                | 0.22               | 0.08            | 31.00           | 6.21                | 5.97               | 0.00            |
| 5.50            | 0.44                | 0.27               | 0.09            | 31.50           | 6.21                | 5.97               | 0.00            |
| 6.00            | 0.49                | 0.31               | 0.09            | 32.00           | 6.21                | 5.97               | 0.00            |
| 6.50            | 0.55                | 0.36               | 0.10            | 32.50           | 6.21                | 5.97               | 0.00            |
| 7.00            | 0.61                | 0.41               | 0.12            | 33.00           | 6.21                | 5.97               | 0.00            |
| 7.50            | 0.67                | 0.48               | 0.13            | 33.50           | 6.21                | 5.97               | 0.00            |
| 8.00            | 0.74                | 0.55               | 0.14            | 34.00           | 6.21                | 5.97               | 0.00            |
| 8.50            | 0.82                | 0.62               | 0.16            | 34.50           | 6.21                | 5.97               | 0.00            |
| 9.00            | 0.91                | 0.70               | 0.17            | 35.00           | 6.21                | 5.97               | 0.00            |
| 9.50            | 1.01                | 0.80               | 0.21            | 35.50           | 6.21                | 5.97               | 0.00            |
| 10.00           | 1.13                | 0.92               | 0.26            | 36.00           | 6.21                | 5.97               | 0.00            |
| 10.50           | 1.28                | 1.06               | 0.31            |                 |                     |                    |                 |
| 11.00           | 1.49                | 1.27               | 0.49            |                 |                     |                    |                 |
| 11.50           | 1.84                | 1.61               | 0.82            |                 |                     |                    |                 |
| 12.00           | 2.96                | 2.73               | 4.42            |                 |                     |                    |                 |
| 12.50           | 4.37                | 4.14               | 1.24            |                 |                     |                    |                 |
| 13.00           | 4.72                | 4.48               | 0.56            |                 |                     |                    |                 |
| 13.50           | 4.93                | 4.69               | 0.35            |                 |                     |                    |                 |
| 14.00           | 5.08                | 4.84               | 0.28            |                 |                     |                    |                 |
| 14.50           | 5.20                | 4.96               | 0.23            |                 |                     |                    |                 |
| 15.00           | 5.30                | 5.07               | 0.18            |                 |                     |                    |                 |
| 15.50           | 5.39                | 5.15               | 0.16            |                 |                     |                    |                 |
| 16.00           | 5.47                | 5.23               | 0.15            |                 |                     |                    |                 |
| 16.50           | 5.54                | 5.30               | 0.14            |                 |                     |                    |                 |
| 17.00           | 5.60                | 5.37               | 0.13            |                 |                     |                    |                 |
| 17.50           | 5.66                | 5.43               | 0.12            |                 |                     |                    |                 |
| 18.00           | 5.72                | 5.48               | 0.10            |                 |                     |                    |                 |
| 18.50           | 5.77                | 5.53               | 0.10            |                 |                     |                    |                 |
| 19.00           | 5.82                | 5.58               | 0.09            |                 |                     |                    |                 |
| 19.50           | 5.86                | 5.62               | 0.09            |                 |                     |                    |                 |
| 20.00           | 5.91                | 5.67               | 0.09            |                 |                     |                    |                 |
| 20.50           | 5.95                | 5.71               | 0.09            |                 |                     |                    |                 |
| 21.00           | 5.99                | 5.75               | 0.08            |                 |                     |                    |                 |
| 21.50           | 6.03                | 5.79               | 0.08            |                 |                     |                    |                 |
| 22.00           | 6.07                | 5.83               | 0.08            |                 |                     |                    |                 |
| 22.50           | 6.11                | 5.87               | 0.07            |                 |                     |                    |                 |
| 23.00           | 6.14                | 5.90               | 0.07            |                 |                     |                    |                 |
| 23.50           | 6.18                | 5.94               | 0.07            |                 |                     |                    |                 |
| 24.00           | 6.21                | 5.97               | 0.08            |                 |                     |                    |                 |
| 24.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 15S: GI-2 Pervious

Runoff = 0.08 cfs @ 12.16 hrs, Volume= 569 cf, Depth= 0.51"  
Routed to Pond 14P : GI-2

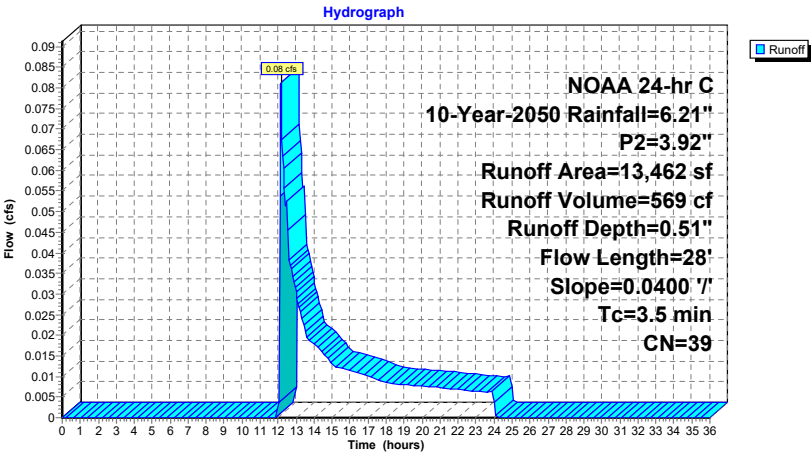
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 13,462    | 39 | >75% Grass cover, Good, HSG A |
| 13,462    |    | 100.00% Pervious Area         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                          |
|-------------|------------------|------------------|----------------------|-------------------|------------------------------------------------------|
| 3.5         | 28               | 0.0400           | 0.13                 |                   | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92" |



Subcatchment 15S: GI-2 Pervious



Hydrograph for Subcatchment 15S: GI-2 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 0.51               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 0.51               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 0.51               | 0.00            |
| 1.50            | 0.10                | 0.00               | 0.00            | 27.50           | 6.21                | 0.51               | 0.00            |
| 2.00            | 0.14                | 0.00               | 0.00            | 28.00           | 6.21                | 0.51               | 0.00            |
| 2.50            | 0.18                | 0.00               | 0.00            | 28.50           | 6.21                | 0.51               | 0.00            |
| 3.00            | 0.22                | 0.00               | 0.00            | 29.00           | 6.21                | 0.51               | 0.00            |
| 3.50            | 0.26                | 0.00               | 0.00            | 29.50           | 6.21                | 0.51               | 0.00            |
| 4.00            | 0.30                | 0.00               | 0.00            | 30.00           | 6.21                | 0.51               | 0.00            |
| 4.50            | 0.35                | 0.00               | 0.00            | 30.50           | 6.21                | 0.51               | 0.00            |
| 5.00            | 0.39                | 0.00               | 0.00            | 31.00           | 6.21                | 0.51               | 0.00            |
| 5.50            | 0.44                | 0.00               | 0.00            | 31.50           | 6.21                | 0.51               | 0.00            |
| 6.00            | 0.49                | 0.00               | 0.00            | 32.00           | 6.21                | 0.51               | 0.00            |
| 6.50            | 0.55                | 0.00               | 0.00            | 32.50           | 6.21                | 0.51               | 0.00            |
| 7.00            | 0.61                | 0.00               | 0.00            | 33.00           | 6.21                | 0.51               | 0.00            |
| 7.50            | 0.67                | 0.00               | 0.00            | 33.50           | 6.21                | 0.51               | 0.00            |
| 8.00            | 0.74                | 0.00               | 0.00            | 34.00           | 6.21                | 0.51               | 0.00            |
| 8.50            | 0.82                | 0.00               | 0.00            | 34.50           | 6.21                | 0.51               | 0.00            |
| 9.00            | 0.91                | 0.00               | 0.00            | 35.00           | 6.21                | 0.51               | 0.00            |
| 9.50            | 1.01                | 0.00               | 0.00            | 35.50           | 6.21                | 0.51               | 0.00            |
| 10.00           | 1.13                | 0.00               | 0.00            | 36.00           | 6.21                | 0.51               | 0.00            |
| 10.50           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.84                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.96                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 4.37                | 0.09               | 0.05            |                 |                     |                    |                 |
| 13.00           | 4.72                | 0.15               | 0.03            |                 |                     |                    |                 |
| 13.50           | 4.93                | 0.19               | 0.02            |                 |                     |                    |                 |
| 14.00           | 5.08                | 0.22               | 0.02            |                 |                     |                    |                 |
| 14.50           | 5.20                | 0.24               | 0.02            |                 |                     |                    |                 |
| 15.00           | 5.30                | 0.27               | 0.01            |                 |                     |                    |                 |
| 15.50           | 5.39                | 0.29               | 0.01            |                 |                     |                    |                 |
| 16.00           | 5.47                | 0.30               | 0.01            |                 |                     |                    |                 |
| 16.50           | 5.54                | 0.32               | 0.01            |                 |                     |                    |                 |
| 17.00           | 5.60                | 0.34               | 0.01            |                 |                     |                    |                 |
| 17.50           | 5.66                | 0.35               | 0.01            |                 |                     |                    |                 |
| 18.00           | 5.72                | 0.37               | 0.01            |                 |                     |                    |                 |
| 18.50           | 5.77                | 0.38               | 0.01            |                 |                     |                    |                 |
| 19.00           | 5.82                | 0.39               | 0.01            |                 |                     |                    |                 |
| 19.50           | 5.86                | 0.41               | 0.01            |                 |                     |                    |                 |
| 20.00           | 5.91                | 0.42               | 0.01            |                 |                     |                    |                 |
| 20.50           | 5.95                | 0.43               | 0.01            |                 |                     |                    |                 |
| 21.00           | 5.99                | 0.44               | 0.01            |                 |                     |                    |                 |
| 21.50           | 6.03                | 0.45               | 0.01            |                 |                     |                    |                 |
| 22.00           | 6.07                | 0.47               | 0.01            |                 |                     |                    |                 |
| 22.50           | 6.11                | 0.48               | 0.01            |                 |                     |                    |                 |
| 23.00           | 6.14                | 0.49               | 0.01            |                 |                     |                    |                 |
| 23.50           | 6.18                | 0.50               | 0.01            |                 |                     |                    |                 |
| 24.00           | 6.21                | 0.51               | 0.01            |                 |                     |                    |                 |
| 24.50           | 6.21                | 0.51               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 0.51               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 0.51               | 0.00            |                 |                     |                    |                 |

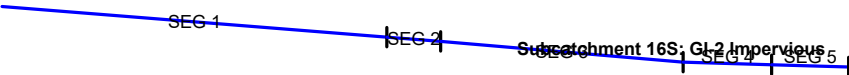
Summary for Subcatchment 16S: GI-2 Impervious

Runoff = 2.23 cfs @ 12.08 hrs, Volume= 6,529 cf, Depth= 5.97"  
Routed to Pond 14P : GI-2

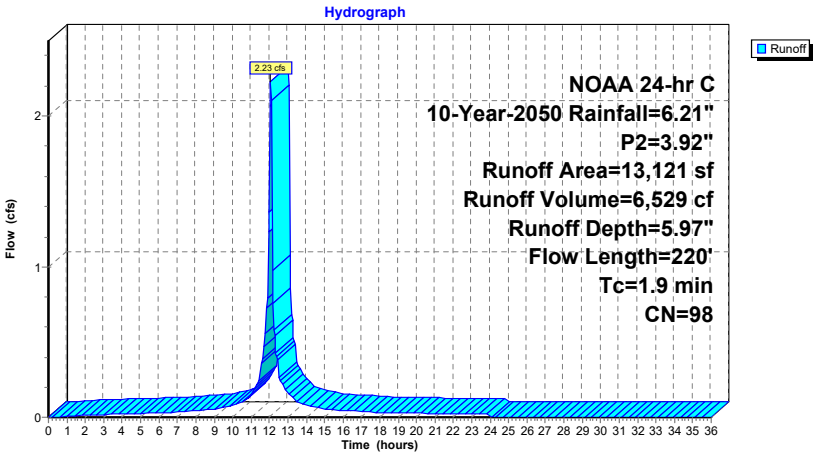
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 13,121    | 98 | Paved parking, HSG A    |
| 13,121    |    | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                     |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------|
| 1.3         | 100              | 0.0140           | 1.32                 |                   | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.92"                                                  |
| 0.1         | 14               | 0.0140           | 2.40                 |                   | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps                                                   |
| 0.3         | 63               | 0.0150           | 3.65                 | 0.73              | <b>Channel Flow, SEG 3</b><br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013                                        |
| 0.1         | 23               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 4</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 Concrete pipe, finished |
| 0.1         | 20               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 5</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012                         |
| 1.9         | 220              | Total            |                      |                   |                                                                                                                 |



Subcatchment 16S: GI-2 Impervious



Hydrograph for Subcatchment 16S: GI-2 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 5.97               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 5.97               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 5.97               | 0.00            |
| 1.50            | 0.10                | 0.01               | 0.01            | 27.50           | 6.21                | 5.97               | 0.00            |
| 2.00            | 0.14                | 0.03               | 0.01            | 28.00           | 6.21                | 5.97               | 0.00            |
| 2.50            | 0.18                | 0.06               | 0.02            | 28.50           | 6.21                | 5.97               | 0.00            |
| 3.00            | 0.22                | 0.08               | 0.02            | 29.00           | 6.21                | 5.97               | 0.00            |
| 3.50            | 0.26                | 0.11               | 0.02            | 29.50           | 6.21                | 5.97               | 0.00            |
| 4.00            | 0.30                | 0.15               | 0.02            | 30.00           | 6.21                | 5.97               | 0.00            |
| 4.50            | 0.35                | 0.19               | 0.02            | 30.50           | 6.21                | 5.97               | 0.00            |
| 5.00            | 0.39                | 0.22               | 0.02            | 31.00           | 6.21                | 5.97               | 0.00            |
| 5.50            | 0.44                | 0.27               | 0.03            | 31.50           | 6.21                | 5.97               | 0.00            |
| 6.00            | 0.49                | 0.31               | 0.03            | 32.00           | 6.21                | 5.97               | 0.00            |
| 6.50            | 0.55                | 0.36               | 0.03            | 32.50           | 6.21                | 5.97               | 0.00            |
| 7.00            | 0.61                | 0.41               | 0.04            | 33.00           | 6.21                | 5.97               | 0.00            |
| 7.50            | 0.67                | 0.48               | 0.04            | 33.50           | 6.21                | 5.97               | 0.00            |
| 8.00            | 0.74                | 0.55               | 0.04            | 34.00           | 6.21                | 5.97               | 0.00            |
| 8.50            | 0.82                | 0.62               | 0.05            | 34.50           | 6.21                | 5.97               | 0.00            |
| 9.00            | 0.91                | 0.70               | 0.05            | 35.00           | 6.21                | 5.97               | 0.00            |
| 9.50            | 1.01                | 0.80               | 0.07            | 35.50           | 6.21                | 5.97               | 0.00            |
| 10.00           | 1.13                | 0.92               | 0.08            | 36.00           | 6.21                | 5.97               | 0.00            |
| 10.50           | 1.28                | 1.06               | 0.09            |                 |                     |                    |                 |
| 11.00           | 1.49                | 1.27               | 0.15            |                 |                     |                    |                 |
| 11.50           | 1.84                | 1.61               | 0.25            |                 |                     |                    |                 |
| 12.00           | 2.96                | 2.73               | 1.36            |                 |                     |                    |                 |
| 12.50           | 4.37                | 4.14               | 0.37            |                 |                     |                    |                 |
| 13.00           | 4.72                | 4.48               | 0.17            |                 |                     |                    |                 |
| 13.50           | 4.93                | 4.69               | 0.11            |                 |                     |                    |                 |
| 14.00           | 5.08                | 4.84               | 0.08            |                 |                     |                    |                 |
| 14.50           | 5.20                | 4.96               | 0.07            |                 |                     |                    |                 |
| 15.00           | 5.30                | 5.07               | 0.06            |                 |                     |                    |                 |
| 15.50           | 5.39                | 5.15               | 0.05            |                 |                     |                    |                 |
| 16.00           | 5.47                | 5.23               | 0.05            |                 |                     |                    |                 |
| 16.50           | 5.54                | 5.30               | 0.04            |                 |                     |                    |                 |
| 17.00           | 5.60                | 5.37               | 0.04            |                 |                     |                    |                 |
| 17.50           | 5.66                | 5.43               | 0.03            |                 |                     |                    |                 |
| 18.00           | 5.72                | 5.48               | 0.03            |                 |                     |                    |                 |
| 18.50           | 5.77                | 5.53               | 0.03            |                 |                     |                    |                 |
| 19.00           | 5.82                | 5.58               | 0.03            |                 |                     |                    |                 |
| 19.50           | 5.86                | 5.62               | 0.03            |                 |                     |                    |                 |
| 20.00           | 5.91                | 5.67               | 0.03            |                 |                     |                    |                 |
| 20.50           | 5.95                | 5.71               | 0.03            |                 |                     |                    |                 |
| 21.00           | 5.99                | 5.75               | 0.02            |                 |                     |                    |                 |
| 21.50           | 6.03                | 5.79               | 0.02            |                 |                     |                    |                 |
| 22.00           | 6.07                | 5.83               | 0.02            |                 |                     |                    |                 |
| 22.50           | 6.11                | 5.87               | 0.02            |                 |                     |                    |                 |
| 23.00           | 6.14                | 5.90               | 0.02            |                 |                     |                    |                 |
| 23.50           | 6.18                | 5.94               | 0.02            |                 |                     |                    |                 |
| 24.00           | 6.21                | 5.97               | 0.02            |                 |                     |                    |                 |
| 24.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |

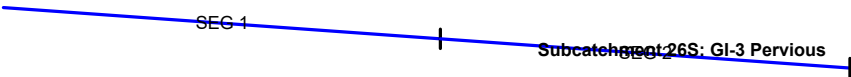
Summary for Subcatchment 26S: GI-3 Pervious

Runoff = 0.92 cfs @ 12.18 hrs, Volume= 3,219 cf, Depth= 1.64"  
Routed to Pond 28P : GI-3

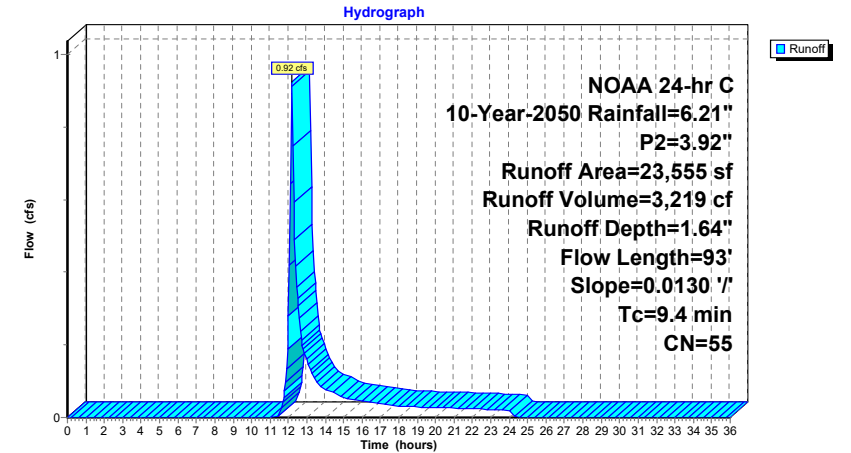
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 6,391     | 39 | >75% Grass cover, Good, HSG A |
| 17,164    | 61 | >75% Grass cover, Good, HSG B |
| 23,555    | 55 | Weighted Average              |
| 23,555    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 8.5      | 48            | 0.0130        | 0.09              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92"                |
| 0.9      | 45            | 0.0130        | 0.80              |                | Shallow Concentrated Flow, SEG 2<br>Short Grass Pasture Kv= 7.0 fps |
| 9.4      | 93            | Total         |                   |                |                                                                     |



Subcatchment 26S: GI-3 Pervious



Hydrograph for Subcatchment 26S: GI-3 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         |
| 0.50         | 0.03             | 0.00            | 0.00         |
| 1.00         | 0.07             | 0.00            | 0.00         |
| 1.50         | 0.10             | 0.00            | 0.00         |
| 2.00         | 0.14             | 0.00            | 0.00         |
| 2.50         | 0.18             | 0.00            | 0.00         |
| 3.00         | 0.22             | 0.00            | 0.00         |
| 3.50         | 0.26             | 0.00            | 0.00         |
| 4.00         | 0.30             | 0.00            | 0.00         |
| 4.50         | 0.35             | 0.00            | 0.00         |
| 5.00         | 0.39             | 0.00            | 0.00         |
| 5.50         | 0.44             | 0.00            | 0.00         |
| 6.00         | 0.49             | 0.00            | 0.00         |
| 6.50         | 0.55             | 0.00            | 0.00         |
| 7.00         | 0.61             | 0.00            | 0.00         |
| 7.50         | 0.67             | 0.00            | 0.00         |
| 8.00         | 0.74             | 0.00            | 0.00         |
| 8.50         | 0.82             | 0.00            | 0.00         |
| 9.00         | 0.91             | 0.00            | 0.00         |
| 9.50         | 1.01             | 0.00            | 0.00         |
| 10.00        | 1.13             | 0.00            | 0.00         |
| 10.50        | 1.28             | 0.00            | 0.00         |
| 11.00        | 1.49             | 0.00            | 0.00         |
| 11.50        | 1.84             | 0.00            | 0.01         |
| 12.00        | 2.96             | 0.18            | 0.28         |
| 12.50        | 4.37             | 0.69            | 0.33         |
| 13.00        | 4.72             | 0.84            | 0.16         |
| 13.50        | 4.93             | 0.95            | 0.10         |
| 14.00        | 5.08             | 1.02            | 0.08         |
| 14.50        | 5.20             | 1.08            | 0.07         |
| 15.00        | 5.30             | 1.13            | 0.05         |
| 15.50        | 5.39             | 1.18            | 0.05         |
| 16.00        | 5.47             | 1.22            | 0.04         |
| 16.50        | 5.54             | 1.26            | 0.04         |
| 17.00        | 5.60             | 1.30            | 0.04         |
| 17.50        | 5.66             | 1.33            | 0.04         |
| 18.00        | 5.72             | 1.36            | 0.03         |
| 18.50        | 5.77             | 1.39            | 0.03         |
| 19.00        | 5.82             | 1.41            | 0.03         |
| 19.50        | 5.86             | 1.44            | 0.03         |
| 20.00        | 5.91             | 1.46            | 0.03         |
| 20.50        | 5.95             | 1.49            | 0.03         |
| 21.00        | 5.99             | 1.51            | 0.03         |
| 21.50        | 6.03             | 1.54            | 0.02         |
| 22.00        | 6.07             | 1.56            | 0.02         |
| 22.50        | 6.11             | 1.58            | 0.02         |
| 23.00        | 6.14             | 1.60            | 0.02         |
| 23.50        | 6.18             | 1.62            | 0.02         |
| 24.00        | 6.21             | 1.64            | 0.02         |
| 24.50        | 6.21             | 1.64            | 0.00         |
| 25.00        | 6.21             | 1.64            | 0.00         |
| 25.50        | 6.21             | 1.64            | 0.00         |

Summary for Subcatchment 27S: GI-3 Impervious

Runoff = 9.85 cfs @ 12.09 hrs, Volume= 30,154 cf, Depth= 5.97"  
Routed to Pond 28P : GI-3

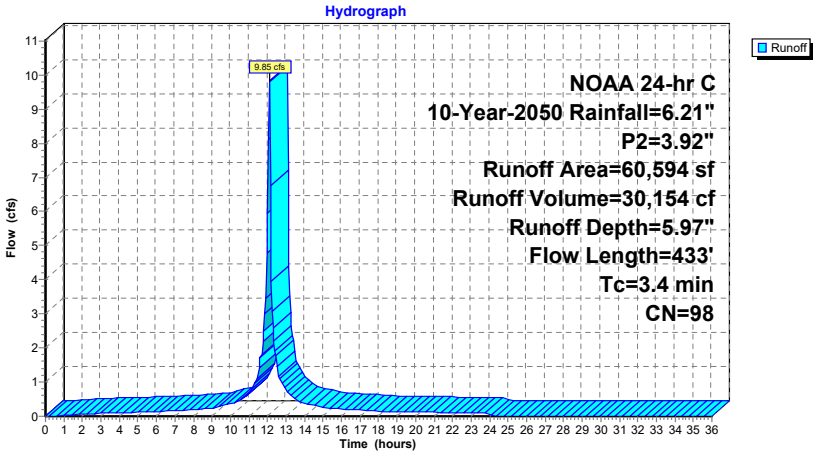
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 56,594    | 98 | Paved parking, HSG A    |
| 4,000     | 98 | Roofs, HSG A            |
| 60,594    | 98 | Weighted Average        |
| 60,594    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                           |
|----------|---------------|---------------|-------------------|----------------|-------------------------------------------------------------------------------------------------------|
| 1.3      | 100           | 0.0140        | 1.32              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.92"                                               |
| 1.9      | 270           | 0.0140        | 2.40              |                | Shallow Concentrated Flow, SEG 2<br>Paved Kv= 20.3 fps                                                |
| 0.0      | 8             | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 3<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013                                     |
| 0.2      | 55            | 0.0050        | 4.03              | 4.95           | Pipe Channel, SEG 4<br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished |
| 3.4      | 433           | Total         |                   |                |                                                                                                       |



Subcatchment 27S: GI-3 Impervious



Hydrograph for Subcatchment 27S: GI-3 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 5.97               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 5.97               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.02            | 27.00           | 6.21                | 5.97               | 0.00            |
| 1.50            | 0.10                | 0.01               | 0.04            | 27.50           | 6.21                | 5.97               | 0.00            |
| 2.00            | 0.14                | 0.03               | 0.06            | 28.00           | 6.21                | 5.97               | 0.00            |
| 2.50            | 0.18                | 0.06               | 0.07            | 28.50           | 6.21                | 5.97               | 0.00            |
| 3.00            | 0.22                | 0.08               | 0.08            | 29.00           | 6.21                | 5.97               | 0.00            |
| 3.50            | 0.26                | 0.11               | 0.09            | 29.50           | 6.21                | 5.97               | 0.00            |
| 4.00            | 0.30                | 0.15               | 0.10            | 30.00           | 6.21                | 5.97               | 0.00            |
| 4.50            | 0.35                | 0.19               | 0.11            | 30.50           | 6.21                | 5.97               | 0.00            |
| 5.00            | 0.39                | 0.22               | 0.11            | 31.00           | 6.21                | 5.97               | 0.00            |
| 5.50            | 0.44                | 0.27               | 0.12            | 31.50           | 6.21                | 5.97               | 0.00            |
| 6.00            | 0.49                | 0.31               | 0.13            | 32.00           | 6.21                | 5.97               | 0.00            |
| 6.50            | 0.55                | 0.36               | 0.14            | 32.50           | 6.21                | 5.97               | 0.00            |
| 7.00            | 0.61                | 0.41               | 0.16            | 33.00           | 6.21                | 5.97               | 0.00            |
| 7.50            | 0.67                | 0.48               | 0.18            | 33.50           | 6.21                | 5.97               | 0.00            |
| 8.00            | 0.74                | 0.55               | 0.20            | 34.00           | 6.21                | 5.97               | 0.00            |
| 8.50            | 0.82                | 0.62               | 0.22            | 34.50           | 6.21                | 5.97               | 0.00            |
| 9.00            | 0.91                | 0.70               | 0.24            | 35.00           | 6.21                | 5.97               | 0.00            |
| 9.50            | 1.01                | 0.80               | 0.30            | 35.50           | 6.21                | 5.97               | 0.00            |
| 10.00           | 1.13                | 0.92               | 0.36            | 36.00           | 6.21                | 5.97               | 0.00            |
| 10.50           | 1.28                | 1.06               | 0.43            |                 |                     |                    |                 |
| 11.00           | 1.49                | 1.27               | 0.68            |                 |                     |                    |                 |
| 11.50           | 1.84                | 1.61               | 1.13            |                 |                     |                    |                 |
| 12.00           | 2.96                | 2.73               | 5.94            |                 |                     |                    |                 |
| 12.50           | 4.37                | 4.14               | 1.76            |                 |                     |                    |                 |
| 13.00           | 4.72                | 4.48               | 0.79            |                 |                     |                    |                 |
| 13.50           | 4.93                | 4.69               | 0.49            |                 |                     |                    |                 |
| 14.00           | 5.08                | 4.84               | 0.39            |                 |                     |                    |                 |
| 14.50           | 5.20                | 4.96               | 0.32            |                 |                     |                    |                 |
| 15.00           | 5.30                | 5.07               | 0.26            |                 |                     |                    |                 |
| 15.50           | 5.39                | 5.15               | 0.23            |                 |                     |                    |                 |
| 16.00           | 5.47                | 5.23               | 0.21            |                 |                     |                    |                 |
| 16.50           | 5.54                | 5.30               | 0.20            |                 |                     |                    |                 |
| 17.00           | 5.60                | 5.37               | 0.18            |                 |                     |                    |                 |
| 17.50           | 5.66                | 5.43               | 0.16            |                 |                     |                    |                 |
| 18.00           | 5.72                | 5.48               | 0.14            |                 |                     |                    |                 |
| 18.50           | 5.77                | 5.53               | 0.14            |                 |                     |                    |                 |
| 19.00           | 5.82                | 5.58               | 0.13            |                 |                     |                    |                 |
| 19.50           | 5.86                | 5.62               | 0.13            |                 |                     |                    |                 |
| 20.00           | 5.91                | 5.67               | 0.12            |                 |                     |                    |                 |
| 20.50           | 5.95                | 5.71               | 0.12            |                 |                     |                    |                 |
| 21.00           | 5.99                | 5.75               | 0.11            |                 |                     |                    |                 |
| 21.50           | 6.03                | 5.79               | 0.11            |                 |                     |                    |                 |
| 22.00           | 6.07                | 5.83               | 0.11            |                 |                     |                    |                 |
| 22.50           | 6.11                | 5.87               | 0.10            |                 |                     |                    |                 |
| 23.00           | 6.14                | 5.90               | 0.10            |                 |                     |                    |                 |
| 23.50           | 6.18                | 5.94               | 0.09            |                 |                     |                    |                 |
| 24.00           | 6.21                | 5.97               | 0.11            |                 |                     |                    |                 |
| 24.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 29S: GI-6 Pervious

Runoff = 0.76 cfs @ 12.16 hrs, Volume= 2,672 cf, Depth= 1.17"  
Routed to Pond 31P : GI-6

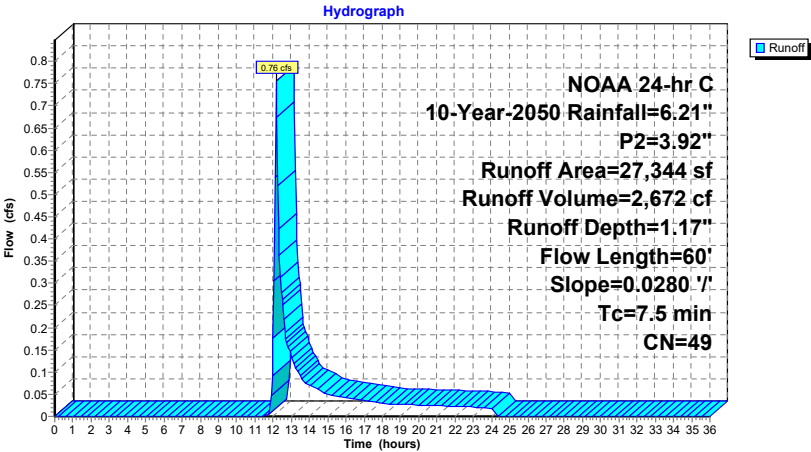
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 15,207    | 39 | >75% Grass cover, Good, HSG A |
| 12,137    | 61 | >75% Grass cover, Good, HSG B |
| 27,344    | 49 | Weighted Average              |
| 27,344    |    | 100.00% Pervious Area         |

| Tc (min)                        | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description       |
|---------------------------------|---------------|---------------|-------------------|----------------|-------------------|
| 7.5                             | 60            | 0.0280        | 0.13              |                | Sheet Flow, SEG 1 |
| Grass: Dense n= 0.240 P2= 3.92" |               |               |                   |                |                   |



Subcatchment 29S: GI-6 Pervious





Hydrograph for Subcatchment 29S: GI-6 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 1.17               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 1.17               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 1.17               | 0.00            |
| 1.50            | 0.10                | 0.00               | 0.00            | 27.50           | 6.21                | 1.17               | 0.00            |
| 2.00            | 0.14                | 0.00               | 0.00            | 28.00           | 6.21                | 1.17               | 0.00            |
| 2.50            | 0.18                | 0.00               | 0.00            | 28.50           | 6.21                | 1.17               | 0.00            |
| 3.00            | 0.22                | 0.00               | 0.00            | 29.00           | 6.21                | 1.17               | 0.00            |
| 3.50            | 0.26                | 0.00               | 0.00            | 29.50           | 6.21                | 1.17               | 0.00            |
| 4.00            | 0.30                | 0.00               | 0.00            | 30.00           | 6.21                | 1.17               | 0.00            |
| 4.50            | 0.35                | 0.00               | 0.00            | 30.50           | 6.21                | 1.17               | 0.00            |
| 5.00            | 0.39                | 0.00               | 0.00            | 31.00           | 6.21                | 1.17               | 0.00            |
| 5.50            | 0.44                | 0.00               | 0.00            | 31.50           | 6.21                | 1.17               | 0.00            |
| 6.00            | 0.49                | 0.00               | 0.00            | 32.00           | 6.21                | 1.17               | 0.00            |
| 6.50            | 0.55                | 0.00               | 0.00            | 32.50           | 6.21                | 1.17               | 0.00            |
| 7.00            | 0.61                | 0.00               | 0.00            | 33.00           | 6.21                | 1.17               | 0.00            |
| 7.50            | 0.67                | 0.00               | 0.00            | 33.50           | 6.21                | 1.17               | 0.00            |
| 8.00            | 0.74                | 0.00               | 0.00            | 34.00           | 6.21                | 1.17               | 0.00            |
| 8.50            | 0.82                | 0.00               | 0.00            | 34.50           | 6.21                | 1.17               | 0.00            |
| 9.00            | 0.91                | 0.00               | 0.00            | 35.00           | 6.21                | 1.17               | 0.00            |
| 9.50            | 1.01                | 0.00               | 0.00            | 35.50           | 6.21                | 1.17               | 0.00            |
| 10.00           | 1.13                | 0.00               | 0.00            | 36.00           | 6.21                | 1.17               | 0.00            |
| 10.50           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.84                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.96                | 0.07               | 0.18            |                 |                     |                    |                 |
| 12.50           | 4.37                | 0.41               | 0.26            |                 |                     |                    |                 |
| 13.00           | 4.72                | 0.53               | 0.14            |                 |                     |                    |                 |
| 13.50           | 4.93                | 0.61               | 0.09            |                 |                     |                    |                 |
| 14.00           | 5.08                | 0.67               | 0.07            |                 |                     |                    |                 |
| 14.50           | 5.20                | 0.72               | 0.06            |                 |                     |                    |                 |
| 15.00           | 5.30                | 0.76               | 0.05            |                 |                     |                    |                 |
| 15.50           | 5.39                | 0.80               | 0.04            |                 |                     |                    |                 |
| 16.00           | 5.47                | 0.83               | 0.04            |                 |                     |                    |                 |
| 16.50           | 5.54                | 0.86               | 0.04            |                 |                     |                    |                 |
| 17.00           | 5.60                | 0.89               | 0.04            |                 |                     |                    |                 |
| 17.50           | 5.66                | 0.92               | 0.03            |                 |                     |                    |                 |
| 18.00           | 5.72                | 0.94               | 0.03            |                 |                     |                    |                 |
| 18.50           | 5.77                | 0.96               | 0.03            |                 |                     |                    |                 |
| 19.00           | 5.82                | 0.99               | 0.03            |                 |                     |                    |                 |
| 19.50           | 5.86                | 1.01               | 0.03            |                 |                     |                    |                 |
| 20.00           | 5.91                | 1.03               | 0.03            |                 |                     |                    |                 |
| 20.50           | 5.95                | 1.05               | 0.03            |                 |                     |                    |                 |
| 21.00           | 5.99                | 1.07               | 0.02            |                 |                     |                    |                 |
| 21.50           | 6.03                | 1.09               | 0.02            |                 |                     |                    |                 |
| 22.00           | 6.07                | 1.10               | 0.02            |                 |                     |                    |                 |
| 22.50           | 6.11                | 1.12               | 0.02            |                 |                     |                    |                 |
| 23.00           | 6.14                | 1.14               | 0.02            |                 |                     |                    |                 |
| 23.50           | 6.18                | 1.16               | 0.02            |                 |                     |                    |                 |
| 24.00           | 6.21                | 1.17               | 0.02            |                 |                     |                    |                 |
| 24.50           | 6.21                | 1.17               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 1.17               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 1.17               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 30S: GI-6 Impervious

Runoff = 9.42 cfs @ 12.09 hrs, Volume= 28,708 cf, Depth= 5.97"  
Routed to Pond 31P : GI-6

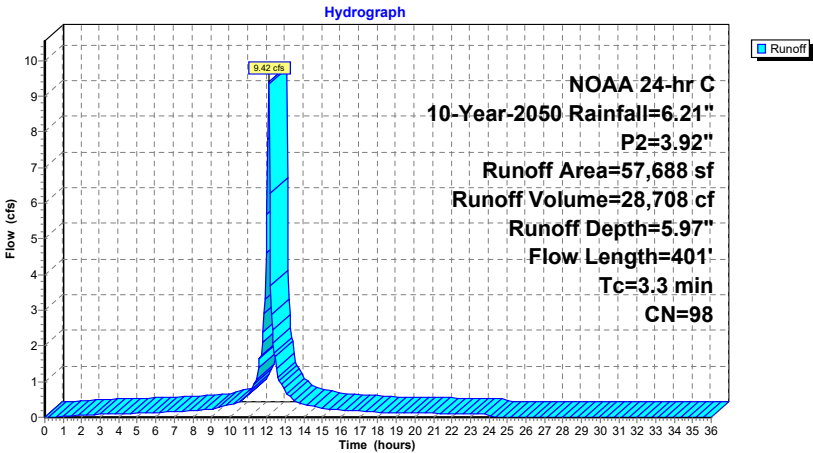
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 57,688    | 98 | Paved parking, HSG A    |
| 57,688    |    | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                             |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------|
| 1.3         | 100              | 0.0140           | 1.32                 |                   | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.92"                          |
| 1.9         | 275              | 0.0140           | 2.40                 |                   | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps                           |
| 0.1         | 26               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 3</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 |
| 3.3         | 401              | Total            |                      |                   |                                                                                         |



Subcatchment 30S: GI-6 Impervious



Hydrograph for Subcatchment 30S: GI-6 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 5.97               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 5.97               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.02            | 27.00           | 6.21                | 5.97               | 0.00            |
| 1.50            | 0.10                | 0.01               | 0.04            | 27.50           | 6.21                | 5.97               | 0.00            |
| 2.00            | 0.14                | 0.03               | 0.05            | 28.00           | 6.21                | 5.97               | 0.00            |
| 2.50            | 0.18                | 0.06               | 0.07            | 28.50           | 6.21                | 5.97               | 0.00            |
| 3.00            | 0.22                | 0.08               | 0.08            | 29.00           | 6.21                | 5.97               | 0.00            |
| 3.50            | 0.26                | 0.11               | 0.09            | 29.50           | 6.21                | 5.97               | 0.00            |
| 4.00            | 0.30                | 0.15               | 0.09            | 30.00           | 6.21                | 5.97               | 0.00            |
| 4.50            | 0.35                | 0.19               | 0.10            | 30.50           | 6.21                | 5.97               | 0.00            |
| 5.00            | 0.39                | 0.22               | 0.11            | 31.00           | 6.21                | 5.97               | 0.00            |
| 5.50            | 0.44                | 0.27               | 0.11            | 31.50           | 6.21                | 5.97               | 0.00            |
| 6.00            | 0.49                | 0.31               | 0.12            | 32.00           | 6.21                | 5.97               | 0.00            |
| 6.50            | 0.55                | 0.36               | 0.14            | 32.50           | 6.21                | 5.97               | 0.00            |
| 7.00            | 0.61                | 0.41               | 0.15            | 33.00           | 6.21                | 5.97               | 0.00            |
| 7.50            | 0.67                | 0.48               | 0.17            | 33.50           | 6.21                | 5.97               | 0.00            |
| 8.00            | 0.74                | 0.55               | 0.19            | 34.00           | 6.21                | 5.97               | 0.00            |
| 8.50            | 0.82                | 0.62               | 0.21            | 34.50           | 6.21                | 5.97               | 0.00            |
| 9.00            | 0.91                | 0.70               | 0.22            | 35.00           | 6.21                | 5.97               | 0.00            |
| 9.50            | 1.01                | 0.80               | 0.28            | 35.50           | 6.21                | 5.97               | 0.00            |
| 10.00           | 1.13                | 0.92               | 0.35            | 36.00           | 6.21                | 5.97               | 0.00            |
| 10.50           | 1.28                | 1.06               | 0.41            |                 |                     |                    |                 |
| 11.00           | 1.49                | 1.27               | 0.65            |                 |                     |                    |                 |
| 11.50           | 1.84                | 1.61               | 1.07            |                 |                     |                    |                 |
| 12.00           | 2.96                | 2.73               | 5.68            |                 |                     |                    |                 |
| 12.50           | 4.37                | 4.14               | 1.67            |                 |                     |                    |                 |
| 13.00           | 4.72                | 4.48               | 0.75            |                 |                     |                    |                 |
| 13.50           | 4.93                | 4.69               | 0.47            |                 |                     |                    |                 |
| 14.00           | 5.08                | 4.84               | 0.37            |                 |                     |                    |                 |
| 14.50           | 5.20                | 4.96               | 0.31            |                 |                     |                    |                 |
| 15.00           | 5.30                | 5.07               | 0.24            |                 |                     |                    |                 |
| 15.50           | 5.39                | 5.15               | 0.22            |                 |                     |                    |                 |
| 16.00           | 5.47                | 5.23               | 0.20            |                 |                     |                    |                 |
| 16.50           | 5.54                | 5.30               | 0.19            |                 |                     |                    |                 |
| 17.00           | 5.60                | 5.37               | 0.17            |                 |                     |                    |                 |
| 17.50           | 5.66                | 5.43               | 0.15            |                 |                     |                    |                 |
| 18.00           | 5.72                | 5.48               | 0.14            |                 |                     |                    |                 |
| 18.50           | 5.77                | 5.53               | 0.13            |                 |                     |                    |                 |
| 19.00           | 5.82                | 5.58               | 0.13            |                 |                     |                    |                 |
| 19.50           | 5.86                | 5.62               | 0.12            |                 |                     |                    |                 |
| 20.00           | 5.91                | 5.67               | 0.12            |                 |                     |                    |                 |
| 20.50           | 5.95                | 5.71               | 0.11            |                 |                     |                    |                 |
| 21.00           | 5.99                | 5.75               | 0.11            |                 |                     |                    |                 |
| 21.50           | 6.03                | 5.79               | 0.11            |                 |                     |                    |                 |
| 22.00           | 6.07                | 5.83               | 0.10            |                 |                     |                    |                 |
| 22.50           | 6.11                | 5.87               | 0.10            |                 |                     |                    |                 |
| 23.00           | 6.14                | 5.90               | 0.09            |                 |                     |                    |                 |
| 23.50           | 6.18                | 5.94               | 0.09            |                 |                     |                    |                 |
| 24.00           | 6.21                | 5.97               | 0.10            |                 |                     |                    |                 |
| 24.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 41S: GI-11 Pervious

Runoff = 0.25 cfs @ 12.10 hrs, Volume= 651 cf, Depth= 2.15"  
Routed to Pond 43P : GI-11

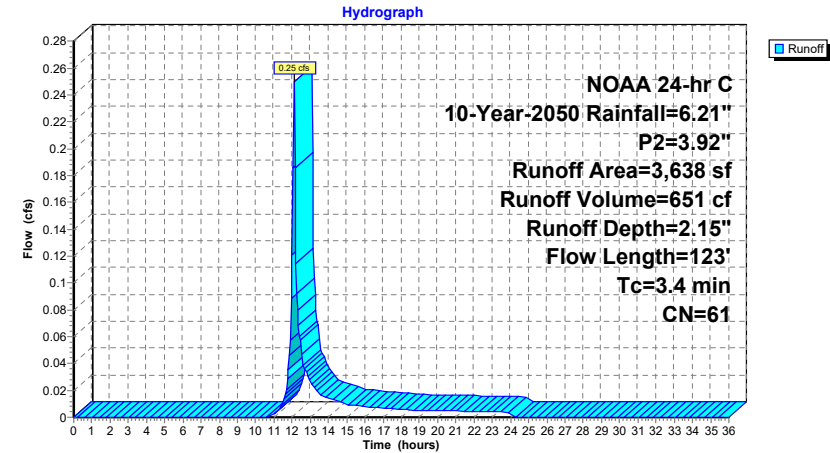
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 3,638     | 61 | >75% Grass cover, Good, HSG B |
| 3,638     |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                    |
|----------|---------------|---------------|-------------------|----------------|--------------------------------------------------------------------------------|
| 2.4      | 25            | 0.0833        | 0.17              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.92"                                 |
| 0.8      | 51            | 0.0130        | 1.12              |                | Sheet Flow,<br>Smooth surfaces n= 0.011 P2= 3.92"                              |
| 0.2      | 36            | 0.0100        | 2.98              | 0.60           | Channel Flow,<br>Area= 0.2 sf Perim= 1.5' r= 0.13'<br>n= 0.013 Asphalt, smooth |
| 0.0      | 11            | 0.3330        | 4.04              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                  |
| 3.4      | 123           | Total         |                   |                |                                                                                |



Subcatchment 41S: GI-11 Pervious



Hydrograph for Subcatchment 41S: GI-11 Pervious

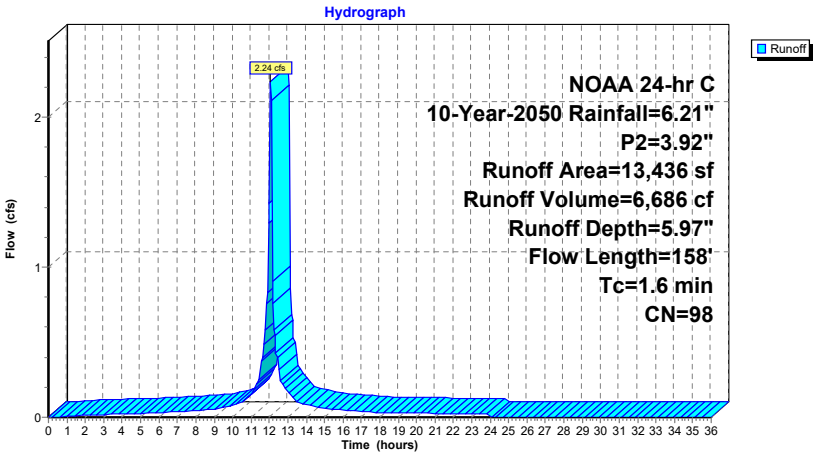
| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 2.15               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 2.15               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 2.15               | 0.00            |
| 1.50            | 0.10                | 0.00               | 0.00            | 27.50           | 6.21                | 2.15               | 0.00            |
| 2.00            | 0.14                | 0.00               | 0.00            | 28.00           | 6.21                | 2.15               | 0.00            |
| 2.50            | 0.18                | 0.00               | 0.00            | 28.50           | 6.21                | 2.15               | 0.00            |
| 3.00            | 0.22                | 0.00               | 0.00            | 29.00           | 6.21                | 2.15               | 0.00            |
| 3.50            | 0.26                | 0.00               | 0.00            | 29.50           | 6.21                | 2.15               | 0.00            |
| 4.00            | 0.30                | 0.00               | 0.00            | 30.00           | 6.21                | 2.15               | 0.00            |
| 4.50            | 0.35                | 0.00               | 0.00            | 30.50           | 6.21                | 2.15               | 0.00            |
| 5.00            | 0.39                | 0.00               | 0.00            | 31.00           | 6.21                | 2.15               | 0.00            |
| 5.50            | 0.44                | 0.00               | 0.00            | 31.50           | 6.21                | 2.15               | 0.00            |
| 6.00            | 0.49                | 0.00               | 0.00            | 32.00           | 6.21                | 2.15               | 0.00            |
| 6.50            | 0.55                | 0.00               | 0.00            | 32.50           | 6.21                | 2.15               | 0.00            |
| 7.00            | 0.61                | 0.00               | 0.00            | 33.00           | 6.21                | 2.15               | 0.00            |
| 7.50            | 0.67                | 0.00               | 0.00            | 33.50           | 6.21                | 2.15               | 0.00            |
| 8.00            | 0.74                | 0.00               | 0.00            | 34.00           | 6.21                | 2.15               | 0.00            |
| 8.50            | 0.82                | 0.00               | 0.00            | 34.50           | 6.21                | 2.15               | 0.00            |
| 9.00            | 0.91                | 0.00               | 0.00            | 35.00           | 6.21                | 2.15               | 0.00            |
| 9.50            | 1.01                | 0.00               | 0.00            | 35.50           | 6.21                | 2.15               | 0.00            |
| 10.00           | 1.13                | 0.00               | 0.00            | 36.00           | 6.21                | 2.15               | 0.00            |
| 10.50           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.49                | 0.01               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.84                | 0.04               | 0.01            |                 |                     |                    |                 |
| 12.00           | 2.96                | 0.35               | 0.12            |                 |                     |                    |                 |
| 12.50           | 4.37                | 1.01               | 0.06            |                 |                     |                    |                 |
| 13.00           | 4.72                | 1.20               | 0.03            |                 |                     |                    |                 |
| 13.50           | 4.93                | 1.33               | 0.02            |                 |                     |                    |                 |
| 14.00           | 5.08                | 1.42               | 0.01            |                 |                     |                    |                 |
| 14.50           | 5.20                | 1.49               | 0.01            |                 |                     |                    |                 |
| 15.00           | 5.30                | 1.55               | 0.01            |                 |                     |                    |                 |
| 15.50           | 5.39                | 1.61               | 0.01            |                 |                     |                    |                 |
| 16.00           | 5.47                | 1.66               | 0.01            |                 |                     |                    |                 |
| 16.50           | 5.54                | 1.70               | 0.01            |                 |                     |                    |                 |
| 17.00           | 5.60                | 1.75               | 0.01            |                 |                     |                    |                 |
| 17.50           | 5.66                | 1.78               | 0.01            |                 |                     |                    |                 |
| 18.00           | 5.72                | 1.82               | 0.01            |                 |                     |                    |                 |
| 18.50           | 5.77                | 1.85               | 0.01            |                 |                     |                    |                 |
| 19.00           | 5.82                | 1.88               | 0.01            |                 |                     |                    |                 |
| 19.50           | 5.86                | 1.91               | 0.01            |                 |                     |                    |                 |
| 20.00           | 5.91                | 1.94               | 0.00            |                 |                     |                    |                 |
| 20.50           | 5.95                | 1.97               | 0.00            |                 |                     |                    |                 |
| 21.00           | 5.99                | 2.00               | 0.00            |                 |                     |                    |                 |
| 21.50           | 6.03                | 2.03               | 0.00            |                 |                     |                    |                 |
| 22.00           | 6.07                | 2.05               | 0.00            |                 |                     |                    |                 |
| 22.50           | 6.11                | 2.08               | 0.00            |                 |                     |                    |                 |
| 23.00           | 6.14                | 2.10               | 0.00            |                 |                     |                    |                 |
| 23.50           | 6.18                | 2.12               | 0.00            |                 |                     |                    |                 |
| 24.00           | 6.21                | 2.15               | 0.00            |                 |                     |                    |                 |
| 24.50           | 6.21                | 2.15               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 2.15               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 2.15               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 42S: GI-11 Impervious

| Runoff = 2.24 cfs @ 12.07 hrs, Volume= 6,686 cf, Depth= 5.97"                                                                                  |                  |                         |                      |                   |                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------|----------------------|-------------------|---------------------------------------------------------------------------------------|
| Routed to Pond 43P : GI-11                                                                                                                     |                  |                         |                      |                   |                                                                                       |
| Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs<br>NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92" |                  |                         |                      |                   |                                                                                       |
| Area (sf)                                                                                                                                      | CN               | Description             |                      |                   |                                                                                       |
| 13,436                                                                                                                                         | 98               | Paved parking, HSG A    |                      |                   |                                                                                       |
| 13,436                                                                                                                                         |                  | 100.00% Impervious Area |                      |                   |                                                                                       |
| Tc<br>(min)                                                                                                                                    | Length<br>(feet) | Slope<br>(ft/ft)        | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                           |
| 1.3                                                                                                                                            | 100              | 0.0130                  | 1.28                 |                   | <b>Sheet Flow,</b><br>Smooth surfaces n= 0.011 P2= 3.92"                              |
| 0.3                                                                                                                                            | 39               | 0.0130                  | 2.31                 |                   | <b>Shallow Concentrated Flow,</b><br>Paved Kv= 20.3 fps                               |
| 0.0                                                                                                                                            | 8                | 0.0100                  | 6.21                 | 1.24              | <b>Channel Flow,</b><br>Area= 0.2 sf Perim= 0.5' r= 0.40'<br>n= 0.013 Asphalt, smooth |
| 0.0                                                                                                                                            | 11               | 0.3330                  | 4.04                 |                   | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                  |
| 1.6                                                                                                                                            | 158              | Total                   |                      |                   |                                                                                       |



Subcatchment 42S: GI-11 Impervious



Hydrograph for Subcatchment 42S: GI-11 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 5.97               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 5.97               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 5.97               | 0.00            |
| 1.50            | 0.10                | 0.01               | 0.01            | 27.50           | 6.21                | 5.97               | 0.00            |
| 2.00            | 0.14                | 0.03               | 0.01            | 28.00           | 6.21                | 5.97               | 0.00            |
| 2.50            | 0.18                | 0.06               | 0.02            | 28.50           | 6.21                | 5.97               | 0.00            |
| 3.00            | 0.22                | 0.08               | 0.02            | 29.00           | 6.21                | 5.97               | 0.00            |
| 3.50            | 0.26                | 0.11               | 0.02            | 29.50           | 6.21                | 5.97               | 0.00            |
| 4.00            | 0.30                | 0.15               | 0.02            | 30.00           | 6.21                | 5.97               | 0.00            |
| 4.50            | 0.35                | 0.19               | 0.02            | 30.50           | 6.21                | 5.97               | 0.00            |
| 5.00            | 0.39                | 0.22               | 0.03            | 31.00           | 6.21                | 5.97               | 0.00            |
| 5.50            | 0.44                | 0.27               | 0.03            | 31.50           | 6.21                | 5.97               | 0.00            |
| 6.00            | 0.49                | 0.31               | 0.03            | 32.00           | 6.21                | 5.97               | 0.00            |
| 6.50            | 0.55                | 0.36               | 0.03            | 32.50           | 6.21                | 5.97               | 0.00            |
| 7.00            | 0.61                | 0.41               | 0.04            | 33.00           | 6.21                | 5.97               | 0.00            |
| 7.50            | 0.67                | 0.48               | 0.04            | 33.50           | 6.21                | 5.97               | 0.00            |
| 8.00            | 0.74                | 0.55               | 0.04            | 34.00           | 6.21                | 5.97               | 0.00            |
| 8.50            | 0.82                | 0.62               | 0.05            | 34.50           | 6.21                | 5.97               | 0.00            |
| 9.00            | 0.91                | 0.70               | 0.05            | 35.00           | 6.21                | 5.97               | 0.00            |
| 9.50            | 1.01                | 0.80               | 0.07            | 35.50           | 6.21                | 5.97               | 0.00            |
| 10.00           | 1.13                | 0.92               | 0.08            | 36.00           | 6.21                | 5.97               | 0.00            |
| 10.50           | 1.28                | 1.06               | 0.10            |                 |                     |                    |                 |
| 11.00           | 1.49                | 1.27               | 0.15            |                 |                     |                    |                 |
| 11.50           | 1.84                | 1.61               | 0.26            |                 |                     |                    |                 |
| 12.00           | 2.96                | 2.73               | 1.43            |                 |                     |                    |                 |
| 12.50           | 4.37                | 4.14               | 0.38            |                 |                     |                    |                 |
| 13.00           | 4.72                | 4.48               | 0.17            |                 |                     |                    |                 |
| 13.50           | 4.93                | 4.69               | 0.11            |                 |                     |                    |                 |
| 14.00           | 5.08                | 4.84               | 0.09            |                 |                     |                    |                 |
| 14.50           | 5.20                | 4.96               | 0.07            |                 |                     |                    |                 |
| 15.00           | 5.30                | 5.07               | 0.06            |                 |                     |                    |                 |
| 15.50           | 5.39                | 5.15               | 0.05            |                 |                     |                    |                 |
| 16.00           | 5.47                | 5.23               | 0.05            |                 |                     |                    |                 |
| 16.50           | 5.54                | 5.30               | 0.04            |                 |                     |                    |                 |
| 17.00           | 5.60                | 5.37               | 0.04            |                 |                     |                    |                 |
| 17.50           | 5.66                | 5.43               | 0.04            |                 |                     |                    |                 |
| 18.00           | 5.72                | 5.48               | 0.03            |                 |                     |                    |                 |
| 18.50           | 5.77                | 5.53               | 0.03            |                 |                     |                    |                 |
| 19.00           | 5.82                | 5.58               | 0.03            |                 |                     |                    |                 |
| 19.50           | 5.86                | 5.62               | 0.03            |                 |                     |                    |                 |
| 20.00           | 5.91                | 5.67               | 0.03            |                 |                     |                    |                 |
| 20.50           | 5.95                | 5.71               | 0.03            |                 |                     |                    |                 |
| 21.00           | 5.99                | 5.75               | 0.03            |                 |                     |                    |                 |
| 21.50           | 6.03                | 5.79               | 0.02            |                 |                     |                    |                 |
| 22.00           | 6.07                | 5.83               | 0.02            |                 |                     |                    |                 |
| 22.50           | 6.11                | 5.87               | 0.02            |                 |                     |                    |                 |
| 23.00           | 6.14                | 5.90               | 0.02            |                 |                     |                    |                 |
| 23.50           | 6.18                | 5.94               | 0.02            |                 |                     |                    |                 |
| 24.00           | 6.21                | 5.97               | 0.02            |                 |                     |                    |                 |
| 24.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 46S: North Undisturbed Area (Pervious)

Runoff = 4.02 cfs @ 12.36 hrs, Volume= 20,409 cf, Depth= 1.56"  
Routed to Link 13L : FES

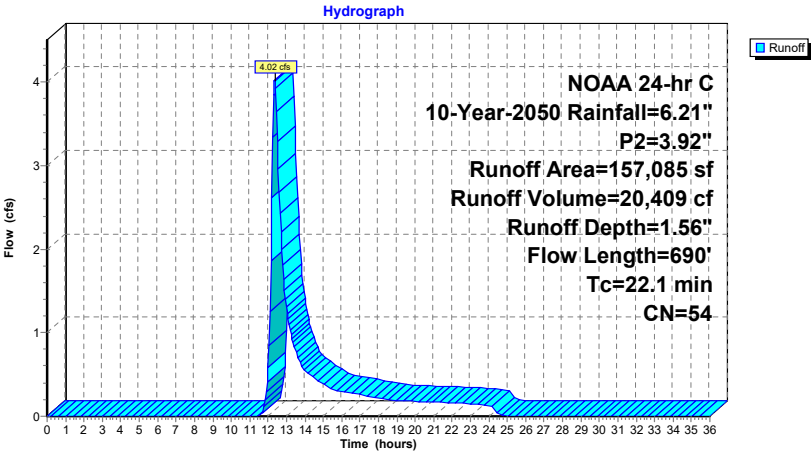
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description                    |
|-----------|----|--------------------------------|
| 15,827    | 39 | >75% Grass cover, Good, HSG A  |
| 80,837    | 61 | >75% Grass cover, Good, HSG B  |
| 30,052    | 32 | Woods/grass comb., Good, HSG A |
| 22,227    | 58 | Woods/grass comb., Good, HSG B |
| 8,142     | 86 | Fallow, bare soil, HSG B       |
| 157,085   | 54 | Weighted Average               |
| 157,085   |    | 100.00% Pervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                   |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------------------------------------------------|
| 8.5      | 27            | 0.0120        | 0.05              |                | Sheet Flow,<br>Grass: Bermuda n= 0.410 P2= 3.92"<br>Using McCuen-Spiess flow length                           |
| 1.5      | 67            | 0.0120        | 0.77              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6     | 319           | 0.0100        | 0.50              |                | Shallow Concentrated Flow,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8      | 49            | 0.0200        | 0.99              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7      | 228           | 0.0050        | 5.09              | 16.00          | Pipe Channel,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.1     | 690           | Total         |                   |                |                                                                                                               |



Subcatchment 46S: North Undisturbed Area (Pervious)



Hydrograph for Subcatchment 46S: North Undisturbed Area (Pervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 1.56               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 1.56               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 1.56               | 0.00            |
| 1.50            | 0.10                | 0.00               | 0.00            | 27.50           | 6.21                | 1.56               | 0.00            |
| 2.00            | 0.14                | 0.00               | 0.00            | 28.00           | 6.21                | 1.56               | 0.00            |
| 2.50            | 0.18                | 0.00               | 0.00            | 28.50           | 6.21                | 1.56               | 0.00            |
| 3.00            | 0.22                | 0.00               | 0.00            | 29.00           | 6.21                | 1.56               | 0.00            |
| 3.50            | 0.26                | 0.00               | 0.00            | 29.50           | 6.21                | 1.56               | 0.00            |
| 4.00            | 0.30                | 0.00               | 0.00            | 30.00           | 6.21                | 1.56               | 0.00            |
| 4.50            | 0.35                | 0.00               | 0.00            | 30.50           | 6.21                | 1.56               | 0.00            |
| 5.00            | 0.39                | 0.00               | 0.00            | 31.00           | 6.21                | 1.56               | 0.00            |
| 5.50            | 0.44                | 0.00               | 0.00            | 31.50           | 6.21                | 1.56               | 0.00            |
| 6.00            | 0.49                | 0.00               | 0.00            | 32.00           | 6.21                | 1.56               | 0.00            |
| 6.50            | 0.55                | 0.00               | 0.00            | 32.50           | 6.21                | 1.56               | 0.00            |
| 7.00            | 0.61                | 0.00               | 0.00            | 33.00           | 6.21                | 1.56               | 0.00            |
| 7.50            | 0.67                | 0.00               | 0.00            | 33.50           | 6.21                | 1.56               | 0.00            |
| 8.00            | 0.74                | 0.00               | 0.00            | 34.00           | 6.21                | 1.56               | 0.00            |
| 8.50            | 0.82                | 0.00               | 0.00            | 34.50           | 6.21                | 1.56               | 0.00            |
| 9.00            | 0.91                | 0.00               | 0.00            | 35.00           | 6.21                | 1.56               | 0.00            |
| 9.50            | 1.01                | 0.00               | 0.00            | 35.50           | 6.21                | 1.56               | 0.00            |
| 10.00           | 1.13                | 0.00               | 0.00            | 36.00           | 6.21                | 1.56               | 0.00            |
| 10.50           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.84                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.96                | 0.16               | 0.58            |                 |                     |                    |                 |
| 12.50           | 4.37                | 0.64               | 3.29            |                 |                     |                    |                 |
| 13.00           | 4.72                | 0.79               | 1.31            |                 |                     |                    |                 |
| 13.50           | 4.93                | 0.89               | 0.78            |                 |                     |                    |                 |
| 14.00           | 5.08                | 0.96               | 0.54            |                 |                     |                    |                 |
| 14.50           | 5.20                | 1.02               | 0.46            |                 |                     |                    |                 |
| 15.00           | 5.30                | 1.07               | 0.38            |                 |                     |                    |                 |
| 15.50           | 5.39                | 1.11               | 0.32            |                 |                     |                    |                 |
| 16.00           | 5.47                | 1.15               | 0.30            |                 |                     |                    |                 |
| 16.50           | 5.54                | 1.19               | 0.28            |                 |                     |                    |                 |
| 17.00           | 5.60                | 1.23               | 0.26            |                 |                     |                    |                 |
| 17.50           | 5.66                | 1.26               | 0.24            |                 |                     |                    |                 |
| 18.00           | 5.72                | 1.29               | 0.21            |                 |                     |                    |                 |
| 18.50           | 5.77                | 1.31               | 0.20            |                 |                     |                    |                 |
| 19.00           | 5.82                | 1.34               | 0.19            |                 |                     |                    |                 |
| 19.50           | 5.86                | 1.36               | 0.18            |                 |                     |                    |                 |
| 20.00           | 5.91                | 1.39               | 0.18            |                 |                     |                    |                 |
| 20.50           | 5.95                | 1.41               | 0.17            |                 |                     |                    |                 |
| 21.00           | 5.99                | 1.44               | 0.17            |                 |                     |                    |                 |
| 21.50           | 6.03                | 1.46               | 0.16            |                 |                     |                    |                 |
| 22.00           | 6.07                | 1.48               | 0.16            |                 |                     |                    |                 |
| 22.50           | 6.11                | 1.50               | 0.15            |                 |                     |                    |                 |
| 23.00           | 6.14                | 1.52               | 0.15            |                 |                     |                    |                 |
| 23.50           | 6.18                | 1.54               | 0.14            |                 |                     |                    |                 |
| 24.00           | 6.21                | 1.56               | 0.14            |                 |                     |                    |                 |
| 24.50           | 6.21                | 1.56               | 0.02            |                 |                     |                    |                 |
| 25.00           | 6.21                | 1.56               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 1.56               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 47S: North Undisturbed Area (Impervious)

Runoff = 4.38 cfs @ 12.31 hrs, Volume= 22,753 cf, Depth= 5.97"  
Routed to Link 13L : FES

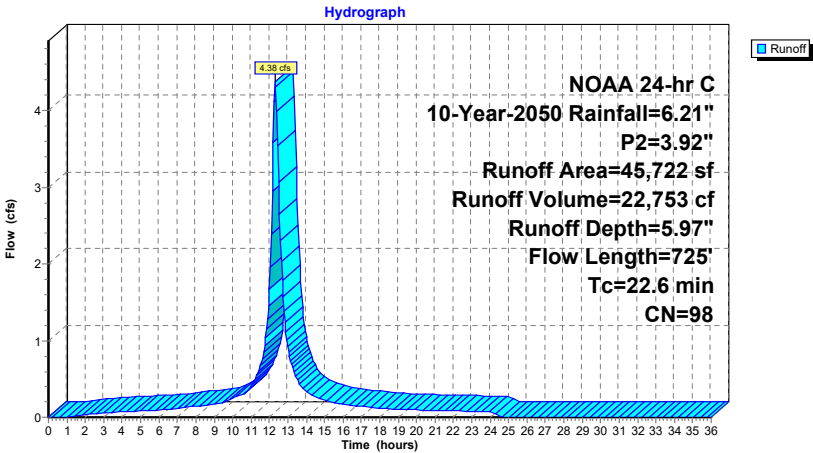
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description                 |
|-----------|----|-----------------------------|
| 45,722    | 98 | Unconnected pavement, HSG A |
| 45,722    |    | 100.00% Impervious Area     |
| 45,722    |    | 100.00% Unconnected         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                           |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------|
| 0.5         | 35               | 0.0200           | 1.23                 |                   | <b>Sheet Flow</b> ,<br>Smooth surfaces n= 0.011 P2= 3.92"                                                             |
| 8.5         | 27               | 0.0120           | 0.05                 |                   | <b>Sheet Flow</b> ,<br>Grass: Bermuda n= 0.410 P2= 3.92"<br>Using McCuen-Spiess flow length                           |
| 1.5         | 67               | 0.0120           | 0.77                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6        | 319              | 0.0100           | 0.50                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8         | 49               | 0.0200           | 0.99                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7         | 228              | 0.0050           | 5.09                 | 16.00             | <b>Pipe Channel</b> ,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.6        | 725              | Total            |                      |                   |                                                                                                                       |



Subcatchment 47S: North Undisturbed Area (Impervious)



Hydrograph for Subcatchment 47S: North Undisturbed Area (Impervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 5.97               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 5.97               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 5.97               | 0.00            |
| 1.50            | 0.10                | 0.01               | 0.02            | 27.50           | 6.21                | 5.97               | 0.00            |
| 2.00            | 0.14                | 0.03               | 0.04            | 28.00           | 6.21                | 5.97               | 0.00            |
| 2.50            | 0.18                | 0.06               | 0.05            | 28.50           | 6.21                | 5.97               | 0.00            |
| 3.00            | 0.22                | 0.08               | 0.06            | 29.00           | 6.21                | 5.97               | 0.00            |
| 3.50            | 0.26                | 0.11               | 0.06            | 29.50           | 6.21                | 5.97               | 0.00            |
| 4.00            | 0.30                | 0.15               | 0.07            | 30.00           | 6.21                | 5.97               | 0.00            |
| 4.50            | 0.35                | 0.19               | 0.08            | 30.50           | 6.21                | 5.97               | 0.00            |
| 5.00            | 0.39                | 0.22               | 0.08            | 31.00           | 6.21                | 5.97               | 0.00            |
| 5.50            | 0.44                | 0.27               | 0.09            | 31.50           | 6.21                | 5.97               | 0.00            |
| 6.00            | 0.49                | 0.31               | 0.09            | 32.00           | 6.21                | 5.97               | 0.00            |
| 6.50            | 0.55                | 0.36               | 0.10            | 32.50           | 6.21                | 5.97               | 0.00            |
| 7.00            | 0.61                | 0.41               | 0.11            | 33.00           | 6.21                | 5.97               | 0.00            |
| 7.50            | 0.67                | 0.48               | 0.13            | 33.50           | 6.21                | 5.97               | 0.00            |
| 8.00            | 0.74                | 0.55               | 0.14            | 34.00           | 6.21                | 5.97               | 0.00            |
| 8.50            | 0.82                | 0.62               | 0.16            | 34.50           | 6.21                | 5.97               | 0.00            |
| 9.00            | 0.91                | 0.70               | 0.17            | 35.00           | 6.21                | 5.97               | 0.00            |
| 9.50            | 1.01                | 0.80               | 0.20            | 35.50           | 6.21                | 5.97               | 0.00            |
| 10.00           | 1.13                | 0.92               | 0.25            | 36.00           | 6.21                | 5.97               | 0.00            |
| 10.50           | 1.28                | 1.06               | 0.30            |                 |                     |                    |                 |
| 11.00           | 1.49                | 1.27               | 0.40            |                 |                     |                    |                 |
| 11.50           | 1.84                | 1.61               | 0.66            |                 |                     |                    |                 |
| 12.00           | 2.96                | 2.73               | 1.67            |                 |                     |                    |                 |
| 12.50           | 4.37                | 4.14               | 3.06            |                 |                     |                    |                 |
| 13.00           | 4.72                | 4.48               | 0.92            |                 |                     |                    |                 |
| 13.50           | 4.93                | 4.69               | 0.49            |                 |                     |                    |                 |
| 14.00           | 5.08                | 4.84               | 0.33            |                 |                     |                    |                 |
| 14.50           | 5.20                | 4.96               | 0.27            |                 |                     |                    |                 |
| 15.00           | 5.30                | 5.07               | 0.22            |                 |                     |                    |                 |
| 15.50           | 5.39                | 5.15               | 0.18            |                 |                     |                    |                 |
| 16.00           | 5.47                | 5.23               | 0.17            |                 |                     |                    |                 |
| 16.50           | 5.54                | 5.30               | 0.16            |                 |                     |                    |                 |
| 17.00           | 5.60                | 5.37               | 0.14            |                 |                     |                    |                 |
| 17.50           | 5.66                | 5.43               | 0.13            |                 |                     |                    |                 |
| 18.00           | 5.72                | 5.48               | 0.12            |                 |                     |                    |                 |
| 18.50           | 5.77                | 5.53               | 0.11            |                 |                     |                    |                 |
| 19.00           | 5.82                | 5.58               | 0.10            |                 |                     |                    |                 |
| 19.50           | 5.86                | 5.62               | 0.10            |                 |                     |                    |                 |
| 20.00           | 5.91                | 5.67               | 0.10            |                 |                     |                    |                 |
| 20.50           | 5.95                | 5.71               | 0.09            |                 |                     |                    |                 |
| 21.00           | 5.99                | 5.75               | 0.09            |                 |                     |                    |                 |
| 21.50           | 6.03                | 5.79               | 0.09            |                 |                     |                    |                 |
| 22.00           | 6.07                | 5.83               | 0.08            |                 |                     |                    |                 |
| 22.50           | 6.11                | 5.87               | 0.08            |                 |                     |                    |                 |
| 23.00           | 6.14                | 5.90               | 0.08            |                 |                     |                    |                 |
| 23.50           | 6.18                | 5.94               | 0.07            |                 |                     |                    |                 |
| 24.00           | 6.21                | 5.97               | 0.07            |                 |                     |                    |                 |
| 24.50           | 6.21                | 5.97               | 0.01            |                 |                     |                    |                 |
| 25.00           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |



Summary for Pond 2P: GI-1

Inflow Area = 39,122 sf, 53.83% Impervious, Inflow Depth = 3.45" for 10-Year-2050 event  
Inflow = 3.52 cfs @ 12.09 hrs, Volume= 11,244 cf  
Outflow = 0.51 cfs @ 12.57 hrs, Volume= 9,182 cf, Atten= 85%, Lag= 28.9 min  
Primary = 0.51 cfs @ 12.57 hrs, Volume= 9,182 cf  
Routed to Link 13L : FES

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.79' @ 12.57 hrs Surf.Area= 7,982 sf Storage= 6,266 cf

Plug-Flow detention time= 312.4 min calculated for 9,182 cf (82% of inflow)  
Center-of-Mass det. time= 231.5 min ( 988.6 - 757.1 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 131.00' | 15,964 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

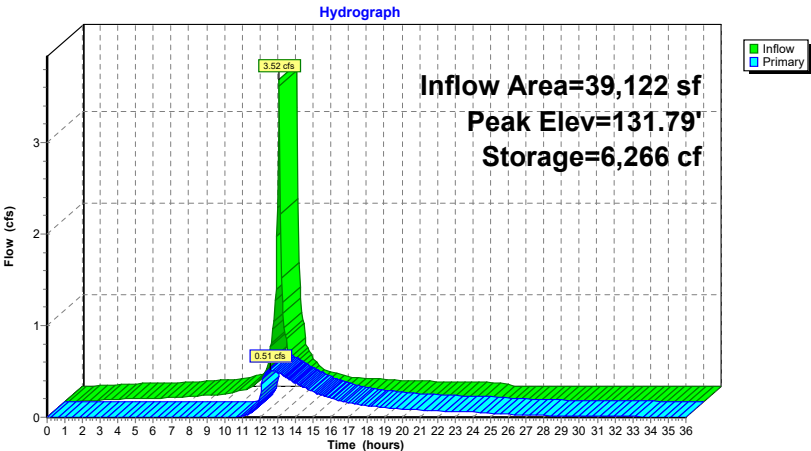
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 131.00           | 7,982             | 0                      | 0                      |
| 132.00           | 7,982             | 7,982                  | 7,982                  |
| 133.00           | 7,982             | 7,982                  | 15,964                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 132.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 131.24' | 0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

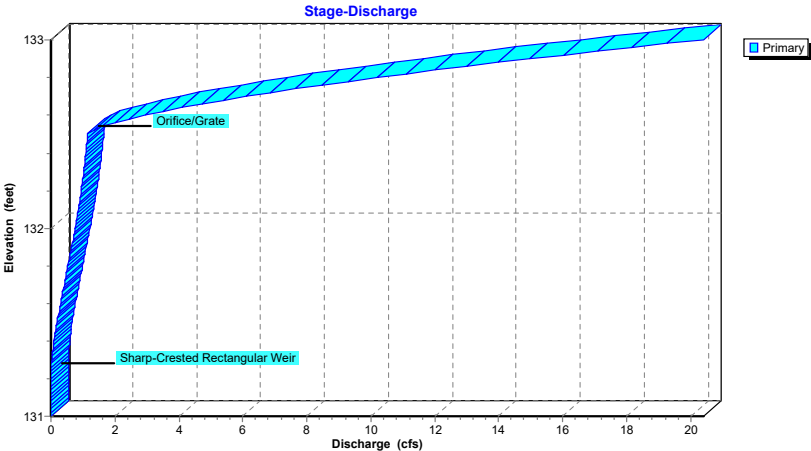
Primary OutFlow Max=0.51 cfs @ 12.57 hrs HW=131.78' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate ( Controls 0.00 cfs)  
2=Sharp-Crested Rectangular Weir(Weir Controls 0.51 cfs @ 2.41 fps)



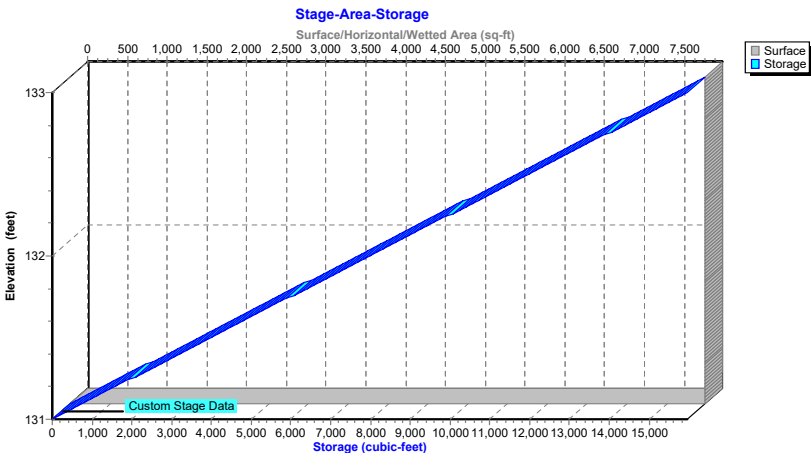
Pond 2P: GI-1



Pond 2P: GI-1



Pond 2P: GI-1



Hydrograph for Pond 2P: GI-1

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 131.00           | 0.00          |
| 1.00         | 0.01         | 5                    | 131.00           | 0.00          |
| 2.00         | 0.02         | 54                   | 131.01           | 0.00          |
| 3.00         | 0.03         | 142                  | 131.02           | 0.00          |
| 4.00         | 0.03         | 255                  | 131.03           | 0.00          |
| 5.00         | 0.04         | 388                  | 131.05           | 0.00          |
| 6.00         | 0.04         | 539                  | 131.07           | 0.00          |
| 7.00         | 0.06         | 720                  | 131.09           | 0.00          |
| 8.00         | 0.07         | 946                  | 131.12           | 0.00          |
| 9.00         | 0.08         | 1,218                | 131.15           | 0.00          |
| 10.00        | 0.13         | 1,595                | 131.20           | 0.00          |
| 11.00        | 0.24         | 2,189                | 131.27           | 0.01          |
| 12.00        | 2.12         | 4,224                | 131.53           | 0.22          |
| 13.00        | 0.31         | 6,089                | 131.76           | 0.49          |
| 14.00        | 0.16         | 5,292                | 131.66           | 0.37          |
| 15.00        | 0.11         | 4,607                | 131.58           | 0.28          |
| 16.00        | 0.09         | 4,091                | 131.51           | 0.21          |
| 17.00        | 0.08         | 3,730                | 131.47           | 0.16          |
| 18.00        | 0.06         | 3,459                | 131.43           | 0.13          |
| 19.00        | 0.06         | 3,253                | 131.41           | 0.10          |
| 20.00        | 0.05         | 3,105                | 131.39           | 0.09          |
| 21.00        | 0.05         | 2,994                | 131.38           | 0.08          |
| 22.00        | 0.05         | 2,907                | 131.36           | 0.07          |
| 23.00        | 0.04         | 2,835                | 131.36           | 0.06          |
| 24.00        | 0.05         | 2,775                | 131.35           | 0.06          |
| 25.00        | 0.00         | 2,613                | 131.33           | 0.04          |
| 26.00        | 0.00         | 2,486                | 131.31           | 0.03          |
| 27.00        | 0.00         | 2,390                | 131.30           | 0.02          |
| 28.00        | 0.00         | 2,317                | 131.29           | 0.02          |
| 29.00        | 0.00         | 2,259                | 131.28           | 0.01          |
| 30.00        | 0.00         | 2,212                | 131.28           | 0.01          |
| 31.00        | 0.00         | 2,175                | 131.27           | 0.01          |
| 32.00        | 0.00         | 2,144                | 131.27           | 0.01          |
| 33.00        | 0.00         | 2,118                | 131.27           | 0.01          |
| 34.00        | 0.00         | 2,097                | 131.26           | 0.01          |
| 35.00        | 0.00         | 2,078                | 131.26           | 0.00          |
| 36.00        | 0.00         | 2,062                | 131.26           | 0.00          |

Stage-Discharge for Pond 2P: GI-1

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 131.00              | 0.00             | 131.52              | 0.22             | 132.04              | 0.80             | 132.56              | 2.01             |
| 131.01              | 0.00             | 131.53              | 0.23             | 132.05              | 0.81             | 132.57              | 2.22             |
| 131.02              | 0.00             | 131.54              | 0.24             | 132.06              | 0.82             | 132.58              | 2.45             |
| 131.03              | 0.00             | 131.55              | 0.25             | 132.07              | 0.83             | 132.59              | 2.69             |
| 131.04              | 0.00             | 131.56              | 0.26             | 132.08              | 0.84             | 132.60              | 2.95             |
| 131.05              | 0.00             | 131.57              | 0.27             | 132.09              | 0.85             | 132.61              | 3.22             |
| 131.06              | 0.00             | 131.58              | 0.28             | 132.10              | 0.86             | 132.62              | 3.50             |
| 131.07              | 0.00             | 131.59              | 0.29             | 132.11              | 0.87             | 132.63              | 3.79             |
| 131.08              | 0.00             | 131.60              | 0.30             | 132.12              | 0.87             | 132.64              | 4.09             |
| 131.09              | 0.00             | 131.61              | 0.31             | 132.13              | 0.88             | 132.65              | 4.41             |
| 131.10              | 0.00             | 131.62              | 0.32             | 132.14              | 0.89             | 132.66              | 4.73             |
| 131.11              | 0.00             | 131.63              | 0.34             | 132.15              | 0.90             | 132.67              | 5.07             |
| 131.12              | 0.00             | 131.64              | 0.35             | 132.16              | 0.91             | 132.68              | 5.41             |
| 131.13              | 0.00             | 131.65              | 0.36             | 132.17              | 0.92             | 132.69              | 5.76             |
| 131.14              | 0.00             | 131.66              | 0.37             | 132.18              | 0.93             | 132.70              | 6.12             |
| 131.15              | 0.00             | 131.67              | 0.38             | 132.19              | 0.94             | 132.71              | 6.49             |
| 131.16              | 0.00             | 131.68              | 0.39             | 132.20              | 0.95             | 132.72              | 6.87             |
| 131.17              | 0.00             | 131.69              | 0.40             | 132.21              | 0.96             | 132.73              | 7.26             |
| 131.18              | 0.00             | 131.70              | 0.42             | 132.22              | 0.96             | 132.74              | 7.65             |
| 131.19              | 0.00             | 131.71              | 0.43             | 132.23              | 0.97             | 132.75              | 8.06             |
| 131.20              | 0.00             | 131.72              | 0.44             | 132.24              | 0.98             | 132.76              | 8.47             |
| 131.21              | 0.00             | 131.73              | 0.45             | 132.25              | 0.99             | 132.77              | 8.89             |
| 131.22              | 0.00             | 131.74              | 0.46             | 132.26              | 1.00             | 132.78              | 9.31             |
| 131.23              | 0.00             | 131.75              | 0.47             | 132.27              | 1.00             | 132.79              | 9.75             |
| 131.24              | 0.00             | 131.76              | 0.49             | 132.28              | 1.01             | 132.80              | 10.19            |
| 131.25              | 0.00             | 131.77              | 0.50             | 132.29              | 1.02             | 132.81              | 10.64            |
| 131.26              | 0.00             | 131.78              | 0.51             | 132.30              | 1.03             | 132.82              | 11.09            |
| 131.27              | 0.01             | 131.79              | 0.52             | 132.31              | 1.04             | 132.83              | 11.56            |
| 131.28              | 0.01             | 131.80              | 0.53             | 132.32              | 1.04             | 132.84              | 12.03            |
| 131.29              | 0.02             | 131.81              | 0.54             | 132.33              | 1.05             | 132.85              | 12.50            |
| 131.30              | 0.02             | 131.82              | 0.55             | 132.34              | 1.06             | 132.86              | 12.99            |
| 131.31              | 0.03             | 131.83              | 0.57             | 132.35              | 1.06             | 132.87              | 13.48            |
| 131.32              | 0.04             | 131.84              | 0.58             | 132.36              | 1.07             | 132.88              | 13.97            |
| 131.33              | 0.04             | 131.85              | 0.59             | 132.37              | 1.08             | 132.89              | 14.48            |
| 131.34              | 0.05             | 131.86              | 0.60             | 132.38              | 1.08             | 132.90              | 14.98            |
| 131.35              | 0.06             | 131.87              | 0.61             | 132.39              | 1.09             | 132.91              | 15.50            |
| 131.36              | 0.06             | 131.88              | 0.62             | 132.40              | 1.09             | 132.92              | 16.02            |
| 131.37              | 0.07             | 131.89              | 0.63             | 132.41              | 1.10             | 132.93              | 16.55            |
| 131.38              | 0.08             | 131.90              | 0.65             | 132.42              | 1.11             | 132.94              | 17.08            |
| 131.39              | 0.09             | 131.91              | 0.66             | 132.43              | 1.11             | 132.95              | 17.62            |
| 131.40              | 0.10             | 131.92              | 0.67             | 132.44              | 1.12             | 132.96              | 18.17            |
| 131.41              | 0.11             | 131.93              | 0.68             | 132.45              | 1.12             | 132.97              | 18.72            |
| 131.42              | 0.12             | 131.94              | 0.69             | 132.46              | 1.13             | 132.98              | 19.28            |
| 131.43              | 0.13             | 131.95              | 0.70             | 132.47              | 1.13             | 132.99              | 19.84            |
| 131.44              | 0.13             | 131.96              | 0.71             | 132.48              | 1.14             | 133.00              | 20.41            |
| 131.45              | 0.14             | 131.97              | 0.72             | 132.49              | 1.14             |                     |                  |
| 131.46              | 0.15             | 131.98              | 0.73             | 132.50              | 1.16             |                     |                  |
| 131.47              | 0.16             | 131.99              | 0.74             | 132.51              | 1.22             |                     |                  |
| 131.48              | 0.17             | 132.00              | 0.75             | 132.52              | 1.33             |                     |                  |
| 131.49              | 0.18             | 132.01              | 0.76             | 132.53              | 1.47             |                     |                  |
| 131.50              | 0.19             | 132.02              | 0.77             | 132.54              | 1.63             |                     |                  |
| 131.51              | 0.20             | 132.03              | 0.79             | 132.55              | 1.81             |                     |                  |

Stage-Area-Storage for Pond 2P: GI-1

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 131.00              | 7,982              | 0                       | 132.04              | 7,982              | 8,301                   |
| 131.02              | 7,982              | 160                     | 132.06              | 7,982              | 8,461                   |
| 131.04              | 7,982              | 319                     | 132.08              | 7,982              | 8,621                   |
| 131.06              | 7,982              | 479                     | 132.10              | 7,982              | 8,780                   |
| 131.08              | 7,982              | 639                     | 132.12              | 7,982              | 8,940                   |
| 131.10              | 7,982              | 798                     | 132.14              | 7,982              | 9,099                   |
| 131.12              | 7,982              | 958                     | 132.16              | 7,982              | 9,259                   |
| 131.14              | 7,982              | 1,117                   | 132.18              | 7,982              | 9,419                   |
| 131.16              | 7,982              | 1,277                   | 132.20              | 7,982              | 9,578                   |
| 131.18              | 7,982              | 1,437                   | 132.22              | 7,982              | 9,738                   |
| 131.20              | 7,982              | 1,596                   | 132.24              | 7,982              | 9,898                   |
| 131.22              | 7,982              | 1,756                   | 132.26              | 7,982              | 10,057                  |
| 131.24              | 7,982              | 1,916                   | 132.28              | 7,982              | 10,217                  |
| 131.26              | 7,982              | 2,075                   | 132.30              | 7,982              | 10,377                  |
| 131.28              | 7,982              | 2,235                   | 132.32              | 7,982              | 10,536                  |
| 131.30              | 7,982              | 2,395                   | 132.34              | 7,982              | 10,696                  |
| 131.32              | 7,982              | 2,554                   | 132.36              | 7,982              | 10,856                  |
| 131.34              | 7,982              | 2,714                   | 132.38              | 7,982              | 11,015                  |
| 131.36              | 7,982              | 2,874                   | 132.40              | 7,982              | 11,175                  |
| 131.38              | 7,982              | 3,033                   | 132.42              | 7,982              | 11,334                  |
| 131.40              | 7,982              | 3,193                   | 132.44              | 7,982              | 11,494                  |
| 131.42              | 7,982              | 3,352                   | 132.46              | 7,982              | 11,654                  |
| 131.44              | 7,982              | 3,512                   | 132.48              | 7,982              | 11,813                  |
| 131.46              | 7,982              | 3,672                   | 132.50              | 7,982              | 11,973                  |
| 131.48              | 7,982              | 3,831                   | 132.52              | 7,982              | 12,133                  |
| 131.50              | 7,982              | 3,991                   | 132.54              | 7,982              | 12,292                  |
| 131.52              | 7,982              | 4,151                   | 132.56              | 7,982              | 12,452                  |
| 131.54              | 7,982              | 4,310                   | 132.58              | 7,982              | 12,612                  |
| 131.56              | 7,982              | 4,470                   | 132.60              | 7,982              | 12,771                  |
| 131.58              | 7,982              | 4,630                   | 132.62              | 7,982              | 12,931                  |
| 131.60              | 7,982              | 4,789                   | 132.64              | 7,982              | 13,090                  |
| 131.62              | 7,982              | 4,949                   | 132.66              | 7,982              | 13,250                  |
| 131.64              | 7,982              | 5,108                   | 132.68              | 7,982              | 13,410                  |
| 131.66              | 7,982              | 5,268                   | 132.70              | 7,982              | 13,569                  |
| 131.68              | 7,982              | 5,428                   | 132.72              | 7,982              | 13,729                  |
| 131.70              | 7,982              | 5,587                   | 132.74              | 7,982              | 13,889                  |
| 131.72              | 7,982              | 5,747                   | 132.76              | 7,982              | 14,048                  |
| 131.74              | 7,982              | 5,907                   | 132.78              | 7,982              | 14,208                  |
| 131.76              | 7,982              | 6,066                   | 132.80              | 7,982              | 14,368                  |
| 131.78              | 7,982              | 6,226                   | 132.82              | 7,982              | 14,527                  |
| 131.80              | 7,982              | 6,386                   | 132.84              | 7,982              | 14,687                  |
| 131.82              | 7,982              | 6,545                   | 132.86              | 7,982              | 14,847                  |
| 131.84              | 7,982              | 6,705                   | 132.88              | 7,982              | 15,006                  |
| 131.86              | 7,982              | 6,865                   | 132.90              | 7,982              | 15,166                  |
| 131.88              | 7,982              | 7,024                   | 132.92              | 7,982              | 15,325                  |
| 131.90              | 7,982              | 7,184                   | 132.94              | 7,982              | 15,485                  |
| 131.92              | 7,982              | 7,343                   | 132.96              | 7,982              | 15,645                  |
| 131.94              | 7,982              | 7,503                   | 132.98              | 7,982              | 15,804                  |
| 131.96              | 7,982              | 7,663                   | 133.00              | 7,982              | 15,964                  |
| 131.98              | 7,982              | 7,822                   |                     |                    |                         |
| 132.00              | 7,982              | 7,982                   |                     |                    |                         |
| 132.02              | 7,982              | 8,142                   |                     |                    |                         |

Summary for Pond 7P: GI-9

Inflow Area = 59,364 sf, 72.99% Impervious, Inflow Depth = 4.94" for 10-Year-2050 event  
Inflow = 8.50 cfs @ 12.08 hrs, Volume= 24,432 cf  
Outflow = 1.06 cfs @ 12.57 hrs, Volume= 20,441 cf, Atten= 88%, Lag= 29.4 min  
Primary = 1.06 cfs @ 12.57 hrs, Volume= 20,441 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 129.51' @ 12.57 hrs Surf.Area= 9,141 sf Storage= 13,795 cf

Plug-Flow detention time= 296.5 min calculated for 20,441 cf (84% of inflow)  
Center-of-Mass det. time= 223.3 min ( 978.8 - 755.5 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 128.00' | 27,423 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

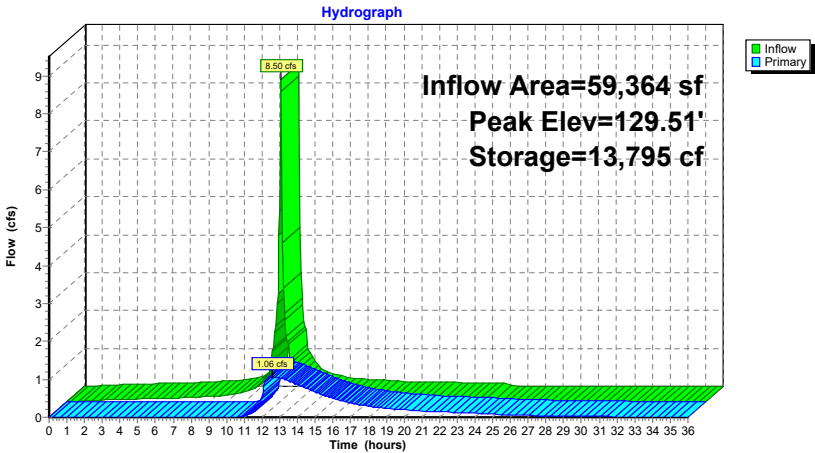
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 128.00           | 9,141             | 0                      | 0                      |
| 131.00           | 9,141             | 27,423                 | 27,423                 |

| Device | Routing | Invert  | Outlet Devices                                                |
|--------|---------|---------|---------------------------------------------------------------|
| #1     | Primary | 128.41' | 0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

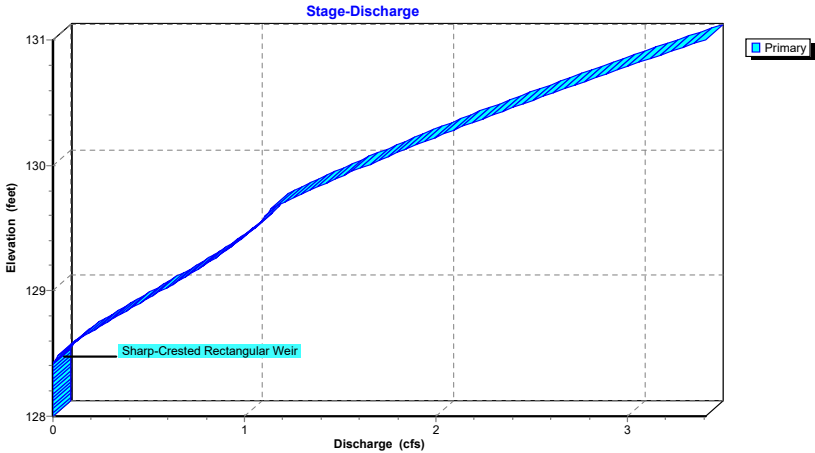
Primary OutFlow Max=1.06 cfs @ 12.57 hrs HW=129.51' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir (Weir Controls 1.06 cfs @ 3.43 fps)



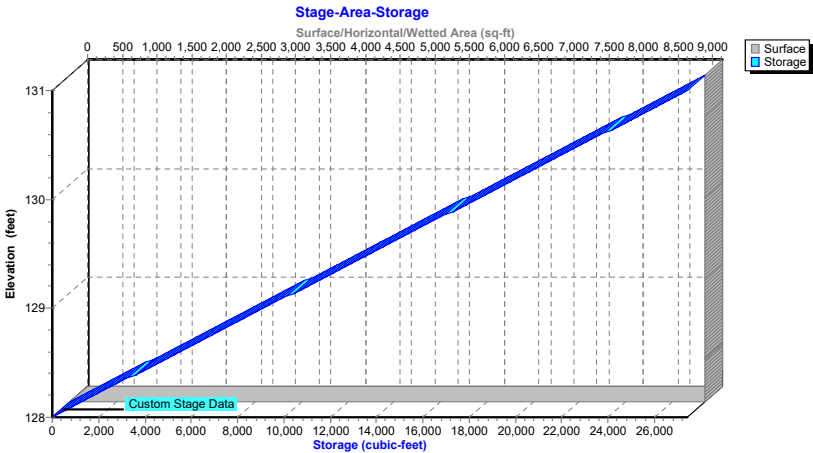
Pond 7P: GI-9



Pond 7P: GI-9



Pond 7P: GI-9



Hydrograph for Pond 7P: GI-9

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 128.00           | 0.00          |
| 1.00         | 0.01         | 10                   | 128.00           | 0.00          |
| 2.00         | 0.04         | 113                  | 128.01           | 0.00          |
| 3.00         | 0.06         | 293                  | 128.03           | 0.00          |
| 4.00         | 0.07         | 526                  | 128.06           | 0.00          |
| 5.00         | 0.08         | 801                  | 128.09           | 0.00          |
| 6.00         | 0.09         | 1,111                | 128.12           | 0.00          |
| 7.00         | 0.12         | 1,484                | 128.16           | 0.00          |
| 8.00         | 0.14         | 1,950                | 128.21           | 0.00          |
| 9.00         | 0.17         | 2,510                | 128.27           | 0.00          |
| 10.00        | 0.26         | 3,287                | 128.36           | 0.00          |
| 11.00        | 0.50         | 4,507                | 128.49           | 0.04          |
| 12.00        | 5.03         | 9,044                | 128.99           | 0.55          |
| 13.00        | 0.68         | 13,468               | 129.47           | 1.03          |
| 14.00        | 0.34         | 11,654               | 129.27           | 0.86          |
| 15.00        | 0.23         | 9,926                | 129.09           | 0.66          |
| 16.00        | 0.19         | 8,585                | 128.94           | 0.50          |
| 17.00        | 0.16         | 7,645                | 128.84           | 0.38          |
| 18.00        | 0.13         | 6,959                | 128.76           | 0.29          |
| 19.00        | 0.12         | 6,457                | 128.71           | 0.23          |
| 20.00        | 0.11         | 6,107                | 128.67           | 0.19          |
| 21.00        | 0.10         | 5,851                | 128.64           | 0.16          |
| 22.00        | 0.09         | 5,656                | 128.62           | 0.14          |
| 23.00        | 0.09         | 5,500                | 128.60           | 0.13          |
| 24.00        | 0.10         | 5,373                | 128.59           | 0.11          |
| 25.00        | 0.00         | 5,036                | 128.55           | 0.08          |
| 26.00        | 0.00         | 4,784                | 128.52           | 0.06          |
| 27.00        | 0.00         | 4,598                | 128.50           | 0.04          |
| 28.00        | 0.00         | 4,457                | 128.49           | 0.03          |
| 29.00        | 0.00         | 4,348                | 128.48           | 0.03          |
| 30.00        | 0.00         | 4,262                | 128.47           | 0.02          |
| 31.00        | 0.00         | 4,193                | 128.46           | 0.02          |
| 32.00        | 0.00         | 4,137                | 128.45           | 0.01          |
| 33.00        | 0.00         | 4,091                | 128.45           | 0.01          |
| 34.00        | 0.00         | 4,052                | 128.44           | 0.01          |
| 35.00        | 0.00         | 4,020                | 128.44           | 0.01          |
| 36.00        | 0.00         | 3,992                | 128.44           | 0.01          |

Stage-Discharge for Pond 7P: GI-9

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 128.00              | 0.00             | 129.04              | 0.61             | 130.08              | 1.76             |
| 128.02              | 0.00             | 129.06              | 0.63             | 130.10              | 1.80             |
| 128.04              | 0.00             | 129.08              | 0.66             | 130.12              | 1.83             |
| 128.06              | 0.00             | 129.10              | 0.68             | 130.14              | 1.86             |
| 128.08              | 0.00             | 129.12              | 0.70             | 130.16              | 1.89             |
| 128.10              | 0.00             | 129.14              | 0.72             | 130.18              | 1.93             |
| 128.12              | 0.00             | 129.16              | 0.74             | 130.20              | 1.96             |
| 128.14              | 0.00             | 129.18              | 0.76             | 130.22              | 1.99             |
| 128.16              | 0.00             | 129.20              | 0.79             | 130.24              | 2.02             |
| 128.18              | 0.00             | 129.22              | 0.81             | 130.26              | 2.06             |
| 128.20              | 0.00             | 129.24              | 0.83             | 130.28              | 2.09             |
| 128.22              | 0.00             | 129.26              | 0.85             | 130.30              | 2.12             |
| 128.24              | 0.00             | 129.28              | 0.87             | 130.32              | 2.16             |
| 128.26              | 0.00             | 129.30              | 0.88             | 130.34              | 2.19             |
| 128.28              | 0.00             | 129.32              | 0.90             | 130.36              | 2.23             |
| 128.30              | 0.00             | 129.34              | 0.92             | 130.38              | 2.26             |
| 128.32              | 0.00             | 129.36              | 0.94             | 130.40              | 2.29             |
| 128.34              | 0.00             | 129.38              | 0.96             | 130.42              | 2.33             |
| 128.36              | 0.00             | 129.40              | 0.97             | 130.44              | 2.36             |
| 128.38              | 0.00             | 129.42              | 0.99             | 130.46              | 2.40             |
| 128.40              | 0.00             | 129.44              | 1.00             | 130.48              | 2.43             |
| 128.42              | 0.00             | 129.46              | 1.02             | 130.50              | 2.47             |
| 128.44              | 0.01             | 129.48              | 1.04             | 130.52              | 2.51             |
| 128.46              | 0.02             | 129.50              | 1.05             | 130.54              | 2.54             |
| 128.48              | 0.03             | 129.52              | 1.06             | 130.56              | 2.58             |
| 128.50              | 0.04             | 129.54              | 1.08             | 130.58              | 2.61             |
| 128.52              | 0.06             | 129.56              | 1.09             | 130.60              | 2.65             |
| 128.54              | 0.07             | 129.58              | 1.10             | 130.62              | 2.69             |
| 128.56              | 0.09             | 129.60              | 1.11             | 130.64              | 2.72             |
| 128.58              | 0.11             | 129.62              | 1.12             | 130.66              | 2.76             |
| 128.60              | 0.13             | 129.64              | 1.13             | 130.68              | 2.80             |
| 128.62              | 0.14             | 129.66              | 1.14             | 130.70              | 2.83             |
| 128.64              | 0.16             | 129.68              | 1.17             | 130.72              | 2.87             |
| 128.66              | 0.18             | 129.70              | 1.20             | 130.74              | 2.91             |
| 128.68              | 0.20             | 129.72              | 1.23             | 130.76              | 2.95             |
| 128.70              | 0.23             | 129.74              | 1.25             | 130.78              | 2.98             |
| 128.72              | 0.25             | 129.76              | 1.28             | 130.80              | 3.02             |
| 128.74              | 0.27             | 129.78              | 1.31             | 130.82              | 3.06             |
| 128.76              | 0.29             | 129.80              | 1.34             | 130.84              | 3.10             |
| 128.78              | 0.31             | 129.82              | 1.37             | 130.86              | 3.13             |
| 128.80              | 0.34             | 129.84              | 1.40             | 130.88              | 3.17             |
| 128.82              | 0.36             | 129.86              | 1.43             | 130.90              | 3.21             |
| 128.84              | 0.38             | 129.88              | 1.46             | 130.92              | 3.25             |
| 128.86              | 0.40             | 129.90              | 1.49             | 130.94              | 3.29             |
| 128.88              | 0.43             | 129.92              | 1.52             | 130.96              | 3.33             |
| 128.90              | 0.45             | 129.94              | 1.55             | 130.98              | 3.37             |
| 128.92              | 0.47             | 129.96              | 1.58             | 131.00              | 3.41             |
| 128.94              | 0.50             | 129.98              | 1.61             |                     |                  |
| 128.96              | 0.52             | 130.00              | 1.64             |                     |                  |
| 128.98              | 0.54             | 130.02              | 1.67             |                     |                  |
| 129.00              | 0.57             | 130.04              | 1.70             |                     |                  |
| 129.02              | 0.59             | 130.06              | 1.73             |                     |                  |

Stage-Area-Storage for Pond 7P: GI-9

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 128.00              | 9,141              | 0                       | 130.60              | 9,141              | 23,767                  |
| 128.05              | 9,141              | 457                     | 130.65              | 9,141              | 24,224                  |
| 128.10              | 9,141              | 914                     | 130.70              | 9,141              | 24,681                  |
| 128.15              | 9,141              | 1,371                   | 130.75              | 9,141              | 25,138                  |
| 128.20              | 9,141              | 1,828                   | 130.80              | 9,141              | 25,595                  |
| 128.25              | 9,141              | 2,285                   | 130.85              | 9,141              | 26,052                  |
| 128.30              | 9,141              | 2,742                   | 130.90              | 9,141              | 26,509                  |
| 128.35              | 9,141              | 3,199                   | 130.95              | 9,141              | 26,966                  |
| 128.40              | 9,141              | 3,656                   | 131.00              | 9,141              | 27,423                  |
| 128.45              | 9,141              | 4,113                   |                     |                    |                         |
| 128.50              | 9,141              | 4,571                   |                     |                    |                         |
| 128.55              | 9,141              | 5,028                   |                     |                    |                         |
| 128.60              | 9,141              | 5,485                   |                     |                    |                         |
| 128.65              | 9,141              | 5,942                   |                     |                    |                         |
| 128.70              | 9,141              | 6,399                   |                     |                    |                         |
| 128.75              | 9,141              | 6,856                   |                     |                    |                         |
| 128.80              | 9,141              | 7,313                   |                     |                    |                         |
| 128.85              | 9,141              | 7,770                   |                     |                    |                         |
| 128.90              | 9,141              | 8,227                   |                     |                    |                         |
| 128.95              | 9,141              | 8,684                   |                     |                    |                         |
| 129.00              | 9,141              | 9,141                   |                     |                    |                         |
| 129.05              | 9,141              | 9,598                   |                     |                    |                         |
| 129.10              | 9,141              | 10,055                  |                     |                    |                         |
| 129.15              | 9,141              | 10,512                  |                     |                    |                         |
| 129.20              | 9,141              | 10,969                  |                     |                    |                         |
| 129.25              | 9,141              | 11,426                  |                     |                    |                         |
| 129.30              | 9,141              | 11,883                  |                     |                    |                         |
| 129.35              | 9,141              | 12,340                  |                     |                    |                         |
| 129.40              | 9,141              | 12,797                  |                     |                    |                         |
| 129.45              | 9,141              | 13,254                  |                     |                    |                         |
| 129.50              | 9,141              | 13,712                  |                     |                    |                         |
| 129.55              | 9,141              | 14,169                  |                     |                    |                         |
| 129.60              | 9,141              | 14,626                  |                     |                    |                         |
| 129.65              | 9,141              | 15,083                  |                     |                    |                         |
| 129.70              | 9,141              | 15,540                  |                     |                    |                         |
| 129.75              | 9,141              | 15,997                  |                     |                    |                         |
| 129.80              | 9,141              | 16,454                  |                     |                    |                         |
| 129.85              | 9,141              | 16,911                  |                     |                    |                         |
| 129.90              | 9,141              | 17,368                  |                     |                    |                         |
| 129.95              | 9,141              | 17,825                  |                     |                    |                         |
| 130.00              | 9,141              | 18,282                  |                     |                    |                         |
| 130.05              | 9,141              | 18,739                  |                     |                    |                         |
| 130.10              | 9,141              | 19,196                  |                     |                    |                         |
| 130.15              | 9,141              | 19,653                  |                     |                    |                         |
| 130.20              | 9,141              | 20,110                  |                     |                    |                         |
| 130.25              | 9,141              | 20,567                  |                     |                    |                         |
| 130.30              | 9,141              | 21,024                  |                     |                    |                         |
| 130.35              | 9,141              | 21,481                  |                     |                    |                         |
| 130.40              | 9,141              | 21,938                  |                     |                    |                         |
| 130.45              | 9,141              | 22,395                  |                     |                    |                         |
| 130.50              | 9,141              | 22,853                  |                     |                    |                         |
| 130.55              | 9,141              | 23,310                  |                     |                    |                         |

Summary for Pond 14P: GI-2

Inflow Area = 26,583 sf, 49.36% Impervious, Inflow Depth = 3.20" for 10-Year-2050 event  
Inflow = 2.27 cfs @ 12.08 hrs, Volume= 7,099 cf  
Outflow = 0.38 cfs @ 12.52 hrs, Volume= 5,812 cf, Atten= 83%, Lag= 26.3 min  
Primary = 0.38 cfs @ 12.52 hrs, Volume= 5,812 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 130.53' @ 12.52 hrs Surf.Area= 7,126 sf Storage= 3,809 cf

Plug-Flow detention time= 291.1 min calculated for 5,804 cf (82% of inflow)  
Center-of-Mass det. time= 211.5 min ( 970.3 - 758.8 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 14,252 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

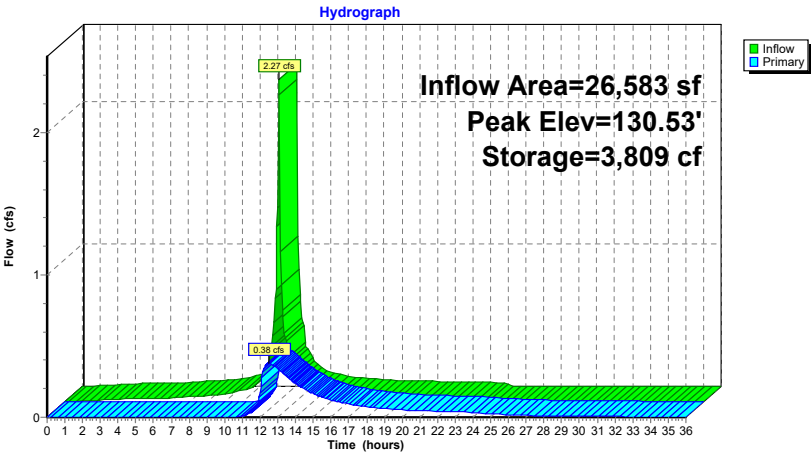
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 7,126             | 0                      | 0                      |
| 131.00           | 7,126             | 7,126                  | 7,126                  |
| 132.00           | 7,126             | 7,126                  | 14,252                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 130.17' | 0.6' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |
| #2     | Primary | 131.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |

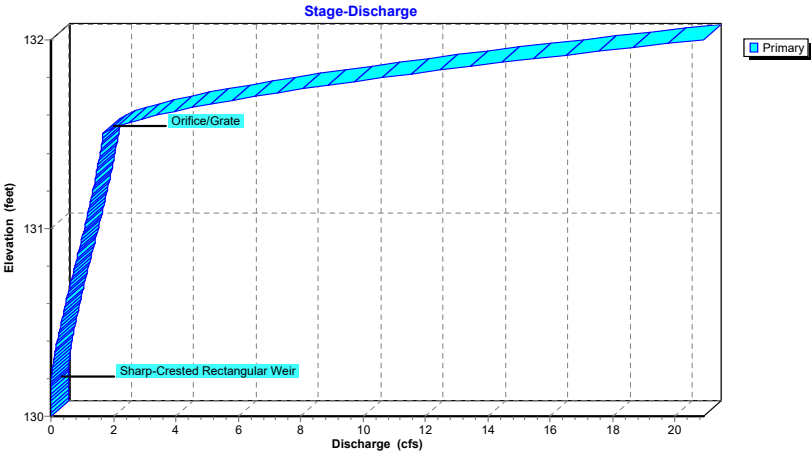
Primary OutFlow Max=0.38 cfs @ 12.52 hrs HW=130.53' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir (Weir Controls 0.38 cfs @ 1.97 fps)  
2=Orifice/Grate ( Controls 0.00 cfs)



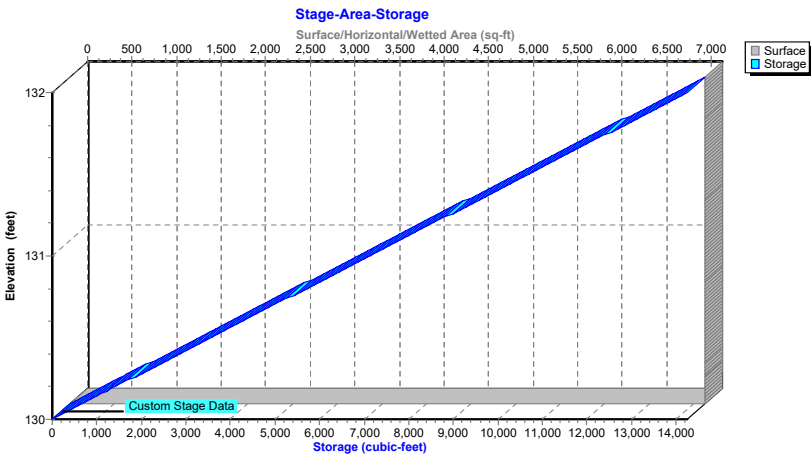
Pond 14P: GI-2



Pond 14P: GI-2



Pond 14P: GI-2



Hydrograph for Pond 14P: GI-2

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Primary<br>(cfs) |
|-----------------|-----------------|-------------------------|---------------------|------------------|
| 0.00            | 0.00            | 0                       | 130.00              | 0.00             |
| 1.00            | 0.00            | 3                       | 130.00              | 0.00             |
| 2.00            | 0.01            | 34                      | 130.00              | 0.00             |
| 3.00            | 0.02            | 89                      | 130.01              | 0.00             |
| 4.00            | 0.02            | 160                     | 130.02              | 0.00             |
| 5.00            | 0.02            | 243                     | 130.03              | 0.00             |
| 6.00            | 0.03            | 337                     | 130.05              | 0.00             |
| 7.00            | 0.04            | 450                     | 130.06              | 0.00             |
| 8.00            | 0.04            | 591                     | 130.08              | 0.00             |
| 9.00            | 0.05            | 761                     | 130.11              | 0.00             |
| 10.00           | 0.08            | 997                     | 130.14              | 0.00             |
| 11.00           | 0.15            | 1,371                   | 130.19              | 0.01             |
| 12.00           | 1.36            | 2,670                   | 130.37              | 0.17             |
| 13.00           | 0.20            | 3,619                   | 130.51              | 0.34             |
| 14.00           | 0.10            | 3,062                   | 130.43              | 0.24             |
| 15.00           | 0.07            | 2,650                   | 130.37              | 0.17             |
| 16.00           | 0.06            | 2,364                   | 130.33              | 0.12             |
| 17.00           | 0.05            | 2,174                   | 130.31              | 0.09             |
| 18.00           | 0.04            | 2,033                   | 130.29              | 0.07             |
| 19.00           | 0.04            | 1,929                   | 130.27              | 0.06             |
| 20.00           | 0.03            | 1,855                   | 130.26              | 0.05             |
| 21.00           | 0.03            | 1,801                   | 130.25              | 0.05             |
| 22.00           | 0.03            | 1,758                   | 130.25              | 0.04             |
| 23.00           | 0.03            | 1,722                   | 130.24              | 0.04             |
| 24.00           | 0.03            | 1,692                   | 130.24              | 0.03             |
| 25.00           | 0.00            | 1,594                   | 130.22              | 0.02             |
| 26.00           | 0.00            | 1,520                   | 130.21              | 0.02             |
| 27.00           | 0.00            | 1,466                   | 130.21              | 0.01             |
| 28.00           | 0.00            | 1,424                   | 130.20              | 0.01             |
| 29.00           | 0.00            | 1,392                   | 130.20              | 0.01             |
| 30.00           | 0.00            | 1,367                   | 130.19              | 0.01             |
| 31.00           | 0.00            | 1,347                   | 130.19              | 0.01             |
| 32.00           | 0.00            | 1,330                   | 130.19              | 0.00             |
| 33.00           | 0.00            | 1,316                   | 130.18              | 0.00             |
| 34.00           | 0.00            | 1,305                   | 130.18              | 0.00             |
| 35.00           | 0.00            | 1,295                   | 130.18              | 0.00             |
| 36.00           | 0.00            | 1,287                   | 130.18              | 0.00             |



Stage-Discharge for Pond 14P: GI-2

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.36             | 131.04              | 1.13             | 131.56              | 2.49             |
| 130.01              | 0.00             | 130.53              | 0.37             | 131.05              | 1.14             | 131.57              | 2.70             |
| 130.02              | 0.00             | 130.54              | 0.39             | 131.06              | 1.16             | 131.58              | 2.92             |
| 130.03              | 0.00             | 130.55              | 0.40             | 131.07              | 1.17             | 131.59              | 3.16             |
| 130.04              | 0.00             | 130.56              | 0.42             | 131.08              | 1.19             | 131.60              | 3.41             |
| 130.05              | 0.00             | 130.57              | 0.43             | 131.09              | 1.20             | 131.61              | 3.67             |
| 130.06              | 0.00             | 130.58              | 0.44             | 131.10              | 1.21             | 131.62              | 3.94             |
| 130.07              | 0.00             | 130.59              | 0.46             | 131.11              | 1.23             | 131.63              | 4.23             |
| 130.08              | 0.00             | 130.60              | 0.47             | 131.12              | 1.24             | 131.64              | 4.52             |
| 130.09              | 0.00             | 130.61              | 0.49             | 131.13              | 1.25             | 131.65              | 4.83             |
| 130.10              | 0.00             | 130.62              | 0.50             | 131.14              | 1.27             | 131.66              | 5.14             |
| 130.11              | 0.00             | 130.63              | 0.52             | 131.15              | 1.28             | 131.67              | 5.47             |
| 130.12              | 0.00             | 130.64              | 0.53             | 131.16              | 1.29             | 131.68              | 5.82             |
| 130.13              | 0.00             | 130.65              | 0.55             | 131.17              | 1.31             | 131.69              | 6.17             |
| 130.14              | 0.00             | 130.66              | 0.56             | 131.18              | 1.32             | 131.70              | 6.54             |
| 130.15              | 0.00             | 130.67              | 0.58             | 131.19              | 1.33             | 131.71              | 6.91             |
| 130.16              | 0.00             | 130.68              | 0.59             | 131.20              | 1.35             | 131.72              | 7.29             |
| 130.17              | 0.00             | 130.69              | 0.61             | 131.21              | 1.36             | 131.73              | 7.68             |
| 130.18              | 0.00             | 130.70              | 0.62             | 131.22              | 1.37             | 131.74              | 8.08             |
| 130.19              | 0.01             | 130.71              | 0.64             | 131.23              | 1.38             | 131.75              | 8.49             |
| 130.20              | 0.01             | 130.72              | 0.65             | 131.24              | 1.40             | 131.76              | 8.90             |
| 130.21              | 0.02             | 130.73              | 0.67             | 131.25              | 1.41             | 131.77              | 9.33             |
| 130.22              | 0.02             | 130.74              | 0.68             | 131.26              | 1.42             | 131.78              | 9.76             |
| 130.23              | 0.03             | 130.75              | 0.70             | 131.27              | 1.43             | 131.79              | 10.19            |
| 130.24              | 0.04             | 130.76              | 0.71             | 131.28              | 1.45             | 131.80              | 10.64            |
| 130.25              | 0.04             | 130.77              | 0.73             | 131.29              | 1.46             | 131.81              | 11.09            |
| 130.26              | 0.05             | 130.78              | 0.74             | 131.30              | 1.47             | 131.82              | 11.55            |
| 130.27              | 0.06             | 130.79              | 0.76             | 131.31              | 1.48             | 131.83              | 12.02            |
| 130.28              | 0.07             | 130.80              | 0.78             | 131.32              | 1.49             | 131.84              | 12.49            |
| 130.29              | 0.08             | 130.81              | 0.79             | 131.33              | 1.50             | 131.85              | 12.97            |
| 130.30              | 0.09             | 130.82              | 0.81             | 131.34              | 1.51             | 131.86              | 13.46            |
| 130.31              | 0.10             | 130.83              | 0.82             | 131.35              | 1.53             | 131.87              | 13.95            |
| 130.32              | 0.11             | 130.84              | 0.84             | 131.36              | 1.54             | 131.88              | 14.45            |
| 130.33              | 0.12             | 130.85              | 0.85             | 131.37              | 1.55             | 131.89              | 14.96            |
| 130.34              | 0.13             | 130.86              | 0.87             | 131.38              | 1.56             | 131.90              | 15.47            |
| 130.35              | 0.14             | 130.87              | 0.88             | 131.39              | 1.57             | 131.91              | 15.99            |
| 130.36              | 0.15             | 130.88              | 0.90             | 131.40              | 1.58             | 131.92              | 16.51            |
| 130.37              | 0.16             | 130.89              | 0.91             | 131.41              | 1.59             | 131.93              | 17.04            |
| 130.38              | 0.18             | 130.90              | 0.93             | 131.42              | 1.60             | 131.94              | 17.58            |
| 130.39              | 0.19             | 130.91              | 0.94             | 131.43              | 1.61             | 131.95              | 18.12            |
| 130.40              | 0.20             | 130.92              | 0.96             | 131.44              | 1.62             | 131.96              | 18.67            |
| 130.41              | 0.21             | 130.93              | 0.97             | 131.45              | 1.63             | 131.97              | 19.23            |
| 130.42              | 0.22             | 130.94              | 0.99             | 131.46              | 1.64             | 131.98              | 19.79            |
| 130.43              | 0.24             | 130.95              | 1.00             | 131.47              | 1.65             | 131.99              | 20.35            |
| 130.44              | 0.25             | 130.96              | 1.01             | 131.48              | 1.66             | 132.00              | 20.93            |
| 130.45              | 0.26             | 130.97              | 1.03             | 131.49              | 1.67             |                     |                  |
| 130.46              | 0.28             | 130.98              | 1.04             | 131.50              | 1.68             |                     |                  |
| 130.47              | 0.29             | 130.99              | 1.06             | 131.51              | 1.74             |                     |                  |
| 130.48              | 0.30             | 131.00              | 1.07             | 131.52              | 1.84             |                     |                  |
| 130.49              | 0.32             | 131.01              | 1.09             | 131.53              | 1.97             |                     |                  |
| 130.50              | 0.33             | 131.02              | 1.10             | 131.54              | 2.13             |                     |                  |
| 130.51              | 0.34             | 131.03              | 1.12             | 131.55              | 2.30             |                     |                  |

Stage-Area-Storage for Pond 14P: GI-2

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | 7,126              | 0                       | 131.04              | 7,126              | 7,411                   |
| 130.02              | 7,126              | 143                     | 131.06              | 7,126              | 7,554                   |
| 130.04              | 7,126              | 285                     | 131.08              | 7,126              | 7,696                   |
| 130.06              | 7,126              | 428                     | 131.10              | 7,126              | 7,839                   |
| 130.08              | 7,126              | 570                     | 131.12              | 7,126              | 7,981                   |
| 130.10              | 7,126              | 713                     | 131.14              | 7,126              | 8,124                   |
| 130.12              | 7,126              | 855                     | 131.16              | 7,126              | 8,266                   |
| 130.14              | 7,126              | 998                     | 131.18              | 7,126              | 8,409                   |
| 130.16              | 7,126              | 1,140                   | 131.20              | 7,126              | 8,551                   |
| 130.18              | 7,126              | 1,283                   | 131.22              | 7,126              | 8,694                   |
| 130.20              | 7,126              | 1,425                   | 131.24              | 7,126              | 8,836                   |
| 130.22              | 7,126              | 1,568                   | 131.26              | 7,126              | 8,979                   |
| 130.24              | 7,126              | 1,710                   | 131.28              | 7,126              | 9,121                   |
| 130.26              | 7,126              | 1,853                   | 131.30              | 7,126              | 9,264                   |
| 130.28              | 7,126              | 1,995                   | 131.32              | 7,126              | 9,406                   |
| 130.30              | 7,126              | 2,138                   | 131.34              | 7,126              | 9,549                   |
| 130.32              | 7,126              | 2,280                   | 131.36              | 7,126              | 9,691                   |
| 130.34              | 7,126              | 2,423                   | 131.38              | 7,126              | 9,834                   |
| 130.36              | 7,126              | 2,565                   | 131.40              | 7,126              | 9,976                   |
| 130.38              | 7,126              | 2,708                   | 131.42              | 7,126              | 10,119                  |
| 130.40              | 7,126              | 2,850                   | 131.44              | 7,126              | 10,261                  |
| 130.42              | 7,126              | 2,993                   | 131.46              | 7,126              | 10,404                  |
| 130.44              | 7,126              | 3,135                   | 131.48              | 7,126              | 10,546                  |
| 130.46              | 7,126              | 3,278                   | 131.50              | 7,126              | 10,689                  |
| 130.48              | 7,126              | 3,420                   | 131.52              | 7,126              | 10,832                  |
| 130.50              | 7,126              | 3,563                   | 131.54              | 7,126              | 10,974                  |
| 130.52              | 7,126              | 3,706                   | 131.56              | 7,126              | 11,117                  |
| 130.54              | 7,126              | 3,848                   | 131.58              | 7,126              | 11,259                  |
| 130.56              | 7,126              | 3,991                   | 131.60              | 7,126              | 11,402                  |
| 130.58              | 7,126              | 4,133                   | 131.62              | 7,126              | 11,544                  |
| 130.60              | 7,126              | 4,276                   | 131.64              | 7,126              | 11,687                  |
| 130.62              | 7,126              | 4,418                   | 131.66              | 7,126              | 11,829                  |
| 130.64              | 7,126              | 4,561                   | 131.68              | 7,126              | 11,972                  |
| 130.66              | 7,126              | 4,703                   | 131.70              | 7,126              | 12,114                  |
| 130.68              | 7,126              | 4,846                   | 131.72              | 7,126              | 12,257                  |
| 130.70              | 7,126              | 4,988                   | 131.74              | 7,126              | 12,399                  |
| 130.72              | 7,126              | 5,131                   | 131.76              | 7,126              | 12,542                  |
| 130.74              | 7,126              | 5,273                   | 131.78              | 7,126              | 12,684                  |
| 130.76              | 7,126              | 5,416                   | 131.80              | 7,126              | 12,827                  |
| 130.78              | 7,126              | 5,558                   | 131.82              | 7,126              | 12,969                  |
| 130.80              | 7,126              | 5,701                   | 131.84              | 7,126              | 13,112                  |
| 130.82              | 7,126              | 5,843                   | 131.86              | 7,126              | 13,254                  |
| 130.84              | 7,126              | 5,986                   | 131.88              | 7,126              | 13,397                  |
| 130.86              | 7,126              | 6,128                   | 131.90              | 7,126              | 13,539                  |
| 130.88              | 7,126              | 6,271                   | 131.92              | 7,126              | 13,682                  |
| 130.90              | 7,126              | 6,413                   | 131.94              | 7,126              | 13,824                  |
| 130.92              | 7,126              | 6,556                   | 131.96              | 7,126              | 13,967                  |
| 130.94              | 7,126              | 6,698                   | 131.98              | 7,126              | 14,109                  |
| 130.96              | 7,126              | 6,841                   | 132.00              | 7,126              | 14,252                  |
| 130.98              | 7,126              | 6,983                   |                     |                    |                         |
| 131.00              | 7,126              | 7,126                   |                     |                    |                         |
| 131.02              | 7,126              | 7,269                   |                     |                    |                         |

Summary for Pond 28P: GI-3

Inflow Area = 84,149 sf, 72.01% Impervious, Inflow Depth = 4.76" for 10-Year-2050 event  
Inflow = 10.46 cfs @ 12.10 hrs, Volume= 33,373 cf  
Outflow = 3.66 cfs @ 12.27 hrs, Volume= 21,812 cf, Atten= 65%, Lag= 10.5 min  
Primary = 3.66 cfs @ 12.27 hrs, Volume= 21,812 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.64' @ 12.27 hrs Surf.Area= 11,000 sf Storage= 18,048 cf

Plug-Flow detention time= 318.8 min calculated for 21,782 cf (65% of inflow)  
Center-of-Mass det. time= 211.5 min ( 967.8 - 756.3 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 22,000 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

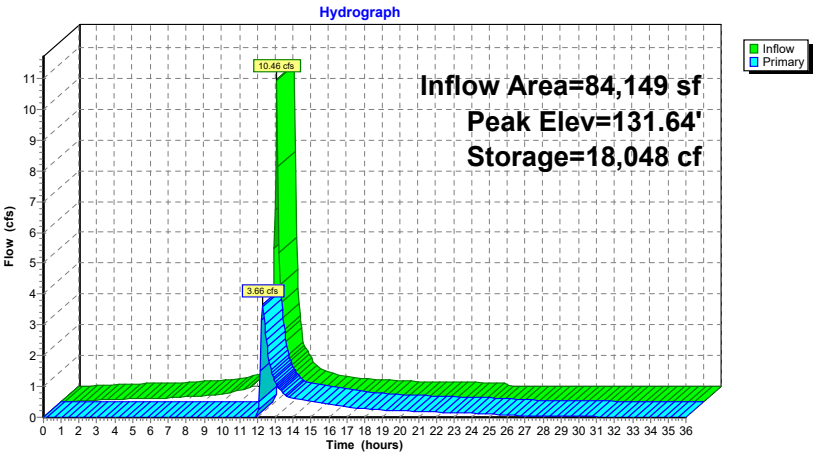
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 11,000            | 0                      | 0                      |
| 131.00           | 11,000            | 11,000                 | 11,000                 |
| 132.00           | 11,000            | 11,000                 | 22,000                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 131.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 131.03' | 0.7' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

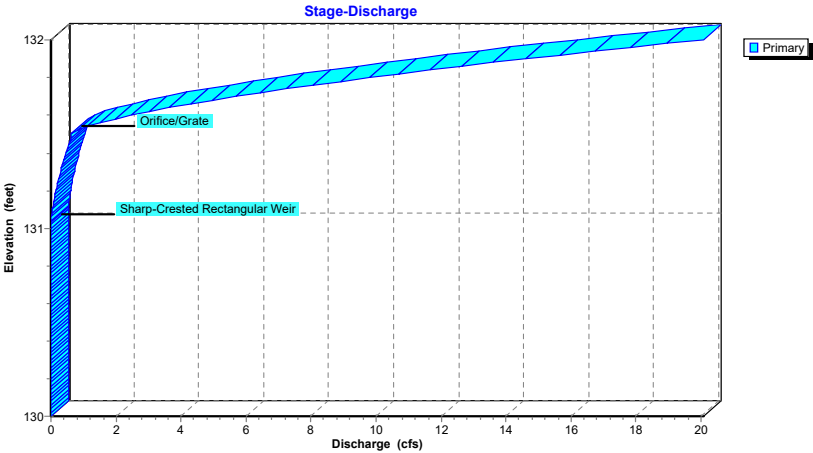
Primary OutFlow Max=3.60 cfs @ 12.27 hrs HW=131.64' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate (Weir Controls 2.70 cfs @ 1.22 fps)  
2=Sharp-Crested Rectangular Weir(Weir Controls 0.90 cfs @ 2.55 fps)



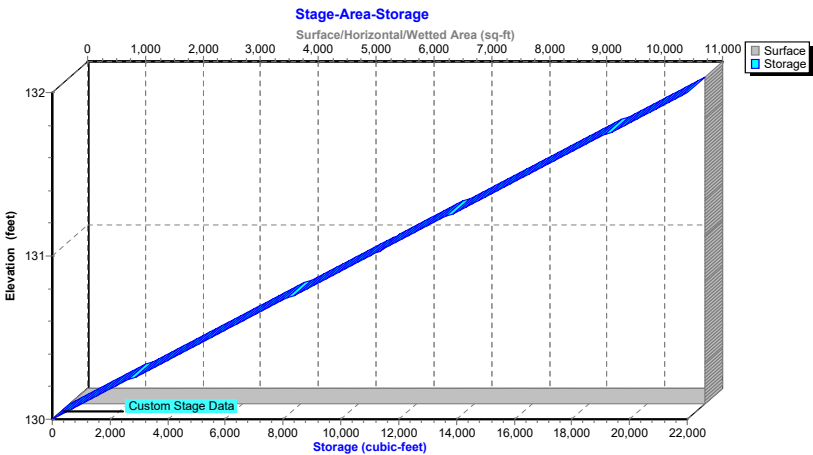
Pond 28P: GI-3



Pond 28P: GI-3



Pond 28P: GI-3



Hydrograph for Pond 28P: GI-3

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.02         | 12                   | 130.00           | 0.00          |
| 2.00         | 0.06         | 154                  | 130.01           | 0.00          |
| 3.00         | 0.08         | 404                  | 130.04           | 0.00          |
| 4.00         | 0.10         | 729                  | 130.07           | 0.00          |
| 5.00         | 0.11         | 1,113                | 130.10           | 0.00          |
| 6.00         | 0.13         | 1,545                | 130.14           | 0.00          |
| 7.00         | 0.16         | 2,065                | 130.19           | 0.00          |
| 8.00         | 0.20         | 2,714                | 130.25           | 0.00          |
| 9.00         | 0.24         | 3,495                | 130.32           | 0.00          |
| 10.00        | 0.36         | 4,574                | 130.42           | 0.00          |
| 11.00        | 0.68         | 6,288                | 130.57           | 0.00          |
| 12.00        | 6.22         | 12,784               | 131.16           | 0.11          |
| 13.00        | 0.95         | 16,951               | 131.54           | 1.15          |
| 14.00        | 0.47         | 16,381               | 131.49           | 0.62          |
| 15.00        | 0.31         | 15,735               | 131.43           | 0.51          |
| 16.00        | 0.26         | 15,084               | 131.37           | 0.41          |
| 17.00        | 0.22         | 14,594               | 131.33           | 0.34          |
| 18.00        | 0.18         | 14,188               | 131.29           | 0.28          |
| 19.00        | 0.16         | 13,863               | 131.26           | 0.24          |
| 20.00        | 0.15         | 13,633               | 131.24           | 0.21          |
| 21.00        | 0.14         | 13,458               | 131.22           | 0.18          |
| 22.00        | 0.13         | 13,316               | 131.21           | 0.17          |
| 23.00        | 0.12         | 13,195               | 131.20           | 0.15          |
| 24.00        | 0.13         | 13,088               | 131.19           | 0.14          |
| 25.00        | 0.00         | 12,697               | 131.15           | 0.10          |
| 26.00        | 0.00         | 12,405               | 131.13           | 0.07          |
| 27.00        | 0.00         | 12,196               | 131.11           | 0.05          |
| 28.00        | 0.00         | 12,042               | 131.09           | 0.04          |
| 29.00        | 0.00         | 11,925               | 131.08           | 0.03          |
| 30.00        | 0.00         | 11,835               | 131.08           | 0.02          |
| 31.00        | 0.00         | 11,763               | 131.07           | 0.02          |
| 32.00        | 0.00         | 11,706               | 131.06           | 0.01          |
| 33.00        | 0.00         | 11,659               | 131.06           | 0.01          |
| 34.00        | 0.00         | 11,621               | 131.06           | 0.01          |
| 35.00        | 0.00         | 11,588               | 131.05           | 0.01          |
| 36.00        | 0.00         | 11,561               | 131.05           | 0.01          |

Stage-Discharge for Pond 28P: GI-3

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.00             | 131.04              | 0.00             | 131.56              | 1.52             |
| 130.01              | 0.00             | 130.53              | 0.00             | 131.05              | 0.01             | 131.57              | 1.74             |
| 130.02              | 0.00             | 130.54              | 0.00             | 131.06              | 0.01             | 131.58              | 1.97             |
| 130.03              | 0.00             | 130.55              | 0.00             | 131.07              | 0.02             | 131.59              | 2.22             |
| 130.04              | 0.00             | 130.56              | 0.00             | 131.08              | 0.03             | 131.60              | 2.48             |
| 130.05              | 0.00             | 130.57              | 0.00             | 131.09              | 0.03             | 131.61              | 2.75             |
| 130.06              | 0.00             | 130.58              | 0.00             | 131.10              | 0.04             | 131.62              | 3.04             |
| 130.07              | 0.00             | 130.59              | 0.00             | 131.11              | 0.05             | 131.63              | 3.33             |
| 130.08              | 0.00             | 130.60              | 0.00             | 131.12              | 0.06             | 131.64              | 3.64             |
| 130.09              | 0.00             | 130.61              | 0.00             | 131.13              | 0.07             | 131.65              | 3.96             |
| 130.10              | 0.00             | 130.62              | 0.00             | 131.14              | 0.08             | 131.66              | 4.29             |
| 130.11              | 0.00             | 130.63              | 0.00             | 131.15              | 0.09             | 131.67              | 4.62             |
| 130.12              | 0.00             | 130.64              | 0.00             | 131.16              | 0.10             | 131.68              | 4.97             |
| 130.13              | 0.00             | 130.65              | 0.00             | 131.17              | 0.12             | 131.69              | 5.33             |
| 130.14              | 0.00             | 130.66              | 0.00             | 131.18              | 0.13             | 131.70              | 5.69             |
| 130.15              | 0.00             | 130.67              | 0.00             | 131.19              | 0.14             | 131.71              | 6.07             |
| 130.16              | 0.00             | 130.68              | 0.00             | 131.20              | 0.15             | 131.72              | 6.45             |
| 130.17              | 0.00             | 130.69              | 0.00             | 131.21              | 0.17             | 131.73              | 6.84             |
| 130.18              | 0.00             | 130.70              | 0.00             | 131.22              | 0.18             | 131.74              | 7.24             |
| 130.19              | 0.00             | 130.71              | 0.00             | 131.23              | 0.19             | 131.75              | 7.65             |
| 130.20              | 0.00             | 130.72              | 0.00             | 131.24              | 0.21             | 131.76              | 8.07             |
| 130.21              | 0.00             | 130.73              | 0.00             | 131.25              | 0.22             | 131.77              | 8.49             |
| 130.22              | 0.00             | 130.74              | 0.00             | 131.26              | 0.24             | 131.78              | 8.92             |
| 130.23              | 0.00             | 130.75              | 0.00             | 131.27              | 0.25             | 131.79              | 9.36             |
| 130.24              | 0.00             | 130.76              | 0.00             | 131.28              | 0.27             | 131.80              | 9.80             |
| 130.25              | 0.00             | 130.77              | 0.00             | 131.29              | 0.28             | 131.81              | 10.26            |
| 130.26              | 0.00             | 130.78              | 0.00             | 131.30              | 0.30             | 131.82              | 10.72            |
| 130.27              | 0.00             | 130.79              | 0.00             | 131.31              | 0.31             | 131.83              | 11.18            |
| 130.28              | 0.00             | 130.80              | 0.00             | 131.32              | 0.33             | 131.84              | 11.66            |
| 130.29              | 0.00             | 130.81              | 0.00             | 131.33              | 0.34             | 131.85              | 12.13            |
| 130.30              | 0.00             | 130.82              | 0.00             | 131.34              | 0.36             | 131.86              | 12.62            |
| 130.31              | 0.00             | 130.83              | 0.00             | 131.35              | 0.38             | 131.87              | 13.11            |
| 130.32              | 0.00             | 130.84              | 0.00             | 131.36              | 0.39             | 131.88              | 13.61            |
| 130.33              | 0.00             | 130.85              | 0.00             | 131.37              | 0.41             | 131.89              | 14.12            |
| 130.34              | 0.00             | 130.86              | 0.00             | 131.38              | 0.43             | 131.90              | 14.63            |
| 130.35              | 0.00             | 130.87              | 0.00             | 131.39              | 0.44             | 131.91              | 15.15            |
| 130.36              | 0.00             | 130.88              | 0.00             | 131.40              | 0.46             | 131.92              | 15.67            |
| 130.37              | 0.00             | 130.89              | 0.00             | 131.41              | 0.48             | 131.93              | 16.20            |
| 130.38              | 0.00             | 130.90              | 0.00             | 131.42              | 0.50             | 131.94              | 16.74            |
| 130.39              | 0.00             | 130.91              | 0.00             | 131.43              | 0.51             | 131.95              | 17.28            |
| 130.40              | 0.00             | 130.92              | 0.00             | 131.44              | 0.53             | 131.96              | 17.83            |
| 130.41              | 0.00             | 130.93              | 0.00             | 131.45              | 0.55             | 131.97              | 18.38            |
| 130.42              | 0.00             | 130.94              | 0.00             | 131.46              | 0.57             | 131.98              | 18.94            |
| 130.43              | 0.00             | 130.95              | 0.00             | 131.47              | 0.58             | 131.99              | 19.51            |
| 130.44              | 0.00             | 130.96              | 0.00             | 131.48              | 0.60             | 132.00              | 20.08            |
| 130.45              | 0.00             | 130.97              | 0.00             | 131.49              | 0.62             |                     |                  |
| 130.46              | 0.00             | 130.98              | 0.00             | 131.50              | 0.64             |                     |                  |
| 130.47              | 0.00             | 130.99              | 0.00             | 131.51              | 0.71             |                     |                  |
| 130.48              | 0.00             | 131.00              | 0.00             | 131.52              | 0.82             |                     |                  |
| 130.49              | 0.00             | 131.01              | 0.00             | 131.53              | 0.97             |                     |                  |
| 130.50              | 0.00             | 131.02              | 0.00             | 131.54              | 1.13             |                     |                  |
| 130.51              | 0.00             | 131.03              | 0.00             | 131.55              | 1.32             |                     |                  |

Stage-Area-Storage for Pond 28P: GI-3

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | 11,000             | 0                       | 131.04              | 11,000             | 11,440                  |
| 130.02              | 11,000             | 220                     | 131.06              | 11,000             | 11,660                  |
| 130.04              | 11,000             | 440                     | 131.08              | 11,000             | 11,880                  |
| 130.06              | 11,000             | 660                     | 131.10              | 11,000             | 12,100                  |
| 130.08              | 11,000             | 880                     | 131.12              | 11,000             | 12,320                  |
| 130.10              | 11,000             | 1,100                   | 131.14              | 11,000             | 12,540                  |
| 130.12              | 11,000             | 1,320                   | 131.16              | 11,000             | 12,760                  |
| 130.14              | 11,000             | 1,540                   | 131.18              | 11,000             | 12,980                  |
| 130.16              | 11,000             | 1,760                   | 131.20              | 11,000             | 13,200                  |
| 130.18              | 11,000             | 1,980                   | 131.22              | 11,000             | 13,420                  |
| 130.20              | 11,000             | 2,200                   | 131.24              | 11,000             | 13,640                  |
| 130.22              | 11,000             | 2,420                   | 131.26              | 11,000             | 13,860                  |
| 130.24              | 11,000             | 2,640                   | 131.28              | 11,000             | 14,080                  |
| 130.26              | 11,000             | 2,860                   | 131.30              | 11,000             | 14,300                  |
| 130.28              | 11,000             | 3,080                   | 131.32              | 11,000             | 14,520                  |
| 130.30              | 11,000             | 3,300                   | 131.34              | 11,000             | 14,740                  |
| 130.32              | 11,000             | 3,520                   | 131.36              | 11,000             | 14,960                  |
| 130.34              | 11,000             | 3,740                   | 131.38              | 11,000             | 15,180                  |
| 130.36              | 11,000             | 3,960                   | 131.40              | 11,000             | 15,400                  |
| 130.38              | 11,000             | 4,180                   | 131.42              | 11,000             | 15,620                  |
| 130.40              | 11,000             | 4,400                   | 131.44              | 11,000             | 15,840                  |
| 130.42              | 11,000             | 4,620                   | 131.46              | 11,000             | 16,060                  |
| 130.44              | 11,000             | 4,840                   | 131.48              | 11,000             | 16,280                  |
| 130.46              | 11,000             | 5,060                   | 131.50              | 11,000             | 16,500                  |
| 130.48              | 11,000             | 5,280                   | 131.52              | 11,000             | 16,720                  |
| 130.50              | 11,000             | 5,500                   | 131.54              | 11,000             | 16,940                  |
| 130.52              | 11,000             | 5,720                   | 131.56              | 11,000             | 17,160                  |
| 130.54              | 11,000             | 5,940                   | 131.58              | 11,000             | 17,380                  |
| 130.56              | 11,000             | 6,160                   | 131.60              | 11,000             | 17,600                  |
| 130.58              | 11,000             | 6,380                   | 131.62              | 11,000             | 17,820                  |
| 130.60              | 11,000             | 6,600                   | 131.64              | 11,000             | 18,040                  |
| 130.62              | 11,000             | 6,820                   | 131.66              | 11,000             | 18,260                  |
| 130.64              | 11,000             | 7,040                   | 131.68              | 11,000             | 18,480                  |
| 130.66              | 11,000             | 7,260                   | 131.70              | 11,000             | 18,700                  |
| 130.68              | 11,000             | 7,480                   | 131.72              | 11,000             | 18,920                  |
| 130.70              | 11,000             | 7,700                   | 131.74              | 11,000             | 19,140                  |
| 130.72              | 11,000             | 7,920                   | 131.76              | 11,000             | 19,360                  |
| 130.74              | 11,000             | 8,140                   | 131.78              | 11,000             | 19,580                  |
| 130.76              | 11,000             | 8,360                   | 131.80              | 11,000             | 19,800                  |
| 130.78              | 11,000             | 8,580                   | 131.82              | 11,000             | 20,020                  |
| 130.80              | 11,000             | 8,800                   | 131.84              | 11,000             | 20,240                  |
| 130.82              | 11,000             | 9,020                   | 131.86              | 11,000             | 20,460                  |
| 130.84              | 11,000             | 9,240                   | 131.88              | 11,000             | 20,680                  |
| 130.86              | 11,000             | 9,460                   | 131.90              | 11,000             | 20,900                  |
| 130.88              | 11,000             | 9,680                   | 131.92              | 11,000             | 21,120                  |
| 130.90              | 11,000             | 9,900                   | 131.94              | 11,000             | 21,340                  |
| 130.92              | 11,000             | 10,120                  | 131.96              | 11,000             | 21,560                  |
| 130.94              | 11,000             | 10,340                  | 131.98              | 11,000             | 21,780                  |
| 130.96              | 11,000             | 10,560                  | 132.00              | 11,000             | 22,000                  |
| 130.98              | 11,000             | 10,780                  |                     |                    |                         |
| 131.00              | 11,000             | 11,000                  |                     |                    |                         |
| 131.02              | 11,000             | 11,220                  |                     |                    |                         |

Summary for Pond 31P: GI-6

Inflow Area = 85,032 sf, 67.84% Impervious, Inflow Depth = 4.43" for 10-Year-2050 event  
Inflow = 9.93 cfs @ 12.09 hrs, Volume= 31,379 cf  
Outflow = 0.98 cfs @ 12.91 hrs, Volume= 22,646 cf, Atten= 90%, Lag= 48.8 min  
Primary = 0.98 cfs @ 12.91 hrs, Volume= 22,646 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 130.98' @ 12.91 hrs Surf.Area= 20,000 sf Storage= 19,504 cf

Plug-Flow detention time= 393.5 min calculated for 22,646 cf (72% of inflow)  
Center-of-Mass det. time= 294.9 min ( 1,051.2 - 756.3 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 40,000 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

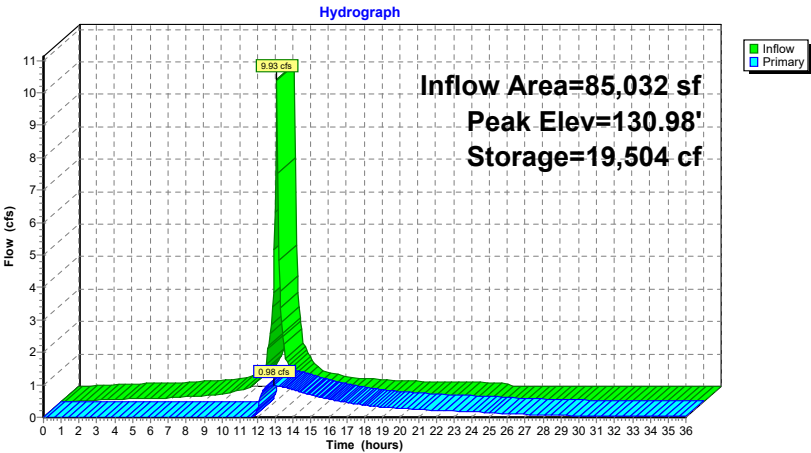
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 20,000            | 0                      | 0                      |
| 131.00           | 20,000            | 20,000                 | 20,000                 |
| 132.00           | 20,000            | 20,000                 | 40,000                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 131.80' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 130.40' | 0.8' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

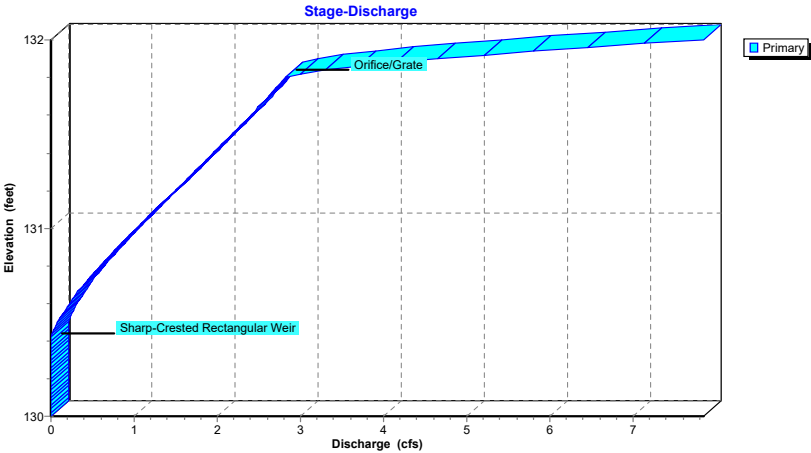
Primary OutFlow Max=0.98 cfs @ 12.91 hrs HW=130.98' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate ( Controls 0.00 cfs)  
2=Sharp-Crested Rectangular Weir(Weir Controls 0.98 cfs @ 2.48 fps)



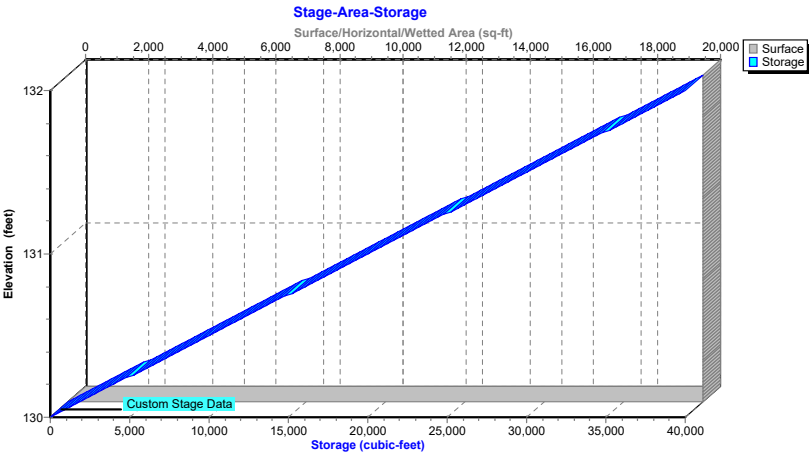
Pond 31P: GI-6



Pond 31P: GI-6



Pond 31P: GI-6



Hydrograph for Pond 31P: GI-6

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.02         | 12                   | 130.00           | 0.00          |
| 2.00         | 0.05         | 147                  | 130.01           | 0.00          |
| 3.00         | 0.08         | 385                  | 130.02           | 0.00          |
| 4.00         | 0.09         | 695                  | 130.03           | 0.00          |
| 5.00         | 0.11         | 1,060                | 130.05           | 0.00          |
| 6.00         | 0.12         | 1,472                | 130.07           | 0.00          |
| 7.00         | 0.15         | 1,967                | 130.10           | 0.00          |
| 8.00         | 0.19         | 2,585                | 130.13           | 0.00          |
| 9.00         | 0.22         | 3,329                | 130.17           | 0.00          |
| 10.00        | 0.35         | 4,357                | 130.22           | 0.00          |
| 11.00        | 0.65         | 5,990                | 130.30           | 0.00          |
| 12.00        | 5.85         | 12,023               | 130.60           | 0.22          |
| 13.00        | 0.88         | 19,488               | 130.97           | 0.98          |
| 14.00        | 0.44         | 18,306               | 130.92           | 0.84          |
| 15.00        | 0.29         | 16,876               | 130.84           | 0.69          |
| 16.00        | 0.24         | 15,602               | 130.78           | 0.55          |
| 17.00        | 0.21         | 14,602               | 130.73           | 0.46          |
| 18.00        | 0.17         | 13,779               | 130.69           | 0.38          |
| 19.00        | 0.15         | 13,107               | 130.66           | 0.32          |
| 20.00        | 0.14         | 12,589               | 130.63           | 0.27          |
| 21.00        | 0.13         | 12,178               | 130.61           | 0.24          |
| 22.00        | 0.12         | 11,841               | 130.59           | 0.21          |
| 23.00        | 0.12         | 11,557               | 130.58           | 0.19          |
| 24.00        | 0.13         | 11,315               | 130.57           | 0.17          |
| 25.00        | 0.00         | 10,801               | 130.54           | 0.13          |
| 26.00        | 0.00         | 10,378               | 130.52           | 0.10          |
| 27.00        | 0.00         | 10,043               | 130.50           | 0.08          |
| 28.00        | 0.00         | 9,773                | 130.49           | 0.07          |
| 29.00        | 0.00         | 9,553                | 130.48           | 0.06          |
| 30.00        | 0.00         | 9,370                | 130.47           | 0.05          |
| 31.00        | 0.00         | 9,218                | 130.46           | 0.04          |
| 32.00        | 0.00         | 9,090                | 130.45           | 0.03          |
| 33.00        | 0.00         | 8,980                | 130.45           | 0.03          |
| 34.00        | 0.00         | 8,887                | 130.44           | 0.02          |
| 35.00        | 0.00         | 8,806                | 130.44           | 0.02          |
| 36.00        | 0.00         | 8,735                | 130.44           | 0.02          |

Stage-Discharge for Pond 31P: GI-6

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.11             | 131.04              | 1.13             | 131.56              | 2.32             |
| 130.01              | 0.00             | 130.53              | 0.12             | 131.05              | 1.15             | 131.57              | 2.34             |
| 130.02              | 0.00             | 130.54              | 0.13             | 131.06              | 1.17             | 131.58              | 2.36             |
| 130.03              | 0.00             | 130.55              | 0.15             | 131.07              | 1.19             | 131.59              | 2.39             |
| 130.04              | 0.00             | 130.56              | 0.16             | 131.08              | 1.22             | 131.60              | 2.41             |
| 130.05              | 0.00             | 130.57              | 0.18             | 131.09              | 1.24             | 131.61              | 2.43             |
| 130.06              | 0.00             | 130.58              | 0.19             | 131.10              | 1.26             | 131.62              | 2.45             |
| 130.07              | 0.00             | 130.59              | 0.21             | 131.11              | 1.29             | 131.63              | 2.47             |
| 130.08              | 0.00             | 130.60              | 0.22             | 131.12              | 1.31             | 131.64              | 2.49             |
| 130.09              | 0.00             | 130.61              | 0.24             | 131.13              | 1.33             | 131.65              | 2.51             |
| 130.10              | 0.00             | 130.62              | 0.26             | 131.14              | 1.36             | 131.66              | 2.53             |
| 130.11              | 0.00             | 130.63              | 0.27             | 131.15              | 1.38             | 131.67              | 2.56             |
| 130.12              | 0.00             | 130.64              | 0.29             | 131.16              | 1.40             | 131.68              | 2.58             |
| 130.13              | 0.00             | 130.65              | 0.31             | 131.17              | 1.43             | 131.69              | 2.60             |
| 130.14              | 0.00             | 130.66              | 0.32             | 131.18              | 1.45             | 131.70              | 2.62             |
| 130.15              | 0.00             | 130.67              | 0.34             | 131.19              | 1.47             | 131.71              | 2.64             |
| 130.16              | 0.00             | 130.68              | 0.36             | 131.20              | 1.50             | 131.72              | 2.66             |
| 130.17              | 0.00             | 130.69              | 0.38             | 131.21              | 1.52             | 131.73              | 2.68             |
| 130.18              | 0.00             | 130.70              | 0.40             | 131.22              | 1.54             | 131.74              | 2.70             |
| 130.19              | 0.00             | 130.71              | 0.42             | 131.23              | 1.57             | 131.75              | 2.72             |
| 130.20              | 0.00             | 130.72              | 0.44             | 131.24              | 1.59             | 131.76              | 2.74             |
| 130.21              | 0.00             | 130.73              | 0.46             | 131.25              | 1.61             | 131.77              | 2.76             |
| 130.22              | 0.00             | 130.74              | 0.47             | 131.26              | 1.64             | 131.78              | 2.78             |
| 130.23              | 0.00             | 130.75              | 0.49             | 131.27              | 1.66             | 131.79              | 2.80             |
| 130.24              | 0.00             | 130.76              | 0.51             | 131.28              | 1.68             | 131.80              | 2.82             |
| 130.25              | 0.00             | 130.77              | 0.53             | 131.29              | 1.71             | 131.81              | 2.89             |
| 130.26              | 0.00             | 130.78              | 0.55             | 131.30              | 1.73             | 131.82              | 3.00             |
| 130.27              | 0.00             | 130.79              | 0.58             | 131.31              | 1.75             | 131.83              | 3.15             |
| 130.28              | 0.00             | 130.80              | 0.60             | 131.32              | 1.78             | 131.84              | 3.31             |
| 130.29              | 0.00             | 130.81              | 0.62             | 131.33              | 1.80             | 131.85              | 3.50             |
| 130.30              | 0.00             | 130.82              | 0.64             | 131.34              | 1.82             | 131.86              | 3.70             |
| 130.31              | 0.00             | 130.83              | 0.66             | 131.35              | 1.85             | 131.87              | 3.92             |
| 130.32              | 0.00             | 130.84              | 0.68             | 131.36              | 1.87             | 131.88              | 4.15             |
| 130.33              | 0.00             | 130.85              | 0.70             | 131.37              | 1.89             | 131.89              | 4.40             |
| 130.34              | 0.00             | 130.86              | 0.72             | 131.38              | 1.92             | 131.90              | 4.66             |
| 130.35              | 0.00             | 130.87              | 0.74             | 131.39              | 1.94             | 131.91              | 4.93             |
| 130.36              | 0.00             | 130.88              | 0.77             | 131.40              | 1.96             | 131.92              | 5.21             |
| 130.37              | 0.00             | 130.89              | 0.79             | 131.41              | 1.98             | 131.93              | 5.51             |
| 130.38              | 0.00             | 130.90              | 0.81             | 131.42              | 2.01             | 131.94              | 5.82             |
| 130.39              | 0.00             | 130.91              | 0.83             | 131.43              | 2.03             | 131.95              | 6.13             |
| 130.40              | 0.00             | 130.92              | 0.85             | 131.44              | 2.05             | 131.96              | 6.46             |
| 130.41              | 0.00             | 130.93              | 0.88             | 131.45              | 2.08             | 131.97              | 6.79             |
| 130.42              | 0.01             | 130.94              | 0.90             | 131.46              | 2.10             | 131.98              | 7.14             |
| 130.43              | 0.01             | 130.95              | 0.92             | 131.47              | 2.12             | 131.99              | 7.49             |
| 130.44              | 0.02             | 130.96              | 0.94             | 131.48              | 2.14             | 132.00              | 7.86             |
| 130.45              | 0.03             | 130.97              | 0.97             | 131.49              | 2.17             |                     |                  |
| 130.46              | 0.04             | 130.98              | 0.99             | 131.50              | 2.19             |                     |                  |
| 130.47              | 0.05             | 130.99              | 1.01             | 131.51              | 2.21             |                     |                  |
| 130.48              | 0.06             | 131.00              | 1.03             | 131.52              | 2.23             |                     |                  |
| 130.49              | 0.07             | 131.01              | 1.06             | 131.53              | 2.25             |                     |                  |
| 130.50              | 0.08             | 131.02              | 1.08             | 131.54              | 2.28             |                     |                  |
| 130.51              | 0.09             | 131.03              | 1.10             | 131.55              | 2.30             |                     |                  |

Stage-Area-Storage for Pond 31P: GI-6

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | 20,000             | 0                       | 131.04              | 20,000             | 20,800                  |
| 130.02              | 20,000             | 400                     | 131.06              | 20,000             | 21,200                  |
| 130.04              | 20,000             | 800                     | 131.08              | 20,000             | 21,600                  |
| 130.06              | 20,000             | 1,200                   | 131.10              | 20,000             | 22,000                  |
| 130.08              | 20,000             | 1,600                   | 131.12              | 20,000             | 22,400                  |
| 130.10              | 20,000             | 2,000                   | 131.14              | 20,000             | 22,800                  |
| 130.12              | 20,000             | 2,400                   | 131.16              | 20,000             | 23,200                  |
| 130.14              | 20,000             | 2,800                   | 131.18              | 20,000             | 23,600                  |
| 130.16              | 20,000             | 3,200                   | 131.20              | 20,000             | 24,000                  |
| 130.18              | 20,000             | 3,600                   | 131.22              | 20,000             | 24,400                  |
| 130.20              | 20,000             | 4,000                   | 131.24              | 20,000             | 24,800                  |
| 130.22              | 20,000             | 4,400                   | 131.26              | 20,000             | 25,200                  |
| 130.24              | 20,000             | 4,800                   | 131.28              | 20,000             | 25,600                  |
| 130.26              | 20,000             | 5,200                   | 131.30              | 20,000             | 26,000                  |
| 130.28              | 20,000             | 5,600                   | 131.32              | 20,000             | 26,400                  |
| 130.30              | 20,000             | 6,000                   | 131.34              | 20,000             | 26,800                  |
| 130.32              | 20,000             | 6,400                   | 131.36              | 20,000             | 27,200                  |
| 130.34              | 20,000             | 6,800                   | 131.38              | 20,000             | 27,600                  |
| 130.36              | 20,000             | 7,200                   | 131.40              | 20,000             | 28,000                  |
| 130.38              | 20,000             | 7,600                   | 131.42              | 20,000             | 28,400                  |
| 130.40              | 20,000             | 8,000                   | 131.44              | 20,000             | 28,800                  |
| 130.42              | 20,000             | 8,400                   | 131.46              | 20,000             | 29,200                  |
| 130.44              | 20,000             | 8,800                   | 131.48              | 20,000             | 29,600                  |
| 130.46              | 20,000             | 9,200                   | 131.50              | 20,000             | 30,000                  |
| 130.48              | 20,000             | 9,600                   | 131.52              | 20,000             | 30,400                  |
| 130.50              | 20,000             | 10,000                  | 131.54              | 20,000             | 30,800                  |
| 130.52              | 20,000             | 10,400                  | 131.56              | 20,000             | 31,200                  |
| 130.54              | 20,000             | 10,800                  | 131.58              | 20,000             | 31,600                  |
| 130.56              | 20,000             | 11,200                  | 131.60              | 20,000             | 32,000                  |
| 130.58              | 20,000             | 11,600                  | 131.62              | 20,000             | 32,400                  |
| 130.60              | 20,000             | 12,000                  | 131.64              | 20,000             | 32,800                  |
| 130.62              | 20,000             | 12,400                  | 131.66              | 20,000             | 33,200                  |
| 130.64              | 20,000             | 12,800                  | 131.68              | 20,000             | 33,600                  |
| 130.66              | 20,000             | 13,200                  | 131.70              | 20,000             | 34,000                  |
| 130.68              | 20,000             | 13,600                  | 131.72              | 20,000             | 34,400                  |
| 130.70              | 20,000             | 14,000                  | 131.74              | 20,000             | 34,800                  |
| 130.72              | 20,000             | 14,400                  | 131.76              | 20,000             | 35,200                  |
| 130.74              | 20,000             | 14,800                  | 131.78              | 20,000             | 35,600                  |
| 130.76              | 20,000             | 15,200                  | 131.80              | 20,000             | 36,000                  |
| 130.78              | 20,000             | 15,600                  | 131.82              | 20,000             | 36,400                  |
| 130.80              | 20,000             | 16,000                  | 131.84              | 20,000             | 36,800                  |
| 130.82              | 20,000             | 16,400                  | 131.86              | 20,000             | 37,200                  |
| 130.84              | 20,000             | 16,800                  | 131.88              | 20,000             | 37,600                  |
| 130.86              | 20,000             | 17,200                  | 131.90              | 20,000             | 38,000                  |
| 130.88              | 20,000             | 17,600                  | 131.92              | 20,000             | 38,400                  |
| 130.90              | 20,000             | 18,000                  | 131.94              | 20,000             | 38,800                  |
| 130.92              | 20,000             | 18,400                  | 131.96              | 20,000             | 39,200                  |
| 130.94              | 20,000             | 18,800                  | 131.98              | 20,000             | 39,600                  |
| 130.96              | 20,000             | 19,200                  | 132.00              | 20,000             | 40,000                  |
| 130.98              | 20,000             | 19,600                  |                     |                    |                         |
| 131.00              | 20,000             | 20,000                  |                     |                    |                         |
| 131.02              | 20,000             | 20,400                  |                     |                    |                         |

Summary for Pond 43P: GI-11

Inflow Area = 17,074 sf, 78.69% Impervious, Inflow Depth = 5.16" for 10-Year-2050 event  
Inflow = 2.52 cfs @ 12.08 hrs, Volume= 7,337 cf  
Outflow = 1.16 cfs @ 12.16 hrs, Volume= 6,150 cf, Atten= 54%, Lag= 5.4 min  
Primary = 1.16 cfs @ 12.16 hrs, Volume= 6,150 cf  
Routed to Link 13L : FES

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.79' @ 12.16 hrs Surf.Area= 2,193 sf Storage= 2,819 cf

Plug-Flow detention time= 170.1 min calculated for 6,141 cf (84% of inflow)  
Center-of-Mass det. time= 98.7 min ( 850.5 - 751.7 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.50' | 4,386 cf      | Custom Stage Data (Prismatic) Listed below (Recalc) |

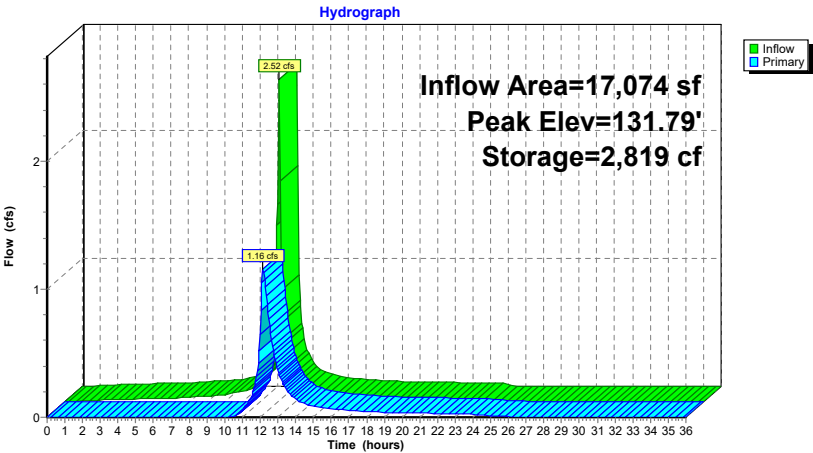
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.50           | 2,193             | 0                      | 0                      |
| 132.50           | 2,193             | 4,386                  | 4,386                  |

| Device | Routing | Invert  | Outlet Devices                                                |
|--------|---------|---------|---------------------------------------------------------------|
| #1     | Primary | 131.04' | 0.7' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

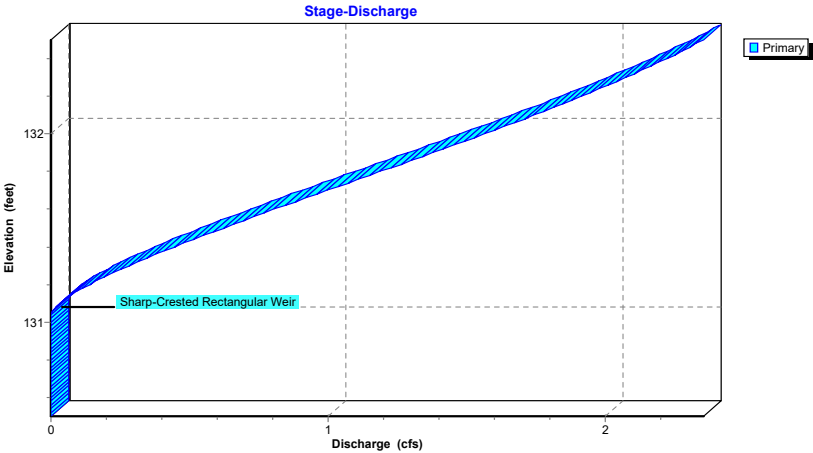
Primary OutFlow Max=1.15 cfs @ 12.16 hrs HW=131.78' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir(Weir Controls 1.15 cfs @ 2.81 fps)



Pond 43P: GI-11

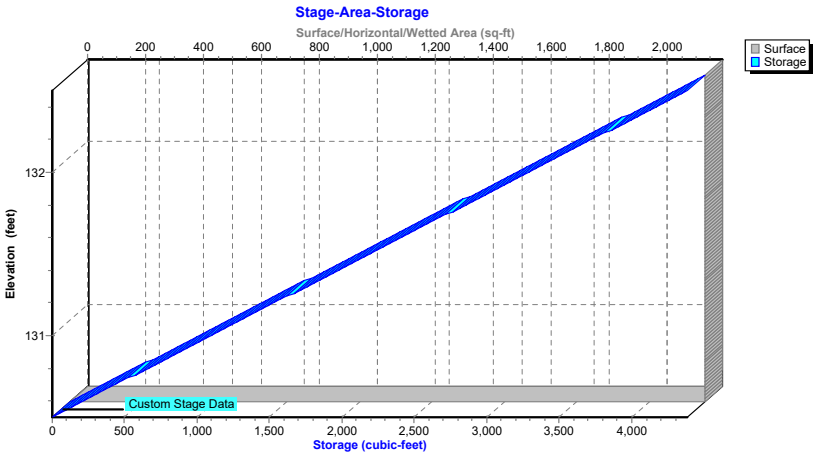


Pond 43P: GI-11





Pond 43P: GI-11



Hydrograph for Pond 43P: GI-11

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.50           | 0.00          |
| 1.00         | 0.00         | 3                    | 130.50           | 0.00          |
| 2.00         | 0.01         | 35                   | 130.52           | 0.00          |
| 3.00         | 0.02         | 91                   | 130.54           | 0.00          |
| 4.00         | 0.02         | 164                  | 130.57           | 0.00          |
| 5.00         | 0.03         | 249                  | 130.61           | 0.00          |
| 6.00         | 0.03         | 345                  | 130.66           | 0.00          |
| 7.00         | 0.04         | 461                  | 130.71           | 0.00          |
| 8.00         | 0.04         | 606                  | 130.78           | 0.00          |
| 9.00         | 0.05         | 780                  | 130.86           | 0.00          |
| 10.00        | 0.08         | 1,022                | 130.97           | 0.00          |
| 11.00        | 0.15         | 1,371                | 131.13           | 0.06          |
| 12.00        | 1.55         | 2,229                | 131.52           | 0.65          |
| 13.00        | 0.20         | 1,875                | 131.35           | 0.37          |
| 14.00        | 0.10         | 1,538                | 131.20           | 0.14          |
| 15.00        | 0.07         | 1,438                | 131.16           | 0.09          |
| 16.00        | 0.06         | 1,389                | 131.13           | 0.06          |
| 17.00        | 0.05         | 1,364                | 131.12           | 0.05          |
| 18.00        | 0.04         | 1,342                | 131.11           | 0.04          |
| 19.00        | 0.03         | 1,327                | 131.11           | 0.04          |
| 20.00        | 0.03         | 1,319                | 131.10           | 0.03          |
| 21.00        | 0.03         | 1,312                | 131.10           | 0.03          |
| 22.00        | 0.03         | 1,306                | 131.10           | 0.03          |
| 23.00        | 0.03         | 1,300                | 131.09           | 0.03          |
| 24.00        | 0.03         | 1,295                | 131.09           | 0.03          |
| 25.00        | 0.00         | 1,240                | 131.07           | 0.01          |
| 26.00        | 0.00         | 1,218                | 131.06           | 0.00          |
| 27.00        | 0.00         | 1,206                | 131.05           | 0.00          |
| 28.00        | 0.00         | 1,200                | 131.05           | 0.00          |
| 29.00        | 0.00         | 1,196                | 131.05           | 0.00          |
| 30.00        | 0.00         | 1,193                | 131.04           | 0.00          |
| 31.00        | 0.00         | 1,191                | 131.04           | 0.00          |
| 32.00        | 0.00         | 1,190                | 131.04           | 0.00          |
| 33.00        | 0.00         | 1,189                | 131.04           | 0.00          |
| 34.00        | 0.00         | 1,188                | 131.04           | 0.00          |
| 35.00        | 0.00         | 1,188                | 131.04           | 0.00          |
| 36.00        | 0.00         | 1,187                | 131.04           | 0.00          |

**2101ELK-STM Analysis POI-1 - Propos**NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 43P: GI-11**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.50              | 0.00             | 131.02              | 0.00             | 131.54              | 0.69             | 132.06              | 1.67             |
| 130.51              | 0.00             | 131.03              | 0.00             | 131.55              | 0.71             | 132.07              | 1.69             |
| 130.52              | 0.00             | 131.04              | 0.00             | 131.56              | 0.73             | 132.08              | 1.71             |
| 130.53              | 0.00             | 131.05              | 0.00             | 131.57              | 0.75             | 132.09              | 1.72             |
| 130.54              | 0.00             | 131.06              | 0.01             | 131.58              | 0.77             | 132.10              | 1.74             |
| 130.55              | 0.00             | 131.07              | 0.01             | 131.59              | 0.79             | 132.11              | 1.76             |
| 130.56              | 0.00             | 131.08              | 0.02             | 131.60              | 0.81             | 132.12              | 1.78             |
| 130.57              | 0.00             | 131.09              | 0.03             | 131.61              | 0.82             | 132.13              | 1.79             |
| 130.58              | 0.00             | 131.10              | 0.03             | 131.62              | 0.84             | 132.14              | 1.81             |
| 130.59              | 0.00             | 131.11              | 0.04             | 131.63              | 0.86             | 132.15              | 1.83             |
| 130.60              | 0.00             | 131.12              | 0.05             | 131.64              | 0.88             | 132.16              | 1.84             |
| 130.61              | 0.00             | 131.13              | 0.06             | 131.65              | 0.90             | 132.17              | 1.86             |
| 130.62              | 0.00             | 131.14              | 0.07             | 131.66              | 0.92             | 132.18              | 1.88             |
| 130.63              | 0.00             | 131.15              | 0.08             | 131.67              | 0.94             | 132.19              | 1.90             |
| 130.64              | 0.00             | 131.16              | 0.09             | 131.68              | 0.96             | 132.20              | 1.91             |
| 130.65              | 0.00             | 131.17              | 0.10             | 131.69              | 0.98             | 132.21              | 1.93             |
| 130.66              | 0.00             | 131.18              | 0.12             | 131.70              | 1.00             | 132.22              | 1.94             |
| 130.67              | 0.00             | 131.19              | 0.13             | 131.71              | 1.02             | 132.23              | 1.96             |
| 130.68              | 0.00             | 131.20              | 0.14             | 131.72              | 1.03             | 132.24              | 1.98             |
| 130.69              | 0.00             | 131.21              | 0.15             | 131.73              | 1.05             | 132.25              | 1.99             |
| 130.70              | 0.00             | 131.22              | 0.17             | 131.74              | 1.07             | 132.26              | 2.01             |
| 130.71              | 0.00             | 131.23              | 0.18             | 131.75              | 1.09             | 132.27              | 2.03             |
| 130.72              | 0.00             | 131.24              | 0.19             | 131.76              | 1.11             | 132.28              | 2.04             |
| 130.73              | 0.00             | 131.25              | 0.21             | 131.77              | 1.13             | 132.29              | 2.06             |
| 130.74              | 0.00             | 131.26              | 0.22             | 131.78              | 1.15             | 132.30              | 2.07             |
| 130.75              | 0.00             | 131.27              | 0.24             | 131.79              | 1.17             | 132.31              | 2.09             |
| 130.76              | 0.00             | 131.28              | 0.25             | 131.80              | 1.19             | 132.32              | 2.10             |
| 130.77              | 0.00             | 131.29              | 0.27             | 131.81              | 1.21             | 132.33              | 2.12             |
| 130.78              | 0.00             | 131.30              | 0.28             | 131.82              | 1.23             | 132.34              | 2.13             |
| 130.79              | 0.00             | 131.31              | 0.30             | 131.83              | 1.24             | 132.35              | 2.15             |
| 130.80              | 0.00             | 131.32              | 0.31             | 131.84              | 1.26             | 132.36              | 2.16             |
| 130.81              | 0.00             | 131.33              | 0.33             | 131.85              | 1.28             | 132.37              | 2.18             |
| 130.82              | 0.00             | 131.34              | 0.34             | 131.86              | 1.30             | 132.38              | 2.19             |
| 130.83              | 0.00             | 131.35              | 0.36             | 131.87              | 1.32             | 132.39              | 2.21             |
| 130.84              | 0.00             | 131.36              | 0.38             | 131.88              | 1.34             | 132.40              | 2.22             |
| 130.85              | 0.00             | 131.37              | 0.39             | 131.89              | 1.36             | 132.41              | 2.23             |
| 130.86              | 0.00             | 131.38              | 0.41             | 131.90              | 1.38             | 132.42              | 2.25             |
| 130.87              | 0.00             | 131.39              | 0.43             | 131.91              | 1.40             | 132.43              | 2.26             |
| 130.88              | 0.00             | 131.40              | 0.44             | 131.92              | 1.41             | 132.44              | 2.28             |
| 130.89              | 0.00             | 131.41              | 0.46             | 131.93              | 1.43             | 132.45              | 2.29             |
| 130.90              | 0.00             | 131.42              | 0.48             | 131.94              | 1.45             | 132.46              | 2.30             |
| 130.91              | 0.00             | 131.43              | 0.50             | 131.95              | 1.47             | 132.47              | 2.32             |
| 130.92              | 0.00             | 131.44              | 0.51             | 131.96              | 1.49             | 132.48              | 2.33             |
| 130.93              | 0.00             | 131.45              | 0.53             | 131.97              | 1.51             | 132.49              | 2.34             |
| 130.94              | 0.00             | 131.46              | 0.55             | 131.98              | 1.53             | 132.50              | 2.35             |
| 130.95              | 0.00             | 131.47              | 0.57             | 131.99              | 1.54             |                     |                  |
| 130.96              | 0.00             | 131.48              | 0.58             | 132.00              | 1.56             |                     |                  |
| 130.97              | 0.00             | 131.49              | 0.60             | 132.01              | 1.58             |                     |                  |
| 130.98              | 0.00             | 131.50              | 0.62             | 132.02              | 1.60             |                     |                  |
| 130.99              | 0.00             | 131.51              | 0.64             | 132.03              | 1.62             |                     |                  |
| 131.00              | 0.00             | 131.52              | 0.66             | 132.04              | 1.64             |                     |                  |
| 131.01              | 0.00             | 131.53              | 0.68             | 132.05              | 1.65             |                     |                  |

**2101ELK-STM Analysis POI-1 - Propos**NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

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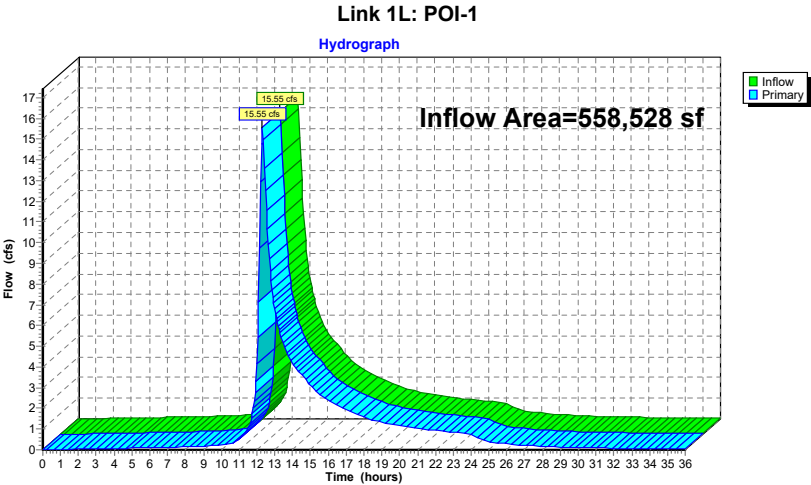
**Stage-Area-Storage for Pond 43P: GI-11**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.50              | 2,193              | 0                       | 131.54              | 2,193              | 2,281                   |
| 130.52              | 2,193              | 44                      | 131.56              | 2,193              | 2,325                   |
| 130.54              | 2,193              | 88                      | 131.58              | 2,193              | 2,368                   |
| 130.56              | 2,193              | 132                     | 131.60              | 2,193              | 2,412                   |
| 130.58              | 2,193              | 175                     | 131.62              | 2,193              | 2,456                   |
| 130.60              | 2,193              | 219                     | 131.64              | 2,193              | 2,500                   |
| 130.62              | 2,193              | 263                     | 131.66              | 2,193              | 2,544                   |
| 130.64              | 2,193              | 307                     | 131.68              | 2,193              | 2,588                   |
| 130.66              | 2,193              | 351                     | 131.70              | 2,193              | 2,632                   |
| 130.68              | 2,193              | 395                     | 131.72              | 2,193              | 2,675                   |
| 130.70              | 2,193              | 439                     | 131.74              | 2,193              | 2,719                   |
| 130.72              | 2,193              | 482                     | 131.76              | 2,193              | 2,763                   |
| 130.74              | 2,193              | 526                     | 131.78              | 2,193              | 2,807                   |
| 130.76              | 2,193              | 570                     | 131.80              | 2,193              | 2,851                   |
| 130.78              | 2,193              | 614                     | 131.82              | 2,193              | 2,895                   |
| 130.80              | 2,193              | 658                     | 131.84              | 2,193              | 2,939                   |
| 130.82              | 2,193              | 702                     | 131.86              | 2,193              | 2,982                   |
| 130.84              | 2,193              | 746                     | 131.88              | 2,193              | 3,026                   |
| 130.86              | 2,193              | 789                     | 131.90              | 2,193              | 3,070                   |
| 130.88              | 2,193              | 833                     | 131.92              | 2,193              | 3,114                   |
| 130.90              | 2,193              | 877                     | 131.94              | 2,193              | 3,158                   |
| 130.92              | 2,193              | 921                     | 131.96              | 2,193              | 3,202                   |
| 130.94              | 2,193              | 965                     | 131.98              | 2,193              | 3,246                   |
| 130.96              | 2,193              | 1,009                   | 132.00              | 2,193              | 3,290                   |
| 130.98              | 2,193              | 1,053                   | 132.02              | 2,193              | 3,333                   |
| 131.00              | 2,193              | 1,097                   | 132.04              | 2,193              | 3,377                   |
| 131.02              | 2,193              | 1,140                   | 132.06              | 2,193              | 3,421                   |
| 131.04              | 2,193              | 1,184                   | 132.08              | 2,193              | 3,465                   |
| 131.06              | 2,193              | 1,228                   | 132.10              | 2,193              | 3,509                   |
| 131.08              | 2,193              | 1,272                   | 132.12              | 2,193              | 3,553                   |
| 131.10              | 2,193              | 1,316                   | 132.14              | 2,193              | 3,597                   |
| 131.12              | 2,193              | 1,360                   | 132.16              | 2,193              | 3,640                   |
| 131.14              | 2,193              | 1,404                   | 132.18              | 2,193              | 3,684                   |
| 131.16              | 2,193              | 1,447                   | 132.20              | 2,193              | 3,728                   |
| 131.18              | 2,193              | 1,491                   | 132.22              | 2,193              | 3,772                   |
| 131.20              | 2,193              | 1,535                   | 132.24              | 2,193              | 3,816                   |
| 131.22              | 2,193              | 1,579                   | 132.26              | 2,193              | 3,860                   |
| 131.24              | 2,193              | 1,623                   | 132.28              | 2,193              | 3,904                   |
| 131.26              | 2,193              | 1,667                   | 132.30              | 2,193              | 3,947                   |
| 131.28              | 2,193              | 1,711                   | 132.32              | 2,193              | 3,991                   |
| 131.30              | 2,193              | 1,754                   | 132.34              | 2,193              | 4,035                   |
| 131.32              | 2,193              | 1,798                   | 132.36              | 2,193              | 4,079                   |
| 131.34              | 2,193              | 1,842                   | 132.38              | 2,193              | 4,123                   |
| 131.36              | 2,193              | 1,886                   | 132.40              | 2,193              | 4,167                   |
| 131.38              | 2,193              | 1,930                   | 132.42              | 2,193              | 4,211                   |
| 131.40              | 2,193              | 1,974                   | 132.44              | 2,193              | 4,254                   |
| 131.42              | 2,193              | 2,018                   | 132.46              | 2,193              | 4,298                   |
| 131.44              | 2,193              | 2,061                   | 132.48              | 2,193              | 4,342                   |
| 131.46              | 2,193              | 2,105                   | 132.50              | 2,193              | 4,386                   |
| 131.48              | 2,193              | 2,149                   |                     |                    |                         |
| 131.50              | 2,193              | 2,193                   |                     |                    |                         |
| 131.52              | 2,193              | 2,237                   |                     |                    |                         |

Summary for Link 1L: POI-1

Inflow Area = 558,528 sf, 45.65% Impervious, Inflow Depth > 2.86" for 10-Year-2050 event  
Inflow = 15.55 cfs @ 12.32 hrs, Volume= 133,003 cf  
Primary = 15.55 cfs @ 12.32 hrs, Volume= 133,003 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs



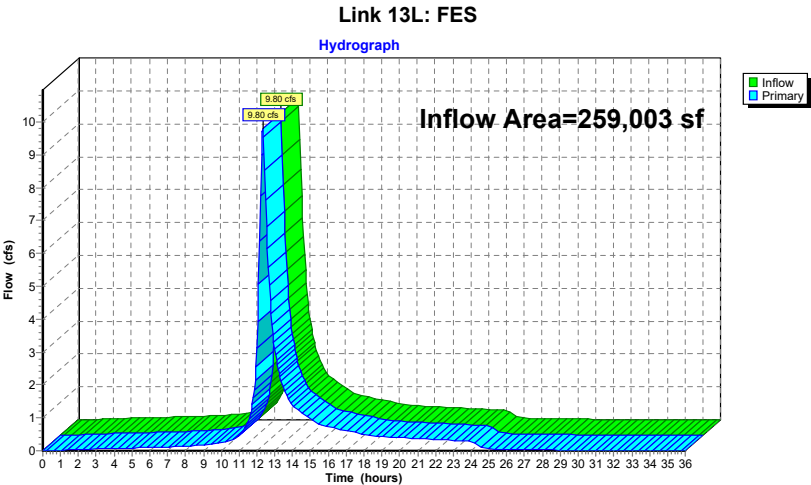
Hydrograph for Link 1L: POI-1

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.29         | 0.00             | 0.29          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.25         | 0.00             | 0.25          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.22         | 0.00             | 0.22          |
| 1.50         | 0.02         | 0.00             | 0.02          | 27.50        | 0.19         | 0.00             | 0.19          |
| 2.00         | 0.04         | 0.00             | 0.04          | 28.00        | 0.17         | 0.00             | 0.17          |
| 2.50         | 0.05         | 0.00             | 0.05          | 28.50        | 0.15         | 0.00             | 0.15          |
| 3.00         | 0.06         | 0.00             | 0.06          | 29.00        | 0.13         | 0.00             | 0.13          |
| 3.50         | 0.06         | 0.00             | 0.06          | 29.50        | 0.12         | 0.00             | 0.12          |
| 4.00         | 0.07         | 0.00             | 0.07          | 30.00        | 0.11         | 0.00             | 0.11          |
| 4.50         | 0.08         | 0.00             | 0.08          | 30.50        | 0.10         | 0.00             | 0.10          |
| 5.00         | 0.08         | 0.00             | 0.08          | 31.00        | 0.09         | 0.00             | 0.09          |
| 5.50         | 0.09         | 0.00             | 0.09          | 31.50        | 0.08         | 0.00             | 0.08          |
| 6.00         | 0.09         | 0.00             | 0.09          | 32.00        | 0.07         | 0.00             | 0.07          |
| 6.50         | 0.10         | 0.00             | 0.10          | 32.50        | 0.07         | 0.00             | 0.07          |
| 7.00         | 0.11         | 0.00             | 0.11          | 33.00        | 0.06         | 0.00             | 0.06          |
| 7.50         | 0.13         | 0.00             | 0.13          | 33.50        | 0.06         | 0.00             | 0.06          |
| 8.00         | 0.14         | 0.00             | 0.14          | 34.00        | 0.05         | 0.00             | 0.05          |
| 8.50         | 0.16         | 0.00             | 0.16          | 34.50        | 0.05         | 0.00             | 0.05          |
| 9.00         | 0.17         | 0.00             | 0.17          | 35.00        | 0.04         | 0.00             | 0.04          |
| 9.50         | 0.20         | 0.00             | 0.20          | 35.50        | 0.04         | 0.00             | 0.04          |
| 10.00        | 0.25         | 0.00             | 0.25          | 36.00        | 0.04         | 0.00             | 0.04          |
| 10.50        | 0.30         | 0.00             | 0.30          |              |              |                  |               |
| 11.00        | 0.51         | 0.00             | 0.51          |              |              |                  |               |
| 11.50        | 1.04         | 0.00             | 1.04          |              |              |                  |               |
| 12.00        | 4.17         | 0.00             | 4.17          |              |              |                  |               |
| 12.50        | 12.54        | 0.00             | 12.54         |              |              |                  |               |
| 13.00        | 6.81         | 0.00             | 6.81          |              |              |                  |               |
| 13.50        | 5.12         | 0.00             | 5.12          |              |              |                  |               |
| 14.00        | 4.18         | 0.00             | 4.18          |              |              |                  |               |
| 14.50        | 3.63         | 0.00             | 3.63          |              |              |                  |               |
| 15.00        | 3.13         | 0.00             | 3.13          |              |              |                  |               |
| 15.50        | 2.71         | 0.00             | 2.71          |              |              |                  |               |
| 16.00        | 2.41         | 0.00             | 2.41          |              |              |                  |               |
| 16.50        | 2.16         | 0.00             | 2.16          |              |              |                  |               |
| 17.00        | 1.94         | 0.00             | 1.94          |              |              |                  |               |
| 17.50        | 1.75         | 0.00             | 1.75          |              |              |                  |               |
| 18.00        | 1.58         | 0.00             | 1.58          |              |              |                  |               |
| 18.50        | 1.43         | 0.00             | 1.43          |              |              |                  |               |
| 19.00        | 1.33         | 0.00             | 1.33          |              |              |                  |               |
| 19.50        | 1.24         | 0.00             | 1.24          |              |              |                  |               |
| 20.00        | 1.16         | 0.00             | 1.16          |              |              |                  |               |
| 20.50        | 1.09         | 0.00             | 1.09          |              |              |                  |               |
| 21.00        | 1.04         | 0.00             | 1.04          |              |              |                  |               |
| 21.50        | 0.98         | 0.00             | 0.98          |              |              |                  |               |
| 22.00        | 0.94         | 0.00             | 0.94          |              |              |                  |               |
| 22.50        | 0.89         | 0.00             | 0.89          |              |              |                  |               |
| 23.00        | 0.85         | 0.00             | 0.85          |              |              |                  |               |
| 23.50        | 0.81         | 0.00             | 0.81          |              |              |                  |               |
| 24.00        | 0.78         | 0.00             | 0.78          |              |              |                  |               |
| 24.50        | 0.52         | 0.00             | 0.52          |              |              |                  |               |
| 25.00        | 0.41         | 0.00             | 0.41          |              |              |                  |               |
| 25.50        | 0.34         | 0.00             | 0.34          |              |              |                  |               |

Summary for Link 13L: FES

Inflow Area = 259,003 sf, 30.97% Impervious, Inflow Depth > 2.71" for 10-Year-2050 event  
Inflow = 9.80 cfs @ 12.33 hrs, Volume= 58,494 cf  
Primary = 9.80 cfs @ 12.33 hrs, Volume= 58,494 cf, Atten= 0%, Lag= 0.0 min  
Routed to Link 1L : POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs



Hydrograph for Link 13L: FES

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.03         | 0.00             | 0.03          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.03         | 0.00             | 0.03          |
| 1.00         | 0.00         | 0.00             | 0.00          | 27.00        | 0.03         | 0.00             | 0.03          |
| 1.50         | 0.02         | 0.00             | 0.02          | 27.50        | 0.02         | 0.00             | 0.02          |
| 2.00         | 0.04         | 0.00             | 0.04          | 28.00        | 0.02         | 0.00             | 0.02          |
| 2.50         | 0.05         | 0.00             | 0.05          | 28.50        | 0.02         | 0.00             | 0.02          |
| 3.00         | 0.06         | 0.00             | 0.06          | 29.00        | 0.02         | 0.00             | 0.02          |
| 3.50         | 0.06         | 0.00             | 0.06          | 29.50        | 0.01         | 0.00             | 0.01          |
| 4.00         | 0.07         | 0.00             | 0.07          | 30.00        | 0.01         | 0.00             | 0.01          |
| 4.50         | 0.08         | 0.00             | 0.08          | 30.50        | 0.01         | 0.00             | 0.01          |
| 5.00         | 0.08         | 0.00             | 0.08          | 31.00        | 0.01         | 0.00             | 0.01          |
| 5.50         | 0.09         | 0.00             | 0.09          | 31.50        | 0.01         | 0.00             | 0.01          |
| 6.00         | 0.09         | 0.00             | 0.09          | 32.00        | 0.01         | 0.00             | 0.01          |
| 6.50         | 0.10         | 0.00             | 0.10          | 32.50        | 0.01         | 0.00             | 0.01          |
| 7.00         | 0.11         | 0.00             | 0.11          | 33.00        | 0.01         | 0.00             | 0.01          |
| 7.50         | 0.13         | 0.00             | 0.13          | 33.50        | 0.01         | 0.00             | 0.01          |
| 8.00         | 0.14         | 0.00             | 0.14          | 34.00        | 0.01         | 0.00             | 0.01          |
| 8.50         | 0.16         | 0.00             | 0.16          | 34.50        | 0.01         | 0.00             | 0.01          |
| 9.00         | 0.17         | 0.00             | 0.17          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.20         | 0.00             | 0.20          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.25         | 0.00             | 0.25          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.30         | 0.00             | 0.30          |              |              |                  |               |
| 11.00        | 0.47         | 0.00             | 0.47          |              |              |                  |               |
| 11.50        | 0.87         | 0.00             | 0.87          |              |              |                  |               |
| 12.00        | 3.12         | 0.00             | 3.12          |              |              |                  |               |
| 12.50        | 7.63         | 0.00             | 7.63          |              |              |                  |               |
| 13.00        | 3.09         | 0.00             | 3.09          |              |              |                  |               |
| 13.50        | 1.92         | 0.00             | 1.92          |              |              |                  |               |
| 14.00        | 1.39         | 0.00             | 1.39          |              |              |                  |               |
| 14.50        | 1.16         | 0.00             | 1.16          |              |              |                  |               |
| 15.00        | 0.97         | 0.00             | 0.97          |              |              |                  |               |
| 15.50        | 0.81         | 0.00             | 0.81          |              |              |                  |               |
| 16.00        | 0.74         | 0.00             | 0.74          |              |              |                  |               |
| 16.50        | 0.67         | 0.00             | 0.67          |              |              |                  |               |
| 17.00        | 0.61         | 0.00             | 0.61          |              |              |                  |               |
| 17.50        | 0.56         | 0.00             | 0.56          |              |              |                  |               |
| 18.00        | 0.50         | 0.00             | 0.50          |              |              |                  |               |
| 18.50        | 0.46         | 0.00             | 0.46          |              |              |                  |               |
| 19.00        | 0.43         | 0.00             | 0.43          |              |              |                  |               |
| 19.50        | 0.41         | 0.00             | 0.41          |              |              |                  |               |
| 20.00        | 0.40         | 0.00             | 0.40          |              |              |                  |               |
| 20.50        | 0.38         | 0.00             | 0.38          |              |              |                  |               |
| 21.00        | 0.37         | 0.00             | 0.37          |              |              |                  |               |
| 21.50        | 0.35         | 0.00             | 0.35          |              |              |                  |               |
| 22.00        | 0.34         | 0.00             | 0.34          |              |              |                  |               |
| 22.50        | 0.32         | 0.00             | 0.32          |              |              |                  |               |
| 23.00        | 0.31         | 0.00             | 0.31          |              |              |                  |               |
| 23.50        | 0.30         | 0.00             | 0.30          |              |              |                  |               |
| 24.00        | 0.29         | 0.00             | 0.29          |              |              |                  |               |
| 24.50        | 0.10         | 0.00             | 0.10          |              |              |                  |               |
| 25.00        | 0.05         | 0.00             | 0.05          |              |              |                  |               |
| 25.50        | 0.04         | 0.00             | 0.04          |              |              |                  |               |

**2101ELK-STM Analysis POI-1 - PropNOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"**

Prepared by Van Cleef Engineering Assoc

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Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

|                                           |                                                                                                                                          |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Subcatchment1S: GI-1 Pervious</b>      | Runoff Area=18,062 sf 0.00% Impervious Runoff Depth=3.25"<br>Flow Length=68' Slope=0.0330 '/' Tc=7.8 min CN=39 Runoff=1.53 cfs 4,887 cf  |
| <b>Subcatchment2S: GI-9 Pervious</b>      | Runoff Area=16,032 sf 0.00% Impervious Runoff Depth=6.77"<br>Flow Length=17' Slope=0.0960 '/' Tc=1.7 min CN=61 Runoff=3.71 cfs 9,042 cf  |
| <b>Subcatchment3S: GI-1 Impervious</b>    | Runoff Area=21,060 sf 100.00% Impervious Runoff Depth=11.82"<br>Flow Length=400' Tc=2.7 min CN=98 Runoff=6.84 cfs 20,741 cf              |
| <b>Subcatchment5S: Proposed Disturbed</b> | Runoff Area=44,397 sf 0.00% Impervious Runoff Depth=4.56"<br>Flow Length=1,818' Tc=89.3 min CN=47 Runoff=1.63 cfs 16,871 cf              |
| <b>Subcatchment6S: GI-9 Impervious</b>    | Runoff Area=43,332 sf 100.00% Impervious Runoff Depth=11.82"<br>Flow Length=311' Tc=2.3 min CN=98 Runoff=14.24 cfs 42,677 cf             |
| <b>Subcatchment15S: GI-2 Pervious</b>     | Runoff Area=13,462 sf 0.00% Impervious Runoff Depth=3.25"<br>Flow Length=28' Slope=0.0400 '/' Tc=3.5 min CN=39 Runoff=1.34 cfs 3,642 cf  |
| <b>Subcatchment16S: GI-2 Impervious</b>   | Runoff Area=13,121 sf 100.00% Impervious Runoff Depth=11.82"<br>Flow Length=220' Tc=1.9 min CN=98 Runoff=4.34 cfs 12,923 cf              |
| <b>Subcatchment26S: GI-3 Pervious</b>     | Runoff Area=23,555 sf 0.00% Impervious Runoff Depth=5.84"<br>Flow Length=93' Slope=0.0130 '/' Tc=9.4 min CN=55 Runoff=3.57 cfs 11,463 cf |
| <b>Subcatchment27S: GI-3 Impervious</b>   | Runoff Area=60,594 sf 100.00% Impervious Runoff Depth=11.82"<br>Flow Length=433' Tc=3.4 min CN=98 Runoff=19.17 cfs 59,678 cf             |
| <b>Subcatchment29S: GI-6 Pervious</b>     | Runoff Area=27,344 sf 0.00% Impervious Runoff Depth=4.88"<br>Flow Length=60' Slope=0.0280 '/' Tc=7.5 min CN=49 Runoff=3.74 cfs 11,129 cf |
| <b>Subcatchment30S: GI-6 Impervious</b>   | Runoff Area=57,688 sf 100.00% Impervious Runoff Depth=11.82"<br>Flow Length=401' Tc=3.3 min CN=98 Runoff=18.34 cfs 56,816 cf             |
| <b>Subcatchment41S: GI-11 Pervious</b>    | Runoff Area=3,638 sf 0.00% Impervious Runoff Depth=6.77"<br>Flow Length=123' Tc=3.4 min CN=61 Runoff=0.80 cfs 2,052 cf                   |
| <b>Subcatchment42S: GI-11 Impervious</b>  | Runoff Area=13,436 sf 100.00% Impervious Runoff Depth=11.82"<br>Flow Length=158' Tc=1.6 min CN=98 Runoff=4.36 cfs 13,233 cf              |
| <b>Subcatchment46S: North Undisturbed</b> | Runoff Area=157,085 sf 0.00% Impervious Runoff Depth=5.68"<br>Flow Length=690' Tc=22.1 min CN=54 Runoff=16.34 cfs 74,384 cf              |
| <b>Subcatchment47S: North Undisturbed</b> | Runoff Area=45,722 sf 100.00% Impervious Runoff Depth=11.82"<br>Flow Length=725' Tc=22.6 min CN=98 Runoff=8.54 cfs 45,030 cf             |
| <b>Pond 2P: GI-1</b>                      | Peak Elev=132.53' Storage=12,249 cf Inflow=7.92 cfs 25,628 cf<br>Outflow=1.54 cfs 23,530 cf                                              |

**2101ELK-STM Analysis POI-1 - PropNOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"**

Prepared by Van Cleef Engineering Assoc

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|                        |                                                                                               |
|------------------------|-----------------------------------------------------------------------------------------------|
| <b>Pond 7P: GI-9</b>   | Peak Elev=130.78' Storage=25,380 cf Inflow=17.94 cfs 51,719 cf<br>Outflow=2.98 cfs 47,676 cf  |
| <b>Pond 14P: GI-2</b>  | Peak Elev=131.02' Storage=7,287 cf Inflow=5.61 cfs 16,565 cf<br>Outflow=1.11 cfs 15,261 cf    |
| <b>Pond 28P: GI-3</b>  | Peak Elev=131.97' Storage=21,683 cf Inflow=21.85 cfs 71,141 cf<br>Outflow=18.45 cfs 59,538 cf |
| <b>Pond 31P: GI-6</b>  | Peak Elev=131.85' Storage=37,075 cf Inflow=21.33 cfs 67,945 cf<br>Outflow=3.57 cfs 59,030 cf  |
| <b>Pond 43P: GI-11</b> | Peak Elev=132.49' Storage=4,370 cf Inflow=5.21 cfs 15,285 cf<br>Outflow=2.35 cfs 14,097 cf    |
| <b>Link 1L: POI-1</b>  | Inflow=45.30 cfs 355,418 cf<br>Primary=45.30 cfs 355,418 cf                                   |
| <b>Link 13L: FES</b>   | Inflow=28.14 cfs 157,042 cf<br>Primary=28.14 cfs 157,042 cf                                   |

**Total Runoff Area = 558,528 sf Runoff Volume = 384,567 cf Average Runoff Depth = 8.26"**  
**54.35% Pervious = 303,575 sf 45.65% Impervious = 254,953 sf**

Summary for Subcatchment 1S: GI-1 Pervious

Runoff = 1.53 cfs @ 12.16 hrs, Volume= 4,887 cf, Depth= 3.25"  
Routed to Pond 2P : GI-1

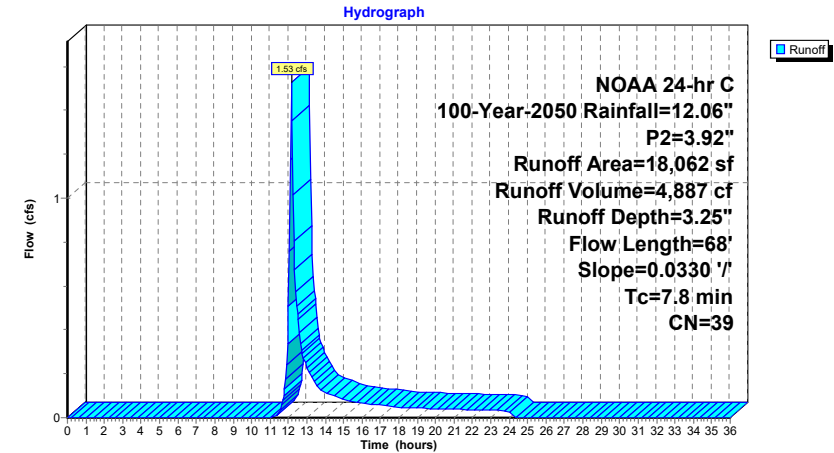
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 18,062    | 39 | >75% Grass cover, Good, HSG A |
| 18,062    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                          |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------|
| 7.8      | 68            | 0.0330        | 0.15              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92" |



Subcatchment 1S: GI-1 Pervious



Hydrograph for Subcatchment 1S: GI-1 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 12.06            | 3.25            | 0.00         |
| 0.50         | 0.07             | 0.00            | 0.00         | 26.50        | 12.06            | 3.25            | 0.00         |
| 1.00         | 0.13             | 0.00            | 0.00         | 27.00        | 12.06            | 3.25            | 0.00         |
| 1.50         | 0.20             | 0.00            | 0.00         | 27.50        | 12.06            | 3.25            | 0.00         |
| 2.00         | 0.27             | 0.00            | 0.00         | 28.00        | 12.06            | 3.25            | 0.00         |
| 2.50         | 0.35             | 0.00            | 0.00         | 28.50        | 12.06            | 3.25            | 0.00         |
| 3.00         | 0.43             | 0.00            | 0.00         | 29.00        | 12.06            | 3.25            | 0.00         |
| 3.50         | 0.51             | 0.00            | 0.00         | 29.50        | 12.06            | 3.25            | 0.00         |
| 4.00         | 0.59             | 0.00            | 0.00         | 30.00        | 12.06            | 3.25            | 0.00         |
| 4.50         | 0.68             | 0.00            | 0.00         | 30.50        | 12.06            | 3.25            | 0.00         |
| 5.00         | 0.77             | 0.00            | 0.00         | 31.00        | 12.06            | 3.25            | 0.00         |
| 5.50         | 0.86             | 0.00            | 0.00         | 31.50        | 12.06            | 3.25            | 0.00         |
| 6.00         | 0.96             | 0.00            | 0.00         | 32.00        | 12.06            | 3.25            | 0.00         |
| 6.50         | 1.06             | 0.00            | 0.00         | 32.50        | 12.06            | 3.25            | 0.00         |
| 7.00         | 1.18             | 0.00            | 0.00         | 33.00        | 12.06            | 3.25            | 0.00         |
| 7.50         | 1.30             | 0.00            | 0.00         | 33.50        | 12.06            | 3.25            | 0.00         |
| 8.00         | 1.44             | 0.00            | 0.00         | 34.00        | 12.06            | 3.25            | 0.00         |
| 8.50         | 1.60             | 0.00            | 0.00         | 34.50        | 12.06            | 3.25            | 0.00         |
| 9.00         | 1.76             | 0.00            | 0.00         | 35.00        | 12.06            | 3.25            | 0.00         |
| 9.50         | 1.96             | 0.00            | 0.00         | 35.50        | 12.06            | 3.25            | 0.00         |
| 10.00        | 2.20             | 0.00            | 0.00         | 36.00        | 12.06            | 3.25            | 0.00         |
| 10.50        | 2.49             | 0.00            | 0.00         |              |                  |                 |              |
| 11.00        | 2.89             | 0.00            | 0.00         |              |                  |                 |              |
| 11.50        | 3.56             | 0.01            | 0.02         |              |                  |                 |              |
| 12.00        | 5.75             | 0.38            | 0.51         |              |                  |                 |              |
| 12.50        | 8.50             | 1.37            | 0.47         |              |                  |                 |              |
| 13.00        | 9.17             | 1.68            | 0.23         |              |                  |                 |              |
| 13.50        | 9.57             | 1.88            | 0.15         |              |                  |                 |              |
| 14.00        | 9.86             | 2.03            | 0.12         |              |                  |                 |              |
| 14.50        | 10.10            | 2.15            | 0.10         |              |                  |                 |              |
| 15.00        | 10.30            | 2.25            | 0.08         |              |                  |                 |              |
| 15.50        | 10.46            | 2.34            | 0.07         |              |                  |                 |              |
| 16.00        | 10.62            | 2.42            | 0.07         |              |                  |                 |              |
| 16.50        | 10.76            | 2.50            | 0.06         |              |                  |                 |              |
| 17.00        | 10.88            | 2.57            | 0.06         |              |                  |                 |              |
| 17.50        | 11.00            | 2.64            | 0.05         |              |                  |                 |              |
| 18.00        | 11.10            | 2.69            | 0.05         |              |                  |                 |              |
| 18.50        | 11.20            | 2.75            | 0.04         |              |                  |                 |              |
| 19.00        | 11.29            | 2.80            | 0.04         |              |                  |                 |              |
| 19.50        | 11.38            | 2.85            | 0.04         |              |                  |                 |              |
| 20.00        | 11.47            | 2.90            | 0.04         |              |                  |                 |              |
| 20.50        | 11.55            | 2.95            | 0.04         |              |                  |                 |              |
| 21.00        | 11.63            | 3.00            | 0.04         |              |                  |                 |              |
| 21.50        | 11.71            | 3.04            | 0.04         |              |                  |                 |              |
| 22.00        | 11.79            | 3.09            | 0.04         |              |                  |                 |              |
| 22.50        | 11.86            | 3.13            | 0.03         |              |                  |                 |              |
| 23.00        | 11.93            | 3.17            | 0.03         |              |                  |                 |              |
| 23.50        | 11.99            | 3.21            | 0.03         |              |                  |                 |              |
| 24.00        | 12.06            | 3.25            | 0.03         |              |                  |                 |              |
| 24.50        | 12.06            | 3.25            | 0.00         |              |                  |                 |              |
| 25.00        | 12.06            | 3.25            | 0.00         |              |                  |                 |              |
| 25.50        | 12.06            | 3.25            | 0.00         |              |                  |                 |              |

Summary for Subcatchment 2S: GI-9 Pervious

Runoff = 3.71 cfs @ 12.08 hrs, Volume= 9,042 cf, Depth= 6.77"  
Routed to Pond 7P : GI-9

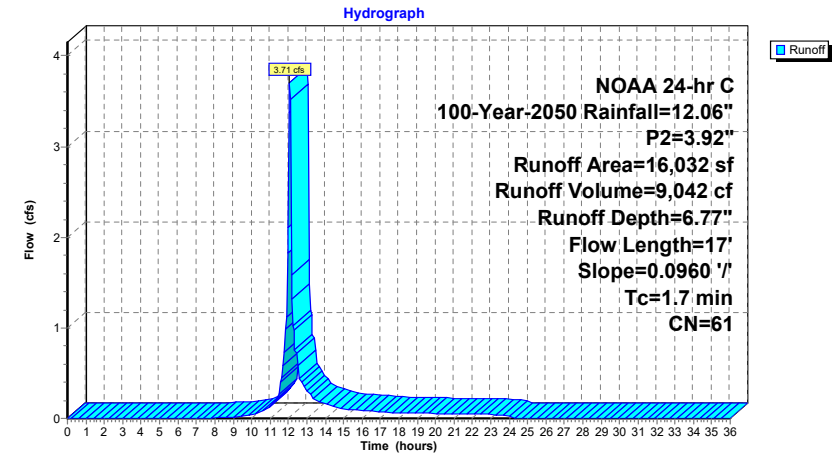
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 154       | 39 | >75% Grass cover, Good, HSG A |
| 15,878    | 61 | >75% Grass cover, Good, HSG B |
| 16,032    | 61 | Weighted Average              |
| 16,032    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                    |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------|
| 1.7      | 17            | 0.0960        | 0.17              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.92" |



Subcatchment 2S: GI-9 Pervious



Hydrograph for Subcatchment 2S: GI-9 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 12.06            | 6.77            | 0.00         |
| 0.50         | 0.07             | 0.00            | 0.00         | 26.50        | 12.06            | 6.77            | 0.00         |
| 1.00         | 0.13             | 0.00            | 0.00         | 27.00        | 12.06            | 6.77            | 0.00         |
| 1.50         | 0.20             | 0.00            | 0.00         | 27.50        | 12.06            | 6.77            | 0.00         |
| 2.00         | 0.27             | 0.00            | 0.00         | 28.00        | 12.06            | 6.77            | 0.00         |
| 2.50         | 0.35             | 0.00            | 0.00         | 28.50        | 12.06            | 6.77            | 0.00         |
| 3.00         | 0.43             | 0.00            | 0.00         | 29.00        | 12.06            | 6.77            | 0.00         |
| 3.50         | 0.51             | 0.00            | 0.00         | 29.50        | 12.06            | 6.77            | 0.00         |
| 4.00         | 0.59             | 0.00            | 0.00         | 30.00        | 12.06            | 6.77            | 0.00         |
| 4.50         | 0.68             | 0.00            | 0.00         | 30.50        | 12.06            | 6.77            | 0.00         |
| 5.00         | 0.77             | 0.00            | 0.00         | 31.00        | 12.06            | 6.77            | 0.00         |
| 5.50         | 0.86             | 0.00            | 0.00         | 31.50        | 12.06            | 6.77            | 0.00         |
| 6.00         | 0.96             | 0.00            | 0.00         | 32.00        | 12.06            | 6.77            | 0.00         |
| 6.50         | 1.06             | 0.00            | 0.00         | 32.50        | 12.06            | 6.77            | 0.00         |
| 7.00         | 1.18             | 0.00            | 0.00         | 33.00        | 12.06            | 6.77            | 0.00         |
| 7.50         | 1.30             | 0.00            | 0.00         | 33.50        | 12.06            | 6.77            | 0.00         |
| 8.00         | 1.44             | 0.00            | 0.01         | 34.00        | 12.06            | 6.77            | 0.00         |
| 8.50         | 1.60             | 0.02            | 0.01         | 34.50        | 12.06            | 6.77            | 0.00         |
| 9.00         | 1.76             | 0.03            | 0.02         | 35.00        | 12.06            | 6.77            | 0.00         |
| 9.50         | 1.96             | 0.07            | 0.03         | 35.50        | 12.06            | 6.77            | 0.00         |
| 10.00        | 2.20             | 0.12            | 0.04         | 36.00        | 12.06            | 6.77            | 0.00         |
| 10.50        | 2.49             | 0.19            | 0.07         |              |                  |                 |              |
| 11.00        | 2.89             | 0.33            | 0.13         |              |                  |                 |              |
| 11.50        | 3.56             | 0.60            | 0.28         |              |                  |                 |              |
| 12.00        | 5.75             | 1.84            | 2.11         |              |                  |                 |              |
| 12.50        | 8.50             | 3.83            | 0.68         |              |                  |                 |              |
| 13.00        | 9.17             | 4.36            | 0.32         |              |                  |                 |              |
| 13.50        | 9.57             | 4.69            | 0.20         |              |                  |                 |              |
| 14.00        | 9.86             | 4.92            | 0.16         |              |                  |                 |              |
| 14.50        | 10.10            | 5.12            | 0.14         |              |                  |                 |              |
| 15.00        | 10.30            | 5.28            | 0.11         |              |                  |                 |              |
| 15.50        | 10.46            | 5.41            | 0.10         |              |                  |                 |              |
| 16.00        | 10.62            | 5.54            | 0.09         |              |                  |                 |              |
| 16.50        | 10.76            | 5.66            | 0.08         |              |                  |                 |              |
| 17.00        | 10.88            | 5.77            | 0.08         |              |                  |                 |              |
| 17.50        | 11.00            | 5.86            | 0.07         |              |                  |                 |              |
| 18.00        | 11.10            | 5.95            | 0.06         |              |                  |                 |              |
| 18.50        | 11.20            | 6.03            | 0.06         |              |                  |                 |              |
| 19.00        | 11.29            | 6.11            | 0.06         |              |                  |                 |              |
| 19.50        | 11.38            | 6.19            | 0.06         |              |                  |                 |              |
| 20.00        | 11.47            | 6.26            | 0.05         |              |                  |                 |              |
| 20.50        | 11.55            | 6.33            | 0.05         |              |                  |                 |              |
| 21.00        | 11.63            | 6.40            | 0.05         |              |                  |                 |              |
| 21.50        | 11.71            | 6.47            | 0.05         |              |                  |                 |              |
| 22.00        | 11.79            | 6.53            | 0.05         |              |                  |                 |              |
| 22.50        | 11.86            | 6.60            | 0.04         |              |                  |                 |              |
| 23.00        | 11.93            | 6.65            | 0.04         |              |                  |                 |              |
| 23.50        | 11.99            | 6.71            | 0.04         |              |                  |                 |              |
| 24.00        | 12.06            | 6.77            | 0.05         |              |                  |                 |              |
| 24.50        | 12.06            | 6.77            | 0.00         |              |                  |                 |              |
| 25.00        | 12.06            | 6.77            | 0.00         |              |                  |                 |              |
| 25.50        | 12.06            | 6.77            | 0.00         |              |                  |                 |              |

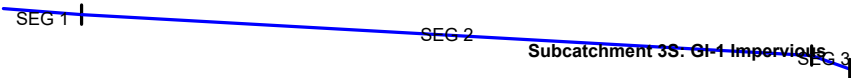
Summary for Subcatchment 3S: GI-1 Impervious

Runoff = 6.84 cfs @ 12.09 hrs, Volume= 20,741 cf, Depth=11.82"  
Routed to Pond 2P : GI-1

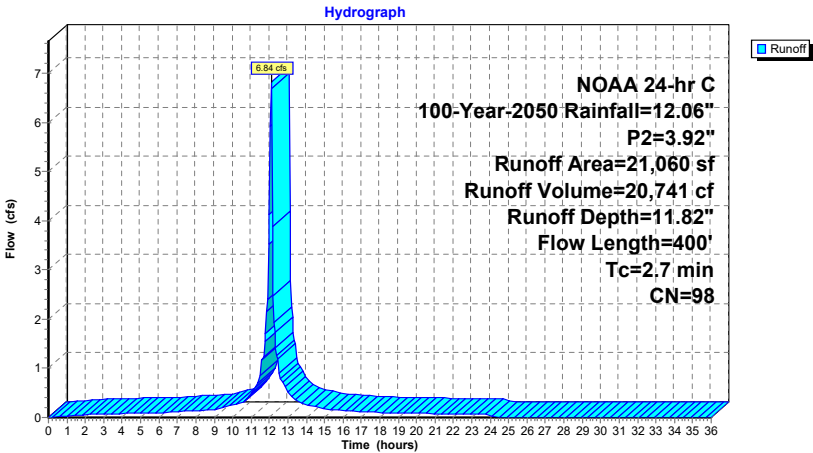
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 21,060    | 98 | Paved parking, HSG A    |
| 21,060    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 0.6      | 37            | 0.0140        | 1.08              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.92"             |
| 1.9      | 345           | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2      | 18            | 0.0630        | 1.76              |                | Shallow Concentrated Flow, SEG 3<br>Short Grass Pasture Kv= 7.0 fps |
| 2.7      | 400           |               |                   |                | Total                                                               |



Subcatchment 3S: GI-1 Impervious



Hydrograph for Subcatchment 3S: GI-1 Impervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 12.06            | 11.82           | 0.00         |
| 0.50         | 0.07             | 0.00            | 0.01         | 26.50        | 12.06            | 11.82           | 0.00         |
| 1.00         | 0.13             | 0.03            | 0.03         | 27.00        | 12.06            | 11.82           | 0.00         |
| 1.50         | 0.20             | 0.07            | 0.05         | 27.50        | 12.06            | 11.82           | 0.00         |
| 2.00         | 0.27             | 0.12            | 0.06         | 28.00        | 12.06            | 11.82           | 0.00         |
| 2.50         | 0.35             | 0.18            | 0.06         | 28.50        | 12.06            | 11.82           | 0.00         |
| 3.00         | 0.43             | 0.25            | 0.07         | 29.00        | 12.06            | 11.82           | 0.00         |
| 3.50         | 0.51             | 0.32            | 0.07         | 29.50        | 12.06            | 11.82           | 0.00         |
| 4.00         | 0.59             | 0.40            | 0.08         | 30.00        | 12.06            | 11.82           | 0.00         |
| 4.50         | 0.68             | 0.48            | 0.08         | 30.50        | 12.06            | 11.82           | 0.00         |
| 5.00         | 0.77             | 0.57            | 0.08         | 31.00        | 12.06            | 11.82           | 0.00         |
| 5.50         | 0.86             | 0.66            | 0.09         | 31.50        | 12.06            | 11.82           | 0.00         |
| 6.00         | 0.96             | 0.75            | 0.09         | 32.00        | 12.06            | 11.82           | 0.00         |
| 6.50         | 1.06             | 0.85            | 0.10         | 32.50        | 12.06            | 11.82           | 0.00         |
| 7.00         | 1.18             | 0.96            | 0.12         | 33.00        | 12.06            | 11.82           | 0.00         |
| 7.50         | 1.30             | 1.09            | 0.13         | 33.50        | 12.06            | 11.82           | 0.00         |
| 8.00         | 1.44             | 1.23            | 0.14         | 34.00        | 12.06            | 11.82           | 0.00         |
| 8.50         | 1.60             | 1.38            | 0.15         | 34.50        | 12.06            | 11.82           | 0.00         |
| 9.00         | 1.76             | 1.54            | 0.16         | 35.00        | 12.06            | 11.82           | 0.00         |
| 9.50         | 1.96             | 1.73            | 0.21         | 35.50        | 12.06            | 11.82           | 0.00         |
| 10.00        | 2.20             | 1.97            | 0.25         | 36.00        | 12.06            | 11.82           | 0.00         |
| 10.50        | 2.49             | 2.26            | 0.30         |              |                  |                 |              |
| 11.00        | 2.89             | 2.66            | 0.46         |              |                  |                 |              |
| 11.50        | 3.56             | 3.33            | 0.77         |              |                  |                 |              |
| 12.00        | 5.75             | 5.51            | 4.12         |              |                  |                 |              |
| 12.50        | 8.50             | 8.26            | 1.18         |              |                  |                 |              |
| 13.00        | 9.17             | 8.93            | 0.53         |              |                  |                 |              |
| 13.50        | 9.57             | 9.33            | 0.33         |              |                  |                 |              |
| 14.00        | 9.86             | 9.62            | 0.26         |              |                  |                 |              |
| 14.50        | 10.10            | 9.86            | 0.22         |              |                  |                 |              |
| 15.00        | 10.30            | 10.06           | 0.17         |              |                  |                 |              |
| 15.50        | 10.46            | 10.22           | 0.16         |              |                  |                 |              |
| 16.00        | 10.62            | 10.37           | 0.14         |              |                  |                 |              |
| 16.50        | 10.76            | 10.51           | 0.13         |              |                  |                 |              |
| 17.00        | 10.88            | 10.64           | 0.12         |              |                  |                 |              |
| 17.50        | 11.00            | 10.76           | 0.11         |              |                  |                 |              |
| 18.00        | 11.10            | 10.86           | 0.10         |              |                  |                 |              |
| 18.50        | 11.20            | 10.96           | 0.09         |              |                  |                 |              |
| 19.00        | 11.29            | 11.05           | 0.09         |              |                  |                 |              |
| 19.50        | 11.38            | 11.14           | 0.09         |              |                  |                 |              |
| 20.00        | 11.47            | 11.23           | 0.08         |              |                  |                 |              |
| 20.50        | 11.55            | 11.31           | 0.08         |              |                  |                 |              |
| 21.00        | 11.63            | 11.39           | 0.08         |              |                  |                 |              |
| 21.50        | 11.71            | 11.47           | 0.07         |              |                  |                 |              |
| 22.00        | 11.79            | 11.55           | 0.07         |              |                  |                 |              |
| 22.50        | 11.86            | 11.62           | 0.07         |              |                  |                 |              |
| 23.00        | 11.93            | 11.69           | 0.07         |              |                  |                 |              |
| 23.50        | 11.99            | 11.75           | 0.06         |              |                  |                 |              |
| 24.00        | 12.06            | 11.82           | 0.07         |              |                  |                 |              |
| 24.50        | 12.06            | 11.82           | 0.00         |              |                  |                 |              |
| 25.00        | 12.06            | 11.82           | 0.00         |              |                  |                 |              |
| 25.50        | 12.06            | 11.82           | 0.00         |              |                  |                 |              |



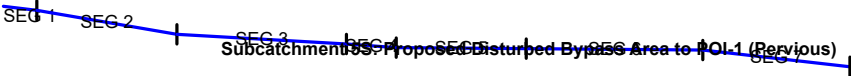
Summary for Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)

Runoff = 1.63 cfs @ 13.24 hrs, Volume= 16,871 cf, Depth= 4.56"  
Routed to Link 1L : POI-1

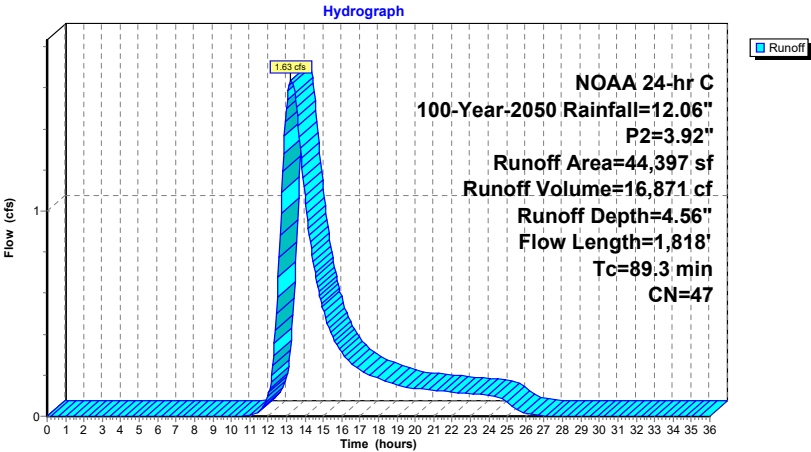
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 28,757    | 39 | >75% Grass cover, Good, HSG A |
| 15,640    | 61 | >75% Grass cover, Good, HSG B |
| 44,397    | 47 | Weighted Average              |
| 44,397    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 8.4      | 72            | 0.0150        | 0.14              |                | Sheet Flow, SEG 1<br>Cultivated: Residue>20% n= 0.170 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 3.8      | 301           | 0.0210        | 1.30              |                | Shallow Concentrated Flow, SEG 2<br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 8.1      | 364           | 0.0070        | 0.75              |                | Shallow Concentrated Flow, SEG 3<br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 3.8      | 107           | 0.0090        | 0.47              |                | Shallow Concentrated Flow, SEG 4<br>Woodland Kv= 5.0 fps                                           |
| 16.3     | 279           | 0.0010        | 0.28              |                | Shallow Concentrated Flow, SEG 5<br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 40.0     | 379           | 0.0010        | 0.16              |                | Shallow Concentrated Flow, SEG 6<br>Woodland Kv= 5.0 fps                                           |
| 8.9      | 316           | 0.0140        | 0.59              |                | Shallow Concentrated Flow, SEG 7<br>Woodland Kv= 5.0 fps                                           |
| 89.3     | 1,818         | Total         |                   |                |                                                                                                    |



Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)



# 2101ELK-STM Analysis POI-1 - PropNOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

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## Hydrograph for Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 4.56               | 0.01            |
| 0.50            | 0.07                | 0.00               | 0.00            | 26.50           | 12.06               | 4.56               | 0.01            |
| 1.00            | 0.13                | 0.00               | 0.00            | 27.00           | 12.06               | 4.56               | 0.00            |
| 1.50            | 0.20                | 0.00               | 0.00            | 27.50           | 12.06               | 4.56               | 0.00            |
| 2.00            | 0.27                | 0.00               | 0.00            | 28.00           | 12.06               | 4.56               | 0.00            |
| 2.50            | 0.35                | 0.00               | 0.00            | 28.50           | 12.06               | 4.56               | 0.00            |
| 3.00            | 0.43                | 0.00               | 0.00            | 29.00           | 12.06               | 4.56               | 0.00            |
| 3.50            | 0.51                | 0.00               | 0.00            | 29.50           | 12.06               | 4.56               | 0.00            |
| 4.00            | 0.59                | 0.00               | 0.00            | 30.00           | 12.06               | 4.56               | 0.00            |
| 4.50            | 0.68                | 0.00               | 0.00            | 30.50           | 12.06               | 4.56               | 0.00            |
| 5.00            | 0.77                | 0.00               | 0.00            | 31.00           | 12.06               | 4.56               | 0.00            |
| 5.50            | 0.86                | 0.00               | 0.00            | 31.50           | 12.06               | 4.56               | 0.00            |
| 6.00            | 0.96                | 0.00               | 0.00            | 32.00           | 12.06               | 4.56               | 0.00            |
| 6.50            | 1.06                | 0.00               | 0.00            | 32.50           | 12.06               | 4.56               | 0.00            |
| 7.00            | 1.18                | 0.00               | 0.00            | 33.00           | 12.06               | 4.56               | 0.00            |
| 7.50            | 1.30                | 0.00               | 0.00            | 33.50           | 12.06               | 4.56               | 0.00            |
| 8.00            | 1.44                | 0.00               | 0.00            | 34.00           | 12.06               | 4.56               | 0.00            |
| 8.50            | 1.60                | 0.00               | 0.00            | 34.50           | 12.06               | 4.56               | 0.00            |
| 9.00            | 1.76                | 0.00               | 0.00            | 35.00           | 12.06               | 4.56               | 0.00            |
| 9.50            | 1.96                | 0.00               | 0.00            | 35.50           | 12.06               | 4.56               | 0.00            |
| 10.00           | 2.20                | 0.00               | 0.00            | 36.00           | 12.06               | 4.56               | 0.00            |
| 10.50           | 2.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.89                | 0.03               | 0.00            |                 |                     |                    |                 |
| 11.50           | 3.56                | 0.14               | 0.02            |                 |                     |                    |                 |
| 12.00           | 5.75                | 0.83               | 0.10            |                 |                     |                    |                 |
| 12.50           | 8.50                | 2.22               | 0.58            |                 |                     |                    |                 |
| 13.00           | 9.17                | 2.63               | 1.50            |                 |                     |                    |                 |
| 13.50           | 9.57                | 2.88               | 1.54            |                 |                     |                    |                 |
| 14.00           | 9.86                | 3.06               | 1.07            |                 |                     |                    |                 |
| 14.50           | 10.10               | 3.22               | 0.73            |                 |                     |                    |                 |
| 15.00           | 10.30               | 3.35               | 0.52            |                 |                     |                    |                 |
| 15.50           | 10.46               | 3.46               | 0.39            |                 |                     |                    |                 |
| 16.00           | 10.62               | 3.56               | 0.31            |                 |                     |                    |                 |
| 16.50           | 10.76               | 3.65               | 0.26            |                 |                     |                    |                 |
| 17.00           | 10.88               | 3.74               | 0.22            |                 |                     |                    |                 |
| 17.50           | 11.00               | 3.82               | 0.20            |                 |                     |                    |                 |
| 18.00           | 11.10               | 3.89               | 0.18            |                 |                     |                    |                 |
| 18.50           | 11.20               | 3.96               | 0.17            |                 |                     |                    |                 |
| 19.00           | 11.29               | 4.02               | 0.15            |                 |                     |                    |                 |
| 19.50           | 11.38               | 4.08               | 0.14            |                 |                     |                    |                 |
| 20.00           | 11.47               | 4.14               | 0.14            |                 |                     |                    |                 |
| 20.50           | 11.55               | 4.20               | 0.13            |                 |                     |                    |                 |
| 21.00           | 11.63               | 4.26               | 0.13            |                 |                     |                    |                 |
| 21.50           | 11.71               | 4.31               | 0.12            |                 |                     |                    |                 |
| 22.00           | 11.79               | 4.37               | 0.12            |                 |                     |                    |                 |
| 22.50           | 11.86               | 4.42               | 0.11            |                 |                     |                    |                 |
| 23.00           | 11.93               | 4.47               | 0.11            |                 |                     |                    |                 |
| 23.50           | 11.99               | 4.51               | 0.11            |                 |                     |                    |                 |
| 24.00           | 12.06               | 4.56               | 0.10            |                 |                     |                    |                 |
| 24.50           | 12.06               | 4.56               | 0.10            |                 |                     |                    |                 |
| 25.00           | 12.06               | 4.56               | 0.07            |                 |                     |                    |                 |
| 25.50           | 12.06               | 4.56               | 0.03            |                 |                     |                    |                 |

# 2101ELK-STM Analysis POI-1 - PropNOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

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## Summary for Subcatchment 6S: GI-9 Impervious

Runoff = 14.24 cfs @ 12.08 hrs, Volume= 42,677 cf, Depth=11.82"  
Routed to Pond 7P : GI-9

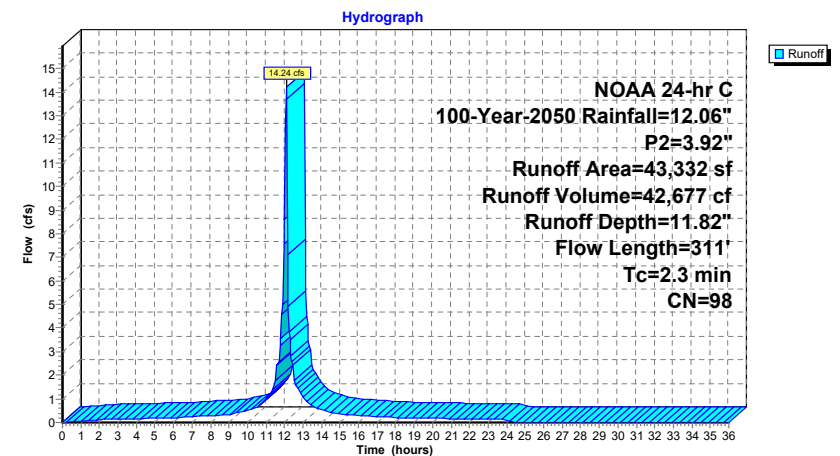
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 43,332    | 98 | Paved parking, HSG A    |
| 43,332    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 1.0      | 71            | 0.0140        | 1.23              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.92"             |
| 1.2      | 222           | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.1      | 18            | 0.0960        | 2.17              |                | Shallow Concentrated Flow, SEG 3<br>Short Grass Pasture Kv= 7.0 fps |
| 2.3      | 311           | Total         |                   |                |                                                                     |



## Subcatchment 6S: GI-9 Impervious



Hydrograph for Subcatchment 6S: GI-9 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 11.82              | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.02            | 26.50           | 12.06               | 11.82              | 0.00            |
| 1.00            | 0.13                | 0.03               | 0.07            | 27.00           | 12.06               | 11.82              | 0.00            |
| 1.50            | 0.20                | 0.07               | 0.10            | 27.50           | 12.06               | 11.82              | 0.00            |
| 2.00            | 0.27                | 0.12               | 0.11            | 28.00           | 12.06               | 11.82              | 0.00            |
| 2.50            | 0.35                | 0.18               | 0.13            | 28.50           | 12.06               | 11.82              | 0.00            |
| 3.00            | 0.43                | 0.25               | 0.14            | 29.00           | 12.06               | 11.82              | 0.00            |
| 3.50            | 0.51                | 0.32               | 0.15            | 29.50           | 12.06               | 11.82              | 0.00            |
| 4.00            | 0.59                | 0.40               | 0.16            | 30.00           | 12.06               | 11.82              | 0.00            |
| 4.50            | 0.68                | 0.48               | 0.17            | 30.50           | 12.06               | 11.82              | 0.00            |
| 5.00            | 0.77                | 0.57               | 0.17            | 31.00           | 12.06               | 11.82              | 0.00            |
| 5.50            | 0.86                | 0.66               | 0.18            | 31.50           | 12.06               | 11.82              | 0.00            |
| 6.00            | 0.96                | 0.75               | 0.19            | 32.00           | 12.06               | 11.82              | 0.00            |
| 6.50            | 1.06                | 0.85               | 0.21            | 32.50           | 12.06               | 11.82              | 0.00            |
| 7.00            | 1.18                | 0.96               | 0.24            | 33.00           | 12.06               | 11.82              | 0.00            |
| 7.50            | 1.30                | 1.09               | 0.26            | 33.50           | 12.06               | 11.82              | 0.00            |
| 8.00            | 1.44                | 1.23               | 0.29            | 34.00           | 12.06               | 11.82              | 0.00            |
| 8.50            | 1.60                | 1.38               | 0.31            | 34.50           | 12.06               | 11.82              | 0.00            |
| 9.00            | 1.76                | 1.54               | 0.34            | 35.00           | 12.06               | 11.82              | 0.00            |
| 9.50            | 1.96                | 1.73               | 0.43            | 35.50           | 12.06               | 11.82              | 0.00            |
| 10.00           | 2.20                | 1.97               | 0.52            | 36.00           | 12.06               | 11.82              | 0.00            |
| 10.50           | 2.49                | 2.26               | 0.61            |                 |                     |                    |                 |
| 11.00           | 2.89                | 2.66               | 0.96            |                 |                     |                    |                 |
| 11.50           | 3.56                | 3.33               | 1.60            |                 |                     |                    |                 |
| 12.00           | 5.75                | 5.51               | 8.62            |                 |                     |                    |                 |
| 12.50           | 8.50                | 8.26               | 2.41            |                 |                     |                    |                 |
| 13.00           | 9.17                | 8.93               | 1.08            |                 |                     |                    |                 |
| 13.50           | 9.57                | 9.33               | 0.68            |                 |                     |                    |                 |
| 14.00           | 9.86                | 9.62               | 0.54            |                 |                     |                    |                 |
| 14.50           | 10.10               | 9.86               | 0.45            |                 |                     |                    |                 |
| 15.00           | 10.30               | 10.06              | 0.36            |                 |                     |                    |                 |
| 15.50           | 10.46               | 10.22              | 0.32            |                 |                     |                    |                 |
| 16.00           | 10.62               | 10.37              | 0.29            |                 |                     |                    |                 |
| 16.50           | 10.76               | 10.51              | 0.27            |                 |                     |                    |                 |
| 17.00           | 10.88               | 10.64              | 0.25            |                 |                     |                    |                 |
| 17.50           | 11.00               | 10.76              | 0.22            |                 |                     |                    |                 |
| 18.00           | 11.10               | 10.86              | 0.20            |                 |                     |                    |                 |
| 18.50           | 11.20               | 10.96              | 0.19            |                 |                     |                    |                 |
| 19.00           | 11.29               | 11.05              | 0.18            |                 |                     |                    |                 |
| 19.50           | 11.38               | 11.14              | 0.18            |                 |                     |                    |                 |
| 20.00           | 11.47               | 11.23              | 0.17            |                 |                     |                    |                 |
| 20.50           | 11.55               | 11.31              | 0.17            |                 |                     |                    |                 |
| 21.00           | 11.63               | 11.39              | 0.16            |                 |                     |                    |                 |
| 21.50           | 11.71               | 11.47              | 0.15            |                 |                     |                    |                 |
| 22.00           | 11.79               | 11.55              | 0.15            |                 |                     |                    |                 |
| 22.50           | 11.86               | 11.62              | 0.14            |                 |                     |                    |                 |
| 23.00           | 11.93               | 11.69              | 0.14            |                 |                     |                    |                 |
| 23.50           | 11.99               | 11.75              | 0.13            |                 |                     |                    |                 |
| 24.00           | 12.06               | 11.82              | 0.15            |                 |                     |                    |                 |
| 24.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.00           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 15S: GI-2 Pervious

Runoff = 1.34 cfs @ 12.10 hrs, Volume= 3,642 cf, Depth= 3.25"  
Routed to Pond 14P : GI-2

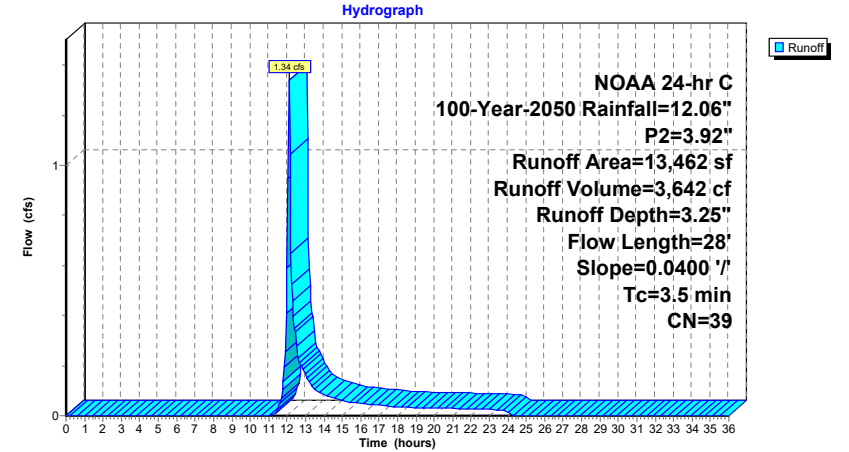
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 13,462    | 39 | >75% Grass cover, Good, HSG A |
| 13,462    |    | 100.00% Pervious Area         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                          |
|-------------|------------------|------------------|----------------------|-------------------|------------------------------------------------------|
| 3.5         | 28               | 0.0400           | 0.13                 |                   | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92" |



Subcatchment 15S: GI-2 Pervious



Hydrograph for Subcatchment 15S: GI-2 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 3.25               | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.00            | 26.50           | 12.06               | 3.25               | 0.00            |
| 1.00            | 0.13                | 0.00               | 0.00            | 27.00           | 12.06               | 3.25               | 0.00            |
| 1.50            | 0.20                | 0.00               | 0.00            | 27.50           | 12.06               | 3.25               | 0.00            |
| 2.00            | 0.27                | 0.00               | 0.00            | 28.00           | 12.06               | 3.25               | 0.00            |
| 2.50            | 0.35                | 0.00               | 0.00            | 28.50           | 12.06               | 3.25               | 0.00            |
| 3.00            | 0.43                | 0.00               | 0.00            | 29.00           | 12.06               | 3.25               | 0.00            |
| 3.50            | 0.51                | 0.00               | 0.00            | 29.50           | 12.06               | 3.25               | 0.00            |
| 4.00            | 0.59                | 0.00               | 0.00            | 30.00           | 12.06               | 3.25               | 0.00            |
| 4.50            | 0.68                | 0.00               | 0.00            | 30.50           | 12.06               | 3.25               | 0.00            |
| 5.00            | 0.77                | 0.00               | 0.00            | 31.00           | 12.06               | 3.25               | 0.00            |
| 5.50            | 0.86                | 0.00               | 0.00            | 31.50           | 12.06               | 3.25               | 0.00            |
| 6.00            | 0.96                | 0.00               | 0.00            | 32.00           | 12.06               | 3.25               | 0.00            |
| 6.50            | 1.06                | 0.00               | 0.00            | 32.50           | 12.06               | 3.25               | 0.00            |
| 7.00            | 1.18                | 0.00               | 0.00            | 33.00           | 12.06               | 3.25               | 0.00            |
| 7.50            | 1.30                | 0.00               | 0.00            | 33.50           | 12.06               | 3.25               | 0.00            |
| 8.00            | 1.44                | 0.00               | 0.00            | 34.00           | 12.06               | 3.25               | 0.00            |
| 8.50            | 1.60                | 0.00               | 0.00            | 34.50           | 12.06               | 3.25               | 0.00            |
| 9.00            | 1.76                | 0.00               | 0.00            | 35.00           | 12.06               | 3.25               | 0.00            |
| 9.50            | 1.96                | 0.00               | 0.00            | 35.50           | 12.06               | 3.25               | 0.00            |
| 10.00           | 2.20                | 0.00               | 0.00            | 36.00           | 12.06               | 3.25               | 0.00            |
| 10.50           | 2.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.89                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 3.56                | 0.01               | 0.02            |                 |                     |                    |                 |
| 12.00           | 5.75                | 0.38               | 0.59            |                 |                     |                    |                 |
| 12.50           | 8.50                | 1.37               | 0.33            |                 |                     |                    |                 |
| 13.00           | 9.17                | 1.68               | 0.16            |                 |                     |                    |                 |
| 13.50           | 9.57                | 1.88               | 0.11            |                 |                     |                    |                 |
| 14.00           | 9.86                | 2.03               | 0.09            |                 |                     |                    |                 |
| 14.50           | 10.10               | 2.15               | 0.07            |                 |                     |                    |                 |
| 15.00           | 10.30               | 2.25               | 0.06            |                 |                     |                    |                 |
| 15.50           | 10.46               | 2.34               | 0.05            |                 |                     |                    |                 |
| 16.00           | 10.62               | 2.42               | 0.05            |                 |                     |                    |                 |
| 16.50           | 10.76               | 2.50               | 0.05            |                 |                     |                    |                 |
| 17.00           | 10.88               | 2.57               | 0.04            |                 |                     |                    |                 |
| 17.50           | 11.00               | 2.64               | 0.04            |                 |                     |                    |                 |
| 18.00           | 11.10               | 2.69               | 0.03            |                 |                     |                    |                 |
| 18.50           | 11.20               | 2.75               | 0.03            |                 |                     |                    |                 |
| 19.00           | 11.29               | 2.80               | 0.03            |                 |                     |                    |                 |
| 19.50           | 11.38               | 2.85               | 0.03            |                 |                     |                    |                 |
| 20.00           | 11.47               | 2.90               | 0.03            |                 |                     |                    |                 |
| 20.50           | 11.55               | 2.95               | 0.03            |                 |                     |                    |                 |
| 21.00           | 11.63               | 3.00               | 0.03            |                 |                     |                    |                 |
| 21.50           | 11.71               | 3.04               | 0.03            |                 |                     |                    |                 |
| 22.00           | 11.79               | 3.09               | 0.03            |                 |                     |                    |                 |
| 22.50           | 11.86               | 3.13               | 0.03            |                 |                     |                    |                 |
| 23.00           | 11.93               | 3.17               | 0.03            |                 |                     |                    |                 |
| 23.50           | 11.99               | 3.21               | 0.02            |                 |                     |                    |                 |
| 24.00           | 12.06               | 3.25               | 0.03            |                 |                     |                    |                 |
| 24.50           | 12.06               | 3.25               | 0.00            |                 |                     |                    |                 |
| 25.00           | 12.06               | 3.25               | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 3.25               | 0.00            |                 |                     |                    |                 |

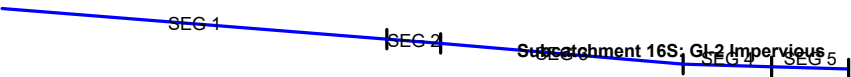
Summary for Subcatchment 16S: GI-2 Impervious

Runoff = 4.34 cfs @ 12.08 hrs, Volume= 12,923 cf, Depth=11.82"  
Routed to Pond 14P : GI-2

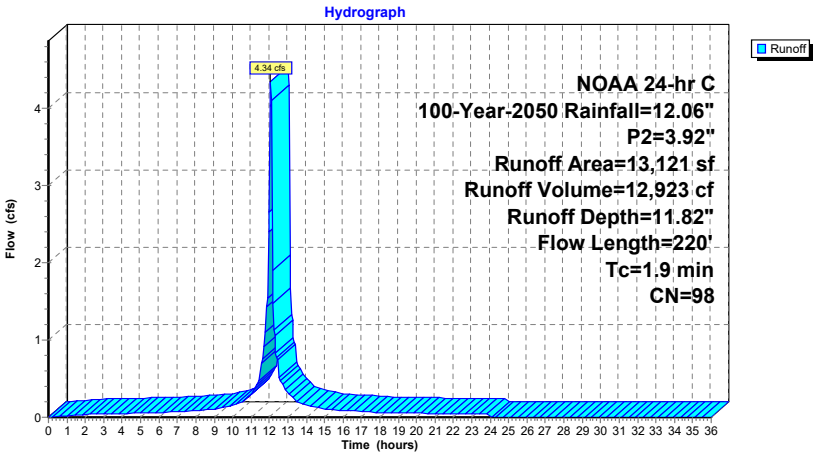
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 13,121    | 98 | Paved parking, HSG A    |
| 13,121    |    | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                     |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------|
| 1.3         | 100              | 0.0140           | 1.32                 |                   | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.92"                                                  |
| 0.1         | 14               | 0.0140           | 2.40                 |                   | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps                                                   |
| 0.3         | 63               | 0.0150           | 3.65                 | 0.73              | <b>Channel Flow, SEG 3</b><br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013                                        |
| 0.1         | 23               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 4</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 Concrete pipe, finished |
| 0.1         | 20               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 5</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012                         |
| 1.9         | 220              | Total            |                      |                   |                                                                                                                 |



Subcatchment 16S: GI-2 Impervious



Hydrograph for Subcatchment 16S: GI-2 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 11.82              | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.01            | 26.50           | 12.06               | 11.82              | 0.00            |
| 1.00            | 0.13                | 0.03               | 0.02            | 27.00           | 12.06               | 11.82              | 0.00            |
| 1.50            | 0.20                | 0.07               | 0.03            | 27.50           | 12.06               | 11.82              | 0.00            |
| 2.00            | 0.27                | 0.12               | 0.03            | 28.00           | 12.06               | 11.82              | 0.00            |
| 2.50            | 0.35                | 0.18               | 0.04            | 28.50           | 12.06               | 11.82              | 0.00            |
| 3.00            | 0.43                | 0.25               | 0.04            | 29.00           | 12.06               | 11.82              | 0.00            |
| 3.50            | 0.51                | 0.32               | 0.05            | 29.50           | 12.06               | 11.82              | 0.00            |
| 4.00            | 0.59                | 0.40               | 0.05            | 30.00           | 12.06               | 11.82              | 0.00            |
| 4.50            | 0.68                | 0.48               | 0.05            | 30.50           | 12.06               | 11.82              | 0.00            |
| 5.00            | 0.77                | 0.57               | 0.05            | 31.00           | 12.06               | 11.82              | 0.00            |
| 5.50            | 0.86                | 0.66               | 0.05            | 31.50           | 12.06               | 11.82              | 0.00            |
| 6.00            | 0.96                | 0.75               | 0.06            | 32.00           | 12.06               | 11.82              | 0.00            |
| 6.50            | 1.06                | 0.85               | 0.06            | 32.50           | 12.06               | 11.82              | 0.00            |
| 7.00            | 1.18                | 0.96               | 0.07            | 33.00           | 12.06               | 11.82              | 0.00            |
| 7.50            | 1.30                | 1.09               | 0.08            | 33.50           | 12.06               | 11.82              | 0.00            |
| 8.00            | 1.44                | 1.23               | 0.09            | 34.00           | 12.06               | 11.82              | 0.00            |
| 8.50            | 1.60                | 1.38               | 0.09            | 34.50           | 12.06               | 11.82              | 0.00            |
| 9.00            | 1.76                | 1.54               | 0.10            | 35.00           | 12.06               | 11.82              | 0.00            |
| 9.50            | 1.96                | 1.73               | 0.13            | 35.50           | 12.06               | 11.82              | 0.00            |
| 10.00           | 2.20                | 1.97               | 0.16            | 36.00           | 12.06               | 11.82              | 0.00            |
| 10.50           | 2.49                | 2.26               | 0.19            |                 |                     |                    |                 |
| 11.00           | 2.89                | 2.66               | 0.29            |                 |                     |                    |                 |
| 11.50           | 3.56                | 3.33               | 0.49            |                 |                     |                    |                 |
| 12.00           | 5.75                | 5.51               | 2.66            |                 |                     |                    |                 |
| 12.50           | 8.50                | 8.26               | 0.72            |                 |                     |                    |                 |
| 13.00           | 9.17                | 8.93               | 0.33            |                 |                     |                    |                 |
| 13.50           | 9.57                | 9.33               | 0.20            |                 |                     |                    |                 |
| 14.00           | 9.86                | 9.62               | 0.16            |                 |                     |                    |                 |
| 14.50           | 10.10               | 9.86               | 0.14            |                 |                     |                    |                 |
| 15.00           | 10.30               | 10.06              | 0.11            |                 |                     |                    |                 |
| 15.50           | 10.46               | 10.22              | 0.10            |                 |                     |                    |                 |
| 16.00           | 10.62               | 10.37              | 0.09            |                 |                     |                    |                 |
| 16.50           | 10.76               | 10.51              | 0.08            |                 |                     |                    |                 |
| 17.00           | 10.88               | 10.64              | 0.07            |                 |                     |                    |                 |
| 17.50           | 11.00               | 10.76              | 0.07            |                 |                     |                    |                 |
| 18.00           | 11.10               | 10.86              | 0.06            |                 |                     |                    |                 |
| 18.50           | 11.20               | 10.96              | 0.06            |                 |                     |                    |                 |
| 19.00           | 11.29               | 11.05              | 0.06            |                 |                     |                    |                 |
| 19.50           | 11.38               | 11.14              | 0.05            |                 |                     |                    |                 |
| 20.00           | 11.47               | 11.23              | 0.05            |                 |                     |                    |                 |
| 20.50           | 11.55               | 11.31              | 0.05            |                 |                     |                    |                 |
| 21.00           | 11.63               | 11.39              | 0.05            |                 |                     |                    |                 |
| 21.50           | 11.71               | 11.47              | 0.05            |                 |                     |                    |                 |
| 22.00           | 11.79               | 11.55              | 0.04            |                 |                     |                    |                 |
| 22.50           | 11.86               | 11.62              | 0.04            |                 |                     |                    |                 |
| 23.00           | 11.93               | 11.69              | 0.04            |                 |                     |                    |                 |
| 23.50           | 11.99               | 11.75              | 0.04            |                 |                     |                    |                 |
| 24.00           | 12.06               | 11.82              | 0.04            |                 |                     |                    |                 |
| 24.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.00           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |

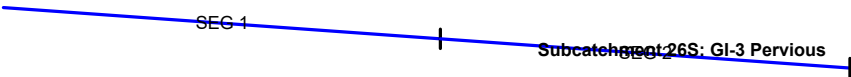
Summary for Subcatchment 26S: GI-3 Pervious

Runoff = 3.57 cfs @ 12.17 hrs, Volume= 11,463 cf, Depth= 5.84"  
Routed to Pond 28P : GI-3

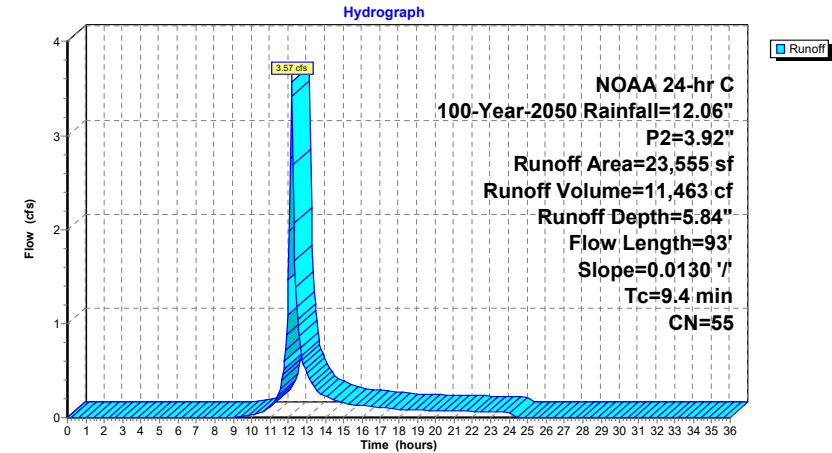
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 6,391     | 39 | >75% Grass cover, Good, HSG A |
| 17,164    | 61 | >75% Grass cover, Good, HSG B |
| 23,555    | 55 | Weighted Average              |
| 23,555    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 8.5      | 48            | 0.0130        | 0.09              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92"                |
| 0.9      | 45            | 0.0130        | 0.80              |                | Shallow Concentrated Flow, SEG 2<br>Short Grass Pasture Kv= 7.0 fps |
| 9.4      | 93            |               |                   |                | Total                                                               |



Subcatchment 26S: GI-3 Pervious



Hydrograph for Subcatchment 26S: GI-3 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         |
| 0.50         | 0.07             | 0.00            | 0.00         |
| 1.00         | 0.13             | 0.00            | 0.00         |
| 1.50         | 0.20             | 0.00            | 0.00         |
| 2.00         | 0.27             | 0.00            | 0.00         |
| 2.50         | 0.35             | 0.00            | 0.00         |
| 3.00         | 0.43             | 0.00            | 0.00         |
| 3.50         | 0.51             | 0.00            | 0.00         |
| 4.00         | 0.59             | 0.00            | 0.00         |
| 4.50         | 0.68             | 0.00            | 0.00         |
| 5.00         | 0.77             | 0.00            | 0.00         |
| 5.50         | 0.86             | 0.00            | 0.00         |
| 6.00         | 0.96             | 0.00            | 0.00         |
| 6.50         | 1.06             | 0.00            | 0.00         |
| 7.00         | 1.18             | 0.00            | 0.00         |
| 7.50         | 1.30             | 0.00            | 0.00         |
| 8.00         | 1.44             | 0.00            | 0.00         |
| 8.50         | 1.60             | 0.00            | 0.00         |
| 9.00         | 1.76             | 0.00            | 0.00         |
| 9.50         | 1.96             | 0.01            | 0.01         |
| 10.00        | 2.20             | 0.04            | 0.03         |
| 10.50        | 2.49             | 0.08            | 0.05         |
| 11.00        | 2.89             | 0.17            | 0.11         |
| 11.50        | 3.56             | 0.37            | 0.25         |
| 12.00        | 5.75             | 1.38            | 1.46         |
| 12.50        | 8.50             | 3.13            | 1.05         |
| 13.00        | 9.17             | 3.61            | 0.48         |
| 13.50        | 9.57             | 3.91            | 0.30         |
| 14.00        | 9.86             | 4.12            | 0.23         |
| 14.50        | 10.10            | 4.31            | 0.19         |
| 15.00        | 10.30            | 4.45            | 0.16         |
| 15.50        | 10.46            | 4.58            | 0.14         |
| 16.00        | 10.62            | 4.70            | 0.13         |
| 16.50        | 10.76            | 4.81            | 0.12         |
| 17.00        | 10.88            | 4.91            | 0.11         |
| 17.50        | 11.00            | 5.00            | 0.10         |
| 18.00        | 11.10            | 5.08            | 0.09         |
| 18.50        | 11.20            | 5.15            | 0.08         |
| 19.00        | 11.29            | 5.23            | 0.08         |
| 19.50        | 11.38            | 5.30            | 0.08         |
| 20.00        | 11.47            | 5.37            | 0.07         |
| 20.50        | 11.55            | 5.43            | 0.07         |
| 21.00        | 11.63            | 5.50            | 0.07         |
| 21.50        | 11.71            | 5.56            | 0.07         |
| 22.00        | 11.79            | 5.62            | 0.06         |
| 22.50        | 11.86            | 5.68            | 0.06         |
| 23.00        | 11.93            | 5.73            | 0.06         |
| 23.50        | 11.99            | 5.79            | 0.06         |
| 24.00        | 12.06            | 5.84            | 0.06         |
| 24.50        | 12.06            | 5.84            | 0.00         |
| 25.00        | 12.06            | 5.84            | 0.00         |
| 25.50        | 12.06            | 5.84            | 0.00         |

Summary for Subcatchment 27S: GI-3 Impervious

Runoff = 19.17 cfs @ 12.09 hrs, Volume= 59,678 cf, Depth=11.82"  
Routed to Pond 28P : GI-3

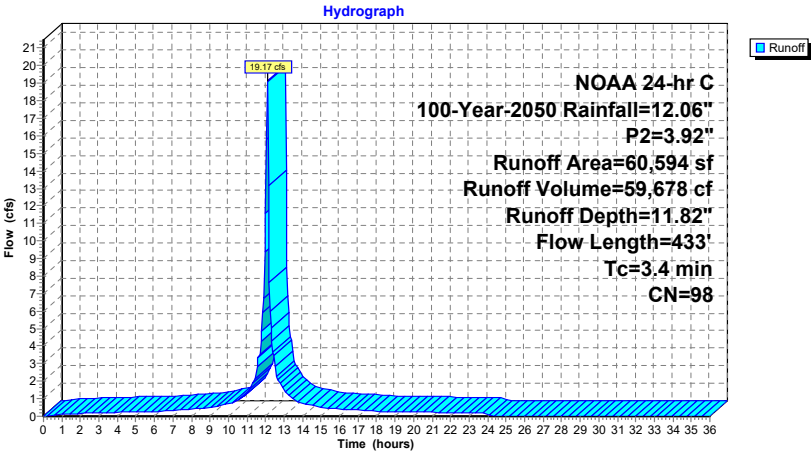
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 56,594    | 98 | Paved parking, HSG A    |
| 4,000     | 98 | Roofs, HSG A            |
| 60,594    | 98 | Weighted Average        |
| 60,594    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                           |
|----------|---------------|---------------|-------------------|----------------|-------------------------------------------------------------------------------------------------------|
| 1.3      | 100           | 0.0140        | 1.32              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.92"                                               |
| 1.9      | 270           | 0.0140        | 2.40              |                | Shallow Concentrated Flow, SEG 2<br>Paved Kv= 20.3 fps                                                |
| 0.0      | 8             | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 3<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013                                     |
| 0.2      | 55            | 0.0050        | 4.03              | 4.95           | Pipe Channel, SEG 4<br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished |
| 3.4      | 433           | Total         |                   |                |                                                                                                       |



Subcatchment 27S: GI-3 Impervious



Hydrograph for Subcatchment 27S: GI-3 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 11.82              | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.03            | 26.50           | 12.06               | 11.82              | 0.00            |
| 1.00            | 0.13                | 0.03               | 0.09            | 27.00           | 12.06               | 11.82              | 0.00            |
| 1.50            | 0.20                | 0.07               | 0.13            | 27.50           | 12.06               | 11.82              | 0.00            |
| 2.00            | 0.27                | 0.12               | 0.16            | 28.00           | 12.06               | 11.82              | 0.00            |
| 2.50            | 0.35                | 0.18               | 0.18            | 28.50           | 12.06               | 11.82              | 0.00            |
| 3.00            | 0.43                | 0.25               | 0.19            | 29.00           | 12.06               | 11.82              | 0.00            |
| 3.50            | 0.51                | 0.32               | 0.21            | 29.50           | 12.06               | 11.82              | 0.00            |
| 4.00            | 0.59                | 0.40               | 0.22            | 30.00           | 12.06               | 11.82              | 0.00            |
| 4.50            | 0.68                | 0.48               | 0.23            | 30.50           | 12.06               | 11.82              | 0.00            |
| 5.00            | 0.77                | 0.57               | 0.24            | 31.00           | 12.06               | 11.82              | 0.00            |
| 5.50            | 0.86                | 0.66               | 0.25            | 31.50           | 12.06               | 11.82              | 0.00            |
| 6.00            | 0.96                | 0.75               | 0.26            | 32.00           | 12.06               | 11.82              | 0.00            |
| 6.50            | 1.06                | 0.85               | 0.30            | 32.50           | 12.06               | 11.82              | 0.00            |
| 7.00            | 1.18                | 0.96               | 0.33            | 33.00           | 12.06               | 11.82              | 0.00            |
| 7.50            | 1.30                | 1.09               | 0.37            | 33.50           | 12.06               | 11.82              | 0.00            |
| 8.00            | 1.44                | 1.23               | 0.40            | 34.00           | 12.06               | 11.82              | 0.00            |
| 8.50            | 1.60                | 1.38               | 0.43            | 34.50           | 12.06               | 11.82              | 0.00            |
| 9.00            | 1.76                | 1.54               | 0.47            | 35.00           | 12.06               | 11.82              | 0.00            |
| 9.50            | 1.96                | 1.73               | 0.59            | 35.50           | 12.06               | 11.82              | 0.00            |
| 10.00           | 2.20                | 1.97               | 0.72            | 36.00           | 12.06               | 11.82              | 0.00            |
| 10.50           | 2.49                | 2.26               | 0.85            |                 |                     |                    |                 |
| 11.00           | 2.89                | 2.66               | 1.33            |                 |                     |                    |                 |
| 11.50           | 3.56                | 3.33               | 2.20            |                 |                     |                    |                 |
| 12.00           | 5.75                | 5.51               | 11.58           |                 |                     |                    |                 |
| 12.50           | 8.50                | 8.26               | 3.42            |                 |                     |                    |                 |
| 13.00           | 9.17                | 8.93               | 1.53            |                 |                     |                    |                 |
| 13.50           | 9.57                | 9.33               | 0.96            |                 |                     |                    |                 |
| 14.00           | 9.86                | 9.62               | 0.75            |                 |                     |                    |                 |
| 14.50           | 10.10               | 9.86               | 0.63            |                 |                     |                    |                 |
| 15.00           | 10.30               | 10.06              | 0.50            |                 |                     |                    |                 |
| 15.50           | 10.46               | 10.22              | 0.45            |                 |                     |                    |                 |
| 16.00           | 10.62               | 10.37              | 0.41            |                 |                     |                    |                 |
| 16.50           | 10.76               | 10.51              | 0.38            |                 |                     |                    |                 |
| 17.00           | 10.88               | 10.64              | 0.35            |                 |                     |                    |                 |
| 17.50           | 11.00               | 10.76              | 0.31            |                 |                     |                    |                 |
| 18.00           | 11.10               | 10.86              | 0.28            |                 |                     |                    |                 |
| 18.50           | 11.20               | 10.96              | 0.27            |                 |                     |                    |                 |
| 19.00           | 11.29               | 11.05              | 0.26            |                 |                     |                    |                 |
| 19.50           | 11.38               | 11.14              | 0.25            |                 |                     |                    |                 |
| 20.00           | 11.47               | 11.23              | 0.24            |                 |                     |                    |                 |
| 20.50           | 11.55               | 11.31              | 0.23            |                 |                     |                    |                 |
| 21.00           | 11.63               | 11.39              | 0.22            |                 |                     |                    |                 |
| 21.50           | 11.71               | 11.47              | 0.21            |                 |                     |                    |                 |
| 22.00           | 11.79               | 11.55              | 0.21            |                 |                     |                    |                 |
| 22.50           | 11.86               | 11.62              | 0.20            |                 |                     |                    |                 |
| 23.00           | 11.93               | 11.69              | 0.19            |                 |                     |                    |                 |
| 23.50           | 11.99               | 11.75              | 0.18            |                 |                     |                    |                 |
| 24.00           | 12.06               | 11.82              | 0.21            |                 |                     |                    |                 |
| 24.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.00           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 29S: GI-6 Pervious

Runoff = 3.74 cfs @ 12.15 hrs, Volume= 11,129 cf, Depth= 4.88"  
Routed to Pond 31P : GI-6

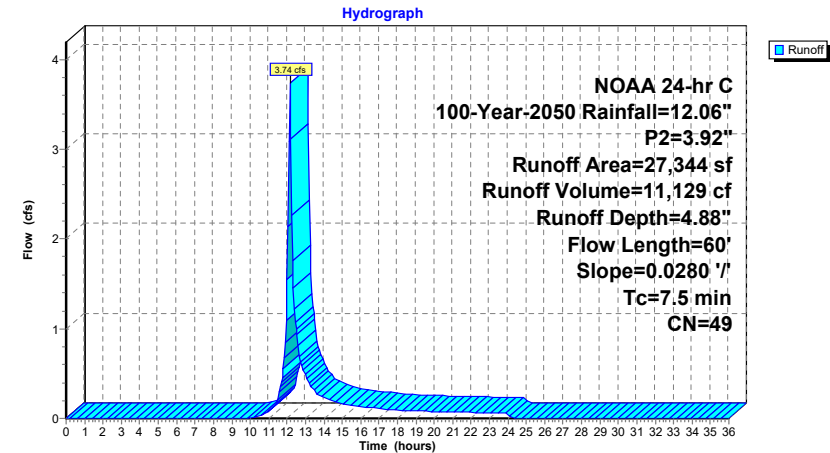
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 15,207    | 39 | >75% Grass cover, Good, HSG A |
| 12,137    | 61 | >75% Grass cover, Good, HSG B |
| 27,344    | 49 | Weighted Average              |
| 27,344    |    | 100.00% Pervious Area         |

| Tc<br>(min)                     | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description       |
|---------------------------------|------------------|------------------|----------------------|-------------------|-------------------|
| 7.5                             | 60               | 0.0280           | 0.13                 |                   | Sheet Flow, SEG 1 |
| Grass: Dense n= 0.240 P2= 3.92" |                  |                  |                      |                   |                   |



Subcatchment 29S: GI-6 Pervious





Hydrograph for Subcatchment 29S: GI-6 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 4.88               | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.00            | 26.50           | 12.06               | 4.88               | 0.00            |
| 1.00            | 0.13                | 0.00               | 0.00            | 27.00           | 12.06               | 4.88               | 0.00            |
| 1.50            | 0.20                | 0.00               | 0.00            | 27.50           | 12.06               | 4.88               | 0.00            |
| 2.00            | 0.27                | 0.00               | 0.00            | 28.00           | 12.06               | 4.88               | 0.00            |
| 2.50            | 0.35                | 0.00               | 0.00            | 28.50           | 12.06               | 4.88               | 0.00            |
| 3.00            | 0.43                | 0.00               | 0.00            | 29.00           | 12.06               | 4.88               | 0.00            |
| 3.50            | 0.51                | 0.00               | 0.00            | 29.50           | 12.06               | 4.88               | 0.00            |
| 4.00            | 0.59                | 0.00               | 0.00            | 30.00           | 12.06               | 4.88               | 0.00            |
| 4.50            | 0.68                | 0.00               | 0.00            | 30.50           | 12.06               | 4.88               | 0.00            |
| 5.00            | 0.77                | 0.00               | 0.00            | 31.00           | 12.06               | 4.88               | 0.00            |
| 5.50            | 0.86                | 0.00               | 0.00            | 31.50           | 12.06               | 4.88               | 0.00            |
| 6.00            | 0.96                | 0.00               | 0.00            | 32.00           | 12.06               | 4.88               | 0.00            |
| 6.50            | 1.06                | 0.00               | 0.00            | 32.50           | 12.06               | 4.88               | 0.00            |
| 7.00            | 1.18                | 0.00               | 0.00            | 33.00           | 12.06               | 4.88               | 0.00            |
| 7.50            | 1.30                | 0.00               | 0.00            | 33.50           | 12.06               | 4.88               | 0.00            |
| 8.00            | 1.44                | 0.00               | 0.00            | 34.00           | 12.06               | 4.88               | 0.00            |
| 8.50            | 1.60                | 0.00               | 0.00            | 34.50           | 12.06               | 4.88               | 0.00            |
| 9.00            | 1.76                | 0.00               | 0.00            | 35.00           | 12.06               | 4.88               | 0.00            |
| 9.50            | 1.96                | 0.00               | 0.00            | 35.50           | 12.06               | 4.88               | 0.00            |
| 10.00           | 2.20                | 0.00               | 0.00            | 36.00           | 12.06               | 4.88               | 0.00            |
| 10.50           | 2.49                | 0.02               | 0.02            |                 |                     |                    |                 |
| 11.00           | 2.89                | 0.06               | 0.07            |                 |                     |                    |                 |
| 11.50           | 3.56                | 0.18               | 0.20            |                 |                     |                    |                 |
| 12.00           | 5.75                | 0.95               | 1.55            |                 |                     |                    |                 |
| 12.50           | 8.50                | 2.45               | 0.99            |                 |                     |                    |                 |
| 13.00           | 9.17                | 2.87               | 0.47            |                 |                     |                    |                 |
| 13.50           | 9.57                | 3.14               | 0.30            |                 |                     |                    |                 |
| 14.00           | 9.86                | 3.33               | 0.23            |                 |                     |                    |                 |
| 14.50           | 10.10               | 3.49               | 0.20            |                 |                     |                    |                 |
| 15.00           | 10.30               | 3.63               | 0.16            |                 |                     |                    |                 |
| 15.50           | 10.46               | 3.74               | 0.14            |                 |                     |                    |                 |
| 16.00           | 10.62               | 3.84               | 0.13            |                 |                     |                    |                 |
| 16.50           | 10.76               | 3.94               | 0.12            |                 |                     |                    |                 |
| 17.00           | 10.88               | 4.03               | 0.11            |                 |                     |                    |                 |
| 17.50           | 11.00               | 4.12               | 0.10            |                 |                     |                    |                 |
| 18.00           | 11.10               | 4.19               | 0.09            |                 |                     |                    |                 |
| 18.50           | 11.20               | 4.26               | 0.09            |                 |                     |                    |                 |
| 19.00           | 11.29               | 4.32               | 0.08            |                 |                     |                    |                 |
| 19.50           | 11.38               | 4.39               | 0.08            |                 |                     |                    |                 |
| 20.00           | 11.47               | 4.45               | 0.08            |                 |                     |                    |                 |
| 20.50           | 11.55               | 4.51               | 0.08            |                 |                     |                    |                 |
| 21.00           | 11.63               | 4.57               | 0.07            |                 |                     |                    |                 |
| 21.50           | 11.71               | 4.63               | 0.07            |                 |                     |                    |                 |
| 22.00           | 11.79               | 4.68               | 0.07            |                 |                     |                    |                 |
| 22.50           | 11.86               | 4.74               | 0.07            |                 |                     |                    |                 |
| 23.00           | 11.93               | 4.79               | 0.06            |                 |                     |                    |                 |
| 23.50           | 11.99               | 4.84               | 0.06            |                 |                     |                    |                 |
| 24.00           | 12.06               | 4.88               | 0.06            |                 |                     |                    |                 |
| 24.50           | 12.06               | 4.88               | 0.00            |                 |                     |                    |                 |
| 25.00           | 12.06               | 4.88               | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 4.88               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 30S: GI-6 Impervious

Runoff = 18.34 cfs @ 12.09 hrs, Volume= 56,816 cf, Depth=11.82"  
Routed to Pond 31P : GI-6

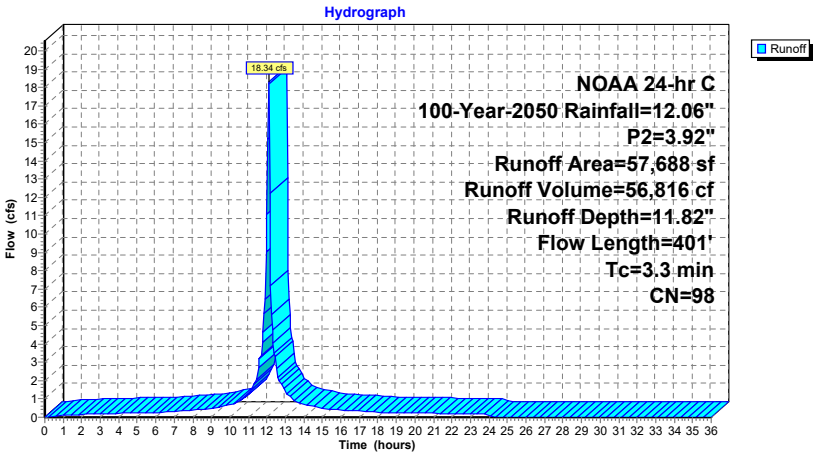
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 57,688    | 98 | Paved parking, HSG A    |
| 57,688    |    | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                             |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------|
| 1.3         | 100              | 0.0140           | 1.32                 |                   | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.92"                          |
| 1.9         | 275              | 0.0140           | 2.40                 |                   | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps                           |
| 0.1         | 26               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 3</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 |
| 3.3         | 401              | Total            |                      |                   |                                                                                         |



Subcatchment 30S: GI-6 Impervious



Hydrograph for Subcatchment 30S: GI-6 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 11.82              | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.03            | 26.50           | 12.06               | 11.82              | 0.00            |
| 1.00            | 0.13                | 0.03               | 0.09            | 27.00           | 12.06               | 11.82              | 0.00            |
| 1.50            | 0.20                | 0.07               | 0.13            | 27.50           | 12.06               | 11.82              | 0.00            |
| 2.00            | 0.27                | 0.12               | 0.15            | 28.00           | 12.06               | 11.82              | 0.00            |
| 2.50            | 0.35                | 0.18               | 0.17            | 28.50           | 12.06               | 11.82              | 0.00            |
| 3.00            | 0.43                | 0.25               | 0.18            | 29.00           | 12.06               | 11.82              | 0.00            |
| 3.50            | 0.51                | 0.32               | 0.20            | 29.50           | 12.06               | 11.82              | 0.00            |
| 4.00            | 0.59                | 0.40               | 0.21            | 30.00           | 12.06               | 11.82              | 0.00            |
| 4.50            | 0.68                | 0.48               | 0.22            | 30.50           | 12.06               | 11.82              | 0.00            |
| 5.00            | 0.77                | 0.57               | 0.23            | 31.00           | 12.06               | 11.82              | 0.00            |
| 5.50            | 0.86                | 0.66               | 0.24            | 31.50           | 12.06               | 11.82              | 0.00            |
| 6.00            | 0.96                | 0.75               | 0.25            | 32.00           | 12.06               | 11.82              | 0.00            |
| 6.50            | 1.06                | 0.85               | 0.28            | 32.50           | 12.06               | 11.82              | 0.00            |
| 7.00            | 1.18                | 0.96               | 0.32            | 33.00           | 12.06               | 11.82              | 0.00            |
| 7.50            | 1.30                | 1.09               | 0.35            | 33.50           | 12.06               | 11.82              | 0.00            |
| 8.00            | 1.44                | 1.23               | 0.38            | 34.00           | 12.06               | 11.82              | 0.00            |
| 8.50            | 1.60                | 1.38               | 0.41            | 34.50           | 12.06               | 11.82              | 0.00            |
| 9.00            | 1.76                | 1.54               | 0.45            | 35.00           | 12.06               | 11.82              | 0.00            |
| 9.50            | 1.96                | 1.73               | 0.57            | 35.50           | 12.06               | 11.82              | 0.00            |
| 10.00           | 2.20                | 1.97               | 0.69            | 36.00           | 12.06               | 11.82              | 0.00            |
| 10.50           | 2.49                | 2.26               | 0.81            |                 |                     |                    |                 |
| 11.00           | 2.89                | 2.66               | 1.27            |                 |                     |                    |                 |
| 11.50           | 3.56                | 3.33               | 2.10            |                 |                     |                    |                 |
| 12.00           | 5.75                | 5.51               | 11.07           |                 |                     |                    |                 |
| 12.50           | 8.50                | 8.26               | 3.25            |                 |                     |                    |                 |
| 13.00           | 9.17                | 8.93               | 1.46            |                 |                     |                    |                 |
| 13.50           | 9.57                | 9.33               | 0.91            |                 |                     |                    |                 |
| 14.00           | 9.86                | 9.62               | 0.72            |                 |                     |                    |                 |
| 14.50           | 10.10               | 9.86               | 0.60            |                 |                     |                    |                 |
| 15.00           | 10.30               | 10.06              | 0.48            |                 |                     |                    |                 |
| 15.50           | 10.46               | 10.22              | 0.43            |                 |                     |                    |                 |
| 16.00           | 10.62               | 10.37              | 0.39            |                 |                     |                    |                 |
| 16.50           | 10.76               | 10.51              | 0.36            |                 |                     |                    |                 |
| 17.00           | 10.88               | 10.64              | 0.33            |                 |                     |                    |                 |
| 17.50           | 11.00               | 10.76              | 0.30            |                 |                     |                    |                 |
| 18.00           | 11.10               | 10.86              | 0.27            |                 |                     |                    |                 |
| 18.50           | 11.20               | 10.96              | 0.25            |                 |                     |                    |                 |
| 19.00           | 11.29               | 11.05              | 0.24            |                 |                     |                    |                 |
| 19.50           | 11.38               | 11.14              | 0.24            |                 |                     |                    |                 |
| 20.00           | 11.47               | 11.23              | 0.23            |                 |                     |                    |                 |
| 20.50           | 11.55               | 11.31              | 0.22            |                 |                     |                    |                 |
| 21.00           | 11.63               | 11.39              | 0.21            |                 |                     |                    |                 |
| 21.50           | 11.71               | 11.47              | 0.20            |                 |                     |                    |                 |
| 22.00           | 11.79               | 11.55              | 0.20            |                 |                     |                    |                 |
| 22.50           | 11.86               | 11.62              | 0.19            |                 |                     |                    |                 |
| 23.00           | 11.93               | 11.69              | 0.18            |                 |                     |                    |                 |
| 23.50           | 11.99               | 11.75              | 0.17            |                 |                     |                    |                 |
| 24.00           | 12.06               | 11.82              | 0.20            |                 |                     |                    |                 |
| 24.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.00           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 41S: GI-11 Pervious

Runoff = 0.80 cfs @ 12.10 hrs, Volume= 2,052 cf, Depth= 6.77"  
Routed to Pond 43P : GI-11

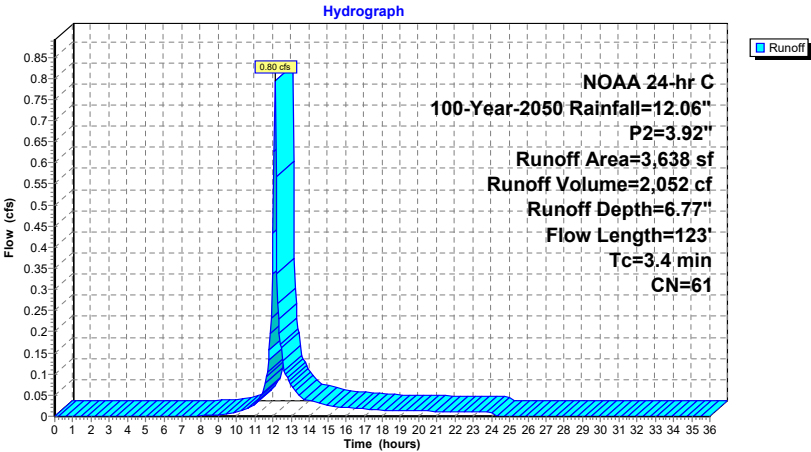
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 3,638     | 61 | >75% Grass cover, Good, HSG B |
| 3,638     |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                    |
|----------|---------------|---------------|-------------------|----------------|--------------------------------------------------------------------------------|
| 2.4      | 25            | 0.0833        | 0.17              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.92"                                 |
| 0.8      | 51            | 0.0130        | 1.12              |                | Sheet Flow,<br>Smooth surfaces n= 0.011 P2= 3.92"                              |
| 0.2      | 36            | 0.0100        | 2.98              | 0.60           | Channel Flow,<br>Area= 0.2 sf Perim= 1.5' r= 0.13'<br>n= 0.013 Asphalt, smooth |
| 0.0      | 11            | 0.3330        | 4.04              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                  |
| 3.4      | 123           | Total         |                   |                |                                                                                |



Subcatchment 41S: GI-11 Pervious



Hydrograph for Subcatchment 41S: GI-11 Pervious

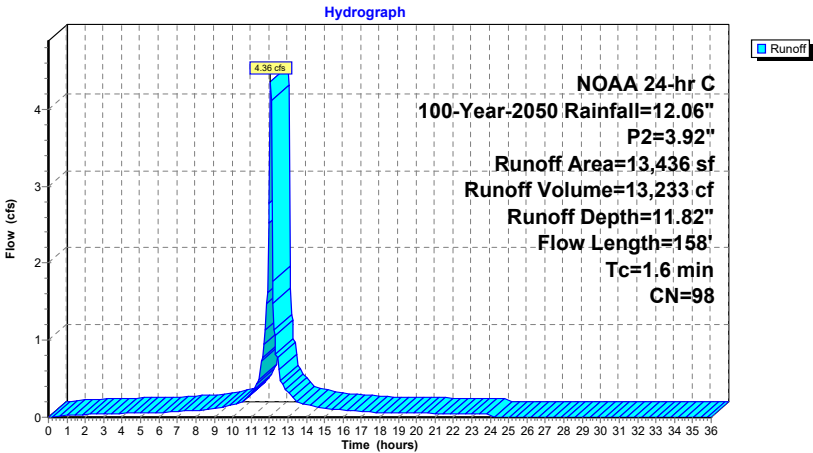
| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 6.77               | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.00            | 26.50           | 12.06               | 6.77               | 0.00            |
| 1.00            | 0.13                | 0.00               | 0.00            | 27.00           | 12.06               | 6.77               | 0.00            |
| 1.50            | 0.20                | 0.00               | 0.00            | 27.50           | 12.06               | 6.77               | 0.00            |
| 2.00            | 0.27                | 0.00               | 0.00            | 28.00           | 12.06               | 6.77               | 0.00            |
| 2.50            | 0.35                | 0.00               | 0.00            | 28.50           | 12.06               | 6.77               | 0.00            |
| 3.00            | 0.43                | 0.00               | 0.00            | 29.00           | 12.06               | 6.77               | 0.00            |
| 3.50            | 0.51                | 0.00               | 0.00            | 29.50           | 12.06               | 6.77               | 0.00            |
| 4.00            | 0.59                | 0.00               | 0.00            | 30.00           | 12.06               | 6.77               | 0.00            |
| 4.50            | 0.68                | 0.00               | 0.00            | 30.50           | 12.06               | 6.77               | 0.00            |
| 5.00            | 0.77                | 0.00               | 0.00            | 31.00           | 12.06               | 6.77               | 0.00            |
| 5.50            | 0.86                | 0.00               | 0.00            | 31.50           | 12.06               | 6.77               | 0.00            |
| 6.00            | 0.96                | 0.00               | 0.00            | 32.00           | 12.06               | 6.77               | 0.00            |
| 6.50            | 1.06                | 0.00               | 0.00            | 32.50           | 12.06               | 6.77               | 0.00            |
| 7.00            | 1.18                | 0.00               | 0.00            | 33.00           | 12.06               | 6.77               | 0.00            |
| 7.50            | 1.30                | 0.00               | 0.00            | 33.50           | 12.06               | 6.77               | 0.00            |
| 8.00            | 1.44                | 0.00               | 0.00            | 34.00           | 12.06               | 6.77               | 0.00            |
| 8.50            | 1.60                | 0.02               | 0.00            | 34.50           | 12.06               | 6.77               | 0.00            |
| 9.00            | 1.76                | 0.03               | 0.00            | 35.00           | 12.06               | 6.77               | 0.00            |
| 9.50            | 1.96                | 0.07               | 0.01            | 35.50           | 12.06               | 6.77               | 0.00            |
| 10.00           | 2.20                | 0.12               | 0.01            | 36.00           | 12.06               | 6.77               | 0.00            |
| 10.50           | 2.49                | 0.19               | 0.01            |                 |                     |                    |                 |
| 11.00           | 2.89                | 0.33               | 0.03            |                 |                     |                    |                 |
| 11.50           | 3.56                | 0.60               | 0.06            |                 |                     |                    |                 |
| 12.00           | 5.75                | 1.84               | 0.43            |                 |                     |                    |                 |
| 12.50           | 8.50                | 3.83               | 0.16            |                 |                     |                    |                 |
| 13.00           | 9.17                | 4.36               | 0.07            |                 |                     |                    |                 |
| 13.50           | 9.57                | 4.69               | 0.05            |                 |                     |                    |                 |
| 14.00           | 9.86                | 4.92               | 0.04            |                 |                     |                    |                 |
| 14.50           | 10.10               | 5.12               | 0.03            |                 |                     |                    |                 |
| 15.00           | 10.30               | 5.28               | 0.02            |                 |                     |                    |                 |
| 15.50           | 10.46               | 5.41               | 0.02            |                 |                     |                    |                 |
| 16.00           | 10.62               | 5.54               | 0.02            |                 |                     |                    |                 |
| 16.50           | 10.76               | 5.66               | 0.02            |                 |                     |                    |                 |
| 17.00           | 10.88               | 5.77               | 0.02            |                 |                     |                    |                 |
| 17.50           | 11.00               | 5.86               | 0.02            |                 |                     |                    |                 |
| 18.00           | 11.10               | 5.95               | 0.01            |                 |                     |                    |                 |
| 18.50           | 11.20               | 6.03               | 0.01            |                 |                     |                    |                 |
| 19.00           | 11.29               | 6.11               | 0.01            |                 |                     |                    |                 |
| 19.50           | 11.38               | 6.19               | 0.01            |                 |                     |                    |                 |
| 20.00           | 11.47               | 6.26               | 0.01            |                 |                     |                    |                 |
| 20.50           | 11.55               | 6.33               | 0.01            |                 |                     |                    |                 |
| 21.00           | 11.63               | 6.40               | 0.01            |                 |                     |                    |                 |
| 21.50           | 11.71               | 6.47               | 0.01            |                 |                     |                    |                 |
| 22.00           | 11.79               | 6.53               | 0.01            |                 |                     |                    |                 |
| 22.50           | 11.86               | 6.60               | 0.01            |                 |                     |                    |                 |
| 23.00           | 11.93               | 6.65               | 0.01            |                 |                     |                    |                 |
| 23.50           | 11.99               | 6.71               | 0.01            |                 |                     |                    |                 |
| 24.00           | 12.06               | 6.77               | 0.01            |                 |                     |                    |                 |
| 24.50           | 12.06               | 6.77               | 0.00            |                 |                     |                    |                 |
| 25.00           | 12.06               | 6.77               | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 6.77               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 42S: GI-11 Impervious

| Runoff = 4.36 cfs @ 12.07 hrs, Volume= 13,233 cf, Depth=11.82"                                                                                   |                  |                         |                      |                   |                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------|----------------------|-------------------|--------------------------------------------------------------------------------|
| Routed to Pond 43P : GI-11                                                                                                                       |                  |                         |                      |                   |                                                                                |
| Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs<br>NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92" |                  |                         |                      |                   |                                                                                |
| Area (sf)                                                                                                                                        | CN               | Description             |                      |                   |                                                                                |
| 13,436                                                                                                                                           | 98               | Paved parking, HSG A    |                      |                   |                                                                                |
| 13,436                                                                                                                                           |                  | 100.00% Impervious Area |                      |                   |                                                                                |
| Tc<br>(min)                                                                                                                                      | Length<br>(feet) | Slope<br>(ft/ft)        | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                    |
| 1.3                                                                                                                                              | 100              | 0.0130                  | 1.28                 |                   | Sheet Flow,<br>Smooth surfaces n= 0.011 P2= 3.92"                              |
| 0.3                                                                                                                                              | 39               | 0.0130                  | 2.31                 |                   | Shallow Concentrated Flow,<br>Paved Kv= 20.3 fps                               |
| 0.0                                                                                                                                              | 8                | 0.0100                  | 6.21                 | 1.24              | Channel Flow,<br>Area= 0.2 sf Perim= 0.5' r= 0.40'<br>n= 0.013 Asphalt, smooth |
| 0.0                                                                                                                                              | 11               | 0.3330                  | 4.04                 |                   | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                  |
| 1.6                                                                                                                                              | 158              | Total                   |                      |                   |                                                                                |



Subcatchment 42S: GI-11 Impervious



Hydrograph for Subcatchment 42S: GI-11 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 11.82              | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.01            | 26.50           | 12.06               | 11.82              | 0.00            |
| 1.00            | 0.13                | 0.03               | 0.02            | 27.00           | 12.06               | 11.82              | 0.00            |
| 1.50            | 0.20                | 0.07               | 0.03            | 27.50           | 12.06               | 11.82              | 0.00            |
| 2.00            | 0.27                | 0.12               | 0.04            | 28.00           | 12.06               | 11.82              | 0.00            |
| 2.50            | 0.35                | 0.18               | 0.04            | 28.50           | 12.06               | 11.82              | 0.00            |
| 3.00            | 0.43                | 0.25               | 0.04            | 29.00           | 12.06               | 11.82              | 0.00            |
| 3.50            | 0.51                | 0.32               | 0.05            | 29.50           | 12.06               | 11.82              | 0.00            |
| 4.00            | 0.59                | 0.40               | 0.05            | 30.00           | 12.06               | 11.82              | 0.00            |
| 4.50            | 0.68                | 0.48               | 0.05            | 30.50           | 12.06               | 11.82              | 0.00            |
| 5.00            | 0.77                | 0.57               | 0.05            | 31.00           | 12.06               | 11.82              | 0.00            |
| 5.50            | 0.86                | 0.66               | 0.06            | 31.50           | 12.06               | 11.82              | 0.00            |
| 6.00            | 0.96                | 0.75               | 0.06            | 32.00           | 12.06               | 11.82              | 0.00            |
| 6.50            | 1.06                | 0.85               | 0.07            | 32.50           | 12.06               | 11.82              | 0.00            |
| 7.00            | 1.18                | 0.96               | 0.07            | 33.00           | 12.06               | 11.82              | 0.00            |
| 7.50            | 1.30                | 1.09               | 0.08            | 33.50           | 12.06               | 11.82              | 0.00            |
| 8.00            | 1.44                | 1.23               | 0.09            | 34.00           | 12.06               | 11.82              | 0.00            |
| 8.50            | 1.60                | 1.38               | 0.10            | 34.50           | 12.06               | 11.82              | 0.00            |
| 9.00            | 1.76                | 1.54               | 0.10            | 35.00           | 12.06               | 11.82              | 0.00            |
| 9.50            | 1.96                | 1.73               | 0.13            | 35.50           | 12.06               | 11.82              | 0.00            |
| 10.00           | 2.20                | 1.97               | 0.16            | 36.00           | 12.06               | 11.82              | 0.00            |
| 10.50           | 2.49                | 2.26               | 0.19            |                 |                     |                    |                 |
| 11.00           | 2.89                | 2.66               | 0.30            |                 |                     |                    |                 |
| 11.50           | 3.56                | 3.33               | 0.51            |                 |                     |                    |                 |
| 12.00           | 5.75                | 5.51               | 2.78            |                 |                     |                    |                 |
| 12.50           | 8.50                | 8.26               | 0.73            |                 |                     |                    |                 |
| 13.00           | 9.17                | 8.93               | 0.33            |                 |                     |                    |                 |
| 13.50           | 9.57                | 9.33               | 0.21            |                 |                     |                    |                 |
| 14.00           | 9.86                | 9.62               | 0.17            |                 |                     |                    |                 |
| 14.50           | 10.10               | 9.86               | 0.14            |                 |                     |                    |                 |
| 15.00           | 10.30               | 10.06              | 0.11            |                 |                     |                    |                 |
| 15.50           | 10.46               | 10.22              | 0.10            |                 |                     |                    |                 |
| 16.00           | 10.62               | 10.37              | 0.09            |                 |                     |                    |                 |
| 16.50           | 10.76               | 10.51              | 0.08            |                 |                     |                    |                 |
| 17.00           | 10.88               | 10.64              | 0.08            |                 |                     |                    |                 |
| 17.50           | 11.00               | 10.76              | 0.07            |                 |                     |                    |                 |
| 18.00           | 11.10               | 10.86              | 0.06            |                 |                     |                    |                 |
| 18.50           | 11.20               | 10.96              | 0.06            |                 |                     |                    |                 |
| 19.00           | 11.29               | 11.05              | 0.06            |                 |                     |                    |                 |
| 19.50           | 11.38               | 11.14              | 0.06            |                 |                     |                    |                 |
| 20.00           | 11.47               | 11.23              | 0.05            |                 |                     |                    |                 |
| 20.50           | 11.55               | 11.31              | 0.05            |                 |                     |                    |                 |
| 21.00           | 11.63               | 11.39              | 0.05            |                 |                     |                    |                 |
| 21.50           | 11.71               | 11.47              | 0.05            |                 |                     |                    |                 |
| 22.00           | 11.79               | 11.55              | 0.05            |                 |                     |                    |                 |
| 22.50           | 11.86               | 11.62              | 0.04            |                 |                     |                    |                 |
| 23.00           | 11.93               | 11.69              | 0.04            |                 |                     |                    |                 |
| 23.50           | 11.99               | 11.75              | 0.04            |                 |                     |                    |                 |
| 24.00           | 12.06               | 11.82              | 0.04            |                 |                     |                    |                 |
| 24.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.00           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |

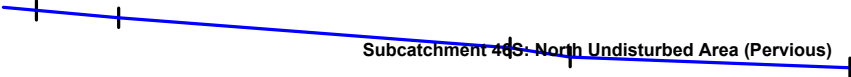
Summary for Subcatchment 46S: North Undisturbed Area (Pervious)

Runoff = 16.34 cfs @ 12.33 hrs, Volume= 74,384 cf, Depth= 5.68"  
Routed to Link 13L : FES

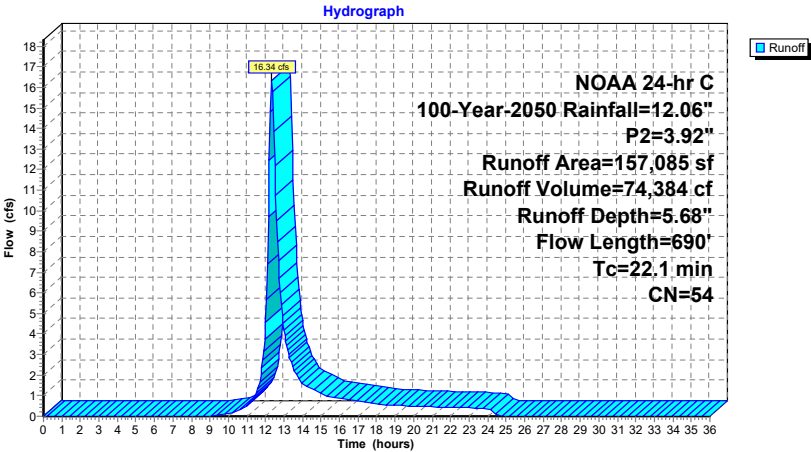
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description                    |
|-----------|----|--------------------------------|
| 15,827    | 39 | >75% Grass cover, Good, HSG A  |
| 80,837    | 61 | >75% Grass cover, Good, HSG B  |
| 30,052    | 32 | Woods/grass comb., Good, HSG A |
| 22,227    | 58 | Woods/grass comb., Good, HSG B |
| 8,142     | 86 | Fallow, bare soil, HSG B       |
| 157,085   | 54 | Weighted Average               |
| 157,085   |    | 100.00% Pervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                   |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------------------------------------------------|
| 8.5      | 27            | 0.0120        | 0.05              |                | Sheet Flow,<br>Grass: Bermuda n= 0.410 P2= 3.92"<br>Using McCuen-Spiess flow length                           |
| 1.5      | 67            | 0.0120        | 0.77              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6     | 319           | 0.0100        | 0.50              |                | Shallow Concentrated Flow,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8      | 49            | 0.0200        | 0.99              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7      | 228           | 0.0050        | 5.09              | 16.00          | Pipe Channel,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.1     | 690           | Total         |                   |                |                                                                                                               |



Subcatchment 46S: North Undisturbed Area (Pervious)



Hydrograph for Subcatchment 46S: North Undisturbed Area (Pervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 5.68               | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.00            | 26.50           | 12.06               | 5.68               | 0.00            |
| 1.00            | 0.13                | 0.00               | 0.00            | 27.00           | 12.06               | 5.68               | 0.00            |
| 1.50            | 0.20                | 0.00               | 0.00            | 27.50           | 12.06               | 5.68               | 0.00            |
| 2.00            | 0.27                | 0.00               | 0.00            | 28.00           | 12.06               | 5.68               | 0.00            |
| 2.50            | 0.35                | 0.00               | 0.00            | 28.50           | 12.06               | 5.68               | 0.00            |
| 3.00            | 0.43                | 0.00               | 0.00            | 29.00           | 12.06               | 5.68               | 0.00            |
| 3.50            | 0.51                | 0.00               | 0.00            | 29.50           | 12.06               | 5.68               | 0.00            |
| 4.00            | 0.59                | 0.00               | 0.00            | 30.00           | 12.06               | 5.68               | 0.00            |
| 4.50            | 0.68                | 0.00               | 0.00            | 30.50           | 12.06               | 5.68               | 0.00            |
| 5.00            | 0.77                | 0.00               | 0.00            | 31.00           | 12.06               | 5.68               | 0.00            |
| 5.50            | 0.86                | 0.00               | 0.00            | 31.50           | 12.06               | 5.68               | 0.00            |
| 6.00            | 0.96                | 0.00               | 0.00            | 32.00           | 12.06               | 5.68               | 0.00            |
| 6.50            | 1.06                | 0.00               | 0.00            | 32.50           | 12.06               | 5.68               | 0.00            |
| 7.00            | 1.18                | 0.00               | 0.00            | 33.00           | 12.06               | 5.68               | 0.00            |
| 7.50            | 1.30                | 0.00               | 0.00            | 33.50           | 12.06               | 5.68               | 0.00            |
| 8.00            | 1.44                | 0.00               | 0.00            | 34.00           | 12.06               | 5.68               | 0.00            |
| 8.50            | 1.60                | 0.00               | 0.00            | 34.50           | 12.06               | 5.68               | 0.00            |
| 9.00            | 1.76                | 0.00               | 0.00            | 35.00           | 12.06               | 5.68               | 0.00            |
| 9.50            | 1.96                | 0.01               | 0.04            | 35.50           | 12.06               | 5.68               | 0.00            |
| 10.00           | 2.20                | 0.03               | 0.12            | 36.00           | 12.06               | 5.68               | 0.00            |
| 10.50           | 2.49                | 0.07               | 0.25            |                 |                     |                    |                 |
| 11.00           | 2.89                | 0.15               | 0.51            |                 |                     |                    |                 |
| 11.50           | 3.56                | 0.33               | 1.18            |                 |                     |                    |                 |
| 12.00           | 5.75                | 1.30               | 4.56            |                 |                     |                    |                 |
| 12.50           | 8.50                | 3.01               | 12.20           |                 |                     |                    |                 |
| 13.00           | 9.17                | 3.48               | 4.17            |                 |                     |                    |                 |
| 13.50           | 9.57                | 3.78               | 2.36            |                 |                     |                    |                 |
| 14.00           | 9.86                | 3.99               | 1.61            |                 |                     |                    |                 |
| 14.50           | 10.10               | 4.17               | 1.35            |                 |                     |                    |                 |
| 15.00           | 10.30               | 4.32               | 1.11            |                 |                     |                    |                 |
| 15.50           | 10.46               | 4.44               | 0.92            |                 |                     |                    |                 |
| 16.00           | 10.62               | 4.56               | 0.85            |                 |                     |                    |                 |
| 16.50           | 10.76               | 4.66               | 0.79            |                 |                     |                    |                 |
| 17.00           | 10.88               | 4.76               | 0.73            |                 |                     |                    |                 |
| 17.50           | 11.00               | 4.85               | 0.66            |                 |                     |                    |                 |
| 18.00           | 11.10               | 4.93               | 0.60            |                 |                     |                    |                 |
| 18.50           | 11.20               | 5.01               | 0.55            |                 |                     |                    |                 |
| 19.00           | 11.29               | 5.08               | 0.53            |                 |                     |                    |                 |
| 19.50           | 11.38               | 5.15               | 0.51            |                 |                     |                    |                 |
| 20.00           | 11.47               | 5.22               | 0.50            |                 |                     |                    |                 |
| 20.50           | 11.55               | 5.28               | 0.48            |                 |                     |                    |                 |
| 21.00           | 11.63               | 5.35               | 0.47            |                 |                     |                    |                 |
| 21.50           | 11.71               | 5.41               | 0.45            |                 |                     |                    |                 |
| 22.00           | 11.79               | 5.47               | 0.43            |                 |                     |                    |                 |
| 22.50           | 11.86               | 5.52               | 0.42            |                 |                     |                    |                 |
| 23.00           | 11.93               | 5.58               | 0.40            |                 |                     |                    |                 |
| 23.50           | 11.99               | 5.63               | 0.38            |                 |                     |                    |                 |
| 24.00           | 12.06               | 5.68               | 0.37            |                 |                     |                    |                 |
| 24.50           | 12.06               | 5.68               | 0.06            |                 |                     |                    |                 |
| 25.00           | 12.06               | 5.68               | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 5.68               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 47S: North Undisturbed Area (Impervious)

Runoff = 8.54 cfs @ 12.31 hrs, Volume= 45,030 cf, Depth=11.82"  
Routed to Link 13L : FES

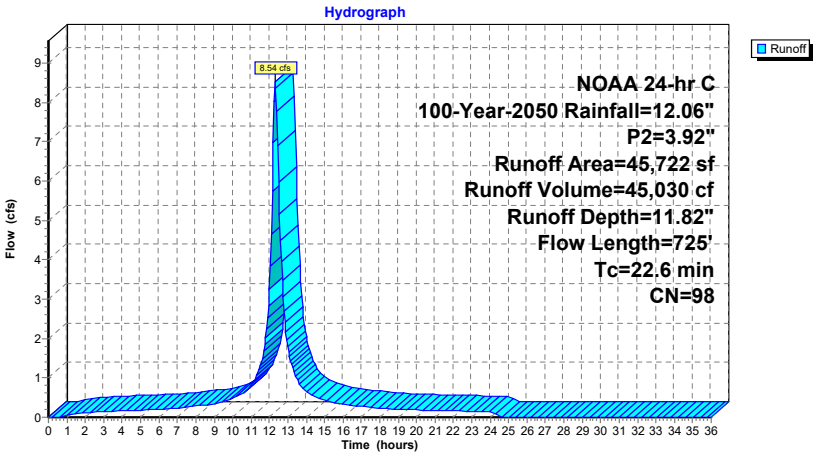
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description                 |
|-----------|----|-----------------------------|
| 45,722    | 98 | Unconnected pavement, HSG A |
| 45,722    |    | 100.00% Impervious Area     |
| 45,722    |    | 100.00% Unconnected         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                           |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------|
| 0.5         | 35               | 0.0200           | 1.23                 |                   | <b>Sheet Flow</b> ,<br>Smooth surfaces n= 0.011 P2= 3.92"                                                             |
| 8.5         | 27               | 0.0120           | 0.05                 |                   | <b>Sheet Flow</b> ,<br>Grass: Bermuda n= 0.410 P2= 3.92"<br>Using McCuen-Spiess flow length                           |
| 1.5         | 67               | 0.0120           | 0.77                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6        | 319              | 0.0100           | 0.50                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8         | 49               | 0.0200           | 0.99                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7         | 228              | 0.0050           | 5.09                 | 16.00             | <b>Pipe Channel</b> ,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.6        | 725              | Total            |                      |                   |                                                                                                                       |



Subcatchment 47S: North Undisturbed Area (Impervious)



Hydrograph for Subcatchment 47S: North Undisturbed Area (Impervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 11.82              | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.00            | 26.50           | 12.06               | 11.82              | 0.00            |
| 1.00            | 0.13                | 0.03               | 0.04            | 27.00           | 12.06               | 11.82              | 0.00            |
| 1.50            | 0.20                | 0.07               | 0.08            | 27.50           | 12.06               | 11.82              | 0.00            |
| 2.00            | 0.27                | 0.12               | 0.11            | 28.00           | 12.06               | 11.82              | 0.00            |
| 2.50            | 0.35                | 0.18               | 0.13            | 28.50           | 12.06               | 11.82              | 0.00            |
| 3.00            | 0.43                | 0.25               | 0.14            | 29.00           | 12.06               | 11.82              | 0.00            |
| 3.50            | 0.51                | 0.32               | 0.15            | 29.50           | 12.06               | 11.82              | 0.00            |
| 4.00            | 0.59                | 0.40               | 0.16            | 30.00           | 12.06               | 11.82              | 0.00            |
| 4.50            | 0.68                | 0.48               | 0.17            | 30.50           | 12.06               | 11.82              | 0.00            |
| 5.00            | 0.77                | 0.57               | 0.18            | 31.00           | 12.06               | 11.82              | 0.00            |
| 5.50            | 0.86                | 0.66               | 0.19            | 31.50           | 12.06               | 11.82              | 0.00            |
| 6.00            | 0.96                | 0.75               | 0.19            | 32.00           | 12.06               | 11.82              | 0.00            |
| 6.50            | 1.06                | 0.85               | 0.21            | 32.50           | 12.06               | 11.82              | 0.00            |
| 7.00            | 1.18                | 0.96               | 0.23            | 33.00           | 12.06               | 11.82              | 0.00            |
| 7.50            | 1.30                | 1.09               | 0.26            | 33.50           | 12.06               | 11.82              | 0.00            |
| 8.00            | 1.44                | 1.23               | 0.29            | 34.00           | 12.06               | 11.82              | 0.00            |
| 8.50            | 1.60                | 1.38               | 0.31            | 34.50           | 12.06               | 11.82              | 0.00            |
| 9.00            | 1.76                | 1.54               | 0.34            | 35.00           | 12.06               | 11.82              | 0.00            |
| 9.50            | 1.96                | 1.73               | 0.39            | 35.50           | 12.06               | 11.82              | 0.00            |
| 10.00           | 2.20                | 1.97               | 0.49            | 36.00           | 12.06               | 11.82              | 0.00            |
| 10.50           | 2.49                | 2.26               | 0.58            |                 |                     |                    |                 |
| 11.00           | 2.89                | 2.66               | 0.80            |                 |                     |                    |                 |
| 11.50           | 3.56                | 3.33               | 1.29            |                 |                     |                    |                 |
| 12.00           | 5.75                | 5.51               | 3.25            |                 |                     |                    |                 |
| 12.50           | 8.50                | 8.26               | 5.96            |                 |                     |                    |                 |
| 13.00           | 9.17                | 8.93               | 1.80            |                 |                     |                    |                 |
| 13.50           | 9.57                | 9.33               | 0.96            |                 |                     |                    |                 |
| 14.00           | 9.86                | 9.62               | 0.64            |                 |                     |                    |                 |
| 14.50           | 10.10               | 9.86               | 0.53            |                 |                     |                    |                 |
| 15.00           | 10.30               | 10.06              | 0.43            |                 |                     |                    |                 |
| 15.50           | 10.46               | 10.22              | 0.36            |                 |                     |                    |                 |
| 16.00           | 10.62               | 10.37              | 0.33            |                 |                     |                    |                 |
| 16.50           | 10.76               | 10.51              | 0.30            |                 |                     |                    |                 |
| 17.00           | 10.88               | 10.64              | 0.28            |                 |                     |                    |                 |
| 17.50           | 11.00               | 10.76              | 0.25            |                 |                     |                    |                 |
| 18.00           | 11.10               | 10.86              | 0.23            |                 |                     |                    |                 |
| 18.50           | 11.20               | 10.96              | 0.21            |                 |                     |                    |                 |
| 19.00           | 11.29               | 11.05              | 0.20            |                 |                     |                    |                 |
| 19.50           | 11.38               | 11.14              | 0.19            |                 |                     |                    |                 |
| 20.00           | 11.47               | 11.23              | 0.19            |                 |                     |                    |                 |
| 20.50           | 11.55               | 11.31              | 0.18            |                 |                     |                    |                 |
| 21.00           | 11.63               | 11.39              | 0.17            |                 |                     |                    |                 |
| 21.50           | 11.71               | 11.47              | 0.17            |                 |                     |                    |                 |
| 22.00           | 11.79               | 11.55              | 0.16            |                 |                     |                    |                 |
| 22.50           | 11.86               | 11.62              | 0.15            |                 |                     |                    |                 |
| 23.00           | 11.93               | 11.69              | 0.15            |                 |                     |                    |                 |
| 23.50           | 11.99               | 11.75              | 0.14            |                 |                     |                    |                 |
| 24.00           | 12.06               | 11.82              | 0.13            |                 |                     |                    |                 |
| 24.50           | 12.06               | 11.82              | 0.02            |                 |                     |                    |                 |
| 25.00           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |



Summary for Pond 2P: GI-1

Inflow Area = 39,122 sf, 53.83% Impervious, Inflow Depth = 7.86" for 100-Year-2050 event  
Inflow = 7.92 cfs @ 12.09 hrs, Volume= 25,628 cf  
Outflow = 1.54 cfs @ 12.52 hrs, Volume= 23,530 cf, Atten= 81%, Lag= 25.6 min  
Primary = 1.54 cfs @ 12.52 hrs, Volume= 23,530 cf  
Routed to Link 13L : FES

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 132.53' @ 12.52 hrs Surf.Area= 7,982 sf Storage= 12,249 cf

Plug-Flow detention time= 231.4 min calculated for 23,530 cf (92% of inflow)  
Center-of-Mass det. time= 185.5 min ( 947.2 - 761.7 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 131.00' | 15,964 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

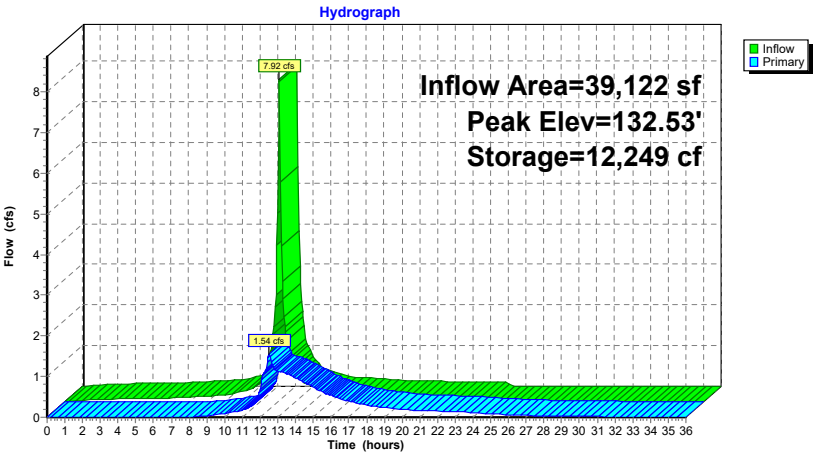
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 131.00           | 7,982             | 0                      | 0                      |
| 132.00           | 7,982             | 7,982                  | 7,982                  |
| 133.00           | 7,982             | 7,982                  | 15,964                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 132.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 131.24' | 0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

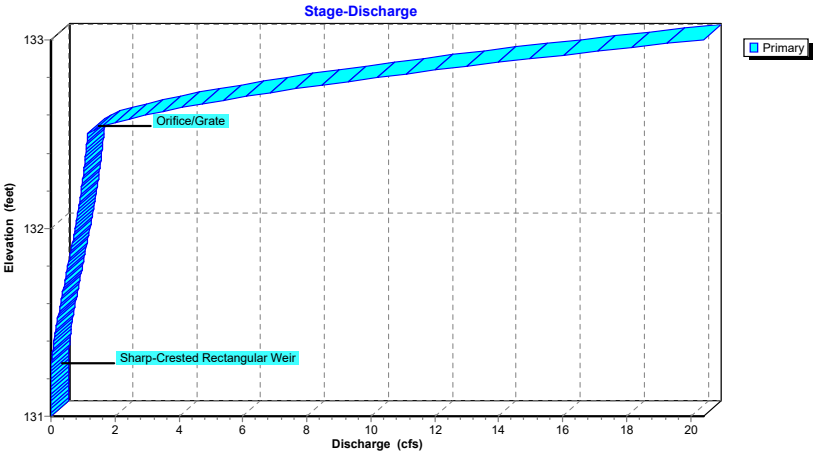
Primary OutFlow Max=1.53 cfs @ 12.52 hrs HW=132.53' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate (Weir Controls 0.33 cfs @ 0.60 fps)  
2=Sharp-Crested Rectangular Weir(Weir Controls 1.20 cfs @ 3.72 fps)



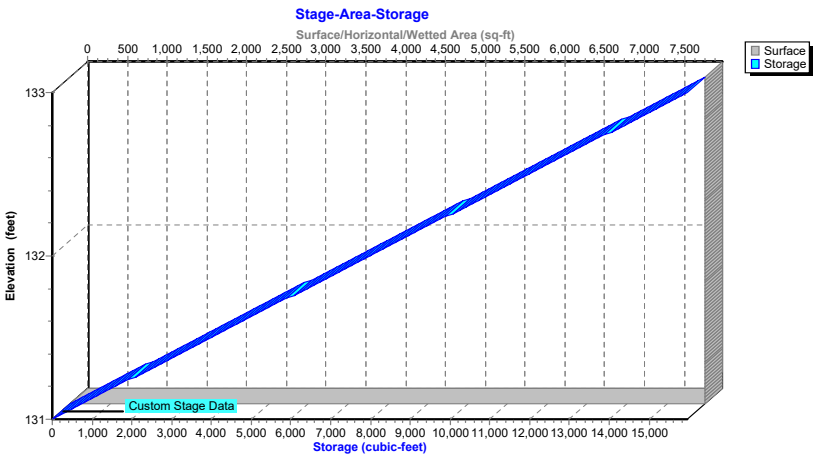
Pond 2P: GI-1



Pond 2P: GI-1



Pond 2P: GI-1



Hydrograph for Pond 2P: GI-1

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 131.00           | 0.00          |
| 1.00         | 0.03         | 44                   | 131.01           | 0.00          |
| 2.00         | 0.06         | 208                  | 131.03           | 0.00          |
| 3.00         | 0.07         | 431                  | 131.05           | 0.00          |
| 4.00         | 0.08         | 692                  | 131.09           | 0.00          |
| 5.00         | 0.08         | 982                  | 131.12           | 0.00          |
| 6.00         | 0.09         | 1,299                | 131.16           | 0.00          |
| 7.00         | 0.12         | 1,672                | 131.21           | 0.00          |
| 8.00         | 0.14         | 2,126                | 131.27           | 0.01          |
| 9.00         | 0.16         | 2,592                | 131.32           | 0.04          |
| 10.00        | 0.25         | 3,116                | 131.39           | 0.09          |
| 11.00        | 0.46         | 3,842                | 131.48           | 0.18          |
| 12.00        | 4.63         | 7,427                | 131.93           | 0.68          |
| 13.00        | 0.76         | 11,787               | 132.48           | 1.14          |
| 14.00        | 0.38         | 9,780                | 132.23           | 0.97          |
| 15.00        | 0.25         | 7,848                | 131.98           | 0.74          |
| 16.00        | 0.21         | 6,403                | 131.80           | 0.53          |
| 17.00        | 0.18         | 5,445                | 131.68           | 0.40          |
| 18.00        | 0.14         | 4,781                | 131.60           | 0.30          |
| 19.00        | 0.13         | 4,315                | 131.54           | 0.24          |
| 20.00        | 0.12         | 4,005                | 131.50           | 0.20          |
| 21.00        | 0.12         | 3,787                | 131.47           | 0.17          |
| 22.00        | 0.11         | 3,624                | 131.45           | 0.15          |
| 23.00        | 0.10         | 3,494                | 131.44           | 0.13          |
| 24.00        | 0.11         | 3,387                | 131.42           | 0.12          |
| 25.00        | 0.00         | 3,051                | 131.38           | 0.08          |
| 26.00        | 0.00         | 2,801                | 131.35           | 0.06          |
| 27.00        | 0.00         | 2,624                | 131.33           | 0.04          |
| 28.00        | 0.00         | 2,495                | 131.31           | 0.03          |
| 29.00        | 0.00         | 2,397                | 131.30           | 0.02          |
| 30.00        | 0.00         | 2,322                | 131.29           | 0.02          |
| 31.00        | 0.00         | 2,263                | 131.28           | 0.01          |
| 32.00        | 0.00         | 2,216                | 131.28           | 0.01          |
| 33.00        | 0.00         | 2,178                | 131.27           | 0.01          |
| 34.00        | 0.00         | 2,146                | 131.27           | 0.01          |
| 35.00        | 0.00         | 2,120                | 131.27           | 0.01          |
| 36.00        | 0.00         | 2,098                | 131.26           | 0.01          |

**2101ELK-STM Analysis POI-1 - PropNOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"**

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**Stage-Discharge for Pond 2P: GI-1**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 131.00              | 0.00             | 131.52              | 0.22             | 132.04              | 0.80             | 132.56              | 2.01             |
| 131.01              | 0.00             | 131.53              | 0.23             | 132.05              | 0.81             | 132.57              | 2.22             |
| 131.02              | 0.00             | 131.54              | 0.24             | 132.06              | 0.82             | 132.58              | 2.45             |
| 131.03              | 0.00             | 131.55              | 0.25             | 132.07              | 0.83             | 132.59              | 2.69             |
| 131.04              | 0.00             | 131.56              | 0.26             | 132.08              | 0.84             | 132.60              | 2.95             |
| 131.05              | 0.00             | 131.57              | 0.27             | 132.09              | 0.85             | 132.61              | 3.22             |
| 131.06              | 0.00             | 131.58              | 0.28             | 132.10              | 0.86             | 132.62              | 3.50             |
| 131.07              | 0.00             | 131.59              | 0.29             | 132.11              | 0.87             | 132.63              | 3.79             |
| 131.08              | 0.00             | 131.60              | 0.30             | 132.12              | 0.87             | 132.64              | 4.09             |
| 131.09              | 0.00             | 131.61              | 0.31             | 132.13              | 0.88             | 132.65              | 4.41             |
| 131.10              | 0.00             | 131.62              | 0.32             | 132.14              | 0.89             | 132.66              | 4.73             |
| 131.11              | 0.00             | 131.63              | 0.34             | 132.15              | 0.90             | 132.67              | 5.07             |
| 131.12              | 0.00             | 131.64              | 0.35             | 132.16              | 0.91             | 132.68              | 5.41             |
| 131.13              | 0.00             | 131.65              | 0.36             | 132.17              | 0.92             | 132.69              | 5.76             |
| 131.14              | 0.00             | 131.66              | 0.37             | 132.18              | 0.93             | 132.70              | 6.12             |
| 131.15              | 0.00             | 131.67              | 0.38             | 132.19              | 0.94             | 132.71              | 6.49             |
| 131.16              | 0.00             | 131.68              | 0.39             | 132.20              | 0.95             | 132.72              | 6.87             |
| 131.17              | 0.00             | 131.69              | 0.40             | 132.21              | 0.96             | 132.73              | 7.26             |
| 131.18              | 0.00             | 131.70              | 0.42             | 132.22              | 0.96             | 132.74              | 7.65             |
| 131.19              | 0.00             | 131.71              | 0.43             | 132.23              | 0.97             | 132.75              | 8.06             |
| 131.20              | 0.00             | 131.72              | 0.44             | 132.24              | 0.98             | 132.76              | 8.47             |
| 131.21              | 0.00             | 131.73              | 0.45             | 132.25              | 0.99             | 132.77              | 8.89             |
| 131.22              | 0.00             | 131.74              | 0.46             | 132.26              | 1.00             | 132.78              | 9.31             |
| 131.23              | 0.00             | 131.75              | 0.47             | 132.27              | 1.00             | 132.79              | 9.75             |
| 131.24              | 0.00             | 131.76              | 0.49             | 132.28              | 1.01             | 132.80              | 10.19            |
| 131.25              | 0.00             | 131.77              | 0.50             | 132.29              | 1.02             | 132.81              | 10.64            |
| 131.26              | 0.00             | 131.78              | 0.51             | 132.30              | 1.03             | 132.82              | 11.09            |
| 131.27              | 0.01             | 131.79              | 0.52             | 132.31              | 1.04             | 132.83              | 11.56            |
| 131.28              | 0.01             | 131.80              | 0.53             | 132.32              | 1.04             | 132.84              | 12.03            |
| 131.29              | 0.02             | 131.81              | 0.54             | 132.33              | 1.05             | 132.85              | 12.50            |
| 131.30              | 0.02             | 131.82              | 0.55             | 132.34              | 1.06             | 132.86              | 12.99            |
| 131.31              | 0.03             | 131.83              | 0.57             | 132.35              | 1.06             | 132.87              | 13.48            |
| 131.32              | 0.04             | 131.84              | 0.58             | 132.36              | 1.07             | 132.88              | 13.97            |
| 131.33              | 0.04             | 131.85              | 0.59             | 132.37              | 1.08             | 132.89              | 14.48            |
| 131.34              | 0.05             | 131.86              | 0.60             | 132.38              | 1.08             | 132.90              | 14.98            |
| 131.35              | 0.06             | 131.87              | 0.61             | 132.39              | 1.09             | 132.91              | 15.50            |
| 131.36              | 0.06             | 131.88              | 0.62             | 132.40              | 1.09             | 132.92              | 16.02            |
| 131.37              | 0.07             | 131.89              | 0.63             | 132.41              | 1.10             | 132.93              | 16.55            |
| 131.38              | 0.08             | 131.90              | 0.65             | 132.42              | 1.11             | 132.94              | 17.08            |
| 131.39              | 0.09             | 131.91              | 0.66             | 132.43              | 1.11             | 132.95              | 17.62            |
| 131.40              | 0.10             | 131.92              | 0.67             | 132.44              | 1.12             | 132.96              | 18.17            |
| 131.41              | 0.11             | 131.93              | 0.68             | 132.45              | 1.12             | 132.97              | 18.72            |
| 131.42              | 0.12             | 131.94              | 0.69             | 132.46              | 1.13             | 132.98              | 19.28            |
| 131.43              | 0.13             | 131.95              | 0.70             | 132.47              | 1.13             | 132.99              | 19.84            |
| 131.44              | 0.13             | 131.96              | 0.71             | 132.48              | 1.14             | 133.00              | <b>20.41</b>     |
| 131.45              | 0.14             | 131.97              | 0.72             | 132.49              | 1.14             |                     |                  |
| 131.46              | 0.15             | 131.98              | 0.73             | 132.50              | 1.16             |                     |                  |
| 131.47              | 0.16             | 131.99              | 0.74             | 132.51              | 1.22             |                     |                  |
| 131.48              | 0.17             | 132.00              | 0.75             | 132.52              | 1.33             |                     |                  |
| 131.49              | 0.18             | 132.01              | 0.76             | 132.53              | 1.47             |                     |                  |
| 131.50              | 0.19             | 132.02              | 0.77             | 132.54              | 1.63             |                     |                  |
| 131.51              | 0.20             | 132.03              | 0.79             | 132.55              | 1.81             |                     |                  |

**2101ELK-STM Analysis POI-1 - PropNOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"**

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 2P: GI-1**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 131.00              | <b>7,982</b>       | 0                       | 132.04              | 7,982              | 8,301                   |
| 131.02              | 7,982              | 160                     | 132.06              | 7,982              | 8,461                   |
| 131.04              | 7,982              | 319                     | 132.08              | 7,982              | 8,621                   |
| 131.06              | 7,982              | 479                     | 132.10              | 7,982              | 8,780                   |
| 131.08              | 7,982              | 639                     | 132.12              | 7,982              | 8,940                   |
| 131.10              | 7,982              | 798                     | 132.14              | 7,982              | 9,099                   |
| 131.12              | 7,982              | 958                     | 132.16              | 7,982              | 9,259                   |
| 131.14              | 7,982              | 1,117                   | 132.18              | 7,982              | 9,419                   |
| 131.16              | 7,982              | 1,277                   | 132.20              | 7,982              | 9,578                   |
| 131.18              | 7,982              | 1,437                   | 132.22              | 7,982              | 9,738                   |
| 131.20              | 7,982              | 1,596                   | 132.24              | 7,982              | 9,898                   |
| 131.22              | 7,982              | 1,756                   | 132.26              | 7,982              | 10,057                  |
| 131.24              | 7,982              | 1,916                   | 132.28              | 7,982              | 10,217                  |
| 131.26              | 7,982              | 2,075                   | 132.30              | 7,982              | 10,377                  |
| 131.28              | 7,982              | 2,235                   | 132.32              | 7,982              | 10,536                  |
| 131.30              | 7,982              | 2,395                   | 132.34              | 7,982              | 10,696                  |
| 131.32              | 7,982              | 2,554                   | 132.36              | 7,982              | 10,856                  |
| 131.34              | 7,982              | 2,714                   | 132.38              | 7,982              | 11,015                  |
| 131.36              | 7,982              | 2,874                   | 132.40              | 7,982              | 11,175                  |
| 131.38              | 7,982              | 3,033                   | 132.42              | 7,982              | 11,334                  |
| 131.40              | 7,982              | 3,193                   | 132.44              | 7,982              | 11,494                  |
| 131.42              | 7,982              | 3,352                   | 132.46              | 7,982              | 11,654                  |
| 131.44              | 7,982              | 3,512                   | 132.48              | 7,982              | 11,813                  |
| 131.46              | 7,982              | 3,672                   | 132.50              | 7,982              | 11,973                  |
| 131.48              | 7,982              | 3,831                   | 132.52              | 7,982              | 12,133                  |
| 131.50              | 7,982              | 3,991                   | 132.54              | 7,982              | 12,292                  |
| 131.52              | 7,982              | 4,151                   | 132.56              | 7,982              | 12,452                  |
| 131.54              | 7,982              | 4,310                   | 132.58              | 7,982              | 12,612                  |
| 131.56              | 7,982              | 4,470                   | 132.60              | 7,982              | 12,771                  |
| 131.58              | 7,982              | 4,630                   | 132.62              | 7,982              | 12,931                  |
| 131.60              | 7,982              | 4,789                   | 132.64              | 7,982              | 13,090                  |
| 131.62              | 7,982              | 4,949                   | 132.66              | 7,982              | 13,250                  |
| 131.64              | 7,982              | 5,108                   | 132.68              | 7,982              | 13,410                  |
| 131.66              | 7,982              | 5,268                   | 132.70              | 7,982              | 13,569                  |
| 131.68              | 7,982              | 5,428                   | 132.72              | 7,982              | 13,729                  |
| 131.70              | 7,982              | 5,587                   | 132.74              | 7,982              | 13,889                  |
| 131.72              | 7,982              | 5,747                   | 132.76              | 7,982              | 14,048                  |
| 131.74              | 7,982              | 5,907                   | 132.78              | 7,982              | 14,208                  |
| 131.76              | 7,982              | 6,066                   | 132.80              | 7,982              | 14,368                  |
| 131.78              | 7,982              | 6,226                   | 132.82              | 7,982              | 14,527                  |
| 131.80              | 7,982              | 6,386                   | 132.84              | 7,982              | 14,687                  |
| 131.82              | 7,982              | 6,545                   | 132.86              | 7,982              | 14,847                  |
| 131.84              | 7,982              | 6,705                   | 132.88              | 7,982              | 15,006                  |
| 131.86              | 7,982              | 6,865                   | 132.90              | 7,982              | 15,166                  |
| 131.88              | 7,982              | 7,024                   | 132.92              | 7,982              | 15,325                  |
| 131.90              | 7,982              | 7,184                   | 132.94              | 7,982              | 15,485                  |
| 131.92              | 7,982              | 7,343                   | 132.96              | 7,982              | 15,645                  |
| 131.94              | 7,982              | 7,503                   | 132.98              | 7,982              | 15,804                  |
| 131.96              | 7,982              | 7,663                   | 133.00              | 7,982              | <b>15,964</b>           |
| 131.98              | 7,982              | 7,822                   |                     |                    |                         |
| 132.00              | 7,982              | 7,982                   |                     |                    |                         |
| 132.02              | 7,982              | 8,142                   |                     |                    |                         |

Summary for Pond 7P: GI-9

Inflow Area = 59,364 sf, 72.99% Impervious, Inflow Depth = 10.45" for 100-Year-2050 event  
Inflow = 17.94 cfs @ 12.08 hrs, Volume= 51,719 cf  
Outflow = 2.98 cfs @ 12.49 hrs, Volume= 47,676 cf, Atten= 83%, Lag= 24.7 min  
Primary = 2.98 cfs @ 12.49 hrs, Volume= 47,676 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 130.78' @ 12.49 hrs Surf.Area= 9,141 sf Storage= 25,380 cf

Plug-Flow detention time= 229.0 min calculated for 47,676 cf (92% of inflow)  
Center-of-Mass det. time= 185.4 min ( 934.9 - 749.5 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 128.00' | 27,423 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

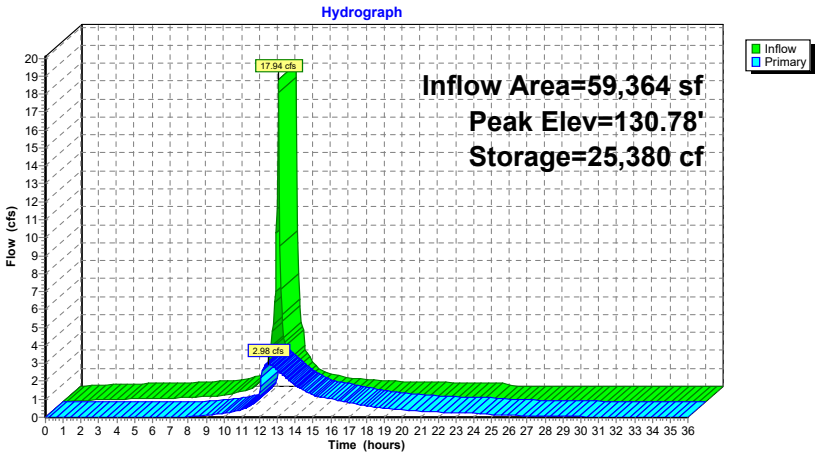
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 128.00           | 9,141             | 0                      | 0                      |
| 131.00           | 9,141             | 27,423                 | 27,423                 |

| Device | Routing | Invert  | Outlet Devices                                                |
|--------|---------|---------|---------------------------------------------------------------|
| #1     | Primary | 128.41' | 0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

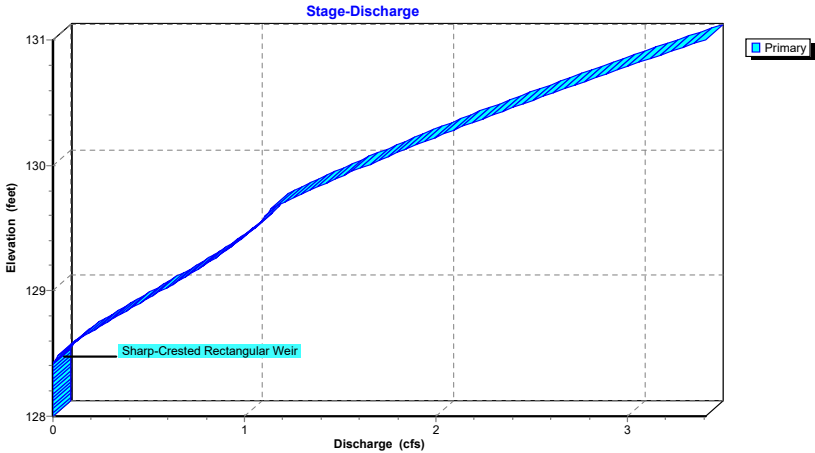
Primary OutFlow Max=2.98 cfs @ 12.49 hrs HW=130.78' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir(Weir Controls 2.98 cfs @ 5.03 fps)



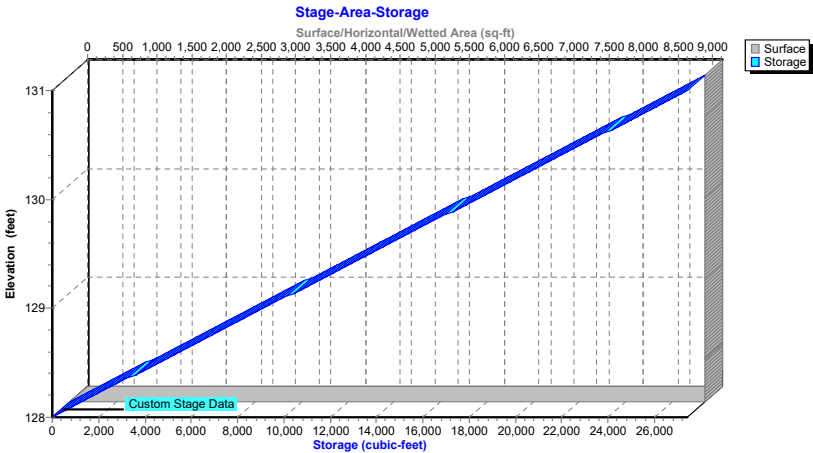
Pond 7P: GI-9



Pond 7P: GI-9



Pond 7P: GI-9



Hydrograph for Pond 7P: GI-9

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 128.00           | 0.00          |
| 1.00         | 0.07         | 93                   | 128.01           | 0.00          |
| 2.00         | 0.11         | 431                  | 128.05           | 0.00          |
| 3.00         | 0.14         | 890                  | 128.10           | 0.00          |
| 4.00         | 0.16         | 1,426                | 128.16           | 0.00          |
| 5.00         | 0.17         | 2,025                | 128.22           | 0.00          |
| 6.00         | 0.19         | 2,677                | 128.29           | 0.00          |
| 7.00         | 0.24         | 3,445                | 128.38           | 0.00          |
| 8.00         | 0.29         | 4,368                | 128.48           | 0.03          |
| 9.00         | 0.35         | 5,294                | 128.58           | 0.11          |
| 10.00        | 0.56         | 6,369                | 128.70           | 0.22          |
| 11.00        | 1.09         | 7,978                | 128.87           | 0.42          |
| 12.00        | 10.73        | 16,631               | 129.82           | 1.37          |
| 13.00        | 1.40         | 23,636               | 130.59           | 2.62          |
| 14.00        | 0.70         | 19,122               | 130.09           | 1.78          |
| 15.00        | 0.47         | 15,836               | 129.73           | 1.24          |
| 16.00        | 0.39         | 13,339               | 129.46           | 1.02          |
| 17.00        | 0.32         | 11,299               | 129.24           | 0.82          |
| 18.00        | 0.26         | 9,730                | 129.06           | 0.64          |
| 19.00        | 0.24         | 8,597                | 128.94           | 0.50          |
| 20.00        | 0.23         | 7,831                | 128.86           | 0.40          |
| 21.00        | 0.21         | 7,299                | 128.80           | 0.33          |
| 22.00        | 0.19         | 6,913                | 128.76           | 0.29          |
| 23.00        | 0.18         | 6,618                | 128.72           | 0.25          |
| 24.00        | 0.19         | 6,388                | 128.70           | 0.22          |
| 25.00        | 0.00         | 5,742                | 128.63           | 0.15          |
| 26.00        | 0.00         | 5,285                | 128.58           | 0.11          |
| 27.00        | 0.00         | 4,964                | 128.54           | 0.08          |
| 28.00        | 0.00         | 4,732                | 128.52           | 0.06          |
| 29.00        | 0.00         | 4,559                | 128.50           | 0.04          |
| 30.00        | 0.00         | 4,427                | 128.48           | 0.03          |
| 31.00        | 0.00         | 4,324                | 128.47           | 0.03          |
| 32.00        | 0.00         | 4,243                | 128.46           | 0.02          |
| 33.00        | 0.00         | 4,178                | 128.46           | 0.02          |
| 34.00        | 0.00         | 4,124                | 128.45           | 0.01          |
| 35.00        | 0.00         | 4,080                | 128.45           | 0.01          |
| 36.00        | 0.00         | 4,043                | 128.44           | 0.01          |

Stage-Discharge for Pond 7P: GI-9

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 128.00              | 0.00             | 129.04              | 0.61             | 130.08              | 1.76             |
| 128.02              | 0.00             | 129.06              | 0.63             | 130.10              | 1.80             |
| 128.04              | 0.00             | 129.08              | 0.66             | 130.12              | 1.83             |
| 128.06              | 0.00             | 129.10              | 0.68             | 130.14              | 1.86             |
| 128.08              | 0.00             | 129.12              | 0.70             | 130.16              | 1.89             |
| 128.10              | 0.00             | 129.14              | 0.72             | 130.18              | 1.93             |
| 128.12              | 0.00             | 129.16              | 0.74             | 130.20              | 1.96             |
| 128.14              | 0.00             | 129.18              | 0.76             | 130.22              | 1.99             |
| 128.16              | 0.00             | 129.20              | 0.79             | 130.24              | 2.02             |
| 128.18              | 0.00             | 129.22              | 0.81             | 130.26              | 2.06             |
| 128.20              | 0.00             | 129.24              | 0.83             | 130.28              | 2.09             |
| 128.22              | 0.00             | 129.26              | 0.85             | 130.30              | 2.12             |
| 128.24              | 0.00             | 129.28              | 0.87             | 130.32              | 2.16             |
| 128.26              | 0.00             | 129.30              | 0.88             | 130.34              | 2.19             |
| 128.28              | 0.00             | 129.32              | 0.90             | 130.36              | 2.23             |
| 128.30              | 0.00             | 129.34              | 0.92             | 130.38              | 2.26             |
| 128.32              | 0.00             | 129.36              | 0.94             | 130.40              | 2.29             |
| 128.34              | 0.00             | 129.38              | 0.96             | 130.42              | 2.33             |
| 128.36              | 0.00             | 129.40              | 0.97             | 130.44              | 2.36             |
| 128.38              | 0.00             | 129.42              | 0.99             | 130.46              | 2.40             |
| 128.40              | 0.00             | 129.44              | 1.00             | 130.48              | 2.43             |
| 128.42              | 0.00             | 129.46              | 1.02             | 130.50              | 2.47             |
| 128.44              | 0.01             | 129.48              | 1.04             | 130.52              | 2.51             |
| 128.46              | 0.02             | 129.50              | 1.05             | 130.54              | 2.54             |
| 128.48              | 0.03             | 129.52              | 1.06             | 130.56              | 2.58             |
| 128.50              | 0.04             | 129.54              | 1.08             | 130.58              | 2.61             |
| 128.52              | 0.06             | 129.56              | 1.09             | 130.60              | 2.65             |
| 128.54              | 0.07             | 129.58              | 1.10             | 130.62              | 2.69             |
| 128.56              | 0.09             | 129.60              | 1.11             | 130.64              | 2.72             |
| 128.58              | 0.11             | 129.62              | 1.12             | 130.66              | 2.76             |
| 128.60              | 0.13             | 129.64              | 1.13             | 130.68              | 2.80             |
| 128.62              | 0.14             | 129.66              | 1.14             | 130.70              | 2.83             |
| 128.64              | 0.16             | 129.68              | 1.17             | 130.72              | 2.87             |
| 128.66              | 0.18             | 129.70              | 1.20             | 130.74              | 2.91             |
| 128.68              | 0.20             | 129.72              | 1.23             | 130.76              | 2.95             |
| 128.70              | 0.23             | 129.74              | 1.25             | 130.78              | 2.98             |
| 128.72              | 0.25             | 129.76              | 1.28             | 130.80              | 3.02             |
| 128.74              | 0.27             | 129.78              | 1.31             | 130.82              | 3.06             |
| 128.76              | 0.29             | 129.80              | 1.34             | 130.84              | 3.10             |
| 128.78              | 0.31             | 129.82              | 1.37             | 130.86              | 3.13             |
| 128.80              | 0.34             | 129.84              | 1.40             | 130.88              | 3.17             |
| 128.82              | 0.36             | 129.86              | 1.43             | 130.90              | 3.21             |
| 128.84              | 0.38             | 129.88              | 1.46             | 130.92              | 3.25             |
| 128.86              | 0.40             | 129.90              | 1.49             | 130.94              | 3.29             |
| 128.88              | 0.43             | 129.92              | 1.52             | 130.96              | 3.33             |
| 128.90              | 0.45             | 129.94              | 1.55             | 130.98              | 3.37             |
| 128.92              | 0.47             | 129.96              | 1.58             | 131.00              | 3.41             |
| 128.94              | 0.50             | 129.98              | 1.61             |                     |                  |
| 128.96              | 0.52             | 130.00              | 1.64             |                     |                  |
| 128.98              | 0.54             | 130.02              | 1.67             |                     |                  |
| 129.00              | 0.57             | 130.04              | 1.70             |                     |                  |
| 129.02              | 0.59             | 130.06              | 1.73             |                     |                  |

Stage-Area-Storage for Pond 7P: GI-9

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 128.00              | 9,141              | 0                       | 130.60              | 9,141              | 23,767                  |
| 128.05              | 9,141              | 457                     | 130.65              | 9,141              | 24,224                  |
| 128.10              | 9,141              | 914                     | 130.70              | 9,141              | 24,681                  |
| 128.15              | 9,141              | 1,371                   | 130.75              | 9,141              | 25,138                  |
| 128.20              | 9,141              | 1,828                   | 130.80              | 9,141              | 25,595                  |
| 128.25              | 9,141              | 2,285                   | 130.85              | 9,141              | 26,052                  |
| 128.30              | 9,141              | 2,742                   | 130.90              | 9,141              | 26,509                  |
| 128.35              | 9,141              | 3,199                   | 130.95              | 9,141              | 26,966                  |
| 128.40              | 9,141              | 3,656                   | 131.00              | 9,141              | 27,423                  |
| 128.45              | 9,141              | 4,113                   |                     |                    |                         |
| 128.50              | 9,141              | 4,571                   |                     |                    |                         |
| 128.55              | 9,141              | 5,028                   |                     |                    |                         |
| 128.60              | 9,141              | 5,485                   |                     |                    |                         |
| 128.65              | 9,141              | 5,942                   |                     |                    |                         |
| 128.70              | 9,141              | 6,399                   |                     |                    |                         |
| 128.75              | 9,141              | 6,856                   |                     |                    |                         |
| 128.80              | 9,141              | 7,313                   |                     |                    |                         |
| 128.85              | 9,141              | 7,770                   |                     |                    |                         |
| 128.90              | 9,141              | 8,227                   |                     |                    |                         |
| 128.95              | 9,141              | 8,684                   |                     |                    |                         |
| 129.00              | 9,141              | 9,141                   |                     |                    |                         |
| 129.05              | 9,141              | 9,598                   |                     |                    |                         |
| 129.10              | 9,141              | 10,055                  |                     |                    |                         |
| 129.15              | 9,141              | 10,512                  |                     |                    |                         |
| 129.20              | 9,141              | 10,969                  |                     |                    |                         |
| 129.25              | 9,141              | 11,426                  |                     |                    |                         |
| 129.30              | 9,141              | 11,883                  |                     |                    |                         |
| 129.35              | 9,141              | 12,340                  |                     |                    |                         |
| 129.40              | 9,141              | 12,797                  |                     |                    |                         |
| 129.45              | 9,141              | 13,254                  |                     |                    |                         |
| 129.50              | 9,141              | 13,712                  |                     |                    |                         |
| 129.55              | 9,141              | 14,169                  |                     |                    |                         |
| 129.60              | 9,141              | 14,626                  |                     |                    |                         |
| 129.65              | 9,141              | 15,083                  |                     |                    |                         |
| 129.70              | 9,141              | 15,540                  |                     |                    |                         |
| 129.75              | 9,141              | 15,997                  |                     |                    |                         |
| 129.80              | 9,141              | 16,454                  |                     |                    |                         |
| 129.85              | 9,141              | 16,911                  |                     |                    |                         |
| 129.90              | 9,141              | 17,368                  |                     |                    |                         |
| 129.95              | 9,141              | 17,825                  |                     |                    |                         |
| 130.00              | 9,141              | 18,282                  |                     |                    |                         |
| 130.05              | 9,141              | 18,739                  |                     |                    |                         |
| 130.10              | 9,141              | 19,196                  |                     |                    |                         |
| 130.15              | 9,141              | 19,653                  |                     |                    |                         |
| 130.20              | 9,141              | 20,110                  |                     |                    |                         |
| 130.25              | 9,141              | 20,567                  |                     |                    |                         |
| 130.30              | 9,141              | 21,024                  |                     |                    |                         |
| 130.35              | 9,141              | 21,481                  |                     |                    |                         |
| 130.40              | 9,141              | 21,938                  |                     |                    |                         |
| 130.45              | 9,141              | 22,395                  |                     |                    |                         |
| 130.50              | 9,141              | 22,853                  |                     |                    |                         |
| 130.55              | 9,141              | 23,310                  |                     |                    |                         |

Summary for Pond 14P: GI-2

Inflow Area = 26,583 sf, 49.36% Impervious, Inflow Depth = 7.48" for 100-Year-2050 event  
Inflow = 5.61 cfs @ 12.08 hrs, Volume= 16,565 cf  
Outflow = 1.11 cfs @ 12.42 hrs, Volume= 15,261 cf, Atten= 80%, Lag= 20.5 min  
Primary = 1.11 cfs @ 12.42 hrs, Volume= 15,261 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.02' @ 12.42 hrs Surf.Area= 7,126 sf Storage= 7,287 cf

Plug-Flow detention time= 199.3 min calculated for 15,240 cf (92% of inflow)  
Center-of-Mass det. time= 156.0 min ( 920.5 - 764.5 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 14,252 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

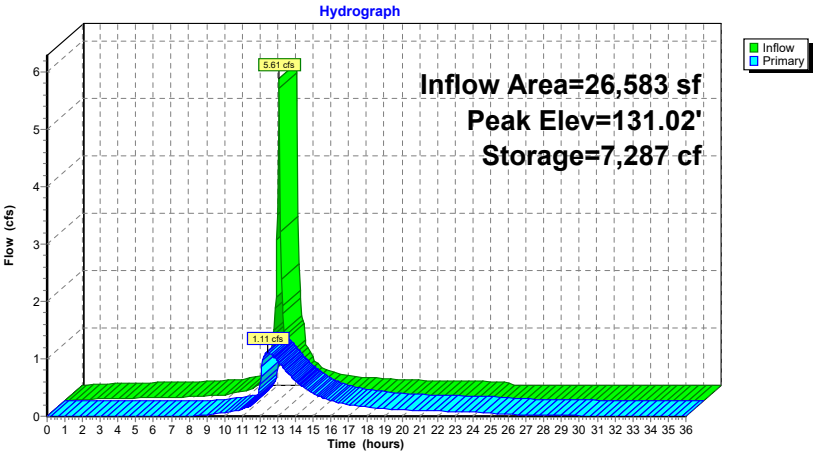
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 7,126             | 0                      | 0                      |
| 131.00           | 7,126             | 7,126                  | 7,126                  |
| 132.00           | 7,126             | 7,126                  | 14,252                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 130.17' | 0.6' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |
| #2     | Primary | 131.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |

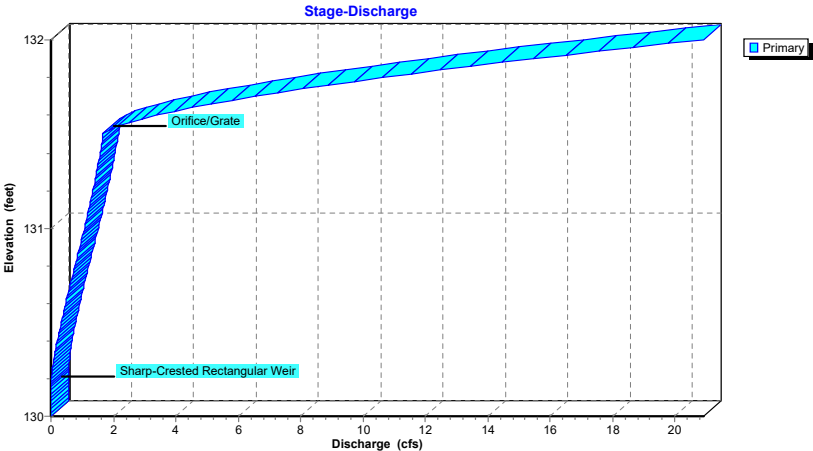
Primary OutFlow Max=1.11 cfs @ 12.42 hrs HW=131.02' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir (Weir Controls 1.11 cfs @ 3.02 fps)  
2=Orifice/Grate ( Controls 0.00 cfs)



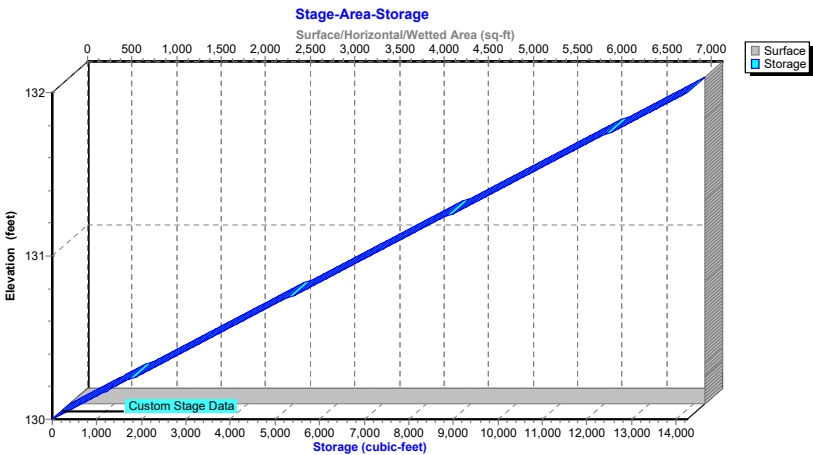
Pond 14P: GI-2



Pond 14P: GI-2



Pond 14P: GI-2



Hydrograph for Pond 14P: GI-2

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.02         | 28                   | 130.00           | 0.00          |
| 2.00         | 0.03         | 131                  | 130.02           | 0.00          |
| 3.00         | 0.04         | 270                  | 130.04           | 0.00          |
| 4.00         | 0.05         | 433                  | 130.06           | 0.00          |
| 5.00         | 0.05         | 614                  | 130.09           | 0.00          |
| 6.00         | 0.06         | 812                  | 130.11           | 0.00          |
| 7.00         | 0.07         | 1,045                | 130.15           | 0.00          |
| 8.00         | 0.09         | 1,329                | 130.19           | 0.00          |
| 9.00         | 0.10         | 1,617                | 130.23           | 0.03          |
| 10.00        | 0.16         | 1,933                | 130.27           | 0.06          |
| 11.00        | 0.29         | 2,364                | 130.33           | 0.12          |
| 12.00        | 3.25         | 4,708                | 130.66           | 0.56          |
| 13.00        | 0.49         | 6,568                | 130.92           | 0.96          |
| 14.00        | 0.25         | 4,943                | 130.69           | 0.61          |
| 15.00        | 0.17         | 3,901                | 130.55           | 0.40          |
| 16.00        | 0.14         | 3,258                | 130.46           | 0.27          |
| 17.00        | 0.12         | 2,872                | 130.40           | 0.20          |
| 18.00        | 0.10         | 2,606                | 130.37           | 0.16          |
| 19.00        | 0.09         | 2,419                | 130.34           | 0.13          |
| 20.00        | 0.08         | 2,297                | 130.32           | 0.11          |
| 21.00        | 0.08         | 2,210                | 130.31           | 0.10          |
| 22.00        | 0.07         | 2,142                | 130.30           | 0.09          |
| 23.00        | 0.07         | 2,085                | 130.29           | 0.08          |
| 24.00        | 0.07         | 2,037                | 130.29           | 0.07          |
| 25.00        | 0.00         | 1,829                | 130.26           | 0.05          |
| 26.00        | 0.00         | 1,685                | 130.24           | 0.03          |
| 27.00        | 0.00         | 1,585                | 130.22           | 0.02          |
| 28.00        | 0.00         | 1,514                | 130.21           | 0.02          |
| 29.00        | 0.00         | 1,461                | 130.21           | 0.01          |
| 30.00        | 0.00         | 1,421                | 130.20           | 0.01          |
| 31.00        | 0.00         | 1,390                | 130.19           | 0.01          |
| 32.00        | 0.00         | 1,365                | 130.19           | 0.01          |
| 33.00        | 0.00         | 1,345                | 130.19           | 0.00          |
| 34.00        | 0.00         | 1,328                | 130.19           | 0.00          |
| 35.00        | 0.00         | 1,315                | 130.18           | 0.00          |
| 36.00        | 0.00         | 1,304                | 130.18           | 0.00          |



**2101ELK-STM Analysis POI-1 - PropNOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"**

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 14P: GI-2**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.36             | 131.04              | 1.13             | 131.56              | 2.49             |
| 130.01              | 0.00             | 130.53              | 0.37             | 131.05              | 1.14             | 131.57              | 2.70             |
| 130.02              | 0.00             | 130.54              | 0.39             | 131.06              | 1.16             | 131.58              | 2.92             |
| 130.03              | 0.00             | 130.55              | 0.40             | 131.07              | 1.17             | 131.59              | 3.16             |
| 130.04              | 0.00             | 130.56              | 0.42             | 131.08              | 1.19             | 131.60              | 3.41             |
| 130.05              | 0.00             | 130.57              | 0.43             | 131.09              | 1.20             | 131.61              | 3.67             |
| 130.06              | 0.00             | 130.58              | 0.44             | 131.10              | 1.21             | 131.62              | 3.94             |
| 130.07              | 0.00             | 130.59              | 0.46             | 131.11              | 1.23             | 131.63              | 4.23             |
| 130.08              | 0.00             | 130.60              | 0.47             | 131.12              | 1.24             | 131.64              | 4.52             |
| 130.09              | 0.00             | 130.61              | 0.49             | 131.13              | 1.25             | 131.65              | 4.83             |
| 130.10              | 0.00             | 130.62              | 0.50             | 131.14              | 1.27             | 131.66              | 5.14             |
| 130.11              | 0.00             | 130.63              | 0.52             | 131.15              | 1.28             | 131.67              | 5.47             |
| 130.12              | 0.00             | 130.64              | 0.53             | 131.16              | 1.29             | 131.68              | 5.82             |
| 130.13              | 0.00             | 130.65              | 0.55             | 131.17              | 1.31             | 131.69              | 6.17             |
| 130.14              | 0.00             | 130.66              | 0.56             | 131.18              | 1.32             | 131.70              | 6.54             |
| 130.15              | 0.00             | 130.67              | 0.58             | 131.19              | 1.33             | 131.71              | 6.91             |
| 130.16              | 0.00             | 130.68              | 0.59             | 131.20              | 1.35             | 131.72              | 7.29             |
| 130.17              | 0.00             | 130.69              | 0.61             | 131.21              | 1.36             | 131.73              | 7.68             |
| 130.18              | 0.00             | 130.70              | 0.62             | 131.22              | 1.37             | 131.74              | 8.08             |
| 130.19              | 0.01             | 130.71              | 0.64             | 131.23              | 1.38             | 131.75              | 8.49             |
| 130.20              | 0.01             | 130.72              | 0.65             | 131.24              | 1.40             | 131.76              | 8.90             |
| 130.21              | 0.02             | 130.73              | 0.67             | 131.25              | 1.41             | 131.77              | 9.33             |
| 130.22              | 0.02             | 130.74              | 0.68             | 131.26              | 1.42             | 131.78              | 9.76             |
| 130.23              | 0.03             | 130.75              | 0.70             | 131.27              | 1.43             | 131.79              | 10.19            |
| 130.24              | 0.04             | 130.76              | 0.71             | 131.28              | 1.45             | 131.80              | 10.64            |
| 130.25              | 0.04             | 130.77              | 0.73             | 131.29              | 1.46             | 131.81              | 11.09            |
| 130.26              | 0.05             | 130.78              | 0.74             | 131.30              | 1.47             | 131.82              | 11.55            |
| 130.27              | 0.06             | 130.79              | 0.76             | 131.31              | 1.48             | 131.83              | 12.02            |
| 130.28              | 0.07             | 130.80              | 0.78             | 131.32              | 1.49             | 131.84              | 12.49            |
| 130.29              | 0.08             | 130.81              | 0.79             | 131.33              | 1.50             | 131.85              | 12.97            |
| 130.30              | 0.09             | 130.82              | 0.81             | 131.34              | 1.51             | 131.86              | 13.46            |
| 130.31              | 0.10             | 130.83              | 0.82             | 131.35              | 1.53             | 131.87              | 13.95            |
| 130.32              | 0.11             | 130.84              | 0.84             | 131.36              | 1.54             | 131.88              | 14.45            |
| 130.33              | 0.12             | 130.85              | 0.85             | 131.37              | 1.55             | 131.89              | 14.96            |
| 130.34              | 0.13             | 130.86              | 0.87             | 131.38              | 1.56             | 131.90              | 15.47            |
| 130.35              | 0.14             | 130.87              | 0.88             | 131.39              | 1.57             | 131.91              | 15.99            |
| 130.36              | 0.15             | 130.88              | 0.90             | 131.40              | 1.58             | 131.92              | 16.51            |
| 130.37              | 0.16             | 130.89              | 0.91             | 131.41              | 1.59             | 131.93              | 17.04            |
| 130.38              | 0.18             | 130.90              | 0.93             | 131.42              | 1.60             | 131.94              | 17.58            |
| 130.39              | 0.19             | 130.91              | 0.94             | 131.43              | 1.61             | 131.95              | 18.12            |
| 130.40              | 0.20             | 130.92              | 0.96             | 131.44              | 1.62             | 131.96              | 18.67            |
| 130.41              | 0.21             | 130.93              | 0.97             | 131.45              | 1.63             | 131.97              | 19.23            |
| 130.42              | 0.22             | 130.94              | 0.99             | 131.46              | 1.64             | 131.98              | 19.79            |
| 130.43              | 0.24             | 130.95              | 1.00             | 131.47              | 1.65             | 131.99              | 20.35            |
| 130.44              | 0.25             | 130.96              | 1.01             | 131.48              | 1.66             | 132.00              | <b>20.93</b>     |
| 130.45              | 0.26             | 130.97              | 1.03             | 131.49              | 1.67             |                     |                  |
| 130.46              | 0.28             | 130.98              | 1.04             | 131.50              | 1.68             |                     |                  |
| 130.47              | 0.29             | 130.99              | 1.06             | 131.51              | 1.74             |                     |                  |
| 130.48              | 0.30             | 131.00              | 1.07             | 131.52              | 1.84             |                     |                  |
| 130.49              | 0.32             | 131.01              | 1.09             | 131.53              | 1.97             |                     |                  |
| 130.50              | 0.33             | 131.02              | 1.10             | 131.54              | 2.13             |                     |                  |
| 130.51              | 0.34             | 131.03              | 1.12             | 131.55              | 2.30             |                     |                  |

**2101ELK-STM Analysis POI-1 - PropNOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"**

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**Stage-Area-Storage for Pond 14P: GI-2**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | <b>7,126</b>       | 0                       | 131.04              | 7,126              | 7,411                   |
| 130.02              | 7,126              | 143                     | 131.06              | 7,126              | 7,554                   |
| 130.04              | 7,126              | 285                     | 131.08              | 7,126              | 7,696                   |
| 130.06              | 7,126              | 428                     | 131.10              | 7,126              | 7,839                   |
| 130.08              | 7,126              | 570                     | 131.12              | 7,126              | 7,981                   |
| 130.10              | 7,126              | 713                     | 131.14              | 7,126              | 8,124                   |
| 130.12              | 7,126              | 855                     | 131.16              | 7,126              | 8,266                   |
| 130.14              | 7,126              | 998                     | 131.18              | 7,126              | 8,409                   |
| 130.16              | 7,126              | 1,140                   | 131.20              | 7,126              | 8,551                   |
| 130.18              | 7,126              | 1,283                   | 131.22              | 7,126              | 8,694                   |
| 130.20              | 7,126              | 1,425                   | 131.24              | 7,126              | 8,836                   |
| 130.22              | 7,126              | 1,568                   | 131.26              | 7,126              | 8,979                   |
| 130.24              | 7,126              | 1,710                   | 131.28              | 7,126              | 9,121                   |
| 130.26              | 7,126              | 1,853                   | 131.30              | 7,126              | 9,264                   |
| 130.28              | 7,126              | 1,995                   | 131.32              | 7,126              | 9,406                   |
| 130.30              | 7,126              | 2,138                   | 131.34              | 7,126              | 9,549                   |
| 130.32              | 7,126              | 2,280                   | 131.36              | 7,126              | 9,691                   |
| 130.34              | 7,126              | 2,423                   | 131.38              | 7,126              | 9,834                   |
| 130.36              | 7,126              | 2,565                   | 131.40              | 7,126              | 9,976                   |
| 130.38              | 7,126              | 2,708                   | 131.42              | 7,126              | 10,119                  |
| 130.40              | 7,126              | 2,850                   | 131.44              | 7,126              | 10,261                  |
| 130.42              | 7,126              | 2,993                   | 131.46              | 7,126              | 10,404                  |
| 130.44              | 7,126              | 3,135                   | 131.48              | 7,126              | 10,546                  |
| 130.46              | 7,126              | 3,278                   | 131.50              | 7,126              | 10,689                  |
| 130.48              | 7,126              | 3,420                   | 131.52              | 7,126              | 10,832                  |
| 130.50              | 7,126              | 3,563                   | 131.54              | 7,126              | 10,974                  |
| 130.52              | 7,126              | 3,706                   | 131.56              | 7,126              | 11,117                  |
| 130.54              | 7,126              | 3,848                   | 131.58              | 7,126              | 11,259                  |
| 130.56              | 7,126              | 3,991                   | 131.60              | 7,126              | 11,402                  |
| 130.58              | 7,126              | 4,133                   | 131.62              | 7,126              | 11,544                  |
| 130.60              | 7,126              | 4,276                   | 131.64              | 7,126              | 11,687                  |
| 130.62              | 7,126              | 4,418                   | 131.66              | 7,126              | 11,829                  |
| 130.64              | 7,126              | 4,561                   | 131.68              | 7,126              | 11,972                  |
| 130.66              | 7,126              | 4,703                   | 131.70              | 7,126              | 12,114                  |
| 130.68              | 7,126              | 4,846                   | 131.72              | 7,126              | 12,257                  |
| 130.70              | 7,126              | 4,988                   | 131.74              | 7,126              | 12,399                  |
| 130.72              | 7,126              | 5,131                   | 131.76              | 7,126              | 12,542                  |
| 130.74              | 7,126              | 5,273                   | 131.78              | 7,126              | 12,684                  |
| 130.76              | 7,126              | 5,416                   | 131.80              | 7,126              | 12,827                  |
| 130.78              | 7,126              | 5,558                   | 131.82              | 7,126              | 12,969                  |
| 130.80              | 7,126              | 5,701                   | 131.84              | 7,126              | 13,112                  |
| 130.82              | 7,126              | 5,843                   | 131.86              | 7,126              | 13,254                  |
| 130.84              | 7,126              | 5,986                   | 131.88              | 7,126              | 13,397                  |
| 130.86              | 7,126              | 6,128                   | 131.90              | 7,126              | 13,539                  |
| 130.88              | 7,126              | 6,271                   | 131.92              | 7,126              | 13,682                  |
| 130.90              | 7,126              | 6,413                   | 131.94              | 7,126              | 13,824                  |
| 130.92              | 7,126              | 6,556                   | 131.96              | 7,126              | 13,967                  |
| 130.94              | 7,126              | 6,698                   | 131.98              | 7,126              | 14,109                  |
| 130.96              | 7,126              | 6,841                   | 132.00              | 7,126              | <b>14,252</b>           |
| 130.98              | 7,126              | 6,983                   |                     |                    |                         |
| 131.00              | 7,126              | 7,126                   |                     |                    |                         |
| 131.02              | 7,126              | 7,269                   |                     |                    |                         |

Summary for Pond 28P: GI-3

Inflow Area = 84,149 sf, 72.01% Impervious, Inflow Depth = 10.14" for 100-Year-2050 event  
Inflow = 21.85 cfs @ 12.10 hrs, Volume= 71,141 cf  
Outflow = 18.45 cfs @ 12.14 hrs, Volume= 59,538 cf, Atten= 16%, Lag= 2.7 min  
Primary = 18.45 cfs @ 12.14 hrs, Volume= 59,538 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.97' @ 12.14 hrs Surf.Area= 11,000 sf Storage= 21,683 cf

Plug-Flow detention time= 200.4 min calculated for 59,538 cf (84% of inflow)  
Center-of-Mass det. time= 126.9 min ( 879.1 - 752.1 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 22,000 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

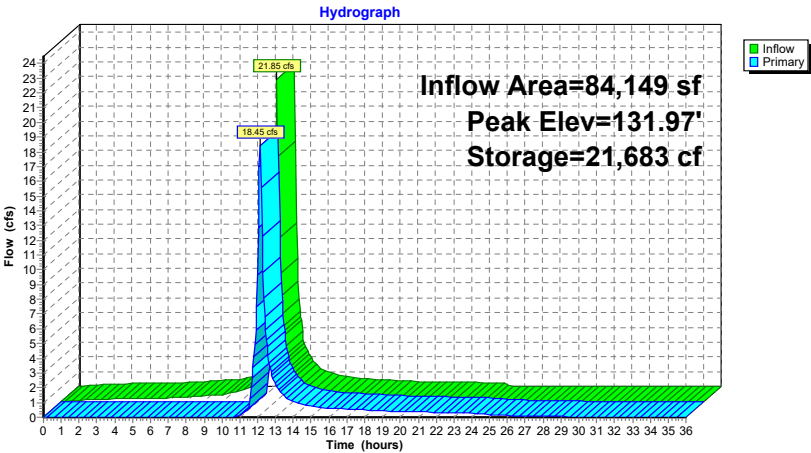
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 11,000            | 0                      | 0                      |
| 131.00           | 11,000            | 11,000                 | 11,000                 |
| 132.00           | 11,000            | 11,000                 | 22,000                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 131.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 131.03' | 0.7' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

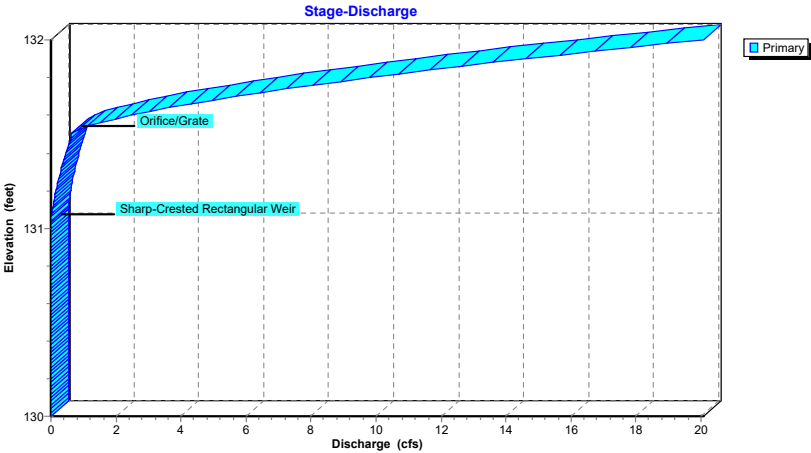
Primary OutFlow Max=18.15 cfs @ 12.14 hrs HW=131.97' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate (Weir Controls 16.64 cfs @ 2.23 fps)  
2=Sharp-Crested Rectangular Weir (Weir Controls 1.52 cfs @ 3.16 fps)



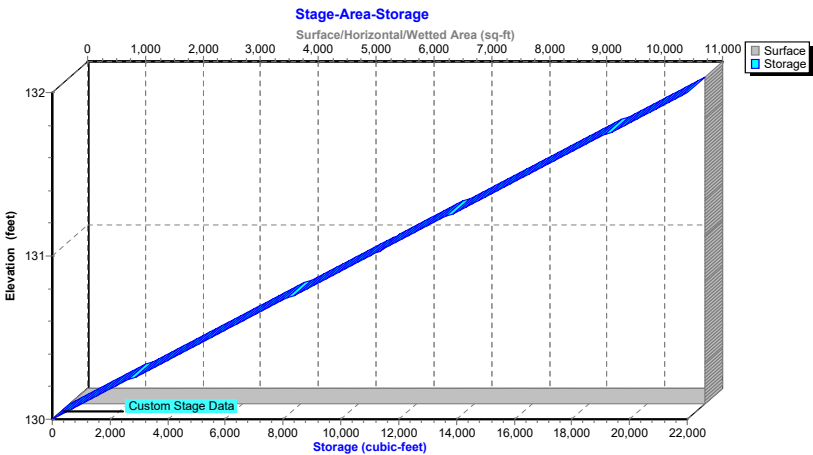
Pond 28P: GI-3



Pond 28P: GI-3



Pond 28P: GI-3



Hydrograph for Pond 28P: GI-3

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.09         | 124                  | 130.01           | 0.00          |
| 2.00         | 0.16         | 593                  | 130.05           | 0.00          |
| 3.00         | 0.19         | 1,232                | 130.11           | 0.00          |
| 4.00         | 0.22         | 1,981                | 130.18           | 0.00          |
| 5.00         | 0.24         | 2,817                | 130.26           | 0.00          |
| 6.00         | 0.26         | 3,728                | 130.34           | 0.00          |
| 7.00         | 0.33         | 4,798                | 130.44           | 0.00          |
| 8.00         | 0.40         | 6,114                | 130.56           | 0.00          |
| 9.00         | 0.47         | 7,679                | 130.70           | 0.00          |
| 10.00        | 0.75         | 9,874                | 130.90           | 0.00          |
| 11.00        | 1.44         | 13,344               | 131.21           | 0.17          |
| 12.00        | 13.04        | 19,769               | 131.80           | 9.68          |
| 13.00        | 2.01         | 17,521               | 131.59           | 2.29          |
| 14.00        | 0.98         | 16,890               | 131.54           | 1.05          |
| 15.00        | 0.66         | 16,639               | 131.51           | 0.74          |
| 16.00        | 0.54         | 16,386               | 131.49           | 0.62          |
| 17.00        | 0.45         | 16,040               | 131.46           | 0.56          |
| 18.00        | 0.37         | 15,610               | 131.42           | 0.49          |
| 19.00        | 0.34         | 15,206               | 131.38           | 0.43          |
| 20.00        | 0.31         | 14,913               | 131.36           | 0.39          |
| 21.00        | 0.29         | 14,682               | 131.33           | 0.35          |
| 22.00        | 0.27         | 14,486               | 131.32           | 0.32          |
| 23.00        | 0.25         | 14,308               | 131.30           | 0.30          |
| 24.00        | 0.27         | 14,147               | 131.29           | 0.27          |
| 25.00        | 0.00         | 13,409               | 131.22           | 0.18          |
| 26.00        | 0.00         | 12,888               | 131.17           | 0.12          |
| 27.00        | 0.00         | 12,537               | 131.14           | 0.08          |
| 28.00        | 0.00         | 12,291               | 131.12           | 0.06          |
| 29.00        | 0.00         | 12,113               | 131.10           | 0.04          |
| 30.00        | 0.00         | 11,979               | 131.09           | 0.03          |
| 31.00        | 0.00         | 11,877               | 131.08           | 0.03          |
| 32.00        | 0.00         | 11,797               | 131.07           | 0.02          |
| 33.00        | 0.00         | 11,733               | 131.07           | 0.02          |
| 34.00        | 0.00         | 11,681               | 131.06           | 0.01          |
| 35.00        | 0.00         | 11,639               | 131.06           | 0.01          |
| 36.00        | 0.00         | 11,604               | 131.05           | 0.01          |

**2101ELK-STM Analysis POI-1 - PropNOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"**

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**Stage-Discharge for Pond 28P: GI-3**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.00             | 131.04              | 0.00             | 131.56              | 1.52             |
| 130.01              | 0.00             | 130.53              | 0.00             | 131.05              | 0.01             | 131.57              | 1.74             |
| 130.02              | 0.00             | 130.54              | 0.00             | 131.06              | 0.01             | 131.58              | 1.97             |
| 130.03              | 0.00             | 130.55              | 0.00             | 131.07              | 0.02             | 131.59              | 2.22             |
| 130.04              | 0.00             | 130.56              | 0.00             | 131.08              | 0.03             | 131.60              | 2.48             |
| 130.05              | 0.00             | 130.57              | 0.00             | 131.09              | 0.03             | 131.61              | 2.75             |
| 130.06              | 0.00             | 130.58              | 0.00             | 131.10              | 0.04             | 131.62              | 3.04             |
| 130.07              | 0.00             | 130.59              | 0.00             | 131.11              | 0.05             | 131.63              | 3.33             |
| 130.08              | 0.00             | 130.60              | 0.00             | 131.12              | 0.06             | 131.64              | 3.64             |
| 130.09              | 0.00             | 130.61              | 0.00             | 131.13              | 0.07             | 131.65              | 3.96             |
| 130.10              | 0.00             | 130.62              | 0.00             | 131.14              | 0.08             | 131.66              | 4.29             |
| 130.11              | 0.00             | 130.63              | 0.00             | 131.15              | 0.09             | 131.67              | 4.62             |
| 130.12              | 0.00             | 130.64              | 0.00             | 131.16              | 0.10             | 131.68              | 4.97             |
| 130.13              | 0.00             | 130.65              | 0.00             | 131.17              | 0.12             | 131.69              | 5.33             |
| 130.14              | 0.00             | 130.66              | 0.00             | 131.18              | 0.13             | 131.70              | 5.69             |
| 130.15              | 0.00             | 130.67              | 0.00             | 131.19              | 0.14             | 131.71              | 6.07             |
| 130.16              | 0.00             | 130.68              | 0.00             | 131.20              | 0.15             | 131.72              | 6.45             |
| 130.17              | 0.00             | 130.69              | 0.00             | 131.21              | 0.17             | 131.73              | 6.84             |
| 130.18              | 0.00             | 130.70              | 0.00             | 131.22              | 0.18             | 131.74              | 7.24             |
| 130.19              | 0.00             | 130.71              | 0.00             | 131.23              | 0.19             | 131.75              | 7.65             |
| 130.20              | 0.00             | 130.72              | 0.00             | 131.24              | 0.21             | 131.76              | 8.07             |
| 130.21              | 0.00             | 130.73              | 0.00             | 131.25              | 0.22             | 131.77              | 8.49             |
| 130.22              | 0.00             | 130.74              | 0.00             | 131.26              | 0.24             | 131.78              | 8.92             |
| 130.23              | 0.00             | 130.75              | 0.00             | 131.27              | 0.25             | 131.79              | 9.36             |
| 130.24              | 0.00             | 130.76              | 0.00             | 131.28              | 0.27             | 131.80              | 9.80             |
| 130.25              | 0.00             | 130.77              | 0.00             | 131.29              | 0.28             | 131.81              | 10.26            |
| 130.26              | 0.00             | 130.78              | 0.00             | 131.30              | 0.30             | 131.82              | 10.72            |
| 130.27              | 0.00             | 130.79              | 0.00             | 131.31              | 0.31             | 131.83              | 11.18            |
| 130.28              | 0.00             | 130.80              | 0.00             | 131.32              | 0.33             | 131.84              | 11.66            |
| 130.29              | 0.00             | 130.81              | 0.00             | 131.33              | 0.34             | 131.85              | 12.13            |
| 130.30              | 0.00             | 130.82              | 0.00             | 131.34              | 0.36             | 131.86              | 12.62            |
| 130.31              | 0.00             | 130.83              | 0.00             | 131.35              | 0.38             | 131.87              | 13.11            |
| 130.32              | 0.00             | 130.84              | 0.00             | 131.36              | 0.39             | 131.88              | 13.61            |
| 130.33              | 0.00             | 130.85              | 0.00             | 131.37              | 0.41             | 131.89              | 14.12            |
| 130.34              | 0.00             | 130.86              | 0.00             | 131.38              | 0.43             | 131.90              | 14.63            |
| 130.35              | 0.00             | 130.87              | 0.00             | 131.39              | 0.44             | 131.91              | 15.15            |
| 130.36              | 0.00             | 130.88              | 0.00             | 131.40              | 0.46             | 131.92              | 15.67            |
| 130.37              | 0.00             | 130.89              | 0.00             | 131.41              | 0.48             | 131.93              | 16.20            |
| 130.38              | 0.00             | 130.90              | 0.00             | 131.42              | 0.50             | 131.94              | 16.74            |
| 130.39              | 0.00             | 130.91              | 0.00             | 131.43              | 0.51             | 131.95              | 17.28            |
| 130.40              | 0.00             | 130.92              | 0.00             | 131.44              | 0.53             | 131.96              | 17.83            |
| 130.41              | 0.00             | 130.93              | 0.00             | 131.45              | 0.55             | 131.97              | 18.38            |
| 130.42              | 0.00             | 130.94              | 0.00             | 131.46              | 0.57             | 131.98              | 18.94            |
| 130.43              | 0.00             | 130.95              | 0.00             | 131.47              | 0.58             | 131.99              | 19.51            |
| 130.44              | 0.00             | 130.96              | 0.00             | 131.48              | 0.60             | 132.00              | 20.08            |
| 130.45              | 0.00             | 130.97              | 0.00             | 131.49              | 0.62             |                     |                  |
| 130.46              | 0.00             | 130.98              | 0.00             | 131.50              | 0.64             |                     |                  |
| 130.47              | 0.00             | 130.99              | 0.00             | 131.51              | 0.71             |                     |                  |
| 130.48              | 0.00             | 131.00              | 0.00             | 131.52              | 0.82             |                     |                  |
| 130.49              | 0.00             | 131.01              | 0.00             | 131.53              | 0.97             |                     |                  |
| 130.50              | 0.00             | 131.02              | 0.00             | 131.54              | 1.13             |                     |                  |
| 130.51              | 0.00             | 131.03              | 0.00             | 131.55              | 1.32             |                     |                  |

**2101ELK-STM Analysis POI-1 - PropNOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"**

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**Stage-Area-Storage for Pond 28P: GI-3**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | 11,000             | 0                       | 131.04              | 11,000             | 11,440                  |
| 130.02              | 11,000             | 220                     | 131.06              | 11,000             | 11,660                  |
| 130.04              | 11,000             | 440                     | 131.08              | 11,000             | 11,880                  |
| 130.06              | 11,000             | 660                     | 131.10              | 11,000             | 12,100                  |
| 130.08              | 11,000             | 880                     | 131.12              | 11,000             | 12,320                  |
| 130.10              | 11,000             | 1,100                   | 131.14              | 11,000             | 12,540                  |
| 130.12              | 11,000             | 1,320                   | 131.16              | 11,000             | 12,760                  |
| 130.14              | 11,000             | 1,540                   | 131.18              | 11,000             | 12,980                  |
| 130.16              | 11,000             | 1,760                   | 131.20              | 11,000             | 13,200                  |
| 130.18              | 11,000             | 1,980                   | 131.22              | 11,000             | 13,420                  |
| 130.20              | 11,000             | 2,200                   | 131.24              | 11,000             | 13,640                  |
| 130.22              | 11,000             | 2,420                   | 131.26              | 11,000             | 13,860                  |
| 130.24              | 11,000             | 2,640                   | 131.28              | 11,000             | 14,080                  |
| 130.26              | 11,000             | 2,860                   | 131.30              | 11,000             | 14,300                  |
| 130.28              | 11,000             | 3,080                   | 131.32              | 11,000             | 14,520                  |
| 130.30              | 11,000             | 3,300                   | 131.34              | 11,000             | 14,740                  |
| 130.32              | 11,000             | 3,520                   | 131.36              | 11,000             | 14,960                  |
| 130.34              | 11,000             | 3,740                   | 131.38              | 11,000             | 15,180                  |
| 130.36              | 11,000             | 3,960                   | 131.40              | 11,000             | 15,400                  |
| 130.38              | 11,000             | 4,180                   | 131.42              | 11,000             | 15,620                  |
| 130.40              | 11,000             | 4,400                   | 131.44              | 11,000             | 15,840                  |
| 130.42              | 11,000             | 4,620                   | 131.46              | 11,000             | 16,060                  |
| 130.44              | 11,000             | 4,840                   | 131.48              | 11,000             | 16,280                  |
| 130.46              | 11,000             | 5,060                   | 131.50              | 11,000             | 16,500                  |
| 130.48              | 11,000             | 5,280                   | 131.52              | 11,000             | 16,720                  |
| 130.50              | 11,000             | 5,500                   | 131.54              | 11,000             | 16,940                  |
| 130.52              | 11,000             | 5,720                   | 131.56              | 11,000             | 17,160                  |
| 130.54              | 11,000             | 5,940                   | 131.58              | 11,000             | 17,380                  |
| 130.56              | 11,000             | 6,160                   | 131.60              | 11,000             | 17,600                  |
| 130.58              | 11,000             | 6,380                   | 131.62              | 11,000             | 17,820                  |
| 130.60              | 11,000             | 6,600                   | 131.64              | 11,000             | 18,040                  |
| 130.62              | 11,000             | 6,820                   | 131.66              | 11,000             | 18,260                  |
| 130.64              | 11,000             | 7,040                   | 131.68              | 11,000             | 18,480                  |
| 130.66              | 11,000             | 7,260                   | 131.70              | 11,000             | 18,700                  |
| 130.68              | 11,000             | 7,480                   | 131.72              | 11,000             | 18,920                  |
| 130.70              | 11,000             | 7,700                   | 131.74              | 11,000             | 19,140                  |
| 130.72              | 11,000             | 7,920                   | 131.76              | 11,000             | 19,360                  |
| 130.74              | 11,000             | 8,140                   | 131.78              | 11,000             | 19,580                  |
| 130.76              | 11,000             | 8,360                   | 131.80              | 11,000             | 19,800                  |
| 130.78              | 11,000             | 8,580                   | 131.82              | 11,000             | 20,020                  |
| 130.80              | 11,000             | 8,800                   | 131.84              | 11,000             | 20,240                  |
| 130.82              | 11,000             | 9,020                   | 131.86              | 11,000             | 20,460                  |
| 130.84              | 11,000             | 9,240                   | 131.88              | 11,000             | 20,680                  |
| 130.86              | 11,000             | 9,460                   | 131.90              | 11,000             | 20,900                  |
| 130.88              | 11,000             | 9,680                   | 131.92              | 11,000             | 21,120                  |
| 130.90              | 11,000             | 9,900                   | 131.94              | 11,000             | 21,340                  |
| 130.92              | 11,000             | 10,120                  | 131.96              | 11,000             | 21,560                  |
| 130.94              | 11,000             | 10,340                  | 131.98              | 11,000             | 21,780                  |
| 130.96              | 11,000             | 10,560                  | 132.00              | 11,000             | 22,000                  |
| 130.98              | 11,000             | 10,780                  |                     |                    |                         |
| 131.00              | 11,000             | 11,000                  |                     |                    |                         |
| 131.02              | 11,000             | 11,220                  |                     |                    |                         |

Summary for Pond 31P: GI-6

Inflow Area = 85,032 sf, 67.84% Impervious, Inflow Depth = 9.59" for 100-Year-2050 event  
Inflow = 21.33 cfs @ 12.10 hrs, Volume= 67,945 cf  
Outflow = 3.57 cfs @ 12.55 hrs, Volume= 59,030 cf, Atten= 83%, Lag= 27.5 min  
Primary = 3.57 cfs @ 12.55 hrs, Volume= 59,030 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.85' @ 12.55 hrs Surf.Area= 20,000 sf Storage= 37,075 cf

Plug-Flow detention time= 295.0 min calculated for 59,030 cf (87% of inflow)  
Center-of-Mass det. time= 230.7 min ( 984.7 - 754.1 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 40,000 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

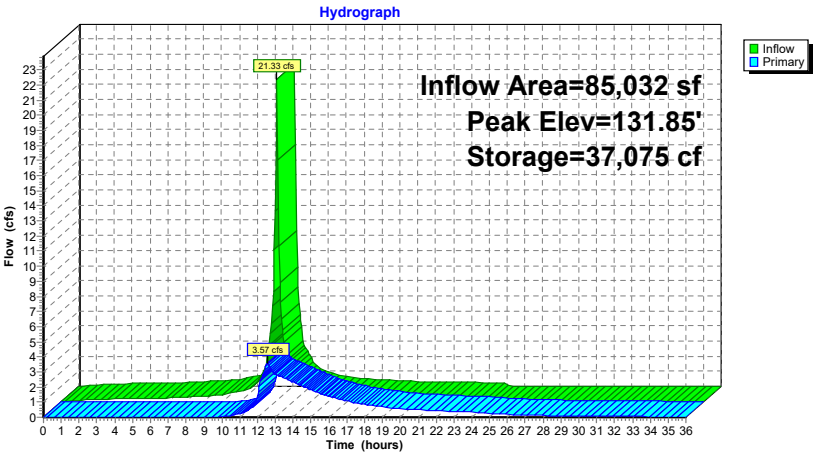
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 20,000            | 0                      | 0                      |
| 131.00           | 20,000            | 20,000                 | 20,000                 |
| 132.00           | 20,000            | 20,000                 | 40,000                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 131.80' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 130.40' | 0.8' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

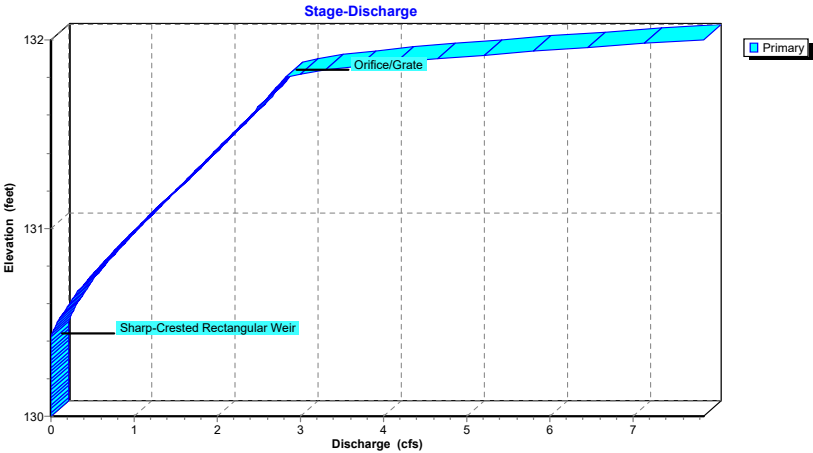
Primary OutFlow Max=3.57 cfs @ 12.55 hrs HW=131.85' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate (Weir Controls 0.65 cfs @ 0.76 fps)  
2=Sharp-Crested Rectangular Weir(Weir Controls 2.92 cfs @ 3.94 fps)



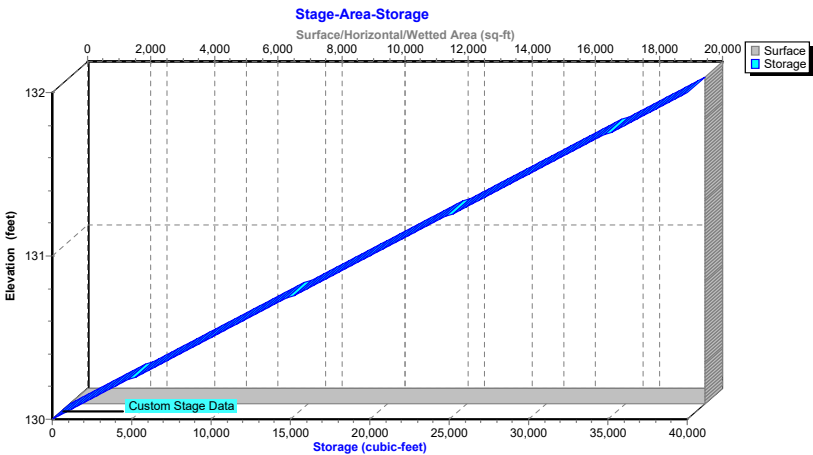
Pond 31P: GI-6



Pond 31P: GI-6



Pond 31P: GI-6



Hydrograph for Pond 31P: GI-6

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.09         | 118                  | 130.01           | 0.00          |
| 2.00         | 0.15         | 565                  | 130.03           | 0.00          |
| 3.00         | 0.18         | 1,174                | 130.06           | 0.00          |
| 4.00         | 0.21         | 1,887                | 130.09           | 0.00          |
| 5.00         | 0.23         | 2,683                | 130.13           | 0.00          |
| 6.00         | 0.25         | 3,550                | 130.18           | 0.00          |
| 7.00         | 0.32         | 4,569                | 130.23           | 0.00          |
| 8.00         | 0.38         | 5,823                | 130.29           | 0.00          |
| 9.00         | 0.45         | 7,312                | 130.37           | 0.00          |
| 10.00        | 0.69         | 9,316                | 130.47           | 0.04          |
| 11.00        | 1.34         | 12,190               | 130.61           | 0.24          |
| 12.00        | 12.62        | 23,273               | 131.16           | 1.41          |
| 13.00        | 1.93         | 35,967               | 131.80           | 2.81          |
| 14.00        | 0.95         | 31,263               | 131.56           | 2.33          |
| 15.00        | 0.64         | 26,686               | 131.33           | 1.81          |
| 16.00        | 0.52         | 23,024               | 131.15           | 1.38          |
| 17.00        | 0.44         | 20,368               | 131.02           | 1.08          |
| 18.00        | 0.36         | 18,361               | 130.92           | 0.85          |
| 19.00        | 0.33         | 16,841               | 130.84           | 0.68          |
| 20.00        | 0.31         | 15,743               | 130.79           | 0.57          |
| 21.00        | 0.29         | 14,920               | 130.75           | 0.49          |
| 22.00        | 0.27         | 14,280               | 130.71           | 0.42          |
| 23.00        | 0.25         | 13,761               | 130.69           | 0.38          |
| 24.00        | 0.27         | 13,332               | 130.67           | 0.34          |
| 25.00        | 0.00         | 12,344               | 130.62           | 0.25          |
| 26.00        | 0.00         | 11,562               | 130.58           | 0.19          |
| 27.00        | 0.00         | 10,969               | 130.55           | 0.14          |
| 28.00        | 0.00         | 10,510               | 130.53           | 0.11          |
| 29.00        | 0.00         | 10,148               | 130.51           | 0.09          |
| 30.00        | 0.00         | 9,858                | 130.49           | 0.07          |
| 31.00        | 0.00         | 9,622                | 130.48           | 0.06          |
| 32.00        | 0.00         | 9,428                | 130.47           | 0.05          |
| 33.00        | 0.00         | 9,267                | 130.46           | 0.04          |
| 34.00        | 0.00         | 9,131                | 130.46           | 0.03          |
| 35.00        | 0.00         | 9,015                | 130.45           | 0.03          |
| 36.00        | 0.00         | 8,917                | 130.45           | 0.03          |

Stage-Discharge for Pond 31P: GI-6

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.11             | 131.04              | 1.13             | 131.56              | 2.32             |
| 130.01              | 0.00             | 130.53              | 0.12             | 131.05              | 1.15             | 131.57              | 2.34             |
| 130.02              | 0.00             | 130.54              | 0.13             | 131.06              | 1.17             | 131.58              | 2.36             |
| 130.03              | 0.00             | 130.55              | 0.15             | 131.07              | 1.19             | 131.59              | 2.39             |
| 130.04              | 0.00             | 130.56              | 0.16             | 131.08              | 1.22             | 131.60              | 2.41             |
| 130.05              | 0.00             | 130.57              | 0.18             | 131.09              | 1.24             | 131.61              | 2.43             |
| 130.06              | 0.00             | 130.58              | 0.19             | 131.10              | 1.26             | 131.62              | 2.45             |
| 130.07              | 0.00             | 130.59              | 0.21             | 131.11              | 1.29             | 131.63              | 2.47             |
| 130.08              | 0.00             | 130.60              | 0.22             | 131.12              | 1.31             | 131.64              | 2.49             |
| 130.09              | 0.00             | 130.61              | 0.24             | 131.13              | 1.33             | 131.65              | 2.51             |
| 130.10              | 0.00             | 130.62              | 0.26             | 131.14              | 1.36             | 131.66              | 2.53             |
| 130.11              | 0.00             | 130.63              | 0.27             | 131.15              | 1.38             | 131.67              | 2.56             |
| 130.12              | 0.00             | 130.64              | 0.29             | 131.16              | 1.40             | 131.68              | 2.58             |
| 130.13              | 0.00             | 130.65              | 0.31             | 131.17              | 1.43             | 131.69              | 2.60             |
| 130.14              | 0.00             | 130.66              | 0.32             | 131.18              | 1.45             | 131.70              | 2.62             |
| 130.15              | 0.00             | 130.67              | 0.34             | 131.19              | 1.47             | 131.71              | 2.64             |
| 130.16              | 0.00             | 130.68              | 0.36             | 131.20              | 1.50             | 131.72              | 2.66             |
| 130.17              | 0.00             | 130.69              | 0.38             | 131.21              | 1.52             | 131.73              | 2.68             |
| 130.18              | 0.00             | 130.70              | 0.40             | 131.22              | 1.54             | 131.74              | 2.70             |
| 130.19              | 0.00             | 130.71              | 0.42             | 131.23              | 1.57             | 131.75              | 2.72             |
| 130.20              | 0.00             | 130.72              | 0.44             | 131.24              | 1.59             | 131.76              | 2.74             |
| 130.21              | 0.00             | 130.73              | 0.46             | 131.25              | 1.61             | 131.77              | 2.76             |
| 130.22              | 0.00             | 130.74              | 0.47             | 131.26              | 1.64             | 131.78              | 2.78             |
| 130.23              | 0.00             | 130.75              | 0.49             | 131.27              | 1.66             | 131.79              | 2.80             |
| 130.24              | 0.00             | 130.76              | 0.51             | 131.28              | 1.68             | 131.80              | 2.82             |
| 130.25              | 0.00             | 130.77              | 0.53             | 131.29              | 1.71             | 131.81              | 2.89             |
| 130.26              | 0.00             | 130.78              | 0.55             | 131.30              | 1.73             | 131.82              | 3.00             |
| 130.27              | 0.00             | 130.79              | 0.58             | 131.31              | 1.75             | 131.83              | 3.15             |
| 130.28              | 0.00             | 130.80              | 0.60             | 131.32              | 1.78             | 131.84              | 3.31             |
| 130.29              | 0.00             | 130.81              | 0.62             | 131.33              | 1.80             | 131.85              | 3.50             |
| 130.30              | 0.00             | 130.82              | 0.64             | 131.34              | 1.82             | 131.86              | 3.70             |
| 130.31              | 0.00             | 130.83              | 0.66             | 131.35              | 1.85             | 131.87              | 3.92             |
| 130.32              | 0.00             | 130.84              | 0.68             | 131.36              | 1.87             | 131.88              | 4.15             |
| 130.33              | 0.00             | 130.85              | 0.70             | 131.37              | 1.89             | 131.89              | 4.40             |
| 130.34              | 0.00             | 130.86              | 0.72             | 131.38              | 1.92             | 131.90              | 4.66             |
| 130.35              | 0.00             | 130.87              | 0.74             | 131.39              | 1.94             | 131.91              | 4.93             |
| 130.36              | 0.00             | 130.88              | 0.77             | 131.40              | 1.96             | 131.92              | 5.21             |
| 130.37              | 0.00             | 130.89              | 0.79             | 131.41              | 1.98             | 131.93              | 5.51             |
| 130.38              | 0.00             | 130.90              | 0.81             | 131.42              | 2.01             | 131.94              | 5.82             |
| 130.39              | 0.00             | 130.91              | 0.83             | 131.43              | 2.03             | 131.95              | 6.13             |
| 130.40              | 0.00             | 130.92              | 0.85             | 131.44              | 2.05             | 131.96              | 6.46             |
| 130.41              | 0.00             | 130.93              | 0.88             | 131.45              | 2.08             | 131.97              | 6.79             |
| 130.42              | 0.01             | 130.94              | 0.90             | 131.46              | 2.10             | 131.98              | 7.14             |
| 130.43              | 0.01             | 130.95              | 0.92             | 131.47              | 2.12             | 131.99              | 7.49             |
| 130.44              | 0.02             | 130.96              | 0.94             | 131.48              | 2.14             | 132.00              | 7.86             |
| 130.45              | 0.03             | 130.97              | 0.97             | 131.49              | 2.17             |                     |                  |
| 130.46              | 0.04             | 130.98              | 0.99             | 131.50              | 2.19             |                     |                  |
| 130.47              | 0.05             | 130.99              | 1.01             | 131.51              | 2.21             |                     |                  |
| 130.48              | 0.06             | 131.00              | 1.03             | 131.52              | 2.23             |                     |                  |
| 130.49              | 0.07             | 131.01              | 1.06             | 131.53              | 2.25             |                     |                  |
| 130.50              | 0.08             | 131.02              | 1.08             | 131.54              | 2.28             |                     |                  |
| 130.51              | 0.09             | 131.03              | 1.10             | 131.55              | 2.30             |                     |                  |

Stage-Area-Storage for Pond 31P: GI-6

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | 20,000             | 0                       | 131.04              | 20,000             | 20,800                  |
| 130.02              | 20,000             | 400                     | 131.06              | 20,000             | 21,200                  |
| 130.04              | 20,000             | 800                     | 131.08              | 20,000             | 21,600                  |
| 130.06              | 20,000             | 1,200                   | 131.10              | 20,000             | 22,000                  |
| 130.08              | 20,000             | 1,600                   | 131.12              | 20,000             | 22,400                  |
| 130.10              | 20,000             | 2,000                   | 131.14              | 20,000             | 22,800                  |
| 130.12              | 20,000             | 2,400                   | 131.16              | 20,000             | 23,200                  |
| 130.14              | 20,000             | 2,800                   | 131.18              | 20,000             | 23,600                  |
| 130.16              | 20,000             | 3,200                   | 131.20              | 20,000             | 24,000                  |
| 130.18              | 20,000             | 3,600                   | 131.22              | 20,000             | 24,400                  |
| 130.20              | 20,000             | 4,000                   | 131.24              | 20,000             | 24,800                  |
| 130.22              | 20,000             | 4,400                   | 131.26              | 20,000             | 25,200                  |
| 130.24              | 20,000             | 4,800                   | 131.28              | 20,000             | 25,600                  |
| 130.26              | 20,000             | 5,200                   | 131.30              | 20,000             | 26,000                  |
| 130.28              | 20,000             | 5,600                   | 131.32              | 20,000             | 26,400                  |
| 130.30              | 20,000             | 6,000                   | 131.34              | 20,000             | 26,800                  |
| 130.32              | 20,000             | 6,400                   | 131.36              | 20,000             | 27,200                  |
| 130.34              | 20,000             | 6,800                   | 131.38              | 20,000             | 27,600                  |
| 130.36              | 20,000             | 7,200                   | 131.40              | 20,000             | 28,000                  |
| 130.38              | 20,000             | 7,600                   | 131.42              | 20,000             | 28,400                  |
| 130.40              | 20,000             | 8,000                   | 131.44              | 20,000             | 28,800                  |
| 130.42              | 20,000             | 8,400                   | 131.46              | 20,000             | 29,200                  |
| 130.44              | 20,000             | 8,800                   | 131.48              | 20,000             | 29,600                  |
| 130.46              | 20,000             | 9,200                   | 131.50              | 20,000             | 30,000                  |
| 130.48              | 20,000             | 9,600                   | 131.52              | 20,000             | 30,400                  |
| 130.50              | 20,000             | 10,000                  | 131.54              | 20,000             | 30,800                  |
| 130.52              | 20,000             | 10,400                  | 131.56              | 20,000             | 31,200                  |
| 130.54              | 20,000             | 10,800                  | 131.58              | 20,000             | 31,600                  |
| 130.56              | 20,000             | 11,200                  | 131.60              | 20,000             | 32,000                  |
| 130.58              | 20,000             | 11,600                  | 131.62              | 20,000             | 32,400                  |
| 130.60              | 20,000             | 12,000                  | 131.64              | 20,000             | 32,800                  |
| 130.62              | 20,000             | 12,400                  | 131.66              | 20,000             | 33,200                  |
| 130.64              | 20,000             | 12,800                  | 131.68              | 20,000             | 33,600                  |
| 130.66              | 20,000             | 13,200                  | 131.70              | 20,000             | 34,000                  |
| 130.68              | 20,000             | 13,600                  | 131.72              | 20,000             | 34,400                  |
| 130.70              | 20,000             | 14,000                  | 131.74              | 20,000             | 34,800                  |
| 130.72              | 20,000             | 14,400                  | 131.76              | 20,000             | 35,200                  |
| 130.74              | 20,000             | 14,800                  | 131.78              | 20,000             | 35,600                  |
| 130.76              | 20,000             | 15,200                  | 131.80              | 20,000             | 36,000                  |
| 130.78              | 20,000             | 15,600                  | 131.82              | 20,000             | 36,400                  |
| 130.80              | 20,000             | 16,000                  | 131.84              | 20,000             | 36,800                  |
| 130.82              | 20,000             | 16,400                  | 131.86              | 20,000             | 37,200                  |
| 130.84              | 20,000             | 16,800                  | 131.88              | 20,000             | 37,600                  |
| 130.86              | 20,000             | 17,200                  | 131.90              | 20,000             | 38,000                  |
| 130.88              | 20,000             | 17,600                  | 131.92              | 20,000             | 38,400                  |
| 130.90              | 20,000             | 18,000                  | 131.94              | 20,000             | 38,800                  |
| 130.92              | 20,000             | 18,400                  | 131.96              | 20,000             | 39,200                  |
| 130.94              | 20,000             | 18,800                  | 131.98              | 20,000             | 39,600                  |
| 130.96              | 20,000             | 19,200                  | 132.00              | 20,000             | 40,000                  |
| 130.98              | 20,000             | 19,600                  |                     |                    |                         |
| 131.00              | 20,000             | 20,000                  |                     |                    |                         |
| 131.02              | 20,000             | 20,400                  |                     |                    |                         |

Summary for Pond 43P: GI-11

Inflow Area = 17,074 sf, 78.69% Impervious, Inflow Depth = 10.74" for 100-Year-2050 event  
Inflow = 5.21 cfs @ 12.08 hrs, Volume= 15,285 cf  
Outflow = 2.35 cfs @ 12.17 hrs, Volume= 14,097 cf, Atten= 55%, Lag= 5.5 min  
Primary = 2.35 cfs @ 12.17 hrs, Volume= 14,097 cf  
Routed to Link 13L : FES

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 132.49' @ 12.17 hrs Surf.Area= 2,193 sf Storage= 4,370 cf

Plug-Flow detention time= 115.7 min calculated for 14,097 cf (92% of inflow)  
Center-of-Mass det. time= 72.0 min ( 817.5 - 745.5 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.50' | 4,386 cf      | Custom Stage Data (Prismatic) Listed below (Recalc) |

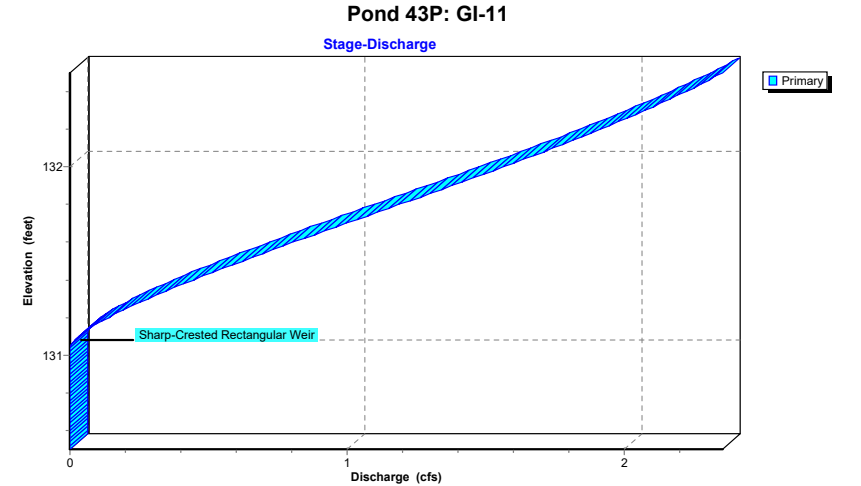
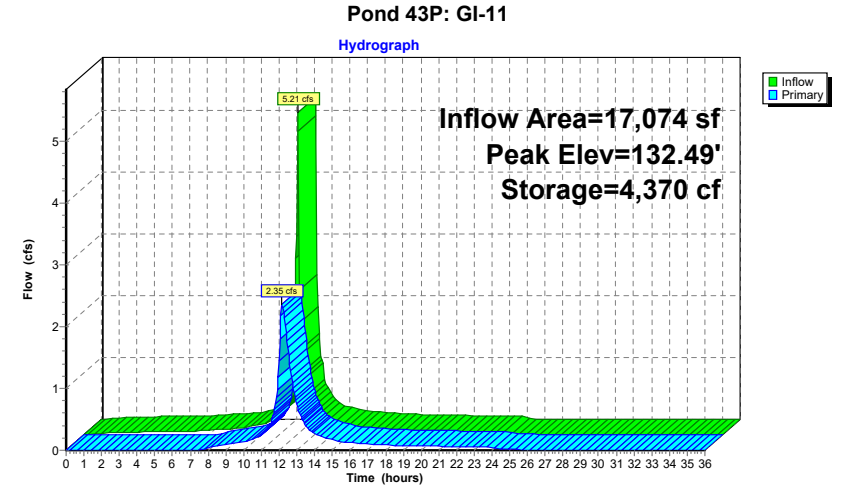
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.50           | 2,193             | 0                      | 0                      |
| 132.50           | 2,193             | 4,386                  | 4,386                  |

| Device | Routing | Invert  | Outlet Devices                                                |
|--------|---------|---------|---------------------------------------------------------------|
| #1     | Primary | 131.04' | 0.7' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

Primary OutFlow Max=2.33 cfs @ 12.17 hrs HW=132.48' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir (Weir Controls 2.33 cfs @ 3.92 fps)

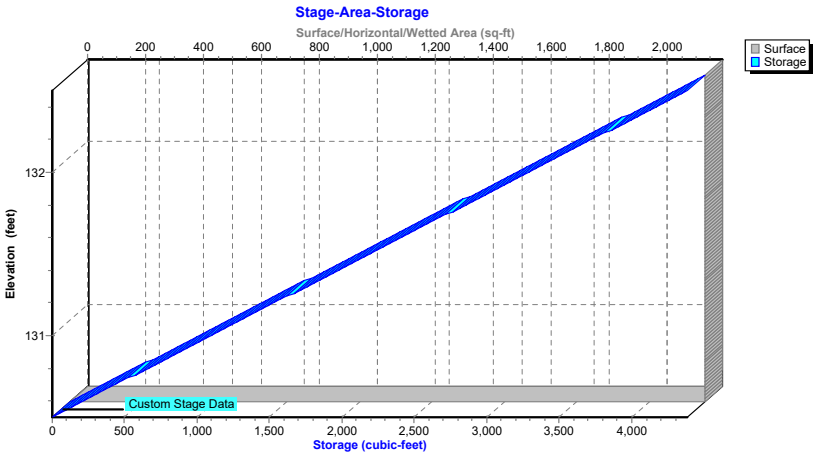
Pond 43P: GI-11

Sharp-Crested Rectangular Weir





Pond 43P: GI-11



Hydrograph for Pond 43P: GI-11

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.50           | 0.00          |
| 1.00         | 0.02         | 30                   | 130.51           | 0.00          |
| 2.00         | 0.04         | 135                  | 130.56           | 0.00          |
| 3.00         | 0.04         | 278                  | 130.63           | 0.00          |
| 4.00         | 0.05         | 444                  | 130.70           | 0.00          |
| 5.00         | 0.05         | 630                  | 130.79           | 0.00          |
| 6.00         | 0.06         | 832                  | 130.88           | 0.00          |
| 7.00         | 0.07         | 1,071                | 130.99           | 0.00          |
| 8.00         | 0.09         | 1,330                | 131.11           | 0.04          |
| 9.00         | 0.11         | 1,443                | 131.16           | 0.09          |
| 10.00        | 0.17         | 1,538                | 131.20           | 0.14          |
| 11.00        | 0.33         | 1,706                | 131.28           | 0.25          |
| 12.00        | 3.21         | 3,157                | 131.94           | 1.45          |
| 13.00        | 0.41         | 2,338                | 131.57           | 0.74          |
| 14.00        | 0.20         | 1,736                | 131.29           | 0.27          |
| 15.00        | 0.13         | 1,582                | 131.22           | 0.17          |
| 16.00        | 0.11         | 1,508                | 131.19           | 0.12          |
| 17.00        | 0.09         | 1,470                | 131.17           | 0.10          |
| 18.00        | 0.08         | 1,435                | 131.15           | 0.09          |
| 19.00        | 0.07         | 1,411                | 131.14           | 0.07          |
| 20.00        | 0.07         | 1,399                | 131.14           | 0.07          |
| 21.00        | 0.06         | 1,389                | 131.13           | 0.06          |
| 22.00        | 0.06         | 1,379                | 131.13           | 0.06          |
| 23.00        | 0.05         | 1,369                | 131.12           | 0.05          |
| 24.00        | 0.05         | 1,361                | 131.12           | 0.05          |
| 25.00        | 0.00         | 1,262                | 131.08           | 0.02          |
| 26.00        | 0.00         | 1,227                | 131.06           | 0.01          |
| 27.00        | 0.00         | 1,211                | 131.05           | 0.00          |
| 28.00        | 0.00         | 1,203                | 131.05           | 0.00          |
| 29.00        | 0.00         | 1,198                | 131.05           | 0.00          |
| 30.00        | 0.00         | 1,194                | 131.04           | 0.00          |
| 31.00        | 0.00         | 1,192                | 131.04           | 0.00          |
| 32.00        | 0.00         | 1,191                | 131.04           | 0.00          |
| 33.00        | 0.00         | 1,190                | 131.04           | 0.00          |
| 34.00        | 0.00         | 1,189                | 131.04           | 0.00          |
| 35.00        | 0.00         | 1,188                | 131.04           | 0.00          |
| 36.00        | 0.00         | 1,187                | 131.04           | 0.00          |

**2101ELK-STM Analysis POI-1 - PropNOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"**

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 43P: GI-11**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.50              | 0.00             | 131.02              | 0.00             | 131.54              | 0.69             | 132.06              | 1.67             |
| 130.51              | 0.00             | 131.03              | 0.00             | 131.55              | 0.71             | 132.07              | 1.69             |
| 130.52              | 0.00             | 131.04              | 0.00             | 131.56              | 0.73             | 132.08              | 1.71             |
| 130.53              | 0.00             | 131.05              | 0.00             | 131.57              | 0.75             | 132.09              | 1.72             |
| 130.54              | 0.00             | 131.06              | 0.01             | 131.58              | 0.77             | 132.10              | 1.74             |
| 130.55              | 0.00             | 131.07              | 0.01             | 131.59              | 0.79             | 132.11              | 1.76             |
| 130.56              | 0.00             | 131.08              | 0.02             | 131.60              | 0.81             | 132.12              | 1.78             |
| 130.57              | 0.00             | 131.09              | 0.03             | 131.61              | 0.82             | 132.13              | 1.79             |
| 130.58              | 0.00             | 131.10              | 0.03             | 131.62              | 0.84             | 132.14              | 1.81             |
| 130.59              | 0.00             | 131.11              | 0.04             | 131.63              | 0.86             | 132.15              | 1.83             |
| 130.60              | 0.00             | 131.12              | 0.05             | 131.64              | 0.88             | 132.16              | 1.84             |
| 130.61              | 0.00             | 131.13              | 0.06             | 131.65              | 0.90             | 132.17              | 1.86             |
| 130.62              | 0.00             | 131.14              | 0.07             | 131.66              | 0.92             | 132.18              | 1.88             |
| 130.63              | 0.00             | 131.15              | 0.08             | 131.67              | 0.94             | 132.19              | 1.90             |
| 130.64              | 0.00             | 131.16              | 0.09             | 131.68              | 0.96             | 132.20              | 1.91             |
| 130.65              | 0.00             | 131.17              | 0.10             | 131.69              | 0.98             | 132.21              | 1.93             |
| 130.66              | 0.00             | 131.18              | 0.12             | 131.70              | 1.00             | 132.22              | 1.94             |
| 130.67              | 0.00             | 131.19              | 0.13             | 131.71              | 1.02             | 132.23              | 1.96             |
| 130.68              | 0.00             | 131.20              | 0.14             | 131.72              | 1.03             | 132.24              | 1.98             |
| 130.69              | 0.00             | 131.21              | 0.15             | 131.73              | 1.05             | 132.25              | 1.99             |
| 130.70              | 0.00             | 131.22              | 0.17             | 131.74              | 1.07             | 132.26              | 2.01             |
| 130.71              | 0.00             | 131.23              | 0.18             | 131.75              | 1.09             | 132.27              | 2.03             |
| 130.72              | 0.00             | 131.24              | 0.19             | 131.76              | 1.11             | 132.28              | 2.04             |
| 130.73              | 0.00             | 131.25              | 0.21             | 131.77              | 1.13             | 132.29              | 2.06             |
| 130.74              | 0.00             | 131.26              | 0.22             | 131.78              | 1.15             | 132.30              | 2.07             |
| 130.75              | 0.00             | 131.27              | 0.24             | 131.79              | 1.17             | 132.31              | 2.09             |
| 130.76              | 0.00             | 131.28              | 0.25             | 131.80              | 1.19             | 132.32              | 2.10             |
| 130.77              | 0.00             | 131.29              | 0.27             | 131.81              | 1.21             | 132.33              | 2.12             |
| 130.78              | 0.00             | 131.30              | 0.28             | 131.82              | 1.23             | 132.34              | 2.13             |
| 130.79              | 0.00             | 131.31              | 0.30             | 131.83              | 1.24             | 132.35              | 2.15             |
| 130.80              | 0.00             | 131.32              | 0.31             | 131.84              | 1.26             | 132.36              | 2.16             |
| 130.81              | 0.00             | 131.33              | 0.33             | 131.85              | 1.28             | 132.37              | 2.18             |
| 130.82              | 0.00             | 131.34              | 0.34             | 131.86              | 1.30             | 132.38              | 2.19             |
| 130.83              | 0.00             | 131.35              | 0.36             | 131.87              | 1.32             | 132.39              | 2.21             |
| 130.84              | 0.00             | 131.36              | 0.38             | 131.88              | 1.34             | 132.40              | 2.22             |
| 130.85              | 0.00             | 131.37              | 0.39             | 131.89              | 1.36             | 132.41              | 2.23             |
| 130.86              | 0.00             | 131.38              | 0.41             | 131.90              | 1.38             | 132.42              | 2.25             |
| 130.87              | 0.00             | 131.39              | 0.43             | 131.91              | 1.40             | 132.43              | 2.26             |
| 130.88              | 0.00             | 131.40              | 0.44             | 131.92              | 1.41             | 132.44              | 2.28             |
| 130.89              | 0.00             | 131.41              | 0.46             | 131.93              | 1.43             | 132.45              | 2.29             |
| 130.90              | 0.00             | 131.42              | 0.48             | 131.94              | 1.45             | 132.46              | 2.30             |
| 130.91              | 0.00             | 131.43              | 0.50             | 131.95              | 1.47             | 132.47              | 2.32             |
| 130.92              | 0.00             | 131.44              | 0.51             | 131.96              | 1.49             | 132.48              | 2.33             |
| 130.93              | 0.00             | 131.45              | 0.53             | 131.97              | 1.51             | 132.49              | 2.34             |
| 130.94              | 0.00             | 131.46              | 0.55             | 131.98              | 1.53             | 132.50              | 2.35             |
| 130.95              | 0.00             | 131.47              | 0.57             | 131.99              | 1.54             |                     |                  |
| 130.96              | 0.00             | 131.48              | 0.58             | 132.00              | 1.56             |                     |                  |
| 130.97              | 0.00             | 131.49              | 0.60             | 132.01              | 1.58             |                     |                  |
| 130.98              | 0.00             | 131.50              | 0.62             | 132.02              | 1.60             |                     |                  |
| 130.99              | 0.00             | 131.51              | 0.64             | 132.03              | 1.62             |                     |                  |
| 131.00              | 0.00             | 131.52              | 0.66             | 132.04              | 1.64             |                     |                  |
| 131.01              | 0.00             | 131.53              | 0.68             | 132.05              | 1.65             |                     |                  |

**2101ELK-STM Analysis POI-1 - PropNOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"**

Prepared by Van Cleef Engineering Assoc

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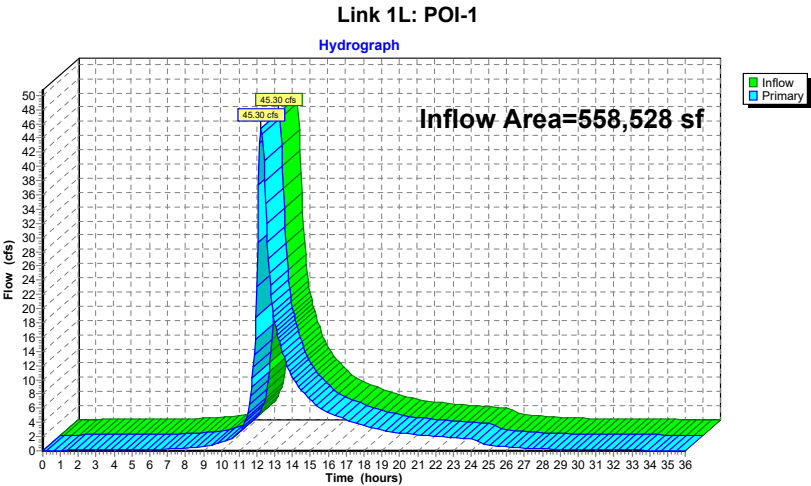
**Stage-Area-Storage for Pond 43P: GI-11**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.50              | 2,193              | 0                       | 131.54              | 2,193              | 2,281                   |
| 130.52              | 2,193              | 44                      | 131.56              | 2,193              | 2,325                   |
| 130.54              | 2,193              | 88                      | 131.58              | 2,193              | 2,368                   |
| 130.56              | 2,193              | 132                     | 131.60              | 2,193              | 2,412                   |
| 130.58              | 2,193              | 175                     | 131.62              | 2,193              | 2,456                   |
| 130.60              | 2,193              | 219                     | 131.64              | 2,193              | 2,500                   |
| 130.62              | 2,193              | 263                     | 131.66              | 2,193              | 2,544                   |
| 130.64              | 2,193              | 307                     | 131.68              | 2,193              | 2,588                   |
| 130.66              | 2,193              | 351                     | 131.70              | 2,193              | 2,632                   |
| 130.68              | 2,193              | 395                     | 131.72              | 2,193              | 2,675                   |
| 130.70              | 2,193              | 439                     | 131.74              | 2,193              | 2,719                   |
| 130.72              | 2,193              | 482                     | 131.76              | 2,193              | 2,763                   |
| 130.74              | 2,193              | 526                     | 131.78              | 2,193              | 2,807                   |
| 130.76              | 2,193              | 570                     | 131.80              | 2,193              | 2,851                   |
| 130.78              | 2,193              | 614                     | 131.82              | 2,193              | 2,895                   |
| 130.80              | 2,193              | 658                     | 131.84              | 2,193              | 2,939                   |
| 130.82              | 2,193              | 702                     | 131.86              | 2,193              | 2,982                   |
| 130.84              | 2,193              | 746                     | 131.88              | 2,193              | 3,026                   |
| 130.86              | 2,193              | 789                     | 131.90              | 2,193              | 3,070                   |
| 130.88              | 2,193              | 833                     | 131.92              | 2,193              | 3,114                   |
| 130.90              | 2,193              | 877                     | 131.94              | 2,193              | 3,158                   |
| 130.92              | 2,193              | 921                     | 131.96              | 2,193              | 3,202                   |
| 130.94              | 2,193              | 965                     | 131.98              | 2,193              | 3,246                   |
| 130.96              | 2,193              | 1,009                   | 132.00              | 2,193              | 3,290                   |
| 130.98              | 2,193              | 1,053                   | 132.02              | 2,193              | 3,333                   |
| 131.00              | 2,193              | 1,097                   | 132.04              | 2,193              | 3,377                   |
| 131.02              | 2,193              | 1,140                   | 132.06              | 2,193              | 3,421                   |
| 131.04              | 2,193              | 1,184                   | 132.08              | 2,193              | 3,465                   |
| 131.06              | 2,193              | 1,228                   | 132.10              | 2,193              | 3,509                   |
| 131.08              | 2,193              | 1,272                   | 132.12              | 2,193              | 3,553                   |
| 131.10              | 2,193              | 1,316                   | 132.14              | 2,193              | 3,597                   |
| 131.12              | 2,193              | 1,360                   | 132.16              | 2,193              | 3,640                   |
| 131.14              | 2,193              | 1,404                   | 132.18              | 2,193              | 3,684                   |
| 131.16              | 2,193              | 1,447                   | 132.20              | 2,193              | 3,728                   |
| 131.18              | 2,193              | 1,491                   | 132.22              | 2,193              | 3,772                   |
| 131.20              | 2,193              | 1,535                   | 132.24              | 2,193              | 3,816                   |
| 131.22              | 2,193              | 1,579                   | 132.26              | 2,193              | 3,860                   |
| 131.24              | 2,193              | 1,623                   | 132.28              | 2,193              | 3,904                   |
| 131.26              | 2,193              | 1,667                   | 132.30              | 2,193              | 3,947                   |
| 131.28              | 2,193              | 1,711                   | 132.32              | 2,193              | 3,991                   |
| 131.30              | 2,193              | 1,754                   | 132.34              | 2,193              | 4,035                   |
| 131.32              | 2,193              | 1,798                   | 132.36              | 2,193              | 4,079                   |
| 131.34              | 2,193              | 1,842                   | 132.38              | 2,193              | 4,123                   |
| 131.36              | 2,193              | 1,886                   | 132.40              | 2,193              | 4,167                   |
| 131.38              | 2,193              | 1,930                   | 132.42              | 2,193              | 4,211                   |
| 131.40              | 2,193              | 1,974                   | 132.44              | 2,193              | 4,254                   |
| 131.42              | 2,193              | 2,018                   | 132.46              | 2,193              | 4,298                   |
| 131.44              | 2,193              | 2,061                   | 132.48              | 2,193              | 4,342                   |
| 131.46              | 2,193              | 2,105                   | 132.50              | 2,193              | 4,386                   |
| 131.48              | 2,193              | 2,149                   |                     |                    |                         |
| 131.50              | 2,193              | 2,193                   |                     |                    |                         |
| 131.52              | 2,193              | 2,237                   |                     |                    |                         |

Summary for Link 1L: POI-1

Inflow Area = 558,528 sf, 45.65% Impervious, Inflow Depth > 7.64" for 100-Year-2050 event  
Inflow = 45.30 cfs @ 12.25 hrs, Volume= 355,418 cf  
Primary = 45.30 cfs @ 12.25 hrs, Volume= 355,418 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs



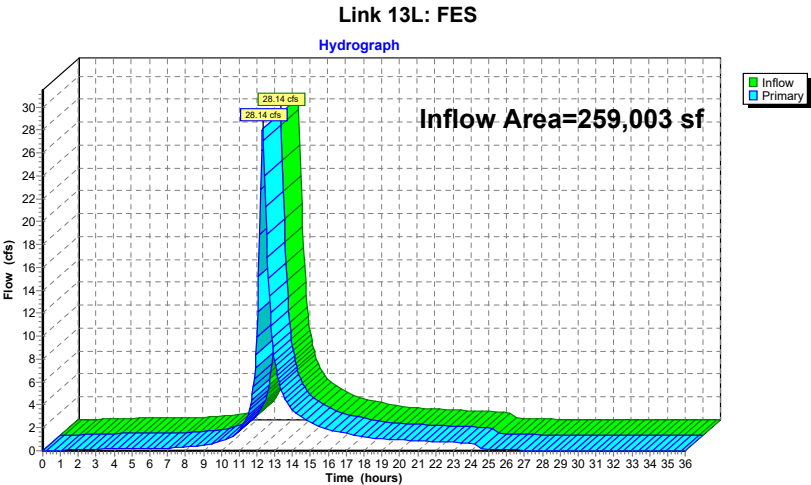
Hydrograph for Link 1L: POI-1

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.52         | 0.00             | 0.52          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.44         | 0.00             | 0.44          |
| 1.00         | 0.04         | 0.00             | 0.04          | 27.00        | 0.37         | 0.00             | 0.37          |
| 1.50         | 0.08         | 0.00             | 0.08          | 27.50        | 0.32         | 0.00             | 0.32          |
| 2.00         | 0.11         | 0.00             | 0.11          | 28.00        | 0.28         | 0.00             | 0.28          |
| 2.50         | 0.13         | 0.00             | 0.13          | 28.50        | 0.24         | 0.00             | 0.24          |
| 3.00         | 0.14         | 0.00             | 0.14          | 29.00        | 0.21         | 0.00             | 0.21          |
| 3.50         | 0.15         | 0.00             | 0.15          | 29.50        | 0.19         | 0.00             | 0.19          |
| 4.00         | 0.16         | 0.00             | 0.16          | 30.00        | 0.17         | 0.00             | 0.17          |
| 4.50         | 0.17         | 0.00             | 0.17          | 30.50        | 0.15         | 0.00             | 0.15          |
| 5.00         | 0.18         | 0.00             | 0.18          | 31.00        | 0.13         | 0.00             | 0.13          |
| 5.50         | 0.19         | 0.00             | 0.19          | 31.50        | 0.12         | 0.00             | 0.12          |
| 6.00         | 0.19         | 0.00             | 0.19          | 32.00        | 0.11         | 0.00             | 0.11          |
| 6.50         | 0.21         | 0.00             | 0.21          | 32.50        | 0.10         | 0.00             | 0.10          |
| 7.00         | 0.23         | 0.00             | 0.23          | 33.00        | 0.09         | 0.00             | 0.09          |
| 7.50         | 0.27         | 0.00             | 0.27          | 33.50        | 0.08         | 0.00             | 0.08          |
| 8.00         | 0.36         | 0.00             | 0.36          | 34.00        | 0.07         | 0.00             | 0.07          |
| 8.50         | 0.48         | 0.00             | 0.48          | 34.50        | 0.07         | 0.00             | 0.07          |
| 9.00         | 0.60         | 0.00             | 0.60          | 35.00        | 0.06         | 0.00             | 0.06          |
| 9.50         | 0.81         | 0.00             | 0.81          | 35.50        | 0.06         | 0.00             | 0.06          |
| 10.00        | 1.17         | 0.00             | 1.17          | 36.00        | 0.05         | 0.00             | 0.05          |
| 10.50        | 1.63         | 0.00             | 1.63          |              |              |                  |               |
| 11.00        | 2.68         | 0.00             | 2.68          |              |              |                  |               |
| 11.50        | 5.09         | 0.00             | 5.09          |              |              |                  |               |
| 12.00        | 23.07        | 0.00             | 23.07         |              |              |                  |               |
| 12.50        | 34.79        | 0.00             | 34.79         |              |              |                  |               |
| 13.00        | 18.03        | 0.00             | 18.03         |              |              |                  |               |
| 13.50        | 13.33        | 0.00             | 13.33         |              |              |                  |               |
| 14.00        | 10.34        | 0.00             | 10.34         |              |              |                  |               |
| 14.50        | 8.59         | 0.00             | 8.59          |              |              |                  |               |
| 15.00        | 7.15         | 0.00             | 7.15          |              |              |                  |               |
| 15.50        | 6.09         | 0.00             | 6.09          |              |              |                  |               |
| 16.00        | 5.44         | 0.00             | 5.44          |              |              |                  |               |
| 16.50        | 4.89         | 0.00             | 4.89          |              |              |                  |               |
| 17.00        | 4.39         | 0.00             | 4.39          |              |              |                  |               |
| 17.50        | 3.94         | 0.00             | 3.94          |              |              |                  |               |
| 18.00        | 3.54         | 0.00             | 3.54          |              |              |                  |               |
| 18.50        | 3.18         | 0.00             | 3.18          |              |              |                  |               |
| 19.00        | 2.93         | 0.00             | 2.93          |              |              |                  |               |
| 19.50        | 2.72         | 0.00             | 2.72          |              |              |                  |               |
| 20.00        | 2.55         | 0.00             | 2.55          |              |              |                  |               |
| 20.50        | 2.40         | 0.00             | 2.40          |              |              |                  |               |
| 21.00        | 2.27         | 0.00             | 2.27          |              |              |                  |               |
| 21.50        | 2.15         | 0.00             | 2.15          |              |              |                  |               |
| 22.00        | 2.04         | 0.00             | 2.04          |              |              |                  |               |
| 22.50        | 1.94         | 0.00             | 1.94          |              |              |                  |               |
| 23.00        | 1.85         | 0.00             | 1.85          |              |              |                  |               |
| 23.50        | 1.76         | 0.00             | 1.76          |              |              |                  |               |
| 24.00        | 1.69         | 0.00             | 1.69          |              |              |                  |               |
| 24.50        | 1.06         | 0.00             | 1.06          |              |              |                  |               |
| 25.00        | 0.80         | 0.00             | 0.80          |              |              |                  |               |
| 25.50        | 0.64         | 0.00             | 0.64          |              |              |                  |               |

Summary for Link 13L: FES

Inflow Area = 259,003 sf, 30.97% Impervious, Inflow Depth > 7.28" for 100-Year-2050 event  
Inflow = 28.14 cfs @ 12.32 hrs, Volume= 157,042 cf  
Primary = 28.14 cfs @ 12.32 hrs, Volume= 157,042 cf, Atten= 0%, Lag= 0.0 min  
Routed to Link 1L : POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs



Hydrograph for Link 13L: FES

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.06         | 0.00             | 0.06          |
| 0.50         | 0.00         | 0.00             | 0.00          | 26.50        | 0.05         | 0.00             | 0.05          |
| 1.00         | 0.04         | 0.00             | 0.04          | 27.00        | 0.04         | 0.00             | 0.04          |
| 1.50         | 0.08         | 0.00             | 0.08          | 27.50        | 0.04         | 0.00             | 0.04          |
| 2.00         | 0.11         | 0.00             | 0.11          | 28.00        | 0.03         | 0.00             | 0.03          |
| 2.50         | 0.13         | 0.00             | 0.13          | 28.50        | 0.03         | 0.00             | 0.03          |
| 3.00         | 0.14         | 0.00             | 0.14          | 29.00        | 0.02         | 0.00             | 0.02          |
| 3.50         | 0.15         | 0.00             | 0.15          | 29.50        | 0.02         | 0.00             | 0.02          |
| 4.00         | 0.16         | 0.00             | 0.16          | 30.00        | 0.02         | 0.00             | 0.02          |
| 4.50         | 0.17         | 0.00             | 0.17          | 30.50        | 0.02         | 0.00             | 0.02          |
| 5.00         | 0.18         | 0.00             | 0.18          | 31.00        | 0.02         | 0.00             | 0.02          |
| 5.50         | 0.19         | 0.00             | 0.19          | 31.50        | 0.01         | 0.00             | 0.01          |
| 6.00         | 0.19         | 0.00             | 0.19          | 32.00        | 0.01         | 0.00             | 0.01          |
| 6.50         | 0.21         | 0.00             | 0.21          | 32.50        | 0.01         | 0.00             | 0.01          |
| 7.00         | 0.23         | 0.00             | 0.23          | 33.00        | 0.01         | 0.00             | 0.01          |
| 7.50         | 0.26         | 0.00             | 0.26          | 33.50        | 0.01         | 0.00             | 0.01          |
| 8.00         | 0.33         | 0.00             | 0.33          | 34.00        | 0.01         | 0.00             | 0.01          |
| 8.50         | 0.40         | 0.00             | 0.40          | 34.50        | 0.01         | 0.00             | 0.01          |
| 9.00         | 0.47         | 0.00             | 0.47          | 35.00        | 0.01         | 0.00             | 0.01          |
| 9.50         | 0.61         | 0.00             | 0.61          | 35.50        | 0.01         | 0.00             | 0.01          |
| 10.00        | 0.84         | 0.00             | 0.84          | 36.00        | 0.01         | 0.00             | 0.01          |
| 10.50        | 1.13         | 0.00             | 1.13          |              |              |                  |               |
| 11.00        | 1.73         | 0.00             | 1.73          |              |              |                  |               |
| 11.50        | 3.16         | 0.00             | 3.16          |              |              |                  |               |
| 12.00        | 9.95         | 0.00             | 9.95          |              |              |                  |               |
| 12.50        | 21.35        | 0.00             | 21.35         |              |              |                  |               |
| 13.00        | 7.85         | 0.00             | 7.85          |              |              |                  |               |
| 13.50        | 4.80         | 0.00             | 4.80          |              |              |                  |               |
| 14.00        | 3.49         | 0.00             | 3.49          |              |              |                  |               |
| 14.50        | 2.94         | 0.00             | 2.94          |              |              |                  |               |
| 15.00        | 2.45         | 0.00             | 2.45          |              |              |                  |               |
| 15.50        | 2.05         | 0.00             | 2.05          |              |              |                  |               |
| 16.00        | 1.84         | 0.00             | 1.84          |              |              |                  |               |
| 16.50        | 1.66         | 0.00             | 1.66          |              |              |                  |               |
| 17.00        | 1.50         | 0.00             | 1.50          |              |              |                  |               |
| 17.50        | 1.35         | 0.00             | 1.35          |              |              |                  |               |
| 18.00        | 1.21         | 0.00             | 1.21          |              |              |                  |               |
| 18.50        | 1.10         | 0.00             | 1.10          |              |              |                  |               |
| 19.00        | 1.04         | 0.00             | 1.04          |              |              |                  |               |
| 19.50        | 0.99         | 0.00             | 0.99          |              |              |                  |               |
| 20.00        | 0.95         | 0.00             | 0.95          |              |              |                  |               |
| 20.50        | 0.91         | 0.00             | 0.91          |              |              |                  |               |
| 21.00        | 0.87         | 0.00             | 0.87          |              |              |                  |               |
| 21.50        | 0.83         | 0.00             | 0.83          |              |              |                  |               |
| 22.00        | 0.80         | 0.00             | 0.80          |              |              |                  |               |
| 22.50        | 0.77         | 0.00             | 0.77          |              |              |                  |               |
| 23.00        | 0.73         | 0.00             | 0.73          |              |              |                  |               |
| 23.50        | 0.70         | 0.00             | 0.70          |              |              |                  |               |
| 24.00        | 0.67         | 0.00             | 0.67          |              |              |                  |               |
| 24.50        | 0.21         | 0.00             | 0.21          |              |              |                  |               |
| 25.00        | 0.10         | 0.00             | 0.10          |              |              |                  |               |
| 25.50        | 0.08         | 0.00             | 0.08          |              |              |                  |               |

Time span=0.00-36.00 hrs, dt=0.05 hrs, 721 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

|                                    |                                                                                                                                     |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Subcatchment1S: GI-1 Pervious      | Runoff Area=18,062 sf 0.00% Impervious Runoff Depth=0.00"<br>Flow Length=68' Slope=0.0330 '/' Tc=7.8 min CN=39 Runoff=0.00 cfs 0 cf |
| Subcatchment2S: GI-9 Pervious      | Runoff Area=16,032 sf 0.00% Impervious Runoff Depth=0.00"<br>Flow Length=17' Slope=0.0960 '/' Tc=1.7 min CN=61 Runoff=0.00 cfs 0 cf |
| Subcatchment3S: GI-1 Impervious    | Runoff Area=21,060 sf 100.00% Impervious Runoff Depth=1.03"<br>Flow Length=400' Tc=2.7 min CN=98 Runoff=1.46 cfs 1,816 cf           |
| Subcatchment5S: Proposed Disturbed | Runoff Area=44,397 sf 0.00% Impervious Runoff Depth=0.00"<br>Flow Length=1,818' Tc=89.3 min CN=47 Runoff=0.00 cfs 0 cf              |
| Subcatchment6S: GI-9 Impervious    | Runoff Area=43,332 sf 100.00% Impervious Runoff Depth=1.03"<br>Flow Length=311' Tc=2.3 min CN=98 Runoff=3.02 cfs 3,736 cf           |
| Subcatchment15S: GI-2 Pervious     | Runoff Area=13,462 sf 0.00% Impervious Runoff Depth=0.00"<br>Flow Length=28' Slope=0.0400 '/' Tc=3.5 min CN=39 Runoff=0.00 cfs 0 cf |
| Subcatchment16S: GI-2 Impervious   | Runoff Area=13,121 sf 100.00% Impervious Runoff Depth=1.03"<br>Flow Length=220' Tc=1.9 min CN=98 Runoff=0.92 cfs 1,131 cf           |
| Subcatchment26S: GI-3 Pervious     | Runoff Area=23,555 sf 0.00% Impervious Runoff Depth=0.00"<br>Flow Length=93' Slope=0.0130 '/' Tc=9.4 min CN=55 Runoff=0.00 cfs 0 cf |
| Subcatchment27S: GI-3 Impervious   | Runoff Area=60,594 sf 100.00% Impervious Runoff Depth=1.03"<br>Flow Length=433' Tc=3.4 min CN=98 Runoff=4.16 cfs 5,224 cf           |
| Subcatchment29S: GI-6 Pervious     | Runoff Area=27,344 sf 0.00% Impervious Runoff Depth=0.00"<br>Flow Length=60' Slope=0.0280 '/' Tc=7.5 min CN=49 Runoff=0.00 cfs 0 cf |
| Subcatchment30S: GI-6 Impervious   | Runoff Area=57,688 sf 100.00% Impervious Runoff Depth=1.03"<br>Flow Length=401' Tc=3.3 min CN=98 Runoff=3.97 cfs 4,974 cf           |
| Subcatchment41S: GI-11 Pervious    | Runoff Area=3,638 sf 0.00% Impervious Runoff Depth=0.00"<br>Flow Length=123' Tc=3.4 min CN=61 Runoff=0.00 cfs 0 cf                  |
| Subcatchment42S: GI-11 Impervious  | Runoff Area=13,436 sf 100.00% Impervious Runoff Depth=1.03"<br>Flow Length=158' Tc=1.6 min CN=98 Runoff=0.96 cfs 1,158 cf           |
| Subcatchment46S: North Undisturbed | Runoff Area=157,085 sf 0.00% Impervious Runoff Depth=0.00"<br>Flow Length=690' Tc=22.1 min CN=54 Runoff=0.00 cfs 0 cf               |
| Subcatchment47S: North Undisturbed | Runoff Area=45,722 sf 100.00% Impervious Runoff Depth=1.03"<br>Flow Length=725' Tc=22.6 min CN=98 Runoff=1.88 cfs 3,942 cf          |
| Pond 2P: GI-1                      | Peak Elev=131.23' Storage=1,816 cf Inflow=1.46 cfs 1,816 cf<br>Outflow=0.00 cfs 0 cf                                                |

|                 |                                                                                      |
|-----------------|--------------------------------------------------------------------------------------|
| Pond 7P: GI-9   | Peak Elev=128.41' Storage=3,736 cf Inflow=3.02 cfs 3,736 cf<br>Outflow=0.00 cfs 0 cf |
| Pond 14P: GI-2  | Peak Elev=130.16' Storage=1,131 cf Inflow=0.92 cfs 1,131 cf<br>Outflow=0.00 cfs 0 cf |
| Pond 28P: GI-3  | Peak Elev=130.47' Storage=5,224 cf Inflow=4.16 cfs 5,224 cf<br>Outflow=0.00 cfs 0 cf |
| Pond 31P: GI-6  | Peak Elev=130.25' Storage=4,974 cf Inflow=3.97 cfs 4,974 cf<br>Outflow=0.00 cfs 0 cf |
| Pond 43P: GI-11 | Peak Elev=131.03' Storage=1,158 cf Inflow=0.96 cfs 1,158 cf<br>Outflow=0.00 cfs 0 cf |
| Link 1L: POI-1  | Inflow=1.88 cfs 3,942 cf<br>Primary=1.88 cfs 3,942 cf                                |
| Link 13L: FES   | Inflow=1.88 cfs 3,942 cf<br>Primary=1.88 cfs 3,942 cf                                |

Total Runoff Area = 558,528 sf Runoff Volume = 21,981 cf Average Runoff Depth = 0.47"  
54.35% Pervious = 303,575 sf 45.65% Impervious = 254,953 sf

Summary for Subcatchment 1S: GI-1 Pervious

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"  
Routed to Pond 2P : GI-1

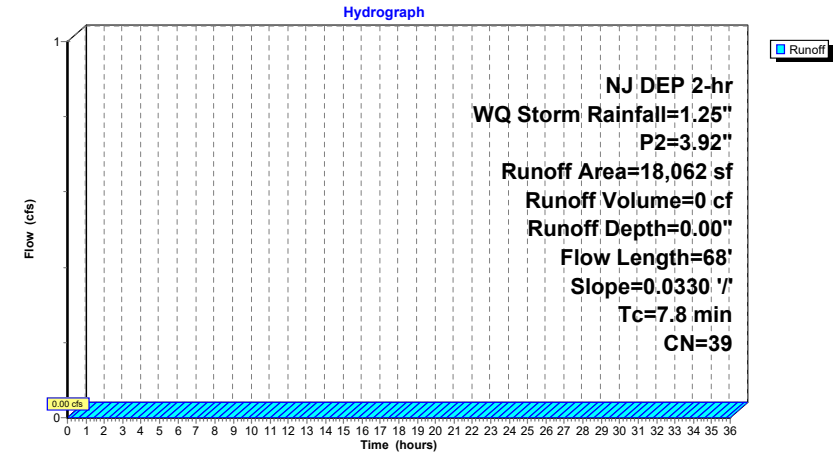
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 18,062    | 39 | >75% Grass cover, Good, HSG A |
| 18,062    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                          |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------|
| 7.8      | 68            | 0.0330        | 0.15              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92" |



Subcatchment 1S: GI-1 Pervious



Hydrograph for Subcatchment 1S: GI-1 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 1.25             | 0.00            | 0.00         |
| 0.50         | 0.10             | 0.00            | 0.00         | 26.50        | 1.25             | 0.00            | 0.00         |
| 1.00         | 0.63             | 0.00            | 0.00         | 27.00        | 1.25             | 0.00            | 0.00         |
| 1.50         | 1.15             | 0.00            | 0.00         | 27.50        | 1.25             | 0.00            | 0.00         |
| 2.00         | 1.25             | 0.00            | 0.00         | 28.00        | 1.25             | 0.00            | 0.00         |
| 2.50         | 1.25             | 0.00            | 0.00         | 28.50        | 1.25             | 0.00            | 0.00         |
| 3.00         | 1.25             | 0.00            | 0.00         | 29.00        | 1.25             | 0.00            | 0.00         |
| 3.50         | 1.25             | 0.00            | 0.00         | 29.50        | 1.25             | 0.00            | 0.00         |
| 4.00         | 1.25             | 0.00            | 0.00         | 30.00        | 1.25             | 0.00            | 0.00         |
| 4.50         | 1.25             | 0.00            | 0.00         | 30.50        | 1.25             | 0.00            | 0.00         |
| 5.00         | 1.25             | 0.00            | 0.00         | 31.00        | 1.25             | 0.00            | 0.00         |
| 5.50         | 1.25             | 0.00            | 0.00         | 31.50        | 1.25             | 0.00            | 0.00         |
| 6.00         | 1.25             | 0.00            | 0.00         | 32.00        | 1.25             | 0.00            | 0.00         |
| 6.50         | 1.25             | 0.00            | 0.00         | 32.50        | 1.25             | 0.00            | 0.00         |
| 7.00         | 1.25             | 0.00            | 0.00         | 33.00        | 1.25             | 0.00            | 0.00         |
| 7.50         | 1.25             | 0.00            | 0.00         | 33.50        | 1.25             | 0.00            | 0.00         |
| 8.00         | 1.25             | 0.00            | 0.00         | 34.00        | 1.25             | 0.00            | 0.00         |
| 8.50         | 1.25             | 0.00            | 0.00         | 34.50        | 1.25             | 0.00            | 0.00         |
| 9.00         | 1.25             | 0.00            | 0.00         | 35.00        | 1.25             | 0.00            | 0.00         |
| 9.50         | 1.25             | 0.00            | 0.00         | 35.50        | 1.25             | 0.00            | 0.00         |
| 10.00        | 1.25             | 0.00            | 0.00         | 36.00        | 1.25             | 0.00            | 0.00         |
| 10.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 11.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 11.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 12.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 12.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 13.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 13.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 14.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 14.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 15.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 15.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 16.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 16.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 17.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 17.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 18.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 18.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 19.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 19.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 20.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 20.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 21.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 21.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 22.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 22.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 23.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 23.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 24.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 24.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 25.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 25.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |

Summary for Subcatchment 2S: GI-9 Pervious

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"  
Routed to Pond 7P : GI-9

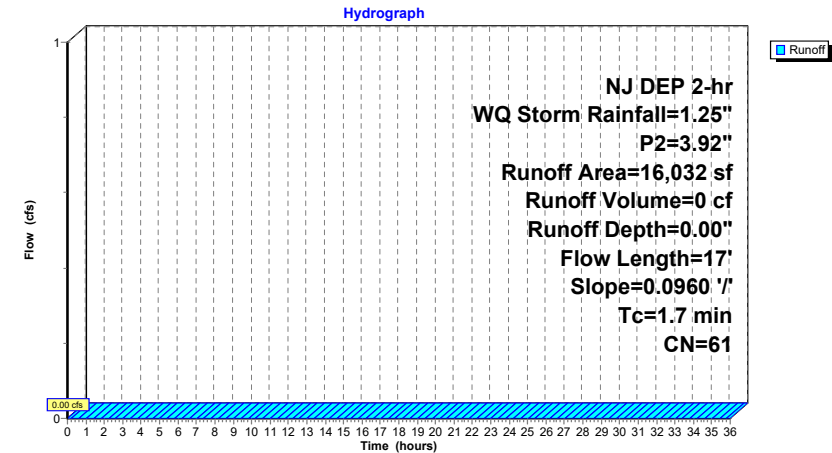
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 154       | 39 | >75% Grass cover, Good, HSG A |
| 15,878    | 61 | >75% Grass cover, Good, HSG B |
| 16,032    | 61 | Weighted Average              |
| 16,032    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                    |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------|
| 1.7      | 17            | 0.0960        | 0.17              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.92" |



Subcatchment 2S: GI-9 Pervious



Hydrograph for Subcatchment 2S: GI-9 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         |
| 0.50         | 0.10             | 0.00            | 0.00         |
| 1.00         | 0.63             | 0.00            | 0.00         |
| 1.50         | 1.15             | 0.00            | 0.00         |
| 2.00         | 1.25             | 0.00            | 0.00         |
| 2.50         | 1.25             | 0.00            | 0.00         |
| 3.00         | 1.25             | 0.00            | 0.00         |
| 3.50         | 1.25             | 0.00            | 0.00         |
| 4.00         | 1.25             | 0.00            | 0.00         |
| 4.50         | 1.25             | 0.00            | 0.00         |
| 5.00         | 1.25             | 0.00            | 0.00         |
| 5.50         | 1.25             | 0.00            | 0.00         |
| 6.00         | 1.25             | 0.00            | 0.00         |
| 6.50         | 1.25             | 0.00            | 0.00         |
| 7.00         | 1.25             | 0.00            | 0.00         |
| 7.50         | 1.25             | 0.00            | 0.00         |
| 8.00         | 1.25             | 0.00            | 0.00         |
| 8.50         | 1.25             | 0.00            | 0.00         |
| 9.00         | 1.25             | 0.00            | 0.00         |
| 9.50         | 1.25             | 0.00            | 0.00         |
| 10.00        | 1.25             | 0.00            | 0.00         |
| 10.50        | 1.25             | 0.00            | 0.00         |
| 11.00        | 1.25             | 0.00            | 0.00         |
| 11.50        | 1.25             | 0.00            | 0.00         |
| 12.00        | 1.25             | 0.00            | 0.00         |
| 12.50        | 1.25             | 0.00            | 0.00         |
| 13.00        | 1.25             | 0.00            | 0.00         |
| 13.50        | 1.25             | 0.00            | 0.00         |
| 14.00        | 1.25             | 0.00            | 0.00         |
| 14.50        | 1.25             | 0.00            | 0.00         |
| 15.00        | 1.25             | 0.00            | 0.00         |
| 15.50        | 1.25             | 0.00            | 0.00         |
| 16.00        | 1.25             | 0.00            | 0.00         |
| 16.50        | 1.25             | 0.00            | 0.00         |
| 17.00        | 1.25             | 0.00            | 0.00         |
| 17.50        | 1.25             | 0.00            | 0.00         |
| 18.00        | 1.25             | 0.00            | 0.00         |
| 18.50        | 1.25             | 0.00            | 0.00         |
| 19.00        | 1.25             | 0.00            | 0.00         |
| 19.50        | 1.25             | 0.00            | 0.00         |
| 20.00        | 1.25             | 0.00            | 0.00         |
| 20.50        | 1.25             | 0.00            | 0.00         |
| 21.00        | 1.25             | 0.00            | 0.00         |
| 21.50        | 1.25             | 0.00            | 0.00         |
| 22.00        | 1.25             | 0.00            | 0.00         |
| 22.50        | 1.25             | 0.00            | 0.00         |
| 23.00        | 1.25             | 0.00            | 0.00         |
| 23.50        | 1.25             | 0.00            | 0.00         |
| 24.00        | 1.25             | 0.00            | 0.00         |
| 24.50        | 1.25             | 0.00            | 0.00         |
| 25.00        | 1.25             | 0.00            | 0.00         |
| 25.50        | 1.25             | 0.00            | 0.00         |

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|
| 26.00        | 1.25             | 0.00            | 0.00         |
| 26.50        | 1.25             | 0.00            | 0.00         |
| 27.00        | 1.25             | 0.00            | 0.00         |
| 27.50        | 1.25             | 0.00            | 0.00         |
| 28.00        | 1.25             | 0.00            | 0.00         |
| 28.50        | 1.25             | 0.00            | 0.00         |
| 29.00        | 1.25             | 0.00            | 0.00         |
| 29.50        | 1.25             | 0.00            | 0.00         |
| 30.00        | 1.25             | 0.00            | 0.00         |
| 30.50        | 1.25             | 0.00            | 0.00         |
| 31.00        | 1.25             | 0.00            | 0.00         |
| 31.50        | 1.25             | 0.00            | 0.00         |
| 32.00        | 1.25             | 0.00            | 0.00         |
| 32.50        | 1.25             | 0.00            | 0.00         |
| 33.00        | 1.25             | 0.00            | 0.00         |
| 33.50        | 1.25             | 0.00            | 0.00         |
| 34.00        | 1.25             | 0.00            | 0.00         |
| 34.50        | 1.25             | 0.00            | 0.00         |
| 35.00        | 1.25             | 0.00            | 0.00         |
| 35.50        | 1.25             | 0.00            | 0.00         |
| 36.00        | 1.25             | 0.00            | 0.00         |

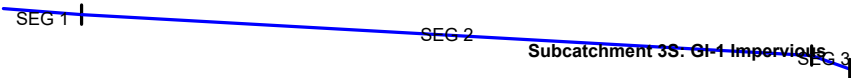
Summary for Subcatchment 3S: GI-1 Impervious

Runoff = 1.46 cfs @ 1.05 hrs, Volume= 1,816 cf, Depth= 1.03"  
Routed to Pond 2P : GI-1

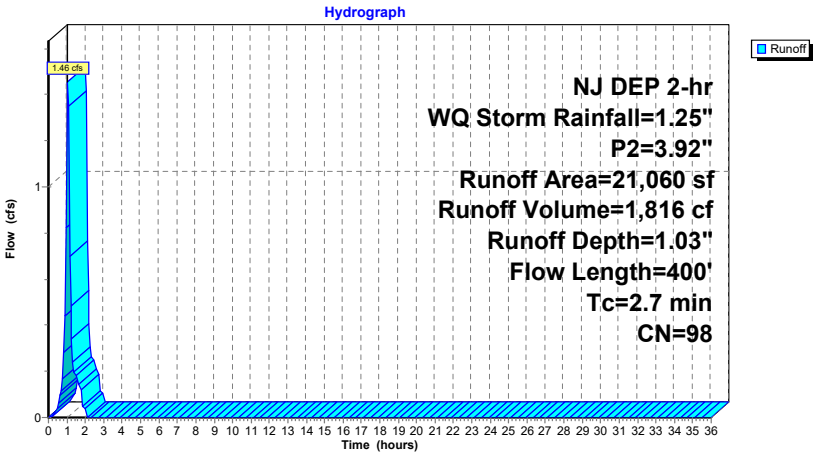
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 21,060    | 98 | Paved parking, HSG A    |
| 21,060    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 0.6      | 37            | 0.0140        | 1.08              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.92"             |
| 1.9      | 345           | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2      | 18            | 0.0630        | 1.76              |                | Shallow Concentrated Flow, SEG 3<br>Short Grass Pasture Kv= 7.0 fps |
| 2.7      | 400           |               |                   |                | Total                                                               |



Subcatchment 3S: GI-1 Impervious



Hydrograph for Subcatchment 3S: GI-1 Impervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         |
| 0.50         | 0.10             | 0.01            | 0.05         |
| 1.00         | 0.63             | 0.43            | 1.36         |
| 1.50         | 1.15             | 0.94            | 0.19         |
| 2.00         | 1.25             | 1.03            | 0.05         |
| 2.50         | 1.25             | 1.03            | 0.00         |
| 3.00         | 1.25             | 1.03            | 0.00         |
| 3.50         | 1.25             | 1.03            | 0.00         |
| 4.00         | 1.25             | 1.03            | 0.00         |
| 4.50         | 1.25             | 1.03            | 0.00         |
| 5.00         | 1.25             | 1.03            | 0.00         |
| 5.50         | 1.25             | 1.03            | 0.00         |
| 6.00         | 1.25             | 1.03            | 0.00         |
| 6.50         | 1.25             | 1.03            | 0.00         |
| 7.00         | 1.25             | 1.03            | 0.00         |
| 7.50         | 1.25             | 1.03            | 0.00         |
| 8.00         | 1.25             | 1.03            | 0.00         |
| 8.50         | 1.25             | 1.03            | 0.00         |
| 9.00         | 1.25             | 1.03            | 0.00         |
| 9.50         | 1.25             | 1.03            | 0.00         |
| 10.00        | 1.25             | 1.03            | 0.00         |
| 10.50        | 1.25             | 1.03            | 0.00         |
| 11.00        | 1.25             | 1.03            | 0.00         |
| 11.50        | 1.25             | 1.03            | 0.00         |
| 12.00        | 1.25             | 1.03            | 0.00         |
| 12.50        | 1.25             | 1.03            | 0.00         |
| 13.00        | 1.25             | 1.03            | 0.00         |
| 13.50        | 1.25             | 1.03            | 0.00         |
| 14.00        | 1.25             | 1.03            | 0.00         |
| 14.50        | 1.25             | 1.03            | 0.00         |
| 15.00        | 1.25             | 1.03            | 0.00         |
| 15.50        | 1.25             | 1.03            | 0.00         |
| 16.00        | 1.25             | 1.03            | 0.00         |
| 16.50        | 1.25             | 1.03            | 0.00         |
| 17.00        | 1.25             | 1.03            | 0.00         |
| 17.50        | 1.25             | 1.03            | 0.00         |
| 18.00        | 1.25             | 1.03            | 0.00         |
| 18.50        | 1.25             | 1.03            | 0.00         |
| 19.00        | 1.25             | 1.03            | 0.00         |
| 19.50        | 1.25             | 1.03            | 0.00         |
| 20.00        | 1.25             | 1.03            | 0.00         |
| 20.50        | 1.25             | 1.03            | 0.00         |
| 21.00        | 1.25             | 1.03            | 0.00         |
| 21.50        | 1.25             | 1.03            | 0.00         |
| 22.00        | 1.25             | 1.03            | 0.00         |
| 22.50        | 1.25             | 1.03            | 0.00         |
| 23.00        | 1.25             | 1.03            | 0.00         |
| 23.50        | 1.25             | 1.03            | 0.00         |
| 24.00        | 1.25             | 1.03            | 0.00         |
| 24.50        | 1.25             | 1.03            | 0.00         |
| 25.00        | 1.25             | 1.03            | 0.00         |
| 25.50        | 1.25             | 1.03            | 0.00         |



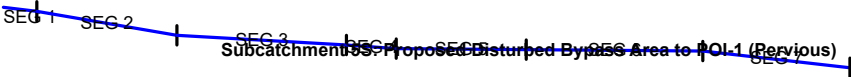
Summary for Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"  
Routed to Link 1L : POI-1

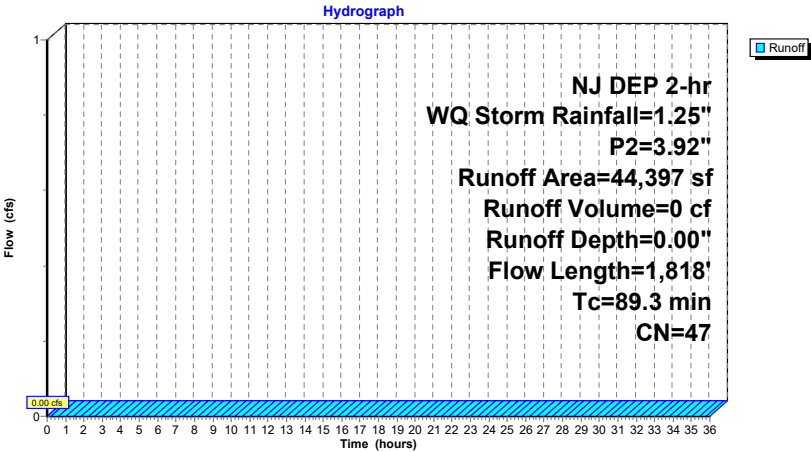
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 28,757    | 39 | >75% Grass cover, Good, HSG A |
| 15,640    | 61 | >75% Grass cover, Good, HSG B |
| 44,397    | 47 | Weighted Average              |
| 44,397    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                               |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------------------------------------|
| 8.4      | 72            | 0.0150        | 0.14              |                | <b>Sheet Flow, SEG 1</b><br>Cultivated: Residue>20% n= 0.170 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 3.8      | 301           | 0.0210        | 1.30              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 8.1      | 364           | 0.0070        | 0.75              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 3.8      | 107           | 0.0090        | 0.47              |                | <b>Shallow Concentrated Flow, SEG 4</b><br>Woodland Kv= 5.0 fps                                           |
| 16.3     | 279           | 0.0010        | 0.28              |                | <b>Shallow Concentrated Flow, SEG 5</b><br>Cultivated Straight Rows Kv= 9.0 fps                           |
| 40.0     | 379           | 0.0010        | 0.16              |                | <b>Shallow Concentrated Flow, SEG 6</b><br>Woodland Kv= 5.0 fps                                           |
| 8.9      | 316           | 0.0140        | 0.59              |                | <b>Shallow Concentrated Flow, SEG 7</b><br>Woodland Kv= 5.0 fps                                           |
| 89.3     | 1,818         | Total         |                   |                |                                                                                                           |



Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)



Hydrograph for Subcatchment 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 0.00               | 0.00            |
| 0.50            | 0.10                | 0.00               | 0.00            | 26.50           | 1.25                | 0.00               | 0.00            |
| 1.00            | 0.63                | 0.00               | 0.00            | 27.00           | 1.25                | 0.00               | 0.00            |
| 1.50            | 1.15                | 0.00               | 0.00            | 27.50           | 1.25                | 0.00               | 0.00            |
| 2.00            | 1.25                | 0.00               | 0.00            | 28.00           | 1.25                | 0.00               | 0.00            |
| 2.50            | 1.25                | 0.00               | 0.00            | 28.50           | 1.25                | 0.00               | 0.00            |
| 3.00            | 1.25                | 0.00               | 0.00            | 29.00           | 1.25                | 0.00               | 0.00            |
| 3.50            | 1.25                | 0.00               | 0.00            | 29.50           | 1.25                | 0.00               | 0.00            |
| 4.00            | 1.25                | 0.00               | 0.00            | 30.00           | 1.25                | 0.00               | 0.00            |
| 4.50            | 1.25                | 0.00               | 0.00            | 30.50           | 1.25                | 0.00               | 0.00            |
| 5.00            | 1.25                | 0.00               | 0.00            | 31.00           | 1.25                | 0.00               | 0.00            |
| 5.50            | 1.25                | 0.00               | 0.00            | 31.50           | 1.25                | 0.00               | 0.00            |
| 6.00            | 1.25                | 0.00               | 0.00            | 32.00           | 1.25                | 0.00               | 0.00            |
| 6.50            | 1.25                | 0.00               | 0.00            | 32.50           | 1.25                | 0.00               | 0.00            |
| 7.00            | 1.25                | 0.00               | 0.00            | 33.00           | 1.25                | 0.00               | 0.00            |
| 7.50            | 1.25                | 0.00               | 0.00            | 33.50           | 1.25                | 0.00               | 0.00            |
| 8.00            | 1.25                | 0.00               | 0.00            | 34.00           | 1.25                | 0.00               | 0.00            |
| 8.50            | 1.25                | 0.00               | 0.00            | 34.50           | 1.25                | 0.00               | 0.00            |
| 9.00            | 1.25                | 0.00               | 0.00            | 35.00           | 1.25                | 0.00               | 0.00            |
| 9.50            | 1.25                | 0.00               | 0.00            | 35.50           | 1.25                | 0.00               | 0.00            |
| 10.00           | 1.25                | 0.00               | 0.00            | 36.00           | 1.25                | 0.00               | 0.00            |
| 10.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 6S: GI-9 Impervious

Runoff = 3.02 cfs @ 1.04 hrs, Volume= 3,736 cf, Depth= 1.03"  
Routed to Pond 7P : GI-9

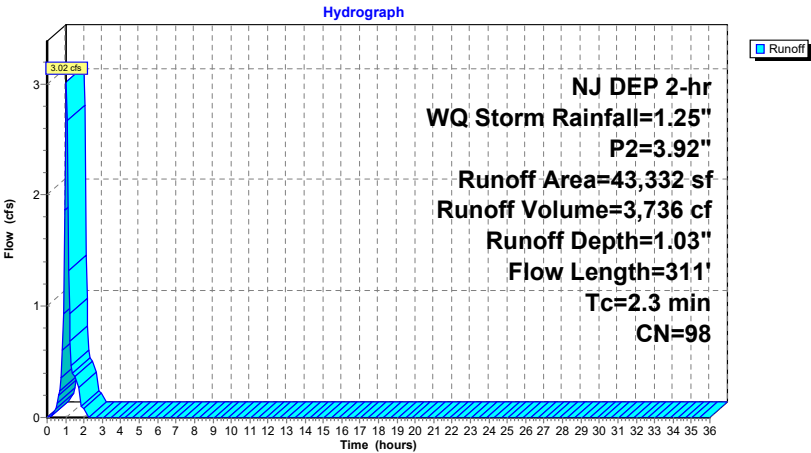
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 43,332    | 98 | Paved parking, HSG A    |
| 43,332    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 1.0      | 71            | 0.0140        | 1.23              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.92"             |
| 1.2      | 222           | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.1      | 18            | 0.0960        | 2.17              |                | Shallow Concentrated Flow, SEG 3<br>Short Grass Pasture Kv= 7.0 fps |
| 2.3      | 311           | Total         |                   |                |                                                                     |



Subcatchment 6S: GI-9 Impervious



Hydrograph for Subcatchment 6S: GI-9 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 1.03               | 0.00            |
| 0.50            | 0.10                | 0.01               | 0.11            | 26.50           | 1.25                | 1.03               | 0.00            |
| 1.00            | 0.63                | 0.43               | 2.86            | 27.00           | 1.25                | 1.03               | 0.00            |
| 1.50            | 1.15                | 0.94               | 0.38            | 27.50           | 1.25                | 1.03               | 0.00            |
| 2.00            | 1.25                | 1.03               | 0.09            | 28.00           | 1.25                | 1.03               | 0.00            |
| 2.50            | 1.25                | 1.03               | 0.00            | 28.50           | 1.25                | 1.03               | 0.00            |
| 3.00            | 1.25                | 1.03               | 0.00            | 29.00           | 1.25                | 1.03               | 0.00            |
| 3.50            | 1.25                | 1.03               | 0.00            | 29.50           | 1.25                | 1.03               | 0.00            |
| 4.00            | 1.25                | 1.03               | 0.00            | 30.00           | 1.25                | 1.03               | 0.00            |
| 4.50            | 1.25                | 1.03               | 0.00            | 30.50           | 1.25                | 1.03               | 0.00            |
| 5.00            | 1.25                | 1.03               | 0.00            | 31.00           | 1.25                | 1.03               | 0.00            |
| 5.50            | 1.25                | 1.03               | 0.00            | 31.50           | 1.25                | 1.03               | 0.00            |
| 6.00            | 1.25                | 1.03               | 0.00            | 32.00           | 1.25                | 1.03               | 0.00            |
| 6.50            | 1.25                | 1.03               | 0.00            | 32.50           | 1.25                | 1.03               | 0.00            |
| 7.00            | 1.25                | 1.03               | 0.00            | 33.00           | 1.25                | 1.03               | 0.00            |
| 7.50            | 1.25                | 1.03               | 0.00            | 33.50           | 1.25                | 1.03               | 0.00            |
| 8.00            | 1.25                | 1.03               | 0.00            | 34.00           | 1.25                | 1.03               | 0.00            |
| 8.50            | 1.25                | 1.03               | 0.00            | 34.50           | 1.25                | 1.03               | 0.00            |
| 9.00            | 1.25                | 1.03               | 0.00            | 35.00           | 1.25                | 1.03               | 0.00            |
| 9.50            | 1.25                | 1.03               | 0.00            | 35.50           | 1.25                | 1.03               | 0.00            |
| 10.00           | 1.25                | 1.03               | 0.00            | 36.00           | 1.25                | 1.03               | 0.00            |
| 10.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 15S: GI-2 Pervious

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"  
Routed to Pond 14P : GI-2

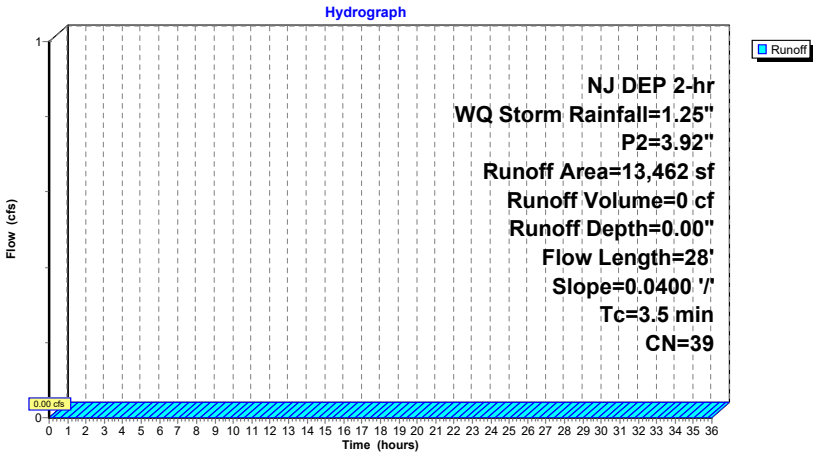
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 13,462    | 39 | >75% Grass cover, Good, HSG A |
| 13,462    |    | 100.00% Pervious Area         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                          |
|-------------|------------------|------------------|----------------------|-------------------|------------------------------------------------------|
| 3.5         | 28               | 0.0400           | 0.13                 |                   | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92" |



Subcatchment 15S: GI-2 Pervious

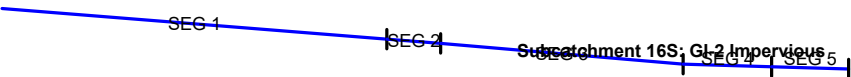


Hydrograph for Subcatchment 15S: GI-2 Pervious

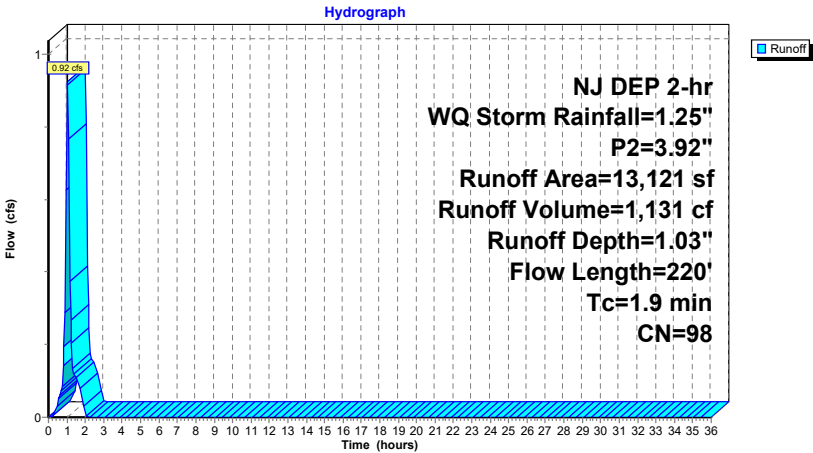
| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 0.00               | 0.00            |
| 0.50            | 0.10                | 0.00               | 0.00            | 26.50           | 1.25                | 0.00               | 0.00            |
| 1.00            | 0.63                | 0.00               | 0.00            | 27.00           | 1.25                | 0.00               | 0.00            |
| 1.50            | 1.15                | 0.00               | 0.00            | 27.50           | 1.25                | 0.00               | 0.00            |
| 2.00            | 1.25                | 0.00               | 0.00            | 28.00           | 1.25                | 0.00               | 0.00            |
| 2.50            | 1.25                | 0.00               | 0.00            | 28.50           | 1.25                | 0.00               | 0.00            |
| 3.00            | 1.25                | 0.00               | 0.00            | 29.00           | 1.25                | 0.00               | 0.00            |
| 3.50            | 1.25                | 0.00               | 0.00            | 29.50           | 1.25                | 0.00               | 0.00            |
| 4.00            | 1.25                | 0.00               | 0.00            | 30.00           | 1.25                | 0.00               | 0.00            |
| 4.50            | 1.25                | 0.00               | 0.00            | 30.50           | 1.25                | 0.00               | 0.00            |
| 5.00            | 1.25                | 0.00               | 0.00            | 31.00           | 1.25                | 0.00               | 0.00            |
| 5.50            | 1.25                | 0.00               | 0.00            | 31.50           | 1.25                | 0.00               | 0.00            |
| 6.00            | 1.25                | 0.00               | 0.00            | 32.00           | 1.25                | 0.00               | 0.00            |
| 6.50            | 1.25                | 0.00               | 0.00            | 32.50           | 1.25                | 0.00               | 0.00            |
| 7.00            | 1.25                | 0.00               | 0.00            | 33.00           | 1.25                | 0.00               | 0.00            |
| 7.50            | 1.25                | 0.00               | 0.00            | 33.50           | 1.25                | 0.00               | 0.00            |
| 8.00            | 1.25                | 0.00               | 0.00            | 34.00           | 1.25                | 0.00               | 0.00            |
| 8.50            | 1.25                | 0.00               | 0.00            | 34.50           | 1.25                | 0.00               | 0.00            |
| 9.00            | 1.25                | 0.00               | 0.00            | 35.00           | 1.25                | 0.00               | 0.00            |
| 9.50            | 1.25                | 0.00               | 0.00            | 35.50           | 1.25                | 0.00               | 0.00            |
| 10.00           | 1.25                | 0.00               | 0.00            | 36.00           | 1.25                | 0.00               | 0.00            |
| 10.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 16S: GI-2 Impervious

| Runoff = 0.92 cfs @ 1.03 hrs, Volume= 1,131 cf, Depth= 1.03"<br>Routed to Pond 14P : GI-2                                                 |                  |                         |                      |                   |                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------|
| Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs<br>NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92" |                  |                         |                      |                   |                                                                                                                 |
| Area (sf)                                                                                                                                 | CN               | Description             |                      |                   |                                                                                                                 |
| 13,121                                                                                                                                    | 98               | Paved parking, HSG A    |                      |                   |                                                                                                                 |
| 13,121                                                                                                                                    |                  | 100.00% Impervious Area |                      |                   |                                                                                                                 |
| Tc<br>(min)                                                                                                                               | Length<br>(feet) | Slope<br>(ft/ft)        | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                     |
| 1.3                                                                                                                                       | 100              | 0.0140                  | 1.32                 |                   | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.92"                                                  |
| 0.1                                                                                                                                       | 14               | 0.0140                  | 2.40                 |                   | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps                                                   |
| 0.3                                                                                                                                       | 63               | 0.0150                  | 3.65                 | 0.73              | <b>Channel Flow, SEG 3</b><br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013                                        |
| 0.1                                                                                                                                       | 23               | 0.0050                  | 4.03                 | 4.95              | <b>Pipe Channel, SEG 4</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 Concrete pipe, finished |
| 0.1                                                                                                                                       | 20               | 0.0050                  | 4.03                 | 4.95              | <b>Pipe Channel, SEG 5</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012                         |
| 1.9                                                                                                                                       | 220              | Total                   |                      |                   |                                                                                                                 |



Subcatchment 16S: GI-2 Impervious



Hydrograph for Subcatchment 16S: GI-2 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 1.03               | 0.00            |
| 0.50            | 0.10                | 0.01               | 0.03            | 26.50           | 1.25                | 1.03               | 0.00            |
| 1.00            | 0.63                | 0.43               | 0.88            | 27.00           | 1.25                | 1.03               | 0.00            |
| 1.50            | 1.15                | 0.94               | 0.12            | 27.50           | 1.25                | 1.03               | 0.00            |
| 2.00            | 1.25                | 1.03               | 0.03            | 28.00           | 1.25                | 1.03               | 0.00            |
| 2.50            | 1.25                | 1.03               | 0.00            | 28.50           | 1.25                | 1.03               | 0.00            |
| 3.00            | 1.25                | 1.03               | 0.00            | 29.00           | 1.25                | 1.03               | 0.00            |
| 3.50            | 1.25                | 1.03               | 0.00            | 29.50           | 1.25                | 1.03               | 0.00            |
| 4.00            | 1.25                | 1.03               | 0.00            | 30.00           | 1.25                | 1.03               | 0.00            |
| 4.50            | 1.25                | 1.03               | 0.00            | 30.50           | 1.25                | 1.03               | 0.00            |
| 5.00            | 1.25                | 1.03               | 0.00            | 31.00           | 1.25                | 1.03               | 0.00            |
| 5.50            | 1.25                | 1.03               | 0.00            | 31.50           | 1.25                | 1.03               | 0.00            |
| 6.00            | 1.25                | 1.03               | 0.00            | 32.00           | 1.25                | 1.03               | 0.00            |
| 6.50            | 1.25                | 1.03               | 0.00            | 32.50           | 1.25                | 1.03               | 0.00            |
| 7.00            | 1.25                | 1.03               | 0.00            | 33.00           | 1.25                | 1.03               | 0.00            |
| 7.50            | 1.25                | 1.03               | 0.00            | 33.50           | 1.25                | 1.03               | 0.00            |
| 8.00            | 1.25                | 1.03               | 0.00            | 34.00           | 1.25                | 1.03               | 0.00            |
| 8.50            | 1.25                | 1.03               | 0.00            | 34.50           | 1.25                | 1.03               | 0.00            |
| 9.00            | 1.25                | 1.03               | 0.00            | 35.00           | 1.25                | 1.03               | 0.00            |
| 9.50            | 1.25                | 1.03               | 0.00            | 35.50           | 1.25                | 1.03               | 0.00            |
| 10.00           | 1.25                | 1.03               | 0.00            | 36.00           | 1.25                | 1.03               | 0.00            |
| 10.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |

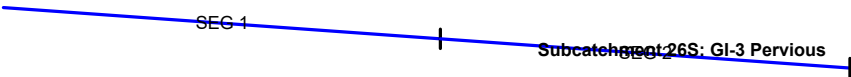
Summary for Subcatchment 26S: GI-3 Pervious

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"  
Routed to Pond 28P : GI-3

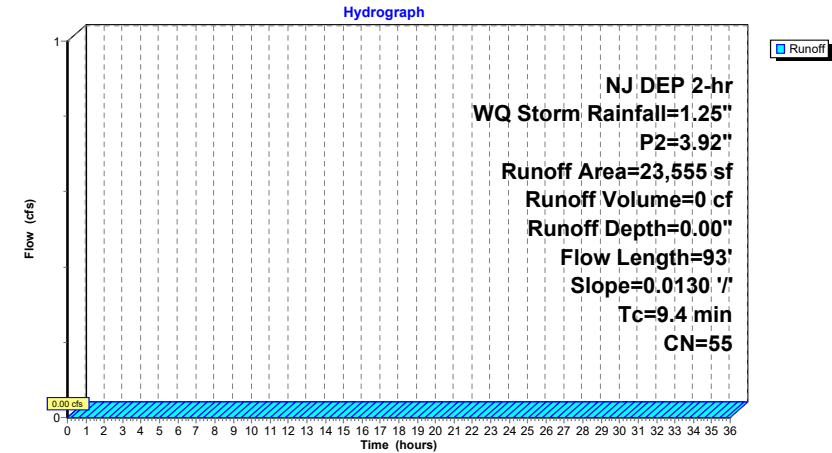
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 6,391     | 39 | >75% Grass cover, Good, HSG A |
| 17,164    | 61 | >75% Grass cover, Good, HSG B |
| 23,555    | 55 | Weighted Average              |
| 23,555    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 8.5      | 48            | 0.0130        | 0.09              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92"                |
| 0.9      | 45            | 0.0130        | 0.80              |                | Shallow Concentrated Flow, SEG 2<br>Short Grass Pasture Kv= 7.0 fps |
| 9.4      | 93            | Total         |                   |                |                                                                     |



Subcatchment 26S: GI-3 Pervious



Hydrograph for Subcatchment 26S: GI-3 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         |
| 0.50         | 0.10             | 0.00            | 0.00         |
| 1.00         | 0.63             | 0.00            | 0.00         |
| 1.50         | 1.15             | 0.00            | 0.00         |
| 2.00         | 1.25             | 0.00            | 0.00         |
| 2.50         | 1.25             | 0.00            | 0.00         |
| 3.00         | 1.25             | 0.00            | 0.00         |
| 3.50         | 1.25             | 0.00            | 0.00         |
| 4.00         | 1.25             | 0.00            | 0.00         |
| 4.50         | 1.25             | 0.00            | 0.00         |
| 5.00         | 1.25             | 0.00            | 0.00         |
| 5.50         | 1.25             | 0.00            | 0.00         |
| 6.00         | 1.25             | 0.00            | 0.00         |
| 6.50         | 1.25             | 0.00            | 0.00         |
| 7.00         | 1.25             | 0.00            | 0.00         |
| 7.50         | 1.25             | 0.00            | 0.00         |
| 8.00         | 1.25             | 0.00            | 0.00         |
| 8.50         | 1.25             | 0.00            | 0.00         |
| 9.00         | 1.25             | 0.00            | 0.00         |
| 9.50         | 1.25             | 0.00            | 0.00         |
| 10.00        | 1.25             | 0.00            | 0.00         |
| 10.50        | 1.25             | 0.00            | 0.00         |
| 11.00        | 1.25             | 0.00            | 0.00         |
| 11.50        | 1.25             | 0.00            | 0.00         |
| 12.00        | 1.25             | 0.00            | 0.00         |
| 12.50        | 1.25             | 0.00            | 0.00         |
| 13.00        | 1.25             | 0.00            | 0.00         |
| 13.50        | 1.25             | 0.00            | 0.00         |
| 14.00        | 1.25             | 0.00            | 0.00         |
| 14.50        | 1.25             | 0.00            | 0.00         |
| 15.00        | 1.25             | 0.00            | 0.00         |
| 15.50        | 1.25             | 0.00            | 0.00         |
| 16.00        | 1.25             | 0.00            | 0.00         |
| 16.50        | 1.25             | 0.00            | 0.00         |
| 17.00        | 1.25             | 0.00            | 0.00         |
| 17.50        | 1.25             | 0.00            | 0.00         |
| 18.00        | 1.25             | 0.00            | 0.00         |
| 18.50        | 1.25             | 0.00            | 0.00         |
| 19.00        | 1.25             | 0.00            | 0.00         |
| 19.50        | 1.25             | 0.00            | 0.00         |
| 20.00        | 1.25             | 0.00            | 0.00         |
| 20.50        | 1.25             | 0.00            | 0.00         |
| 21.00        | 1.25             | 0.00            | 0.00         |
| 21.50        | 1.25             | 0.00            | 0.00         |
| 22.00        | 1.25             | 0.00            | 0.00         |
| 22.50        | 1.25             | 0.00            | 0.00         |
| 23.00        | 1.25             | 0.00            | 0.00         |
| 23.50        | 1.25             | 0.00            | 0.00         |
| 24.00        | 1.25             | 0.00            | 0.00         |
| 24.50        | 1.25             | 0.00            | 0.00         |
| 25.00        | 1.25             | 0.00            | 0.00         |
| 25.50        | 1.25             | 0.00            | 0.00         |

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|
| 26.00        | 1.25             | 0.00            | 0.00         |
| 26.50        | 1.25             | 0.00            | 0.00         |
| 27.00        | 1.25             | 0.00            | 0.00         |
| 27.50        | 1.25             | 0.00            | 0.00         |
| 28.00        | 1.25             | 0.00            | 0.00         |
| 28.50        | 1.25             | 0.00            | 0.00         |
| 29.00        | 1.25             | 0.00            | 0.00         |
| 29.50        | 1.25             | 0.00            | 0.00         |
| 30.00        | 1.25             | 0.00            | 0.00         |
| 30.50        | 1.25             | 0.00            | 0.00         |
| 31.00        | 1.25             | 0.00            | 0.00         |
| 31.50        | 1.25             | 0.00            | 0.00         |
| 32.00        | 1.25             | 0.00            | 0.00         |
| 32.50        | 1.25             | 0.00            | 0.00         |
| 33.00        | 1.25             | 0.00            | 0.00         |
| 33.50        | 1.25             | 0.00            | 0.00         |
| 34.00        | 1.25             | 0.00            | 0.00         |
| 34.50        | 1.25             | 0.00            | 0.00         |
| 35.00        | 1.25             | 0.00            | 0.00         |
| 35.50        | 1.25             | 0.00            | 0.00         |
| 36.00        | 1.25             | 0.00            | 0.00         |

Summary for Subcatchment 27S: GI-3 Impervious

Runoff = 4.16 cfs @ 1.07 hrs, Volume= 5,224 cf, Depth= 1.03"  
Routed to Pond 28P : GI-3

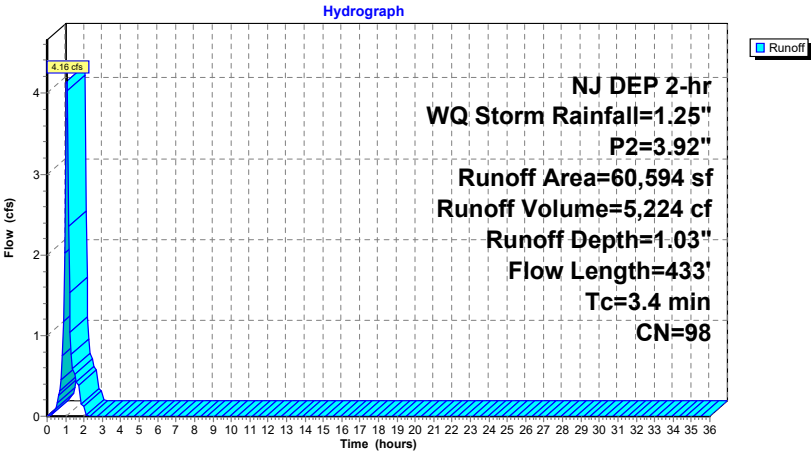
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 56,594    | 98 | Paved parking, HSG A    |
| 4,000     | 98 | Roofs, HSG A            |
| 60,594    | 98 | Weighted Average        |
| 60,594    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                           |
|----------|---------------|---------------|-------------------|----------------|-------------------------------------------------------------------------------------------------------|
| 1.3      | 100           | 0.0140        | 1.32              |                | Sheet Flow, SEG 1<br>Smooth surfaces n= 0.011 P2= 3.92"                                               |
| 1.9      | 270           | 0.0140        | 2.40              |                | Shallow Concentrated Flow, SEG 2<br>Paved Kv= 20.3 fps                                                |
| 0.0      | 8             | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 3<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013                                     |
| 0.2      | 55            | 0.0050        | 4.03              | 4.95           | Pipe Channel, SEG 4<br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished |
| 3.4      | 433           | Total         |                   |                |                                                                                                       |



Subcatchment 27S: GI-3 Impervious



Hydrograph for Subcatchment 27S: GI-3 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 1.03               | 0.00            |
| 0.50            | 0.10                | 0.01               | 0.13            | 26.50           | 1.25                | 1.03               | 0.00            |
| 1.00            | 0.63                | 0.43               | 3.68            | 27.00           | 1.25                | 1.03               | 0.00            |
| 1.50            | 1.15                | 0.94               | 0.54            | 27.50           | 1.25                | 1.03               | 0.00            |
| 2.00            | 1.25                | 1.03               | 0.14            | 28.00           | 1.25                | 1.03               | 0.00            |
| 2.50            | 1.25                | 1.03               | 0.00            | 28.50           | 1.25                | 1.03               | 0.00            |
| 3.00            | 1.25                | 1.03               | 0.00            | 29.00           | 1.25                | 1.03               | 0.00            |
| 3.50            | 1.25                | 1.03               | 0.00            | 29.50           | 1.25                | 1.03               | 0.00            |
| 4.00            | 1.25                | 1.03               | 0.00            | 30.00           | 1.25                | 1.03               | 0.00            |
| 4.50            | 1.25                | 1.03               | 0.00            | 30.50           | 1.25                | 1.03               | 0.00            |
| 5.00            | 1.25                | 1.03               | 0.00            | 31.00           | 1.25                | 1.03               | 0.00            |
| 5.50            | 1.25                | 1.03               | 0.00            | 31.50           | 1.25                | 1.03               | 0.00            |
| 6.00            | 1.25                | 1.03               | 0.00            | 32.00           | 1.25                | 1.03               | 0.00            |
| 6.50            | 1.25                | 1.03               | 0.00            | 32.50           | 1.25                | 1.03               | 0.00            |
| 7.00            | 1.25                | 1.03               | 0.00            | 33.00           | 1.25                | 1.03               | 0.00            |
| 7.50            | 1.25                | 1.03               | 0.00            | 33.50           | 1.25                | 1.03               | 0.00            |
| 8.00            | 1.25                | 1.03               | 0.00            | 34.00           | 1.25                | 1.03               | 0.00            |
| 8.50            | 1.25                | 1.03               | 0.00            | 34.50           | 1.25                | 1.03               | 0.00            |
| 9.00            | 1.25                | 1.03               | 0.00            | 35.00           | 1.25                | 1.03               | 0.00            |
| 9.50            | 1.25                | 1.03               | 0.00            | 35.50           | 1.25                | 1.03               | 0.00            |
| 10.00           | 1.25                | 1.03               | 0.00            | 36.00           | 1.25                | 1.03               | 0.00            |
| 10.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 29S: GI-6 Pervious

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"  
Routed to Pond 31P : GI-6

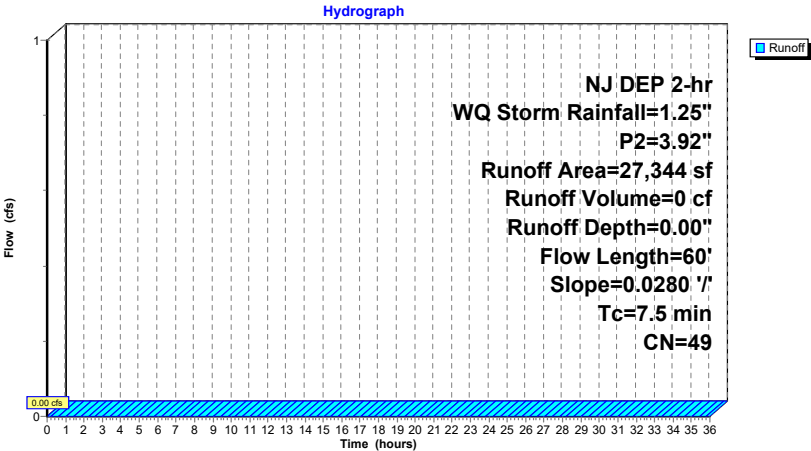
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 15,207    | 39 | >75% Grass cover, Good, HSG A |
| 12,137    | 61 | >75% Grass cover, Good, HSG B |
| 27,344    | 49 | Weighted Average              |
| 27,344    |    | 100.00% Pervious Area         |

| Tc (min)                        | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description       |
|---------------------------------|---------------|---------------|-------------------|----------------|-------------------|
| 7.5                             | 60            | 0.0280        | 0.13              |                | Sheet Flow, SEG 1 |
| Grass: Dense n= 0.240 P2= 3.92" |               |               |                   |                |                   |



Subcatchment 29S: GI-6 Pervious





Hydrograph for Subcatchment 29S: GI-6 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 0.00               | 0.00            |
| 0.50            | 0.10                | 0.00               | 0.00            | 26.50           | 1.25                | 0.00               | 0.00            |
| 1.00            | 0.63                | 0.00               | 0.00            | 27.00           | 1.25                | 0.00               | 0.00            |
| 1.50            | 1.15                | 0.00               | 0.00            | 27.50           | 1.25                | 0.00               | 0.00            |
| 2.00            | 1.25                | 0.00               | 0.00            | 28.00           | 1.25                | 0.00               | 0.00            |
| 2.50            | 1.25                | 0.00               | 0.00            | 28.50           | 1.25                | 0.00               | 0.00            |
| 3.00            | 1.25                | 0.00               | 0.00            | 29.00           | 1.25                | 0.00               | 0.00            |
| 3.50            | 1.25                | 0.00               | 0.00            | 29.50           | 1.25                | 0.00               | 0.00            |
| 4.00            | 1.25                | 0.00               | 0.00            | 30.00           | 1.25                | 0.00               | 0.00            |
| 4.50            | 1.25                | 0.00               | 0.00            | 30.50           | 1.25                | 0.00               | 0.00            |
| 5.00            | 1.25                | 0.00               | 0.00            | 31.00           | 1.25                | 0.00               | 0.00            |
| 5.50            | 1.25                | 0.00               | 0.00            | 31.50           | 1.25                | 0.00               | 0.00            |
| 6.00            | 1.25                | 0.00               | 0.00            | 32.00           | 1.25                | 0.00               | 0.00            |
| 6.50            | 1.25                | 0.00               | 0.00            | 32.50           | 1.25                | 0.00               | 0.00            |
| 7.00            | 1.25                | 0.00               | 0.00            | 33.00           | 1.25                | 0.00               | 0.00            |
| 7.50            | 1.25                | 0.00               | 0.00            | 33.50           | 1.25                | 0.00               | 0.00            |
| 8.00            | 1.25                | 0.00               | 0.00            | 34.00           | 1.25                | 0.00               | 0.00            |
| 8.50            | 1.25                | 0.00               | 0.00            | 34.50           | 1.25                | 0.00               | 0.00            |
| 9.00            | 1.25                | 0.00               | 0.00            | 35.00           | 1.25                | 0.00               | 0.00            |
| 9.50            | 1.25                | 0.00               | 0.00            | 35.50           | 1.25                | 0.00               | 0.00            |
| 10.00           | 1.25                | 0.00               | 0.00            | 36.00           | 1.25                | 0.00               | 0.00            |
| 10.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 30S: GI-6 Impervious

Runoff = 3.97 cfs @ 1.06 hrs, Volume= 4,974 cf, Depth= 1.03"  
Routed to Pond 31P : GI-6

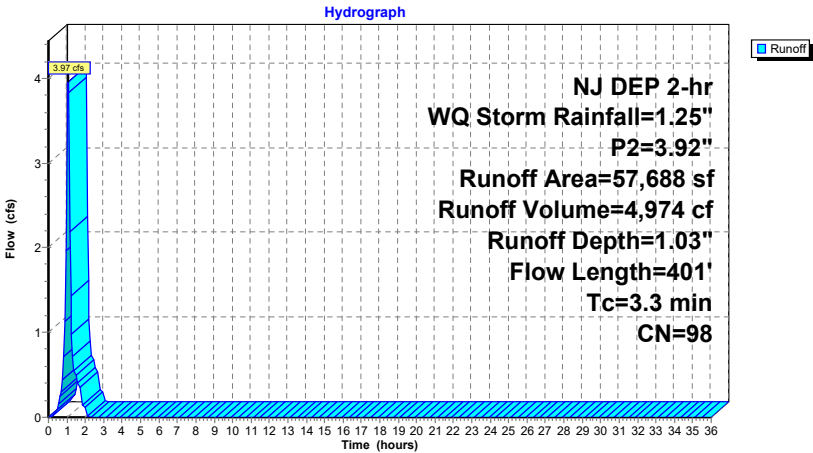
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 57,688    | 98 | Paved parking, HSG A    |
| 57,688    |    | 100.00% Impervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                             |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------|
| 1.3         | 100              | 0.0140           | 1.32                 |                   | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.92"                          |
| 1.9         | 275              | 0.0140           | 2.40                 |                   | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps                           |
| 0.1         | 26               | 0.0050           | 4.03                 | 4.95              | <b>Pipe Channel, SEG 3</b><br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 |
| 3.3         | 401              | Total            |                      |                   |                                                                                         |



Subcatchment 30S: GI-6 Impervious



Hydrograph for Subcatchment 30S: GI-6 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 1.03               | 0.00            |
| 0.50            | 0.10                | 0.01               | 0.13            | 26.50           | 1.25                | 1.03               | 0.00            |
| 1.00            | 0.63                | 0.43               | 3.54            | 27.00           | 1.25                | 1.03               | 0.00            |
| 1.50            | 1.15                | 0.94               | 0.51            | 27.50           | 1.25                | 1.03               | 0.00            |
| 2.00            | 1.25                | 1.03               | 0.13            | 28.00           | 1.25                | 1.03               | 0.00            |
| 2.50            | 1.25                | 1.03               | 0.00            | 28.50           | 1.25                | 1.03               | 0.00            |
| 3.00            | 1.25                | 1.03               | 0.00            | 29.00           | 1.25                | 1.03               | 0.00            |
| 3.50            | 1.25                | 1.03               | 0.00            | 29.50           | 1.25                | 1.03               | 0.00            |
| 4.00            | 1.25                | 1.03               | 0.00            | 30.00           | 1.25                | 1.03               | 0.00            |
| 4.50            | 1.25                | 1.03               | 0.00            | 30.50           | 1.25                | 1.03               | 0.00            |
| 5.00            | 1.25                | 1.03               | 0.00            | 31.00           | 1.25                | 1.03               | 0.00            |
| 5.50            | 1.25                | 1.03               | 0.00            | 31.50           | 1.25                | 1.03               | 0.00            |
| 6.00            | 1.25                | 1.03               | 0.00            | 32.00           | 1.25                | 1.03               | 0.00            |
| 6.50            | 1.25                | 1.03               | 0.00            | 32.50           | 1.25                | 1.03               | 0.00            |
| 7.00            | 1.25                | 1.03               | 0.00            | 33.00           | 1.25                | 1.03               | 0.00            |
| 7.50            | 1.25                | 1.03               | 0.00            | 33.50           | 1.25                | 1.03               | 0.00            |
| 8.00            | 1.25                | 1.03               | 0.00            | 34.00           | 1.25                | 1.03               | 0.00            |
| 8.50            | 1.25                | 1.03               | 0.00            | 34.50           | 1.25                | 1.03               | 0.00            |
| 9.00            | 1.25                | 1.03               | 0.00            | 35.00           | 1.25                | 1.03               | 0.00            |
| 9.50            | 1.25                | 1.03               | 0.00            | 35.50           | 1.25                | 1.03               | 0.00            |
| 10.00           | 1.25                | 1.03               | 0.00            | 36.00           | 1.25                | 1.03               | 0.00            |
| 10.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 41S: GI-11 Pervious

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"  
Routed to Pond 43P : GI-11

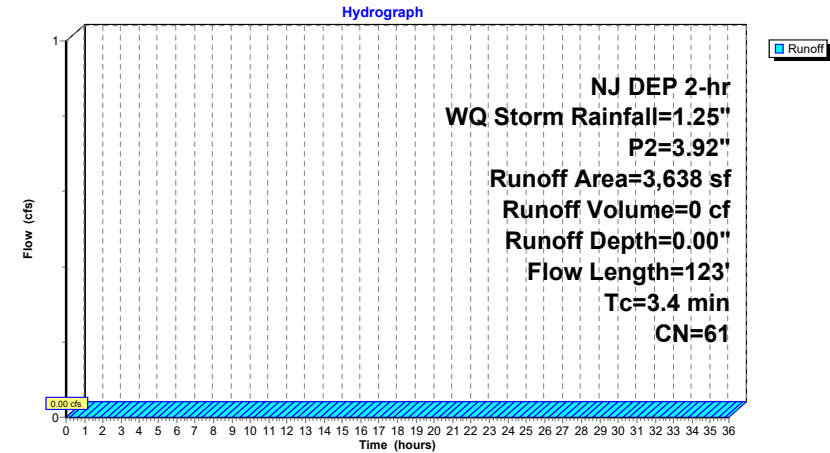
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 3,638     | 61 | >75% Grass cover, Good, HSG B |
| 3,638     |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                    |
|----------|---------------|---------------|-------------------|----------------|--------------------------------------------------------------------------------|
| 2.4      | 25            | 0.0833        | 0.17              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.92"                                 |
| 0.8      | 51            | 0.0130        | 1.12              |                | Sheet Flow,<br>Smooth surfaces n= 0.011 P2= 3.92"                              |
| 0.2      | 36            | 0.0100        | 2.98              | 0.60           | Channel Flow,<br>Area= 0.2 sf Perim= 1.5' r= 0.13'<br>n= 0.013 Asphalt, smooth |
| 0.0      | 11            | 0.3330        | 4.04              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps                  |
| 3.4      | 123           | Total         |                   |                |                                                                                |



Subcatchment 41S: GI-11 Pervious



Hydrograph for Subcatchment 41S: GI-11 Pervious

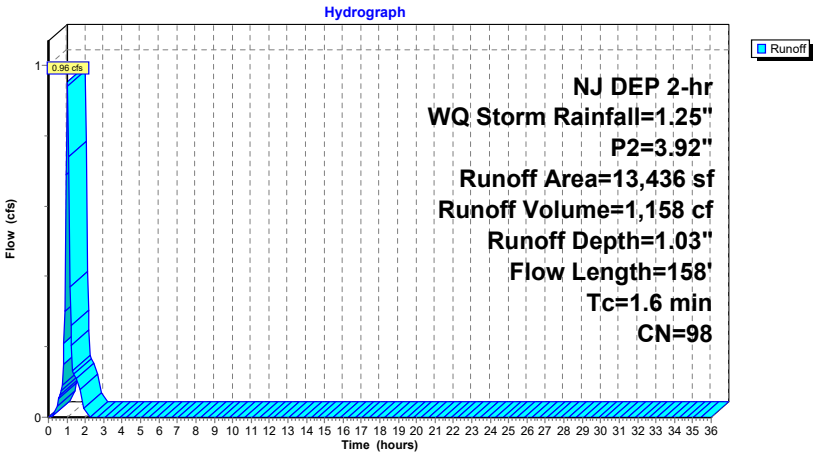
| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 0.00               | 0.00            |
| 0.50            | 0.10                | 0.00               | 0.00            | 26.50           | 1.25                | 0.00               | 0.00            |
| 1.00            | 0.63                | 0.00               | 0.00            | 27.00           | 1.25                | 0.00               | 0.00            |
| 1.50            | 1.15                | 0.00               | 0.00            | 27.50           | 1.25                | 0.00               | 0.00            |
| 2.00            | 1.25                | 0.00               | 0.00            | 28.00           | 1.25                | 0.00               | 0.00            |
| 2.50            | 1.25                | 0.00               | 0.00            | 28.50           | 1.25                | 0.00               | 0.00            |
| 3.00            | 1.25                | 0.00               | 0.00            | 29.00           | 1.25                | 0.00               | 0.00            |
| 3.50            | 1.25                | 0.00               | 0.00            | 29.50           | 1.25                | 0.00               | 0.00            |
| 4.00            | 1.25                | 0.00               | 0.00            | 30.00           | 1.25                | 0.00               | 0.00            |
| 4.50            | 1.25                | 0.00               | 0.00            | 30.50           | 1.25                | 0.00               | 0.00            |
| 5.00            | 1.25                | 0.00               | 0.00            | 31.00           | 1.25                | 0.00               | 0.00            |
| 5.50            | 1.25                | 0.00               | 0.00            | 31.50           | 1.25                | 0.00               | 0.00            |
| 6.00            | 1.25                | 0.00               | 0.00            | 32.00           | 1.25                | 0.00               | 0.00            |
| 6.50            | 1.25                | 0.00               | 0.00            | 32.50           | 1.25                | 0.00               | 0.00            |
| 7.00            | 1.25                | 0.00               | 0.00            | 33.00           | 1.25                | 0.00               | 0.00            |
| 7.50            | 1.25                | 0.00               | 0.00            | 33.50           | 1.25                | 0.00               | 0.00            |
| 8.00            | 1.25                | 0.00               | 0.00            | 34.00           | 1.25                | 0.00               | 0.00            |
| 8.50            | 1.25                | 0.00               | 0.00            | 34.50           | 1.25                | 0.00               | 0.00            |
| 9.00            | 1.25                | 0.00               | 0.00            | 35.00           | 1.25                | 0.00               | 0.00            |
| 9.50            | 1.25                | 0.00               | 0.00            | 35.50           | 1.25                | 0.00               | 0.00            |
| 10.00           | 1.25                | 0.00               | 0.00            | 36.00           | 1.25                | 0.00               | 0.00            |
| 10.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 42S: GI-11 Impervious

| Runoff = 0.96 cfs @ 1.03 hrs, Volume= 1,158 cf, Depth= 1.03"<br>Routed to Pond 43P : GI-11                                                |                  |                         |                      |                   |                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------|----------------------|-------------------|---------------------------------------------------------------------------------------|
| Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs<br>NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92" |                  |                         |                      |                   |                                                                                       |
| Area (sf)                                                                                                                                 | CN               | Description             |                      |                   |                                                                                       |
| 13,436                                                                                                                                    | 98               | Paved parking, HSG A    |                      |                   |                                                                                       |
| 13,436                                                                                                                                    |                  | 100.00% Impervious Area |                      |                   |                                                                                       |
| Tc<br>(min)                                                                                                                               | Length<br>(feet) | Slope<br>(ft/ft)        | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                           |
| 1.3                                                                                                                                       | 100              | 0.0130                  | 1.28                 |                   | <b>Sheet Flow,</b><br>Smooth surfaces n= 0.011 P2= 3.92"                              |
| 0.3                                                                                                                                       | 39               | 0.0130                  | 2.31                 |                   | <b>Shallow Concentrated Flow,</b><br>Paved Kv= 20.3 fps                               |
| 0.0                                                                                                                                       | 8                | 0.0100                  | 6.21                 | 1.24              | <b>Channel Flow,</b><br>Area= 0.2 sf Perim= 0.5' r= 0.40'<br>n= 0.013 Asphalt, smooth |
| 0.0                                                                                                                                       | 11               | 0.3330                  | 4.04                 |                   | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                  |
| 1.6                                                                                                                                       | 158              | Total                   |                      |                   |                                                                                       |



Subcatchment 42S: GI-11 Impervious



Hydrograph for Subcatchment 42S: GI-11 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 1.03               | 0.00            |
| 0.50            | 0.10                | 0.01               | 0.04            | 26.50           | 1.25                | 1.03               | 0.00            |
| 1.00            | 0.63                | 0.43               | 0.91            | 27.00           | 1.25                | 1.03               | 0.00            |
| 1.50            | 1.15                | 0.94               | 0.12            | 27.50           | 1.25                | 1.03               | 0.00            |
| 2.00            | 1.25                | 1.03               | 0.03            | 28.00           | 1.25                | 1.03               | 0.00            |
| 2.50            | 1.25                | 1.03               | 0.00            | 28.50           | 1.25                | 1.03               | 0.00            |
| 3.00            | 1.25                | 1.03               | 0.00            | 29.00           | 1.25                | 1.03               | 0.00            |
| 3.50            | 1.25                | 1.03               | 0.00            | 29.50           | 1.25                | 1.03               | 0.00            |
| 4.00            | 1.25                | 1.03               | 0.00            | 30.00           | 1.25                | 1.03               | 0.00            |
| 4.50            | 1.25                | 1.03               | 0.00            | 30.50           | 1.25                | 1.03               | 0.00            |
| 5.00            | 1.25                | 1.03               | 0.00            | 31.00           | 1.25                | 1.03               | 0.00            |
| 5.50            | 1.25                | 1.03               | 0.00            | 31.50           | 1.25                | 1.03               | 0.00            |
| 6.00            | 1.25                | 1.03               | 0.00            | 32.00           | 1.25                | 1.03               | 0.00            |
| 6.50            | 1.25                | 1.03               | 0.00            | 32.50           | 1.25                | 1.03               | 0.00            |
| 7.00            | 1.25                | 1.03               | 0.00            | 33.00           | 1.25                | 1.03               | 0.00            |
| 7.50            | 1.25                | 1.03               | 0.00            | 33.50           | 1.25                | 1.03               | 0.00            |
| 8.00            | 1.25                | 1.03               | 0.00            | 34.00           | 1.25                | 1.03               | 0.00            |
| 8.50            | 1.25                | 1.03               | 0.00            | 34.50           | 1.25                | 1.03               | 0.00            |
| 9.00            | 1.25                | 1.03               | 0.00            | 35.00           | 1.25                | 1.03               | 0.00            |
| 9.50            | 1.25                | 1.03               | 0.00            | 35.50           | 1.25                | 1.03               | 0.00            |
| 10.00           | 1.25                | 1.03               | 0.00            | 36.00           | 1.25                | 1.03               | 0.00            |
| 10.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 46S: North Undisturbed Area (Pervious)

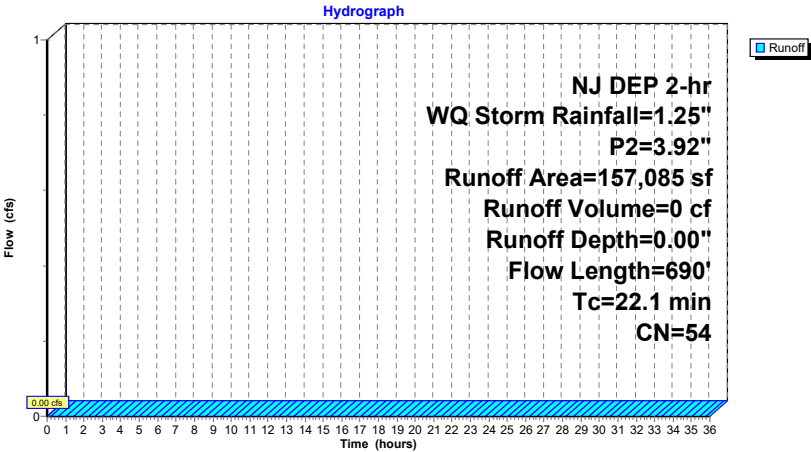
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"  
Routed to Link 13L : FES

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN            | Description                    |                   |                |                                                                                                                      |
|-----------|---------------|--------------------------------|-------------------|----------------|----------------------------------------------------------------------------------------------------------------------|
| 15,827    | 39            | >75% Grass cover, Good, HSG A  |                   |                |                                                                                                                      |
| 80,837    | 61            | >75% Grass cover, Good, HSG B  |                   |                |                                                                                                                      |
| 30,052    | 32            | Woods/grass comb., Good, HSG A |                   |                |                                                                                                                      |
| 22,227    | 58            | Woods/grass comb., Good, HSG B |                   |                |                                                                                                                      |
| 8,142     | 86            | Fallow, bare soil, HSG B       |                   |                |                                                                                                                      |
| 157,085   | 54            | Weighted Average               |                   |                |                                                                                                                      |
| 157,085   |               | 100.00% Pervious Area          |                   |                |                                                                                                                      |
| Tc (min)  | Length (feet) | Slope (ft/ft)                  | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                                          |
| 8.5       | 27            | 0.0120                         | 0.05              |                | <b>Sheet Flow,</b><br>Grass: Bermuda n= 0.410 P2= 3.92"<br>Using McCuen-Spiess flow length                           |
| 1.5       | 67            | 0.0120                         | 0.77              |                | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6      | 319           | 0.0100                         | 0.50              |                | <b>Shallow Concentrated Flow,</b><br>Woodland Kv= 5.0 fps                                                            |
| 0.8       | 49            | 0.0200                         | 0.99              |                | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7       | 228           | 0.0050                         | 5.09              | 16.00          | <b>Pipe Channel,</b><br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.1      | 690           | Total                          |                   |                |                                                                                                                      |



Subcatchment 46S: North Undisturbed Area (Pervious)



Hydrograph for Subcatchment 46S: North Undisturbed Area (Pervious)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 0.00               | 0.00            |
| 0.50            | 0.10                | 0.00               | 0.00            | 26.50           | 1.25                | 0.00               | 0.00            |
| 1.00            | 0.63                | 0.00               | 0.00            | 27.00           | 1.25                | 0.00               | 0.00            |
| 1.50            | 1.15                | 0.00               | 0.00            | 27.50           | 1.25                | 0.00               | 0.00            |
| 2.00            | 1.25                | 0.00               | 0.00            | 28.00           | 1.25                | 0.00               | 0.00            |
| 2.50            | 1.25                | 0.00               | 0.00            | 28.50           | 1.25                | 0.00               | 0.00            |
| 3.00            | 1.25                | 0.00               | 0.00            | 29.00           | 1.25                | 0.00               | 0.00            |
| 3.50            | 1.25                | 0.00               | 0.00            | 29.50           | 1.25                | 0.00               | 0.00            |
| 4.00            | 1.25                | 0.00               | 0.00            | 30.00           | 1.25                | 0.00               | 0.00            |
| 4.50            | 1.25                | 0.00               | 0.00            | 30.50           | 1.25                | 0.00               | 0.00            |
| 5.00            | 1.25                | 0.00               | 0.00            | 31.00           | 1.25                | 0.00               | 0.00            |
| 5.50            | 1.25                | 0.00               | 0.00            | 31.50           | 1.25                | 0.00               | 0.00            |
| 6.00            | 1.25                | 0.00               | 0.00            | 32.00           | 1.25                | 0.00               | 0.00            |
| 6.50            | 1.25                | 0.00               | 0.00            | 32.50           | 1.25                | 0.00               | 0.00            |
| 7.00            | 1.25                | 0.00               | 0.00            | 33.00           | 1.25                | 0.00               | 0.00            |
| 7.50            | 1.25                | 0.00               | 0.00            | 33.50           | 1.25                | 0.00               | 0.00            |
| 8.00            | 1.25                | 0.00               | 0.00            | 34.00           | 1.25                | 0.00               | 0.00            |
| 8.50            | 1.25                | 0.00               | 0.00            | 34.50           | 1.25                | 0.00               | 0.00            |
| 9.00            | 1.25                | 0.00               | 0.00            | 35.00           | 1.25                | 0.00               | 0.00            |
| 9.50            | 1.25                | 0.00               | 0.00            | 35.50           | 1.25                | 0.00               | 0.00            |
| 10.00           | 1.25                | 0.00               | 0.00            | 36.00           | 1.25                | 0.00               | 0.00            |
| 10.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 47S: North Undisturbed Area (Impervious)

Runoff = 1.88 cfs @ 1.30 hrs, Volume= 3,942 cf, Depth= 1.03"  
Routed to Link 13L : FES

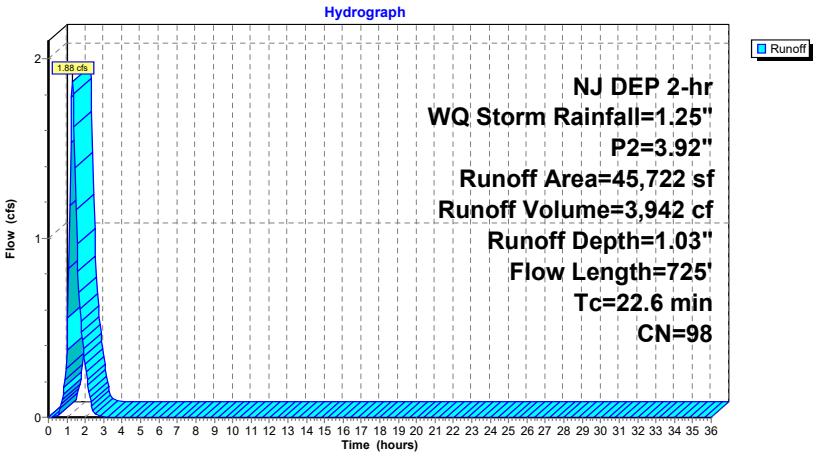
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description                 |
|-----------|----|-----------------------------|
| 45,722    | 98 | Unconnected pavement, HSG A |
| 45,722    |    | 100.00% Impervious Area     |
| 45,722    |    | 100.00% Unconnected         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                                                           |
|-------------|------------------|------------------|----------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------|
| 0.5         | 35               | 0.0200           | 1.23                 |                   | <b>Sheet Flow</b> ,<br>Smooth surfaces n= 0.011 P2= 3.92"                                                             |
| 8.5         | 27               | 0.0120           | 0.05                 |                   | <b>Sheet Flow</b> ,<br>Grass: Bermuda n= 0.410 P2= 3.92"<br>Using McCuen-Spiess flow length                           |
| 1.5         | 67               | 0.0120           | 0.77                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 10.6        | 319              | 0.0100           | 0.50                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Woodland Kv= 5.0 fps                                                            |
| 0.8         | 49               | 0.0200           | 0.99                 |                   | <b>Shallow Concentrated Flow</b> ,<br>Short Grass Pasture Kv= 7.0 fps                                                 |
| 0.7         | 228              | 0.0050           | 5.09                 | 16.00             | <b>Pipe Channel</b> ,<br>24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50'<br>n= 0.013 Concrete pipe, bends & connections |
| 22.6        | 725              | Total            |                      |                   |                                                                                                                       |



Subcatchment 47S: North Undisturbed Area (Impervious)



Hydrograph for Subcatchment 47S: North Undisturbed Area (Impervious)

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 1.25             | 1.03            | 0.00         |
| 0.50         | 0.10             | 0.01            | 0.01         | 26.50        | 1.25             | 1.03            | 0.00         |
| 1.00         | 0.63             | 0.43            | 0.37         | 27.00        | 1.25             | 1.03            | 0.00         |
| 1.50         | 1.15             | 0.94            | 1.16         | 27.50        | 1.25             | 1.03            | 0.00         |
| 2.00         | 1.25             | 1.03            | 0.30         | 28.00        | 1.25             | 1.03            | 0.00         |
| 2.50         | 1.25             | 1.03            | 0.02         | 28.50        | 1.25             | 1.03            | 0.00         |
| 3.00         | 1.25             | 1.03            | 0.00         | 29.00        | 1.25             | 1.03            | 0.00         |
| 3.50         | 1.25             | 1.03            | 0.00         | 29.50        | 1.25             | 1.03            | 0.00         |
| 4.00         | 1.25             | 1.03            | 0.00         | 30.00        | 1.25             | 1.03            | 0.00         |
| 4.50         | 1.25             | 1.03            | 0.00         | 30.50        | 1.25             | 1.03            | 0.00         |
| 5.00         | 1.25             | 1.03            | 0.00         | 31.00        | 1.25             | 1.03            | 0.00         |
| 5.50         | 1.25             | 1.03            | 0.00         | 31.50        | 1.25             | 1.03            | 0.00         |
| 6.00         | 1.25             | 1.03            | 0.00         | 32.00        | 1.25             | 1.03            | 0.00         |
| 6.50         | 1.25             | 1.03            | 0.00         | 32.50        | 1.25             | 1.03            | 0.00         |
| 7.00         | 1.25             | 1.03            | 0.00         | 33.00        | 1.25             | 1.03            | 0.00         |
| 7.50         | 1.25             | 1.03            | 0.00         | 33.50        | 1.25             | 1.03            | 0.00         |
| 8.00         | 1.25             | 1.03            | 0.00         | 34.00        | 1.25             | 1.03            | 0.00         |
| 8.50         | 1.25             | 1.03            | 0.00         | 34.50        | 1.25             | 1.03            | 0.00         |
| 9.00         | 1.25             | 1.03            | 0.00         | 35.00        | 1.25             | 1.03            | 0.00         |
| 9.50         | 1.25             | 1.03            | 0.00         | 35.50        | 1.25             | 1.03            | 0.00         |
| 10.00        | 1.25             | 1.03            | 0.00         | 36.00        | 1.25             | 1.03            | 0.00         |
| 10.50        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 11.00        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 11.50        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 12.00        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 12.50        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 13.00        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 13.50        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 14.00        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 14.50        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 15.00        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 15.50        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 16.00        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 16.50        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 17.00        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 17.50        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 18.00        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 18.50        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 19.00        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 19.50        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 20.00        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 20.50        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 21.00        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 21.50        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 22.00        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 22.50        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 23.00        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 23.50        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 24.00        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 24.50        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 25.00        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |
| 25.50        | 1.25             | 1.03            | 0.00         |              |                  |                 |              |



Summary for Pond 2P: GI-1

Inflow Area = 39,122 sf, 53.83% Impervious, Inflow Depth = 0.56" for WQ Storm event  
Inflow = 1.46 cfs @ 1.05 hrs, Volume= 1,816 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Routed to Link 13L : FES

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.23' @ 2.20 hrs Surf.Area= 7,982 sf Storage= 1,816 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 131.00' | 15,964 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

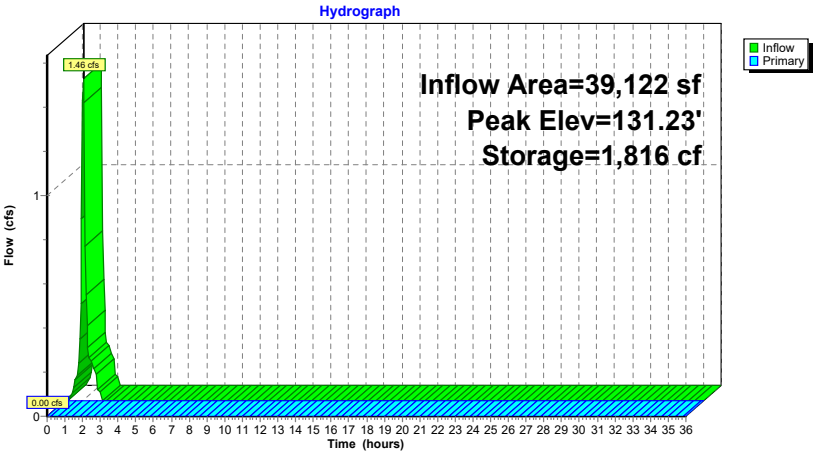
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 131.00           | 7,982             | 0                      | 0                      |
| 132.00           | 7,982             | 7,982                  | 7,982                  |
| 133.00           | 7,982             | 7,982                  | 15,964                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 132.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 131.24' | 0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

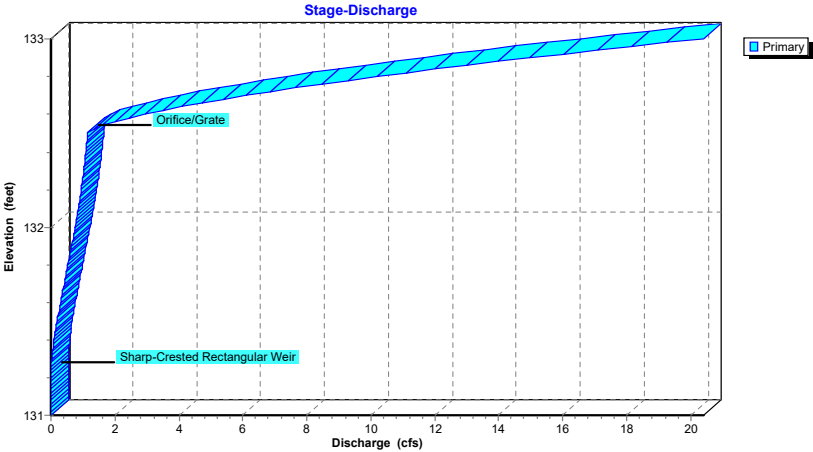
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=131.00' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate ( Controls 0.00 cfs)  
2=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)



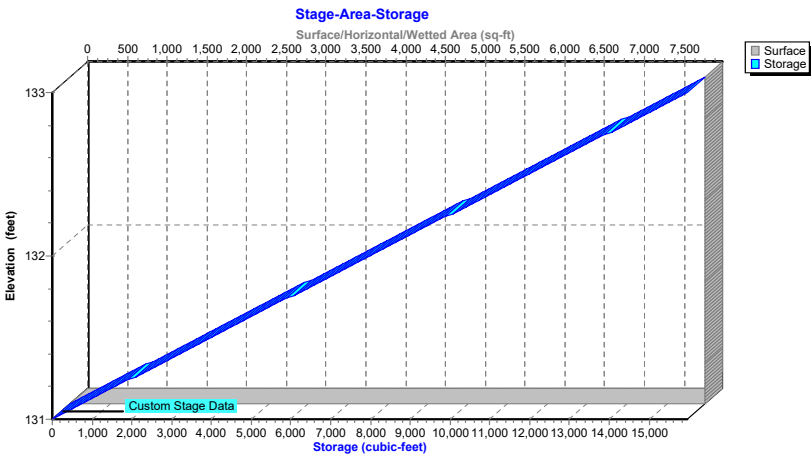
Pond 2P: GI-1



Pond 2P: GI-1



Pond 2P: GI-1



Hydrograph for Pond 2P: GI-1

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 131.00           | 0.00          |
| 1.00         | 1.36         | 552                  | 131.07           | 0.00          |
| 2.00         | 0.05         | 1,808                | 131.23           | 0.00          |
| 3.00         | 0.00         | 1,816                | 131.23           | 0.00          |
| 4.00         | 0.00         | 1,816                | 131.23           | 0.00          |
| 5.00         | 0.00         | 1,816                | 131.23           | 0.00          |
| 6.00         | 0.00         | 1,816                | 131.23           | 0.00          |
| 7.00         | 0.00         | 1,816                | 131.23           | 0.00          |
| 8.00         | 0.00         | 1,816                | 131.23           | 0.00          |
| 9.00         | 0.00         | 1,816                | 131.23           | 0.00          |
| 10.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 11.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 12.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 13.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 14.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 15.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 16.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 17.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 18.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 19.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 20.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 21.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 22.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 23.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 24.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 25.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 26.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 27.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 28.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 29.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 30.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 31.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 32.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 33.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 34.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 35.00        | 0.00         | 1,816                | 131.23           | 0.00          |
| 36.00        | 0.00         | 1,816                | 131.23           | 0.00          |

**2101ELK-STM Analysis POI-1 - Proposed NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"**

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**Stage-Discharge for Pond 2P: GI-1**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 131.00              | 0.00             | 131.52              | 0.22             | 132.04              | 0.80             | 132.56              | 2.01             |
| 131.01              | 0.00             | 131.53              | 0.23             | 132.05              | 0.81             | 132.57              | 2.22             |
| 131.02              | 0.00             | 131.54              | 0.24             | 132.06              | 0.82             | 132.58              | 2.45             |
| 131.03              | 0.00             | 131.55              | 0.25             | 132.07              | 0.83             | 132.59              | 2.69             |
| 131.04              | 0.00             | 131.56              | 0.26             | 132.08              | 0.84             | 132.60              | 2.95             |
| 131.05              | 0.00             | 131.57              | 0.27             | 132.09              | 0.85             | 132.61              | 3.22             |
| 131.06              | 0.00             | 131.58              | 0.28             | 132.10              | 0.86             | 132.62              | 3.50             |
| 131.07              | 0.00             | 131.59              | 0.29             | 132.11              | 0.87             | 132.63              | 3.79             |
| 131.08              | 0.00             | 131.60              | 0.30             | 132.12              | 0.87             | 132.64              | 4.09             |
| 131.09              | 0.00             | 131.61              | 0.31             | 132.13              | 0.88             | 132.65              | 4.41             |
| 131.10              | 0.00             | 131.62              | 0.32             | 132.14              | 0.89             | 132.66              | 4.73             |
| 131.11              | 0.00             | 131.63              | 0.34             | 132.15              | 0.90             | 132.67              | 5.07             |
| 131.12              | 0.00             | 131.64              | 0.35             | 132.16              | 0.91             | 132.68              | 5.41             |
| 131.13              | 0.00             | 131.65              | 0.36             | 132.17              | 0.92             | 132.69              | 5.76             |
| 131.14              | 0.00             | 131.66              | 0.37             | 132.18              | 0.93             | 132.70              | 6.12             |
| 131.15              | 0.00             | 131.67              | 0.38             | 132.19              | 0.94             | 132.71              | 6.49             |
| 131.16              | 0.00             | 131.68              | 0.39             | 132.20              | 0.95             | 132.72              | 6.87             |
| 131.17              | 0.00             | 131.69              | 0.40             | 132.21              | 0.96             | 132.73              | 7.26             |
| 131.18              | 0.00             | 131.70              | 0.42             | 132.22              | 0.96             | 132.74              | 7.65             |
| 131.19              | 0.00             | 131.71              | 0.43             | 132.23              | 0.97             | 132.75              | 8.06             |
| 131.20              | 0.00             | 131.72              | 0.44             | 132.24              | 0.98             | 132.76              | 8.47             |
| 131.21              | 0.00             | 131.73              | 0.45             | 132.25              | 0.99             | 132.77              | 8.89             |
| 131.22              | 0.00             | 131.74              | 0.46             | 132.26              | 1.00             | 132.78              | 9.31             |
| 131.23              | 0.00             | 131.75              | 0.47             | 132.27              | 1.00             | 132.79              | 9.75             |
| 131.24              | 0.00             | 131.76              | 0.49             | 132.28              | 1.01             | 132.80              | 10.19            |
| 131.25              | 0.00             | 131.77              | 0.50             | 132.29              | 1.02             | 132.81              | 10.64            |
| 131.26              | 0.00             | 131.78              | 0.51             | 132.30              | 1.03             | 132.82              | 11.09            |
| 131.27              | 0.01             | 131.79              | 0.52             | 132.31              | 1.04             | 132.83              | 11.56            |
| 131.28              | 0.01             | 131.80              | 0.53             | 132.32              | 1.04             | 132.84              | 12.03            |
| 131.29              | 0.02             | 131.81              | 0.54             | 132.33              | 1.05             | 132.85              | 12.50            |
| 131.30              | 0.02             | 131.82              | 0.55             | 132.34              | 1.06             | 132.86              | 12.99            |
| 131.31              | 0.03             | 131.83              | 0.57             | 132.35              | 1.06             | 132.87              | 13.48            |
| 131.32              | 0.04             | 131.84              | 0.58             | 132.36              | 1.07             | 132.88              | 13.97            |
| 131.33              | 0.04             | 131.85              | 0.59             | 132.37              | 1.08             | 132.89              | 14.48            |
| 131.34              | 0.05             | 131.86              | 0.60             | 132.38              | 1.08             | 132.90              | 14.98            |
| 131.35              | 0.06             | 131.87              | 0.61             | 132.39              | 1.09             | 132.91              | 15.50            |
| 131.36              | 0.06             | 131.88              | 0.62             | 132.40              | 1.09             | 132.92              | 16.02            |
| 131.37              | 0.07             | 131.89              | 0.63             | 132.41              | 1.10             | 132.93              | 16.55            |
| 131.38              | 0.08             | 131.90              | 0.65             | 132.42              | 1.11             | 132.94              | 17.08            |
| 131.39              | 0.09             | 131.91              | 0.66             | 132.43              | 1.11             | 132.95              | 17.62            |
| 131.40              | 0.10             | 131.92              | 0.67             | 132.44              | 1.12             | 132.96              | 18.17            |
| 131.41              | 0.11             | 131.93              | 0.68             | 132.45              | 1.12             | 132.97              | 18.72            |
| 131.42              | 0.12             | 131.94              | 0.69             | 132.46              | 1.13             | 132.98              | 19.28            |
| 131.43              | 0.13             | 131.95              | 0.70             | 132.47              | 1.13             | 132.99              | 19.84            |
| 131.44              | 0.13             | 131.96              | 0.71             | 132.48              | 1.14             | 133.00              | <b>20.41</b>     |
| 131.45              | 0.14             | 131.97              | 0.72             | 132.49              | 1.14             |                     |                  |
| 131.46              | 0.15             | 131.98              | 0.73             | 132.50              | 1.16             |                     |                  |
| 131.47              | 0.16             | 131.99              | 0.74             | 132.51              | 1.22             |                     |                  |
| 131.48              | 0.17             | 132.00              | 0.75             | 132.52              | 1.33             |                     |                  |
| 131.49              | 0.18             | 132.01              | 0.76             | 132.53              | 1.47             |                     |                  |
| 131.50              | 0.19             | 132.02              | 0.77             | 132.54              | 1.63             |                     |                  |
| 131.51              | 0.20             | 132.03              | 0.79             | 132.55              | 1.81             |                     |                  |

**2101ELK-STM Analysis POI-1 - Proposed NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"**

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**Stage-Area-Storage for Pond 2P: GI-1**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 131.00              | <b>7,982</b>       | 0                       | 132.04              | 7,982              | 8,301                   |
| 131.02              | 7,982              | 160                     | 132.06              | 7,982              | 8,461                   |
| 131.04              | 7,982              | 319                     | 132.08              | 7,982              | 8,621                   |
| 131.06              | 7,982              | 479                     | 132.10              | 7,982              | 8,780                   |
| 131.08              | 7,982              | 639                     | 132.12              | 7,982              | 8,940                   |
| 131.10              | 7,982              | 798                     | 132.14              | 7,982              | 9,099                   |
| 131.12              | 7,982              | 958                     | 132.16              | 7,982              | 9,259                   |
| 131.14              | 7,982              | 1,117                   | 132.18              | 7,982              | 9,419                   |
| 131.16              | 7,982              | 1,277                   | 132.20              | 7,982              | 9,578                   |
| 131.18              | 7,982              | 1,437                   | 132.22              | 7,982              | 9,738                   |
| 131.20              | 7,982              | 1,596                   | 132.24              | 7,982              | 9,898                   |
| 131.22              | 7,982              | 1,756                   | 132.26              | 7,982              | 10,057                  |
| 131.24              | 7,982              | 1,916                   | 132.28              | 7,982              | 10,217                  |
| 131.26              | 7,982              | 2,075                   | 132.30              | 7,982              | 10,377                  |
| 131.28              | 7,982              | 2,235                   | 132.32              | 7,982              | 10,536                  |
| 131.30              | 7,982              | 2,395                   | 132.34              | 7,982              | 10,696                  |
| 131.32              | 7,982              | 2,554                   | 132.36              | 7,982              | 10,856                  |
| 131.34              | 7,982              | 2,714                   | 132.38              | 7,982              | 11,015                  |
| 131.36              | 7,982              | 2,874                   | 132.40              | 7,982              | 11,175                  |
| 131.38              | 7,982              | 3,033                   | 132.42              | 7,982              | 11,334                  |
| 131.40              | 7,982              | 3,193                   | 132.44              | 7,982              | 11,494                  |
| 131.42              | 7,982              | 3,352                   | 132.46              | 7,982              | 11,654                  |
| 131.44              | 7,982              | 3,512                   | 132.48              | 7,982              | 11,813                  |
| 131.46              | 7,982              | 3,672                   | 132.50              | 7,982              | 11,973                  |
| 131.48              | 7,982              | 3,831                   | 132.52              | 7,982              | 12,133                  |
| 131.50              | 7,982              | 3,991                   | 132.54              | 7,982              | 12,292                  |
| 131.52              | 7,982              | 4,151                   | 132.56              | 7,982              | 12,452                  |
| 131.54              | 7,982              | 4,310                   | 132.58              | 7,982              | 12,612                  |
| 131.56              | 7,982              | 4,470                   | 132.60              | 7,982              | 12,771                  |
| 131.58              | 7,982              | 4,630                   | 132.62              | 7,982              | 12,931                  |
| 131.60              | 7,982              | 4,789                   | 132.64              | 7,982              | 13,090                  |
| 131.62              | 7,982              | 4,949                   | 132.66              | 7,982              | 13,250                  |
| 131.64              | 7,982              | 5,108                   | 132.68              | 7,982              | 13,410                  |
| 131.66              | 7,982              | 5,268                   | 132.70              | 7,982              | 13,569                  |
| 131.68              | 7,982              | 5,428                   | 132.72              | 7,982              | 13,729                  |
| 131.70              | 7,982              | 5,587                   | 132.74              | 7,982              | 13,889                  |
| 131.72              | 7,982              | 5,747                   | 132.76              | 7,982              | 14,048                  |
| 131.74              | 7,982              | 5,907                   | 132.78              | 7,982              | 14,208                  |
| 131.76              | 7,982              | 6,066                   | 132.80              | 7,982              | 14,368                  |
| 131.78              | 7,982              | 6,226                   | 132.82              | 7,982              | 14,527                  |
| 131.80              | 7,982              | 6,386                   | 132.84              | 7,982              | 14,687                  |
| 131.82              | 7,982              | 6,545                   | 132.86              | 7,982              | 14,847                  |
| 131.84              | 7,982              | 6,705                   | 132.88              | 7,982              | 15,006                  |
| 131.86              | 7,982              | 6,865                   | 132.90              | 7,982              | 15,166                  |
| 131.88              | 7,982              | 7,024                   | 132.92              | 7,982              | 15,325                  |
| 131.90              | 7,982              | 7,184                   | 132.94              | 7,982              | 15,485                  |
| 131.92              | 7,982              | 7,343                   | 132.96              | 7,982              | 15,645                  |
| 131.94              | 7,982              | 7,503                   | 132.98              | 7,982              | 15,804                  |
| 131.96              | 7,982              | 7,663                   | 133.00              | 7,982              | <b>15,964</b>           |
| 131.98              | 7,982              | 7,822                   |                     |                    |                         |
| 132.00              | 7,982              | 7,982                   |                     |                    |                         |
| 132.02              | 7,982              | 8,142                   |                     |                    |                         |

Summary for Pond 7P: GI-9

Inflow Area = 59,364 sf, 72.99% Impervious, Inflow Depth = 0.76" for WQ Storm event  
Inflow = 3.02 cfs @ 1.04 hrs, Volume= 3,736 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 128.41' @ 2.20 hrs Surf.Area= 9,141 sf Storage= 3,736 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 128.00' | 27,423 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

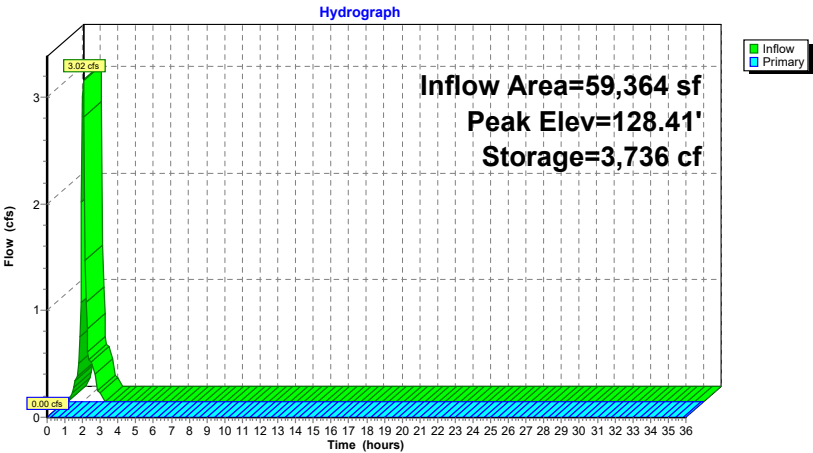
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 128.00           | 9,141             | 0                      | 0                      |
| 131.00           | 9,141             | 27,423                 | 27,423                 |

| Device | Routing | Invert  | Outlet Devices                                                |
|--------|---------|---------|---------------------------------------------------------------|
| #1     | Primary | 128.41' | 0.5' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

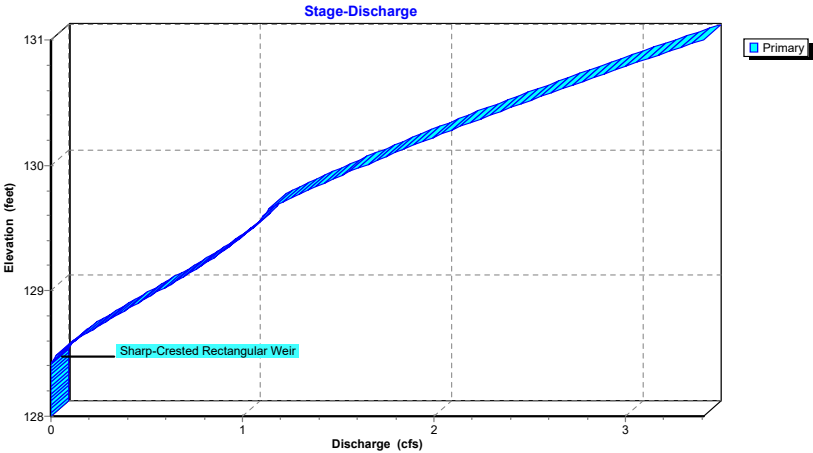
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.00' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)



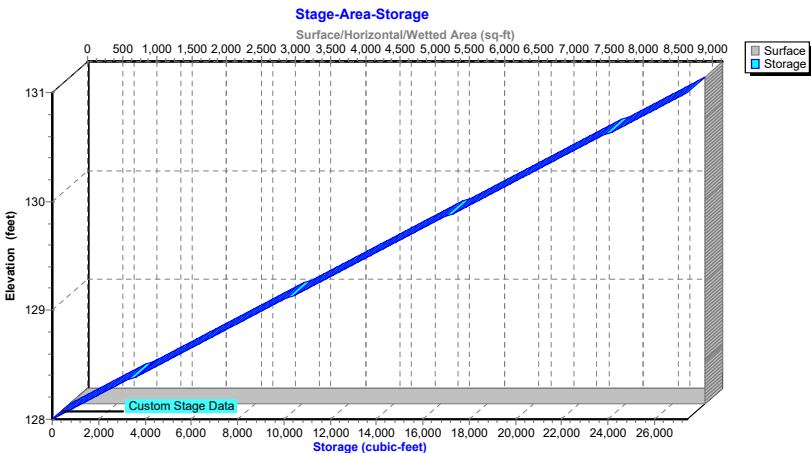
Pond 7P: GI-9



Pond 7P: GI-9



Pond 7P: GI-9



Hydrograph for Pond 7P: GI-9

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 128.00           | 0.00          |
| 1.00         | 2.86         | 1,194                | 128.13           | 0.00          |
| 2.00         | 0.09         | 3,723                | 128.41           | 0.00          |
| 3.00         | 0.00         | 3,736                | 128.41           | 0.00          |
| 4.00         | 0.00         | 3,736                | 128.41           | 0.00          |
| 5.00         | 0.00         | 3,736                | 128.41           | 0.00          |
| 6.00         | 0.00         | 3,736                | 128.41           | 0.00          |
| 7.00         | 0.00         | 3,736                | 128.41           | 0.00          |
| 8.00         | 0.00         | 3,736                | 128.41           | 0.00          |
| 9.00         | 0.00         | 3,736                | 128.41           | 0.00          |
| 10.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 11.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 12.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 13.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 14.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 15.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 16.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 17.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 18.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 19.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 20.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 21.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 22.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 23.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 24.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 25.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 26.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 27.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 28.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 29.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 30.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 31.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 32.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 33.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 34.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 35.00        | 0.00         | 3,736                | 128.41           | 0.00          |
| 36.00        | 0.00         | 3,736                | 128.41           | 0.00          |

**2101ELK-STM Analysis POI-1 - Proposed NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"**

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**Stage-Discharge for Pond 7P: GI-9**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 128.00              | 0.00             | 129.04              | 0.61             | 130.08              | 1.76             |
| 128.02              | 0.00             | 129.06              | 0.63             | 130.10              | 1.80             |
| 128.04              | 0.00             | 129.08              | 0.66             | 130.12              | 1.83             |
| 128.06              | 0.00             | 129.10              | 0.68             | 130.14              | 1.86             |
| 128.08              | 0.00             | 129.12              | 0.70             | 130.16              | 1.89             |
| 128.10              | 0.00             | 129.14              | 0.72             | 130.18              | 1.93             |
| 128.12              | 0.00             | 129.16              | 0.74             | 130.20              | 1.96             |
| 128.14              | 0.00             | 129.18              | 0.76             | 130.22              | 1.99             |
| 128.16              | 0.00             | 129.20              | 0.79             | 130.24              | 2.02             |
| 128.18              | 0.00             | 129.22              | 0.81             | 130.26              | 2.06             |
| 128.20              | 0.00             | 129.24              | 0.83             | 130.28              | 2.09             |
| 128.22              | 0.00             | 129.26              | 0.85             | 130.30              | 2.12             |
| 128.24              | 0.00             | 129.28              | 0.87             | 130.32              | 2.16             |
| 128.26              | 0.00             | 129.30              | 0.88             | 130.34              | 2.19             |
| 128.28              | 0.00             | 129.32              | 0.90             | 130.36              | 2.23             |
| 128.30              | 0.00             | 129.34              | 0.92             | 130.38              | 2.26             |
| 128.32              | 0.00             | 129.36              | 0.94             | 130.40              | 2.29             |
| 128.34              | 0.00             | 129.38              | 0.96             | 130.42              | 2.33             |
| 128.36              | 0.00             | 129.40              | 0.97             | 130.44              | 2.36             |
| 128.38              | 0.00             | 129.42              | 0.99             | 130.46              | 2.40             |
| 128.40              | 0.00             | 129.44              | 1.00             | 130.48              | 2.43             |
| 128.42              | 0.00             | 129.46              | 1.02             | 130.50              | 2.47             |
| 128.44              | 0.01             | 129.48              | 1.04             | 130.52              | 2.51             |
| 128.46              | 0.02             | 129.50              | 1.05             | 130.54              | 2.54             |
| 128.48              | 0.03             | 129.52              | 1.06             | 130.56              | 2.58             |
| 128.50              | 0.04             | 129.54              | 1.08             | 130.58              | 2.61             |
| 128.52              | 0.06             | 129.56              | 1.09             | 130.60              | 2.65             |
| 128.54              | 0.07             | 129.58              | 1.10             | 130.62              | 2.69             |
| 128.56              | 0.09             | 129.60              | 1.11             | 130.64              | 2.72             |
| 128.58              | 0.11             | 129.62              | 1.12             | 130.66              | 2.76             |
| 128.60              | 0.13             | 129.64              | 1.13             | 130.68              | 2.80             |
| 128.62              | 0.14             | 129.66              | 1.14             | 130.70              | 2.83             |
| 128.64              | 0.16             | 129.68              | 1.17             | 130.72              | 2.87             |
| 128.66              | 0.18             | 129.70              | 1.20             | 130.74              | 2.91             |
| 128.68              | 0.20             | 129.72              | 1.23             | 130.76              | 2.95             |
| 128.70              | 0.23             | 129.74              | 1.25             | 130.78              | 2.98             |
| 128.72              | 0.25             | 129.76              | 1.28             | 130.80              | 3.02             |
| 128.74              | 0.27             | 129.78              | 1.31             | 130.82              | 3.06             |
| 128.76              | 0.29             | 129.80              | 1.34             | 130.84              | 3.10             |
| 128.78              | 0.31             | 129.82              | 1.37             | 130.86              | 3.13             |
| 128.80              | 0.34             | 129.84              | 1.40             | 130.88              | 3.17             |
| 128.82              | 0.36             | 129.86              | 1.43             | 130.90              | 3.21             |
| 128.84              | 0.38             | 129.88              | 1.46             | 130.92              | 3.25             |
| 128.86              | 0.40             | 129.90              | 1.49             | 130.94              | 3.29             |
| 128.88              | 0.43             | 129.92              | 1.52             | 130.96              | 3.33             |
| 128.90              | 0.45             | 129.94              | 1.55             | 130.98              | 3.37             |
| 128.92              | 0.47             | 129.96              | 1.58             | 131.00              | <b>3.41</b>      |
| 128.94              | 0.50             | 129.98              | 1.61             |                     |                  |
| 128.96              | 0.52             | 130.00              | 1.64             |                     |                  |
| 128.98              | 0.54             | 130.02              | 1.67             |                     |                  |
| 129.00              | 0.57             | 130.04              | 1.70             |                     |                  |
| 129.02              | 0.59             | 130.06              | 1.73             |                     |                  |

**2101ELK-STM Analysis POI-1 - Proposed NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"**

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**Stage-Area-Storage for Pond 7P: GI-9**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 128.00              | <b>9,141</b>       | 0                       | 130.60              | 9,141              | 23,767                  |
| 128.05              | 9,141              | 457                     | 130.65              | 9,141              | 24,224                  |
| 128.10              | 9,141              | 914                     | 130.70              | 9,141              | 24,681                  |
| 128.15              | 9,141              | 1,371                   | 130.75              | 9,141              | 25,138                  |
| 128.20              | 9,141              | 1,828                   | 130.80              | 9,141              | 25,595                  |
| 128.25              | 9,141              | 2,285                   | 130.85              | 9,141              | 26,052                  |
| 128.30              | 9,141              | 2,742                   | 130.90              | 9,141              | 26,509                  |
| 128.35              | 9,141              | 3,199                   | 130.95              | 9,141              | 26,966                  |
| 128.40              | 9,141              | 3,656                   | 131.00              | 9,141              | <b>27,423</b>           |
| 128.45              | 9,141              | 4,113                   |                     |                    |                         |
| 128.50              | 9,141              | 4,571                   |                     |                    |                         |
| 128.55              | 9,141              | 5,028                   |                     |                    |                         |
| 128.60              | 9,141              | 5,485                   |                     |                    |                         |
| 128.65              | 9,141              | 5,942                   |                     |                    |                         |
| 128.70              | 9,141              | 6,399                   |                     |                    |                         |
| 128.75              | 9,141              | 6,856                   |                     |                    |                         |
| 128.80              | 9,141              | 7,313                   |                     |                    |                         |
| 128.85              | 9,141              | 7,770                   |                     |                    |                         |
| 128.90              | 9,141              | 8,227                   |                     |                    |                         |
| 128.95              | 9,141              | 8,684                   |                     |                    |                         |
| 129.00              | 9,141              | 9,141                   |                     |                    |                         |
| 129.05              | 9,141              | 9,598                   |                     |                    |                         |
| 129.10              | 9,141              | 10,055                  |                     |                    |                         |
| 129.15              | 9,141              | 10,512                  |                     |                    |                         |
| 129.20              | 9,141              | 10,969                  |                     |                    |                         |
| 129.25              | 9,141              | 11,426                  |                     |                    |                         |
| 129.30              | 9,141              | 11,883                  |                     |                    |                         |
| 129.35              | 9,141              | 12,340                  |                     |                    |                         |
| 129.40              | 9,141              | 12,797                  |                     |                    |                         |
| 129.45              | 9,141              | 13,254                  |                     |                    |                         |
| 129.50              | 9,141              | 13,712                  |                     |                    |                         |
| 129.55              | 9,141              | 14,169                  |                     |                    |                         |
| 129.60              | 9,141              | 14,626                  |                     |                    |                         |
| 129.65              | 9,141              | 15,083                  |                     |                    |                         |
| 129.70              | 9,141              | 15,540                  |                     |                    |                         |
| 129.75              | 9,141              | 15,997                  |                     |                    |                         |
| 129.80              | 9,141              | 16,454                  |                     |                    |                         |
| 129.85              | 9,141              | 16,911                  |                     |                    |                         |
| 129.90              | 9,141              | 17,368                  |                     |                    |                         |
| 129.95              | 9,141              | 17,825                  |                     |                    |                         |
| 130.00              | 9,141              | 18,282                  |                     |                    |                         |
| 130.05              | 9,141              | 18,739                  |                     |                    |                         |
| 130.10              | 9,141              | 19,196                  |                     |                    |                         |
| 130.15              | 9,141              | 19,653                  |                     |                    |                         |
| 130.20              | 9,141              | 20,110                  |                     |                    |                         |
| 130.25              | 9,141              | 20,567                  |                     |                    |                         |
| 130.30              | 9,141              | 21,024                  |                     |                    |                         |
| 130.35              | 9,141              | 21,481                  |                     |                    |                         |
| 130.40              | 9,141              | 21,938                  |                     |                    |                         |
| 130.45              | 9,141              | 22,395                  |                     |                    |                         |
| 130.50              | 9,141              | 22,853                  |                     |                    |                         |
| 130.55              | 9,141              | 23,310                  |                     |                    |                         |

Summary for Pond 14P: GI-2

Inflow Area = 26,583 sf, 49.36% Impervious, Inflow Depth = 0.51" for WQ Storm event  
Inflow = 0.92 cfs @ 1.03 hrs, Volume= 1,131 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 130.16' @ 2.15 hrs Surf.Area= 7,126 sf Storage= 1,131 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 14,252 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

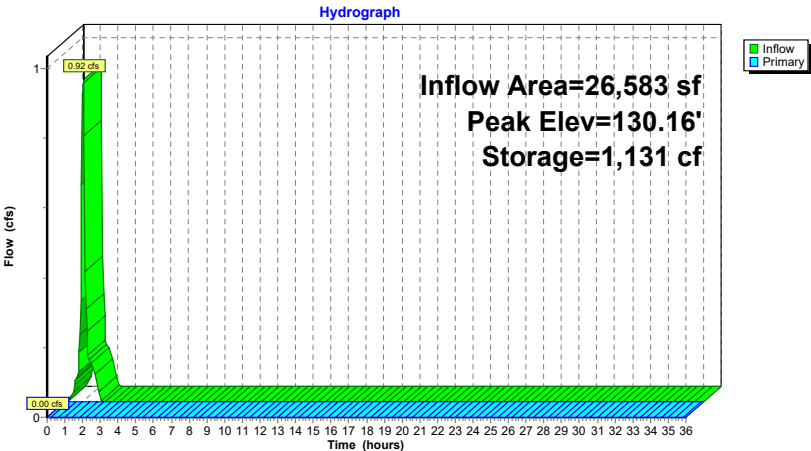
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 7,126             | 0                      | 0                      |
| 131.00           | 7,126             | 7,126                  | 7,126                  |
| 132.00           | 7,126             | 7,126                  | 14,252                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 130.17' | 0.6' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |
| #2     | Primary | 131.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |

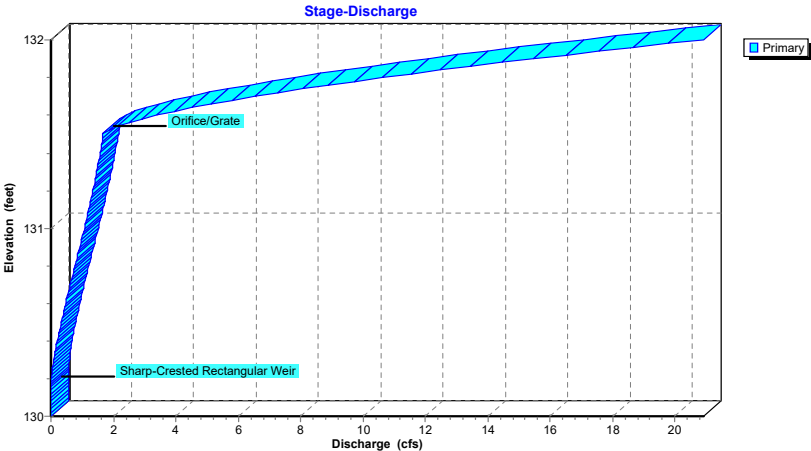
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=130.00' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir ( Controls 0.00 cfs)  
2=Orifice/Grate ( Controls 0.00 cfs)



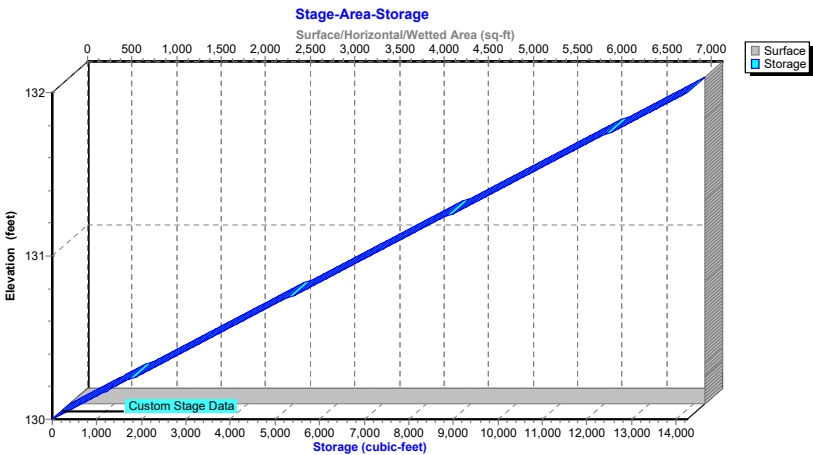
Pond 14P: GI-2



Pond 14P: GI-2



Pond 14P: GI-2



Hydrograph for Pond 14P: GI-2

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 0.88         | 380                  | 130.05           | 0.00          |
| 2.00         | 0.03         | 1,128                | 130.16           | 0.00          |
| 3.00         | 0.00         | 1,131                | 130.16           | 0.00          |
| 4.00         | 0.00         | 1,131                | 130.16           | 0.00          |
| 5.00         | 0.00         | 1,131                | 130.16           | 0.00          |
| 6.00         | 0.00         | 1,131                | 130.16           | 0.00          |
| 7.00         | 0.00         | 1,131                | 130.16           | 0.00          |
| 8.00         | 0.00         | 1,131                | 130.16           | 0.00          |
| 9.00         | 0.00         | 1,131                | 130.16           | 0.00          |
| 10.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 11.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 12.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 13.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 14.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 15.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 16.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 17.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 18.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 19.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 20.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 21.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 22.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 23.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 24.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 25.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 26.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 27.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 28.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 29.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 30.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 31.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 32.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 33.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 34.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 35.00        | 0.00         | 1,131                | 130.16           | 0.00          |
| 36.00        | 0.00         | 1,131                | 130.16           | 0.00          |



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**Stage-Discharge for Pond 14P: GI-2**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.36             | 131.04              | 1.13             | 131.56              | 2.49             |
| 130.01              | 0.00             | 130.53              | 0.37             | 131.05              | 1.14             | 131.57              | 2.70             |
| 130.02              | 0.00             | 130.54              | 0.39             | 131.06              | 1.16             | 131.58              | 2.92             |
| 130.03              | 0.00             | 130.55              | 0.40             | 131.07              | 1.17             | 131.59              | 3.16             |
| 130.04              | 0.00             | 130.56              | 0.42             | 131.08              | 1.19             | 131.60              | 3.41             |
| 130.05              | 0.00             | 130.57              | 0.43             | 131.09              | 1.20             | 131.61              | 3.67             |
| 130.06              | 0.00             | 130.58              | 0.44             | 131.10              | 1.21             | 131.62              | 3.94             |
| 130.07              | 0.00             | 130.59              | 0.46             | 131.11              | 1.23             | 131.63              | 4.23             |
| 130.08              | 0.00             | 130.60              | 0.47             | 131.12              | 1.24             | 131.64              | 4.52             |
| 130.09              | 0.00             | 130.61              | 0.49             | 131.13              | 1.25             | 131.65              | 4.83             |
| 130.10              | 0.00             | 130.62              | 0.50             | 131.14              | 1.27             | 131.66              | 5.14             |
| 130.11              | 0.00             | 130.63              | 0.52             | 131.15              | 1.28             | 131.67              | 5.47             |
| 130.12              | 0.00             | 130.64              | 0.53             | 131.16              | 1.29             | 131.68              | 5.82             |
| 130.13              | 0.00             | 130.65              | 0.55             | 131.17              | 1.31             | 131.69              | 6.17             |
| 130.14              | 0.00             | 130.66              | 0.56             | 131.18              | 1.32             | 131.70              | 6.54             |
| 130.15              | 0.00             | 130.67              | 0.58             | 131.19              | 1.33             | 131.71              | 6.91             |
| 130.16              | 0.00             | 130.68              | 0.59             | 131.20              | 1.35             | 131.72              | 7.29             |
| 130.17              | 0.00             | 130.69              | 0.61             | 131.21              | 1.36             | 131.73              | 7.68             |
| 130.18              | 0.00             | 130.70              | 0.62             | 131.22              | 1.37             | 131.74              | 8.08             |
| 130.19              | 0.01             | 130.71              | 0.64             | 131.23              | 1.38             | 131.75              | 8.49             |
| 130.20              | 0.01             | 130.72              | 0.65             | 131.24              | 1.40             | 131.76              | 8.90             |
| 130.21              | 0.02             | 130.73              | 0.67             | 131.25              | 1.41             | 131.77              | 9.33             |
| 130.22              | 0.02             | 130.74              | 0.68             | 131.26              | 1.42             | 131.78              | 9.76             |
| 130.23              | 0.03             | 130.75              | 0.70             | 131.27              | 1.43             | 131.79              | 10.19            |
| 130.24              | 0.04             | 130.76              | 0.71             | 131.28              | 1.45             | 131.80              | 10.64            |
| 130.25              | 0.04             | 130.77              | 0.73             | 131.29              | 1.46             | 131.81              | 11.09            |
| 130.26              | 0.05             | 130.78              | 0.74             | 131.30              | 1.47             | 131.82              | 11.55            |
| 130.27              | 0.06             | 130.79              | 0.76             | 131.31              | 1.48             | 131.83              | 12.02            |
| 130.28              | 0.07             | 130.80              | 0.78             | 131.32              | 1.49             | 131.84              | 12.49            |
| 130.29              | 0.08             | 130.81              | 0.79             | 131.33              | 1.50             | 131.85              | 12.97            |
| 130.30              | 0.09             | 130.82              | 0.81             | 131.34              | 1.51             | 131.86              | 13.46            |
| 130.31              | 0.10             | 130.83              | 0.82             | 131.35              | 1.53             | 131.87              | 13.95            |
| 130.32              | 0.11             | 130.84              | 0.84             | 131.36              | 1.54             | 131.88              | 14.45            |
| 130.33              | 0.12             | 130.85              | 0.85             | 131.37              | 1.55             | 131.89              | 14.96            |
| 130.34              | 0.13             | 130.86              | 0.87             | 131.38              | 1.56             | 131.90              | 15.47            |
| 130.35              | 0.14             | 130.87              | 0.88             | 131.39              | 1.57             | 131.91              | 15.99            |
| 130.36              | 0.15             | 130.88              | 0.90             | 131.40              | 1.58             | 131.92              | 16.51            |
| 130.37              | 0.16             | 130.89              | 0.91             | 131.41              | 1.59             | 131.93              | 17.04            |
| 130.38              | 0.18             | 130.90              | 0.93             | 131.42              | 1.60             | 131.94              | 17.58            |
| 130.39              | 0.19             | 130.91              | 0.94             | 131.43              | 1.61             | 131.95              | 18.12            |
| 130.40              | 0.20             | 130.92              | 0.96             | 131.44              | 1.62             | 131.96              | 18.67            |
| 130.41              | 0.21             | 130.93              | 0.97             | 131.45              | 1.63             | 131.97              | 19.23            |
| 130.42              | 0.22             | 130.94              | 0.99             | 131.46              | 1.64             | 131.98              | 19.79            |
| 130.43              | 0.24             | 130.95              | 1.00             | 131.47              | 1.65             | 131.99              | 20.35            |
| 130.44              | 0.25             | 130.96              | 1.01             | 131.48              | 1.66             | 132.00              | <b>20.93</b>     |
| 130.45              | 0.26             | 130.97              | 1.03             | 131.49              | 1.67             |                     |                  |
| 130.46              | 0.28             | 130.98              | 1.04             | 131.50              | 1.68             |                     |                  |
| 130.47              | 0.29             | 130.99              | 1.06             | 131.51              | 1.74             |                     |                  |
| 130.48              | 0.30             | 131.00              | 1.07             | 131.52              | 1.84             |                     |                  |
| 130.49              | 0.32             | 131.01              | 1.09             | 131.53              | 1.97             |                     |                  |
| 130.50              | 0.33             | 131.02              | 1.10             | 131.54              | 2.13             |                     |                  |
| 130.51              | 0.34             | 131.03              | 1.12             | 131.55              | 2.30             |                     |                  |

**2101ELK-STM Analysis POI-1 - Proposed NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"**

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**Stage-Area-Storage for Pond 14P: GI-2**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | <b>7,126</b>       | 0                       | 131.04              | 7,126              | 7,411                   |
| 130.02              | 7,126              | 143                     | 131.06              | 7,126              | 7,554                   |
| 130.04              | 7,126              | 285                     | 131.08              | 7,126              | 7,696                   |
| 130.06              | 7,126              | 428                     | 131.10              | 7,126              | 7,839                   |
| 130.08              | 7,126              | 570                     | 131.12              | 7,126              | 7,981                   |
| 130.10              | 7,126              | 713                     | 131.14              | 7,126              | 8,124                   |
| 130.12              | 7,126              | 855                     | 131.16              | 7,126              | 8,266                   |
| 130.14              | 7,126              | 998                     | 131.18              | 7,126              | 8,409                   |
| 130.16              | 7,126              | 1,140                   | 131.20              | 7,126              | 8,551                   |
| 130.18              | 7,126              | 1,283                   | 131.22              | 7,126              | 8,694                   |
| 130.20              | 7,126              | 1,425                   | 131.24              | 7,126              | 8,836                   |
| 130.22              | 7,126              | 1,568                   | 131.26              | 7,126              | 8,979                   |
| 130.24              | 7,126              | 1,710                   | 131.28              | 7,126              | 9,121                   |
| 130.26              | 7,126              | 1,853                   | 131.30              | 7,126              | 9,264                   |
| 130.28              | 7,126              | 1,995                   | 131.32              | 7,126              | 9,406                   |
| 130.30              | 7,126              | 2,138                   | 131.34              | 7,126              | 9,549                   |
| 130.32              | 7,126              | 2,280                   | 131.36              | 7,126              | 9,691                   |
| 130.34              | 7,126              | 2,423                   | 131.38              | 7,126              | 9,834                   |
| 130.36              | 7,126              | 2,565                   | 131.40              | 7,126              | 9,976                   |
| 130.38              | 7,126              | 2,708                   | 131.42              | 7,126              | 10,119                  |
| 130.40              | 7,126              | 2,850                   | 131.44              | 7,126              | 10,261                  |
| 130.42              | 7,126              | 2,993                   | 131.46              | 7,126              | 10,404                  |
| 130.44              | 7,126              | 3,135                   | 131.48              | 7,126              | 10,546                  |
| 130.46              | 7,126              | 3,278                   | 131.50              | 7,126              | 10,689                  |
| 130.48              | 7,126              | 3,420                   | 131.52              | 7,126              | 10,832                  |
| 130.50              | 7,126              | 3,563                   | 131.54              | 7,126              | 10,974                  |
| 130.52              | 7,126              | 3,706                   | 131.56              | 7,126              | 11,117                  |
| 130.54              | 7,126              | 3,848                   | 131.58              | 7,126              | 11,259                  |
| 130.56              | 7,126              | 3,991                   | 131.60              | 7,126              | 11,402                  |
| 130.58              | 7,126              | 4,133                   | 131.62              | 7,126              | 11,544                  |
| 130.60              | 7,126              | 4,276                   | 131.64              | 7,126              | 11,687                  |
| 130.62              | 7,126              | 4,418                   | 131.66              | 7,126              | 11,829                  |
| 130.64              | 7,126              | 4,561                   | 131.68              | 7,126              | 11,972                  |
| 130.66              | 7,126              | 4,703                   | 131.70              | 7,126              | 12,114                  |
| 130.68              | 7,126              | 4,846                   | 131.72              | 7,126              | 12,257                  |
| 130.70              | 7,126              | 4,988                   | 131.74              | 7,126              | 12,399                  |
| 130.72              | 7,126              | 5,131                   | 131.76              | 7,126              | 12,542                  |
| 130.74              | 7,126              | 5,273                   | 131.78              | 7,126              | 12,684                  |
| 130.76              | 7,126              | 5,416                   | 131.80              | 7,126              | 12,827                  |
| 130.78              | 7,126              | 5,558                   | 131.82              | 7,126              | 12,969                  |
| 130.80              | 7,126              | 5,701                   | 131.84              | 7,126              | 13,112                  |
| 130.82              | 7,126              | 5,843                   | 131.86              | 7,126              | 13,254                  |
| 130.84              | 7,126              | 5,986                   | 131.88              | 7,126              | 13,397                  |
| 130.86              | 7,126              | 6,128                   | 131.90              | 7,126              | 13,539                  |
| 130.88              | 7,126              | 6,271                   | 131.92              | 7,126              | 13,682                  |
| 130.90              | 7,126              | 6,413                   | 131.94              | 7,126              | 13,824                  |
| 130.92              | 7,126              | 6,556                   | 131.96              | 7,126              | 13,967                  |
| 130.94              | 7,126              | 6,698                   | 131.98              | 7,126              | 14,109                  |
| 130.96              | 7,126              | 6,841                   | 132.00              | 7,126              | <b>14,252</b>           |
| 130.98              | 7,126              | 6,983                   |                     |                    |                         |
| 131.00              | 7,126              | 7,126                   |                     |                    |                         |
| 131.02              | 7,126              | 7,269                   |                     |                    |                         |

Summary for Pond 28P: GI-3

Inflow Area = 84,149 sf, 72.01% Impervious, Inflow Depth = 0.74" for WQ Storm event  
Inflow = 4.16 cfs @ 1.07 hrs, Volume= 5,224 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 130.47' @ 2.25 hrs Surf.Area= 11,000 sf Storage= 5,224 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 22,000 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

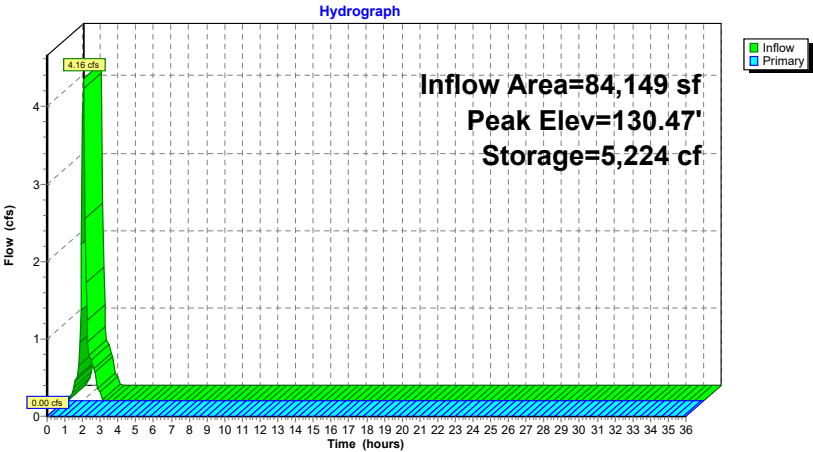
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 11,000            | 0                      | 0                      |
| 131.00           | 11,000            | 11,000                 | 11,000                 |
| 132.00           | 11,000            | 11,000                 | 22,000                 |

| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 131.50' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 131.03' | 0.7' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

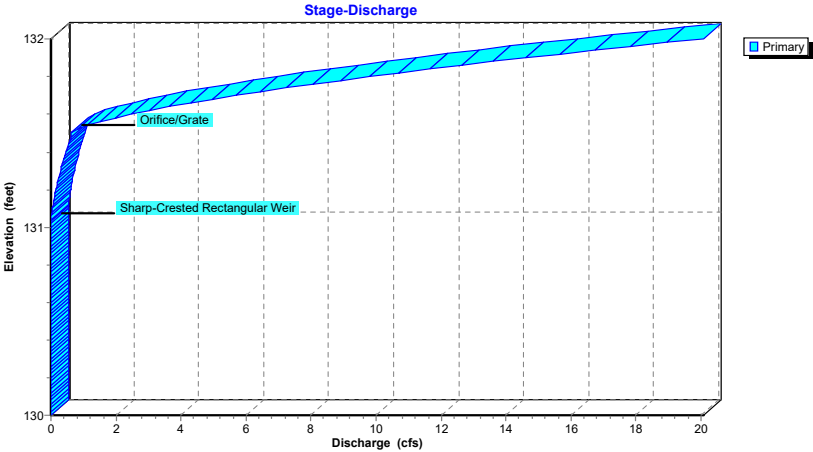
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=130.00' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate ( Controls 0.00 cfs)  
2=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)



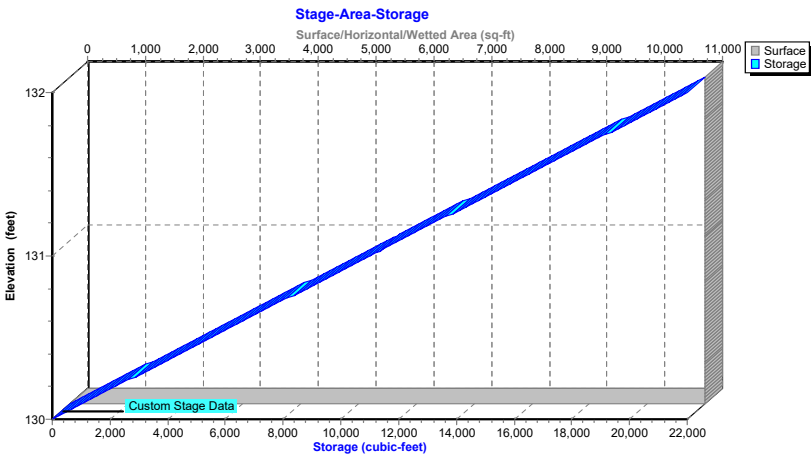
Pond 28P: GI-3



Pond 28P: GI-3



Pond 28P: GI-3



Hydrograph for Pond 28P: GI-3

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 3.68         | 1,454                | 130.13           | 0.00          |
| 2.00         | 0.14         | 5,198                | 130.47           | 0.00          |
| 3.00         | 0.00         | 5,224                | 130.47           | 0.00          |
| 4.00         | 0.00         | 5,224                | 130.47           | 0.00          |
| 5.00         | 0.00         | 5,224                | 130.47           | 0.00          |
| 6.00         | 0.00         | 5,224                | 130.47           | 0.00          |
| 7.00         | 0.00         | 5,224                | 130.47           | 0.00          |
| 8.00         | 0.00         | 5,224                | 130.47           | 0.00          |
| 9.00         | 0.00         | 5,224                | 130.47           | 0.00          |
| 10.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 11.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 12.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 13.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 14.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 15.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 16.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 17.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 18.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 19.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 20.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 21.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 22.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 23.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 24.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 25.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 26.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 27.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 28.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 29.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 30.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 31.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 32.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 33.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 34.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 35.00        | 0.00         | 5,224                | 130.47           | 0.00          |
| 36.00        | 0.00         | 5,224                | 130.47           | 0.00          |

**2101ELK-STM Analysis POI-1 - Proposed NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"**

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**Stage-Discharge for Pond 28P: GI-3**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.00             | 131.04              | 0.00             | 131.56              | 1.52             |
| 130.01              | 0.00             | 130.53              | 0.00             | 131.05              | 0.01             | 131.57              | 1.74             |
| 130.02              | 0.00             | 130.54              | 0.00             | 131.06              | 0.01             | 131.58              | 1.97             |
| 130.03              | 0.00             | 130.55              | 0.00             | 131.07              | 0.02             | 131.59              | 2.22             |
| 130.04              | 0.00             | 130.56              | 0.00             | 131.08              | 0.03             | 131.60              | 2.48             |
| 130.05              | 0.00             | 130.57              | 0.00             | 131.09              | 0.03             | 131.61              | 2.75             |
| 130.06              | 0.00             | 130.58              | 0.00             | 131.10              | 0.04             | 131.62              | 3.04             |
| 130.07              | 0.00             | 130.59              | 0.00             | 131.11              | 0.05             | 131.63              | 3.33             |
| 130.08              | 0.00             | 130.60              | 0.00             | 131.12              | 0.06             | 131.64              | 3.64             |
| 130.09              | 0.00             | 130.61              | 0.00             | 131.13              | 0.07             | 131.65              | 3.96             |
| 130.10              | 0.00             | 130.62              | 0.00             | 131.14              | 0.08             | 131.66              | 4.29             |
| 130.11              | 0.00             | 130.63              | 0.00             | 131.15              | 0.09             | 131.67              | 4.62             |
| 130.12              | 0.00             | 130.64              | 0.00             | 131.16              | 0.10             | 131.68              | 4.97             |
| 130.13              | 0.00             | 130.65              | 0.00             | 131.17              | 0.12             | 131.69              | 5.33             |
| 130.14              | 0.00             | 130.66              | 0.00             | 131.18              | 0.13             | 131.70              | 5.69             |
| 130.15              | 0.00             | 130.67              | 0.00             | 131.19              | 0.14             | 131.71              | 6.07             |
| 130.16              | 0.00             | 130.68              | 0.00             | 131.20              | 0.15             | 131.72              | 6.45             |
| 130.17              | 0.00             | 130.69              | 0.00             | 131.21              | 0.17             | 131.73              | 6.84             |
| 130.18              | 0.00             | 130.70              | 0.00             | 131.22              | 0.18             | 131.74              | 7.24             |
| 130.19              | 0.00             | 130.71              | 0.00             | 131.23              | 0.19             | 131.75              | 7.65             |
| 130.20              | 0.00             | 130.72              | 0.00             | 131.24              | 0.21             | 131.76              | 8.07             |
| 130.21              | 0.00             | 130.73              | 0.00             | 131.25              | 0.22             | 131.77              | 8.49             |
| 130.22              | 0.00             | 130.74              | 0.00             | 131.26              | 0.24             | 131.78              | 8.92             |
| 130.23              | 0.00             | 130.75              | 0.00             | 131.27              | 0.25             | 131.79              | 9.36             |
| 130.24              | 0.00             | 130.76              | 0.00             | 131.28              | 0.27             | 131.80              | 9.80             |
| 130.25              | 0.00             | 130.77              | 0.00             | 131.29              | 0.28             | 131.81              | 10.26            |
| 130.26              | 0.00             | 130.78              | 0.00             | 131.30              | 0.30             | 131.82              | 10.72            |
| 130.27              | 0.00             | 130.79              | 0.00             | 131.31              | 0.31             | 131.83              | 11.18            |
| 130.28              | 0.00             | 130.80              | 0.00             | 131.32              | 0.33             | 131.84              | 11.66            |
| 130.29              | 0.00             | 130.81              | 0.00             | 131.33              | 0.34             | 131.85              | 12.13            |
| 130.30              | 0.00             | 130.82              | 0.00             | 131.34              | 0.36             | 131.86              | 12.62            |
| 130.31              | 0.00             | 130.83              | 0.00             | 131.35              | 0.38             | 131.87              | 13.11            |
| 130.32              | 0.00             | 130.84              | 0.00             | 131.36              | 0.39             | 131.88              | 13.61            |
| 130.33              | 0.00             | 130.85              | 0.00             | 131.37              | 0.41             | 131.89              | 14.12            |
| 130.34              | 0.00             | 130.86              | 0.00             | 131.38              | 0.43             | 131.90              | 14.63            |
| 130.35              | 0.00             | 130.87              | 0.00             | 131.39              | 0.44             | 131.91              | 15.15            |
| 130.36              | 0.00             | 130.88              | 0.00             | 131.40              | 0.46             | 131.92              | 15.67            |
| 130.37              | 0.00             | 130.89              | 0.00             | 131.41              | 0.48             | 131.93              | 16.20            |
| 130.38              | 0.00             | 130.90              | 0.00             | 131.42              | 0.50             | 131.94              | 16.74            |
| 130.39              | 0.00             | 130.91              | 0.00             | 131.43              | 0.51             | 131.95              | 17.28            |
| 130.40              | 0.00             | 130.92              | 0.00             | 131.44              | 0.53             | 131.96              | 17.83            |
| 130.41              | 0.00             | 130.93              | 0.00             | 131.45              | 0.55             | 131.97              | 18.38            |
| 130.42              | 0.00             | 130.94              | 0.00             | 131.46              | 0.57             | 131.98              | 18.94            |
| 130.43              | 0.00             | 130.95              | 0.00             | 131.47              | 0.58             | 131.99              | 19.51            |
| 130.44              | 0.00             | 130.96              | 0.00             | 131.48              | 0.60             | 132.00              | 20.08            |
| 130.45              | 0.00             | 130.97              | 0.00             | 131.49              | 0.62             |                     |                  |
| 130.46              | 0.00             | 130.98              | 0.00             | 131.50              | 0.64             |                     |                  |
| 130.47              | 0.00             | 130.99              | 0.00             | 131.51              | 0.71             |                     |                  |
| 130.48              | 0.00             | 131.00              | 0.00             | 131.52              | 0.82             |                     |                  |
| 130.49              | 0.00             | 131.01              | 0.00             | 131.53              | 0.97             |                     |                  |
| 130.50              | 0.00             | 131.02              | 0.00             | 131.54              | 1.13             |                     |                  |
| 130.51              | 0.00             | 131.03              | 0.00             | 131.55              | 1.32             |                     |                  |

**2101ELK-STM Analysis POI-1 - Proposed NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"**

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 28P: GI-3**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | 11,000             | 0                       | 131.04              | 11,000             | 11,440                  |
| 130.02              | 11,000             | 220                     | 131.06              | 11,000             | 11,660                  |
| 130.04              | 11,000             | 440                     | 131.08              | 11,000             | 11,880                  |
| 130.06              | 11,000             | 660                     | 131.10              | 11,000             | 12,100                  |
| 130.08              | 11,000             | 880                     | 131.12              | 11,000             | 12,320                  |
| 130.10              | 11,000             | 1,100                   | 131.14              | 11,000             | 12,540                  |
| 130.12              | 11,000             | 1,320                   | 131.16              | 11,000             | 12,760                  |
| 130.14              | 11,000             | 1,540                   | 131.18              | 11,000             | 12,980                  |
| 130.16              | 11,000             | 1,760                   | 131.20              | 11,000             | 13,200                  |
| 130.18              | 11,000             | 1,980                   | 131.22              | 11,000             | 13,420                  |
| 130.20              | 11,000             | 2,200                   | 131.24              | 11,000             | 13,640                  |
| 130.22              | 11,000             | 2,420                   | 131.26              | 11,000             | 13,860                  |
| 130.24              | 11,000             | 2,640                   | 131.28              | 11,000             | 14,080                  |
| 130.26              | 11,000             | 2,860                   | 131.30              | 11,000             | 14,300                  |
| 130.28              | 11,000             | 3,080                   | 131.32              | 11,000             | 14,520                  |
| 130.30              | 11,000             | 3,300                   | 131.34              | 11,000             | 14,740                  |
| 130.32              | 11,000             | 3,520                   | 131.36              | 11,000             | 14,960                  |
| 130.34              | 11,000             | 3,740                   | 131.38              | 11,000             | 15,180                  |
| 130.36              | 11,000             | 3,960                   | 131.40              | 11,000             | 15,400                  |
| 130.38              | 11,000             | 4,180                   | 131.42              | 11,000             | 15,620                  |
| 130.40              | 11,000             | 4,400                   | 131.44              | 11,000             | 15,840                  |
| 130.42              | 11,000             | 4,620                   | 131.46              | 11,000             | 16,060                  |
| 130.44              | 11,000             | 4,840                   | 131.48              | 11,000             | 16,280                  |
| 130.46              | 11,000             | 5,060                   | 131.50              | 11,000             | 16,500                  |
| 130.48              | 11,000             | 5,280                   | 131.52              | 11,000             | 16,720                  |
| 130.50              | 11,000             | 5,500                   | 131.54              | 11,000             | 16,940                  |
| 130.52              | 11,000             | 5,720                   | 131.56              | 11,000             | 17,160                  |
| 130.54              | 11,000             | 5,940                   | 131.58              | 11,000             | 17,380                  |
| 130.56              | 11,000             | 6,160                   | 131.60              | 11,000             | 17,600                  |
| 130.58              | 11,000             | 6,380                   | 131.62              | 11,000             | 17,820                  |
| 130.60              | 11,000             | 6,600                   | 131.64              | 11,000             | 18,040                  |
| 130.62              | 11,000             | 6,820                   | 131.66              | 11,000             | 18,260                  |
| 130.64              | 11,000             | 7,040                   | 131.68              | 11,000             | 18,480                  |
| 130.66              | 11,000             | 7,260                   | 131.70              | 11,000             | 18,700                  |
| 130.68              | 11,000             | 7,480                   | 131.72              | 11,000             | 18,920                  |
| 130.70              | 11,000             | 7,700                   | 131.74              | 11,000             | 19,140                  |
| 130.72              | 11,000             | 7,920                   | 131.76              | 11,000             | 19,360                  |
| 130.74              | 11,000             | 8,140                   | 131.78              | 11,000             | 19,580                  |
| 130.76              | 11,000             | 8,360                   | 131.80              | 11,000             | 19,800                  |
| 130.78              | 11,000             | 8,580                   | 131.82              | 11,000             | 20,020                  |
| 130.80              | 11,000             | 8,800                   | 131.84              | 11,000             | 20,240                  |
| 130.82              | 11,000             | 9,020                   | 131.86              | 11,000             | 20,460                  |
| 130.84              | 11,000             | 9,240                   | 131.88              | 11,000             | 20,680                  |
| 130.86              | 11,000             | 9,460                   | 131.90              | 11,000             | 20,900                  |
| 130.88              | 11,000             | 9,680                   | 131.92              | 11,000             | 21,120                  |
| 130.90              | 11,000             | 9,900                   | 131.94              | 11,000             | 21,340                  |
| 130.92              | 11,000             | 10,120                  | 131.96              | 11,000             | 21,560                  |
| 130.94              | 11,000             | 10,340                  | 131.98              | 11,000             | 21,780                  |
| 130.96              | 11,000             | 10,560                  | 132.00              | 11,000             | 22,000                  |
| 130.98              | 11,000             | 10,780                  |                     |                    |                         |
| 131.00              | 11,000             | 11,000                  |                     |                    |                         |
| 131.02              | 11,000             | 11,220                  |                     |                    |                         |

Summary for Pond 31P: GI-6

Inflow Area = 85,032 sf, 67.84% Impervious, Inflow Depth = 0.70" for WQ Storm event  
Inflow = 3.97 cfs @ 1.06 hrs, Volume= 4,974 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Routed to Link 1L : POI-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 130.25' @ 2.25 hrs Surf.Area= 20,000 sf Storage= 4,974 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.00' | 40,000 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.00           | 20,000            | 0                      | 0                      |
| 131.00           | 20,000            | 20,000                 | 20,000                 |
| 132.00           | 20,000            | 20,000                 | 40,000                 |

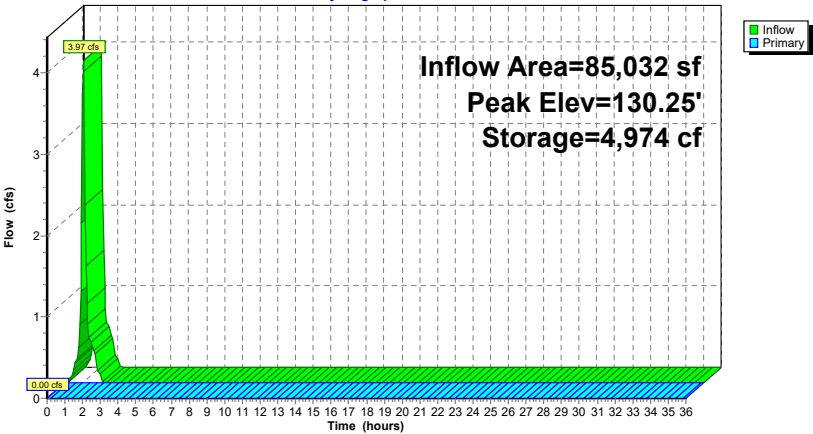
| Device | Routing | Invert  | Outlet Devices                                                                   |
|--------|---------|---------|----------------------------------------------------------------------------------|
| #1     | Primary | 131.80' | 48.0" x 48.0" Horiz. Orifice/Grate C= 0.600<br>Limited to weir flow at low heads |
| #2     | Primary | 130.40' | 0.8' long Sharp-Crested Rectangular Weir 2 End Contraction(s)                    |

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=130.00' TW=0.00' (Dynamic Tailwater)  
1=Orifice/Grate ( Controls 0.00 cfs)  
2=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)



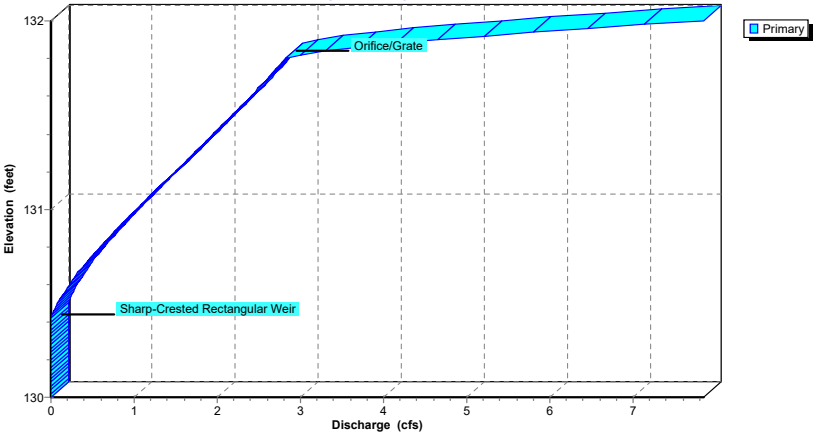
Pond 31P: GI-6

Hydrograph

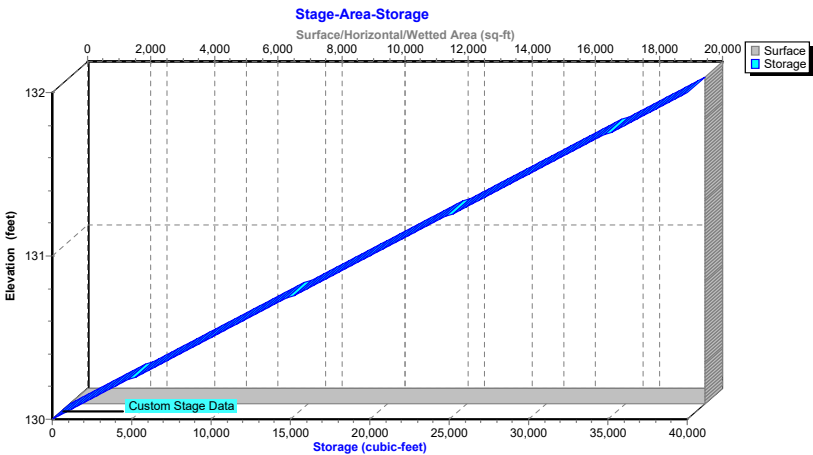


Pond 31P: GI-6

Stage-Discharge



Pond 31P: GI-6



Hydrograph for Pond 31P: GI-6

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.00           | 0.00          |
| 1.00         | 3.54         | 1,402                | 130.07           | 0.00          |
| 2.00         | 0.13         | 4,949                | 130.25           | 0.00          |
| 3.00         | 0.00         | 4,974                | 130.25           | 0.00          |
| 4.00         | 0.00         | 4,974                | 130.25           | 0.00          |
| 5.00         | 0.00         | 4,974                | 130.25           | 0.00          |
| 6.00         | 0.00         | 4,974                | 130.25           | 0.00          |
| 7.00         | 0.00         | 4,974                | 130.25           | 0.00          |
| 8.00         | 0.00         | 4,974                | 130.25           | 0.00          |
| 9.00         | 0.00         | 4,974                | 130.25           | 0.00          |
| 10.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 11.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 12.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 13.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 14.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 15.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 16.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 17.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 18.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 19.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 20.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 21.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 22.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 23.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 24.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 25.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 26.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 27.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 28.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 29.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 30.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 31.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 32.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 33.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 34.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 35.00        | 0.00         | 4,974                | 130.25           | 0.00          |
| 36.00        | 0.00         | 4,974                | 130.25           | 0.00          |

Stage-Discharge for Pond 31P: GI-6

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.00              | 0.00             | 130.52              | 0.11             | 131.04              | 1.13             | 131.56              | 2.32             |
| 130.01              | 0.00             | 130.53              | 0.12             | 131.05              | 1.15             | 131.57              | 2.34             |
| 130.02              | 0.00             | 130.54              | 0.13             | 131.06              | 1.17             | 131.58              | 2.36             |
| 130.03              | 0.00             | 130.55              | 0.15             | 131.07              | 1.19             | 131.59              | 2.39             |
| 130.04              | 0.00             | 130.56              | 0.16             | 131.08              | 1.22             | 131.60              | 2.41             |
| 130.05              | 0.00             | 130.57              | 0.18             | 131.09              | 1.24             | 131.61              | 2.43             |
| 130.06              | 0.00             | 130.58              | 0.19             | 131.10              | 1.26             | 131.62              | 2.45             |
| 130.07              | 0.00             | 130.59              | 0.21             | 131.11              | 1.29             | 131.63              | 2.47             |
| 130.08              | 0.00             | 130.60              | 0.22             | 131.12              | 1.31             | 131.64              | 2.49             |
| 130.09              | 0.00             | 130.61              | 0.24             | 131.13              | 1.33             | 131.65              | 2.51             |
| 130.10              | 0.00             | 130.62              | 0.26             | 131.14              | 1.36             | 131.66              | 2.53             |
| 130.11              | 0.00             | 130.63              | 0.27             | 131.15              | 1.38             | 131.67              | 2.56             |
| 130.12              | 0.00             | 130.64              | 0.29             | 131.16              | 1.40             | 131.68              | 2.58             |
| 130.13              | 0.00             | 130.65              | 0.31             | 131.17              | 1.43             | 131.69              | 2.60             |
| 130.14              | 0.00             | 130.66              | 0.32             | 131.18              | 1.45             | 131.70              | 2.62             |
| 130.15              | 0.00             | 130.67              | 0.34             | 131.19              | 1.47             | 131.71              | 2.64             |
| 130.16              | 0.00             | 130.68              | 0.36             | 131.20              | 1.50             | 131.72              | 2.66             |
| 130.17              | 0.00             | 130.69              | 0.38             | 131.21              | 1.52             | 131.73              | 2.68             |
| 130.18              | 0.00             | 130.70              | 0.40             | 131.22              | 1.54             | 131.74              | 2.70             |
| 130.19              | 0.00             | 130.71              | 0.42             | 131.23              | 1.57             | 131.75              | 2.72             |
| 130.20              | 0.00             | 130.72              | 0.44             | 131.24              | 1.59             | 131.76              | 2.74             |
| 130.21              | 0.00             | 130.73              | 0.46             | 131.25              | 1.61             | 131.77              | 2.76             |
| 130.22              | 0.00             | 130.74              | 0.47             | 131.26              | 1.64             | 131.78              | 2.78             |
| 130.23              | 0.00             | 130.75              | 0.49             | 131.27              | 1.66             | 131.79              | 2.80             |
| 130.24              | 0.00             | 130.76              | 0.51             | 131.28              | 1.68             | 131.80              | 2.82             |
| 130.25              | 0.00             | 130.77              | 0.53             | 131.29              | 1.71             | 131.81              | 2.89             |
| 130.26              | 0.00             | 130.78              | 0.55             | 131.30              | 1.73             | 131.82              | 3.00             |
| 130.27              | 0.00             | 130.79              | 0.58             | 131.31              | 1.75             | 131.83              | 3.15             |
| 130.28              | 0.00             | 130.80              | 0.60             | 131.32              | 1.78             | 131.84              | 3.31             |
| 130.29              | 0.00             | 130.81              | 0.62             | 131.33              | 1.80             | 131.85              | 3.50             |
| 130.30              | 0.00             | 130.82              | 0.64             | 131.34              | 1.82             | 131.86              | 3.70             |
| 130.31              | 0.00             | 130.83              | 0.66             | 131.35              | 1.85             | 131.87              | 3.92             |
| 130.32              | 0.00             | 130.84              | 0.68             | 131.36              | 1.87             | 131.88              | 4.15             |
| 130.33              | 0.00             | 130.85              | 0.70             | 131.37              | 1.89             | 131.89              | 4.40             |
| 130.34              | 0.00             | 130.86              | 0.72             | 131.38              | 1.92             | 131.90              | 4.66             |
| 130.35              | 0.00             | 130.87              | 0.74             | 131.39              | 1.94             | 131.91              | 4.93             |
| 130.36              | 0.00             | 130.88              | 0.77             | 131.40              | 1.96             | 131.92              | 5.21             |
| 130.37              | 0.00             | 130.89              | 0.79             | 131.41              | 1.98             | 131.93              | 5.51             |
| 130.38              | 0.00             | 130.90              | 0.81             | 131.42              | 2.01             | 131.94              | 5.82             |
| 130.39              | 0.00             | 130.91              | 0.83             | 131.43              | 2.03             | 131.95              | 6.13             |
| 130.40              | 0.00             | 130.92              | 0.85             | 131.44              | 2.05             | 131.96              | 6.46             |
| 130.41              | 0.00             | 130.93              | 0.88             | 131.45              | 2.08             | 131.97              | 6.79             |
| 130.42              | 0.01             | 130.94              | 0.90             | 131.46              | 2.10             | 131.98              | 7.14             |
| 130.43              | 0.01             | 130.95              | 0.92             | 131.47              | 2.12             | 131.99              | 7.49             |
| 130.44              | 0.02             | 130.96              | 0.94             | 131.48              | 2.14             | 132.00              | 7.86             |
| 130.45              | 0.03             | 130.97              | 0.97             | 131.49              | 2.17             |                     |                  |
| 130.46              | 0.04             | 130.98              | 0.99             | 131.50              | 2.19             |                     |                  |
| 130.47              | 0.05             | 130.99              | 1.01             | 131.51              | 2.21             |                     |                  |
| 130.48              | 0.06             | 131.00              | 1.03             | 131.52              | 2.23             |                     |                  |
| 130.49              | 0.07             | 131.01              | 1.06             | 131.53              | 2.25             |                     |                  |
| 130.50              | 0.08             | 131.02              | 1.08             | 131.54              | 2.28             |                     |                  |
| 130.51              | 0.09             | 131.03              | 1.10             | 131.55              | 2.30             |                     |                  |

Stage-Area-Storage for Pond 31P: GI-6

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.00              | 20,000             | 0                       | 131.04              | 20,000             | 20,800                  |
| 130.02              | 20,000             | 400                     | 131.06              | 20,000             | 21,200                  |
| 130.04              | 20,000             | 800                     | 131.08              | 20,000             | 21,600                  |
| 130.06              | 20,000             | 1,200                   | 131.10              | 20,000             | 22,000                  |
| 130.08              | 20,000             | 1,600                   | 131.12              | 20,000             | 22,400                  |
| 130.10              | 20,000             | 2,000                   | 131.14              | 20,000             | 22,800                  |
| 130.12              | 20,000             | 2,400                   | 131.16              | 20,000             | 23,200                  |
| 130.14              | 20,000             | 2,800                   | 131.18              | 20,000             | 23,600                  |
| 130.16              | 20,000             | 3,200                   | 131.20              | 20,000             | 24,000                  |
| 130.18              | 20,000             | 3,600                   | 131.22              | 20,000             | 24,400                  |
| 130.20              | 20,000             | 4,000                   | 131.24              | 20,000             | 24,800                  |
| 130.22              | 20,000             | 4,400                   | 131.26              | 20,000             | 25,200                  |
| 130.24              | 20,000             | 4,800                   | 131.28              | 20,000             | 25,600                  |
| 130.26              | 20,000             | 5,200                   | 131.30              | 20,000             | 26,000                  |
| 130.28              | 20,000             | 5,600                   | 131.32              | 20,000             | 26,400                  |
| 130.30              | 20,000             | 6,000                   | 131.34              | 20,000             | 26,800                  |
| 130.32              | 20,000             | 6,400                   | 131.36              | 20,000             | 27,200                  |
| 130.34              | 20,000             | 6,800                   | 131.38              | 20,000             | 27,600                  |
| 130.36              | 20,000             | 7,200                   | 131.40              | 20,000             | 28,000                  |
| 130.38              | 20,000             | 7,600                   | 131.42              | 20,000             | 28,400                  |
| 130.40              | 20,000             | 8,000                   | 131.44              | 20,000             | 28,800                  |
| 130.42              | 20,000             | 8,400                   | 131.46              | 20,000             | 29,200                  |
| 130.44              | 20,000             | 8,800                   | 131.48              | 20,000             | 29,600                  |
| 130.46              | 20,000             | 9,200                   | 131.50              | 20,000             | 30,000                  |
| 130.48              | 20,000             | 9,600                   | 131.52              | 20,000             | 30,400                  |
| 130.50              | 20,000             | 10,000                  | 131.54              | 20,000             | 30,800                  |
| 130.52              | 20,000             | 10,400                  | 131.56              | 20,000             | 31,200                  |
| 130.54              | 20,000             | 10,800                  | 131.58              | 20,000             | 31,600                  |
| 130.56              | 20,000             | 11,200                  | 131.60              | 20,000             | 32,000                  |
| 130.58              | 20,000             | 11,600                  | 131.62              | 20,000             | 32,400                  |
| 130.60              | 20,000             | 12,000                  | 131.64              | 20,000             | 32,800                  |
| 130.62              | 20,000             | 12,400                  | 131.66              | 20,000             | 33,200                  |
| 130.64              | 20,000             | 12,800                  | 131.68              | 20,000             | 33,600                  |
| 130.66              | 20,000             | 13,200                  | 131.70              | 20,000             | 34,000                  |
| 130.68              | 20,000             | 13,600                  | 131.72              | 20,000             | 34,400                  |
| 130.70              | 20,000             | 14,000                  | 131.74              | 20,000             | 34,800                  |
| 130.72              | 20,000             | 14,400                  | 131.76              | 20,000             | 35,200                  |
| 130.74              | 20,000             | 14,800                  | 131.78              | 20,000             | 35,600                  |
| 130.76              | 20,000             | 15,200                  | 131.80              | 20,000             | 36,000                  |
| 130.78              | 20,000             | 15,600                  | 131.82              | 20,000             | 36,400                  |
| 130.80              | 20,000             | 16,000                  | 131.84              | 20,000             | 36,800                  |
| 130.82              | 20,000             | 16,400                  | 131.86              | 20,000             | 37,200                  |
| 130.84              | 20,000             | 16,800                  | 131.88              | 20,000             | 37,600                  |
| 130.86              | 20,000             | 17,200                  | 131.90              | 20,000             | 38,000                  |
| 130.88              | 20,000             | 17,600                  | 131.92              | 20,000             | 38,400                  |
| 130.90              | 20,000             | 18,000                  | 131.94              | 20,000             | 38,800                  |
| 130.92              | 20,000             | 18,400                  | 131.96              | 20,000             | 39,200                  |
| 130.94              | 20,000             | 18,800                  | 131.98              | 20,000             | 39,600                  |
| 130.96              | 20,000             | 19,200                  | 132.00              | 20,000             | 40,000                  |
| 130.98              | 20,000             | 19,600                  |                     |                    |                         |
| 131.00              | 20,000             | 20,000                  |                     |                    |                         |
| 131.02              | 20,000             | 20,400                  |                     |                    |                         |

Summary for Pond 43P: GI-11

Inflow Area = 17,074 sf, 78.69% Impervious, Inflow Depth = 0.81" for WQ Storm event  
Inflow = 0.96 cfs @ 1.03 hrs, Volume= 1,158 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Routed to Link 13L : FES

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs  
Peak Elev= 131.03' @ 2.15 hrs Surf.Area= 2,193 sf Storage= 1,158 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 130.50' | 4,386 cf      | Custom Stage Data (Prismatic) Listed below (Recalc) |

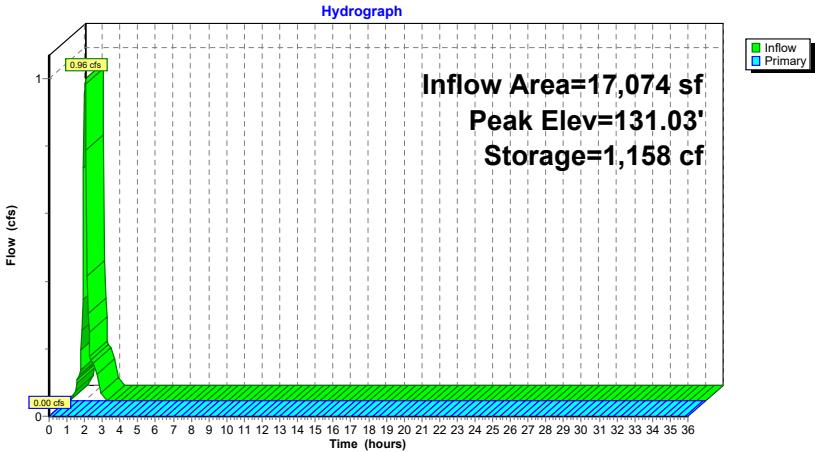
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 130.50           | 2,193             | 0                      | 0                      |
| 132.50           | 2,193             | 4,386                  | 4,386                  |

| Device | Routing | Invert  | Outlet Devices                                                |
|--------|---------|---------|---------------------------------------------------------------|
| #1     | Primary | 131.04' | 0.7' long Sharp-Crested Rectangular Weir 2 End Contraction(s) |

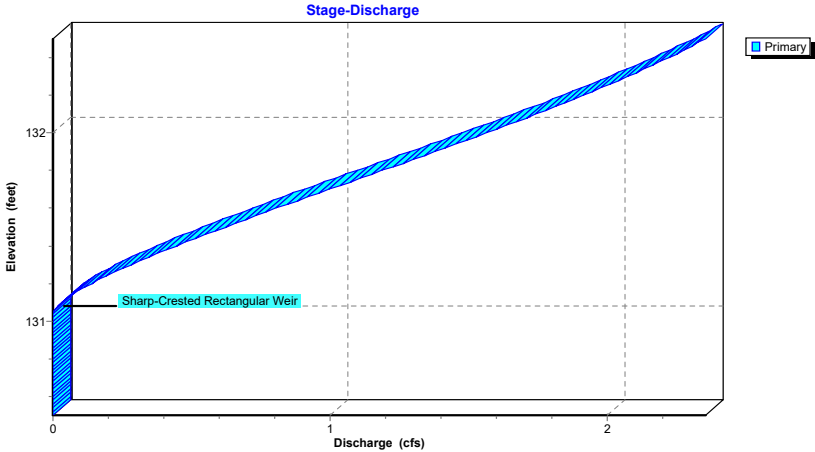
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=130.50' TW=0.00' (Dynamic Tailwater)  
1=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)



Pond 43P: GI-11

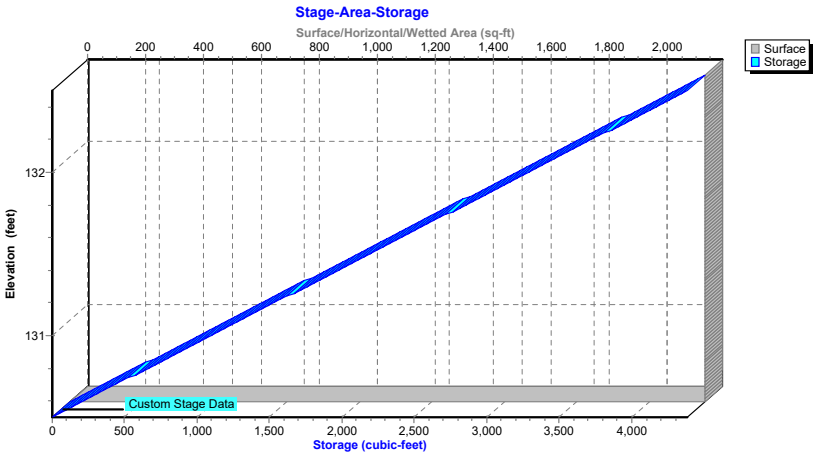


Pond 43P: GI-11





Pond 43P: GI-11



Hydrograph for Pond 43P: GI-11

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 130.50           | 0.00          |
| 1.00         | 0.91         | 404                  | 130.68           | 0.00          |
| 2.00         | 0.03         | 1,155                | 131.03           | 0.00          |
| 3.00         | 0.00         | 1,158                | 131.03           | 0.00          |
| 4.00         | 0.00         | 1,158                | 131.03           | 0.00          |
| 5.00         | 0.00         | 1,158                | 131.03           | 0.00          |
| 6.00         | 0.00         | 1,158                | 131.03           | 0.00          |
| 7.00         | 0.00         | 1,158                | 131.03           | 0.00          |
| 8.00         | 0.00         | 1,158                | 131.03           | 0.00          |
| 9.00         | 0.00         | 1,158                | 131.03           | 0.00          |
| 10.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 11.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 12.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 13.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 14.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 15.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 16.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 17.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 18.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 19.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 20.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 21.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 22.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 23.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 24.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 25.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 26.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 27.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 28.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 29.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 30.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 31.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 32.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 33.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 34.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 35.00        | 0.00         | 1,158                | 131.03           | 0.00          |
| 36.00        | 0.00         | 1,158                | 131.03           | 0.00          |

**2101ELK-STM Analysis POI-1 - Proposed NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"**

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 43P: GI-11**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 130.50              | 0.00             | 131.02              | 0.00             | 131.54              | 0.69             | 132.06              | 1.67             |
| 130.51              | 0.00             | 131.03              | 0.00             | 131.55              | 0.71             | 132.07              | 1.69             |
| 130.52              | 0.00             | 131.04              | 0.00             | 131.56              | 0.73             | 132.08              | 1.71             |
| 130.53              | 0.00             | 131.05              | 0.00             | 131.57              | 0.75             | 132.09              | 1.72             |
| 130.54              | 0.00             | 131.06              | 0.01             | 131.58              | 0.77             | 132.10              | 1.74             |
| 130.55              | 0.00             | 131.07              | 0.01             | 131.59              | 0.79             | 132.11              | 1.76             |
| 130.56              | 0.00             | 131.08              | 0.02             | 131.60              | 0.81             | 132.12              | 1.78             |
| 130.57              | 0.00             | 131.09              | 0.03             | 131.61              | 0.82             | 132.13              | 1.79             |
| 130.58              | 0.00             | 131.10              | 0.03             | 131.62              | 0.84             | 132.14              | 1.81             |
| 130.59              | 0.00             | 131.11              | 0.04             | 131.63              | 0.86             | 132.15              | 1.83             |
| 130.60              | 0.00             | 131.12              | 0.05             | 131.64              | 0.88             | 132.16              | 1.84             |
| 130.61              | 0.00             | 131.13              | 0.06             | 131.65              | 0.90             | 132.17              | 1.86             |
| 130.62              | 0.00             | 131.14              | 0.07             | 131.66              | 0.92             | 132.18              | 1.88             |
| 130.63              | 0.00             | 131.15              | 0.08             | 131.67              | 0.94             | 132.19              | 1.90             |
| 130.64              | 0.00             | 131.16              | 0.09             | 131.68              | 0.96             | 132.20              | 1.91             |
| 130.65              | 0.00             | 131.17              | 0.10             | 131.69              | 0.98             | 132.21              | 1.93             |
| 130.66              | 0.00             | 131.18              | 0.12             | 131.70              | 1.00             | 132.22              | 1.94             |
| 130.67              | 0.00             | 131.19              | 0.13             | 131.71              | 1.02             | 132.23              | 1.96             |
| 130.68              | 0.00             | 131.20              | 0.14             | 131.72              | 1.03             | 132.24              | 1.98             |
| 130.69              | 0.00             | 131.21              | 0.15             | 131.73              | 1.05             | 132.25              | 1.99             |
| 130.70              | 0.00             | 131.22              | 0.17             | 131.74              | 1.07             | 132.26              | 2.01             |
| 130.71              | 0.00             | 131.23              | 0.18             | 131.75              | 1.09             | 132.27              | 2.03             |
| 130.72              | 0.00             | 131.24              | 0.19             | 131.76              | 1.11             | 132.28              | 2.04             |
| 130.73              | 0.00             | 131.25              | 0.21             | 131.77              | 1.13             | 132.29              | 2.06             |
| 130.74              | 0.00             | 131.26              | 0.22             | 131.78              | 1.15             | 132.30              | 2.07             |
| 130.75              | 0.00             | 131.27              | 0.24             | 131.79              | 1.17             | 132.31              | 2.09             |
| 130.76              | 0.00             | 131.28              | 0.25             | 131.80              | 1.19             | 132.32              | 2.10             |
| 130.77              | 0.00             | 131.29              | 0.27             | 131.81              | 1.21             | 132.33              | 2.12             |
| 130.78              | 0.00             | 131.30              | 0.28             | 131.82              | 1.23             | 132.34              | 2.13             |
| 130.79              | 0.00             | 131.31              | 0.30             | 131.83              | 1.24             | 132.35              | 2.15             |
| 130.80              | 0.00             | 131.32              | 0.31             | 131.84              | 1.26             | 132.36              | 2.16             |
| 130.81              | 0.00             | 131.33              | 0.33             | 131.85              | 1.28             | 132.37              | 2.18             |
| 130.82              | 0.00             | 131.34              | 0.34             | 131.86              | 1.30             | 132.38              | 2.19             |
| 130.83              | 0.00             | 131.35              | 0.36             | 131.87              | 1.32             | 132.39              | 2.21             |
| 130.84              | 0.00             | 131.36              | 0.38             | 131.88              | 1.34             | 132.40              | 2.22             |
| 130.85              | 0.00             | 131.37              | 0.39             | 131.89              | 1.36             | 132.41              | 2.23             |
| 130.86              | 0.00             | 131.38              | 0.41             | 131.90              | 1.38             | 132.42              | 2.25             |
| 130.87              | 0.00             | 131.39              | 0.43             | 131.91              | 1.40             | 132.43              | 2.26             |
| 130.88              | 0.00             | 131.40              | 0.44             | 131.92              | 1.41             | 132.44              | 2.28             |
| 130.89              | 0.00             | 131.41              | 0.46             | 131.93              | 1.43             | 132.45              | 2.29             |
| 130.90              | 0.00             | 131.42              | 0.48             | 131.94              | 1.45             | 132.46              | 2.30             |
| 130.91              | 0.00             | 131.43              | 0.50             | 131.95              | 1.47             | 132.47              | 2.32             |
| 130.92              | 0.00             | 131.44              | 0.51             | 131.96              | 1.49             | 132.48              | 2.33             |
| 130.93              | 0.00             | 131.45              | 0.53             | 131.97              | 1.51             | 132.49              | 2.34             |
| 130.94              | 0.00             | 131.46              | 0.55             | 131.98              | 1.53             | 132.50              | 2.35             |
| 130.95              | 0.00             | 131.47              | 0.57             | 131.99              | 1.54             |                     |                  |
| 130.96              | 0.00             | 131.48              | 0.58             | 132.00              | 1.56             |                     |                  |
| 130.97              | 0.00             | 131.49              | 0.60             | 132.01              | 1.58             |                     |                  |
| 130.98              | 0.00             | 131.50              | 0.62             | 132.02              | 1.60             |                     |                  |
| 130.99              | 0.00             | 131.51              | 0.64             | 132.03              | 1.62             |                     |                  |
| 131.00              | 0.00             | 131.52              | 0.66             | 132.04              | 1.64             |                     |                  |
| 131.01              | 0.00             | 131.53              | 0.68             | 132.05              | 1.65             |                     |                  |

**2101ELK-STM Analysis POI-1 - Proposed NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"**

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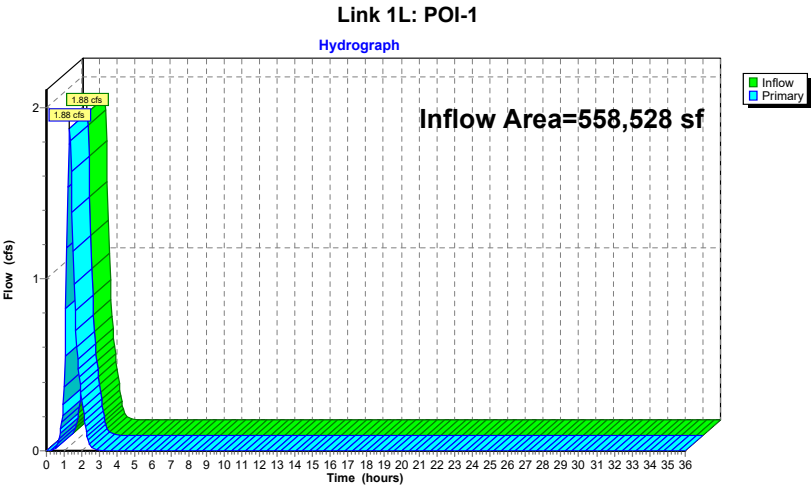
**Stage-Area-Storage for Pond 43P: GI-11**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 130.50              | 2,193              | 0                       | 131.54              | 2,193              | 2,281                   |
| 130.52              | 2,193              | 44                      | 131.56              | 2,193              | 2,325                   |
| 130.54              | 2,193              | 88                      | 131.58              | 2,193              | 2,368                   |
| 130.56              | 2,193              | 132                     | 131.60              | 2,193              | 2,412                   |
| 130.58              | 2,193              | 175                     | 131.62              | 2,193              | 2,456                   |
| 130.60              | 2,193              | 219                     | 131.64              | 2,193              | 2,500                   |
| 130.62              | 2,193              | 263                     | 131.66              | 2,193              | 2,544                   |
| 130.64              | 2,193              | 307                     | 131.68              | 2,193              | 2,588                   |
| 130.66              | 2,193              | 351                     | 131.70              | 2,193              | 2,632                   |
| 130.68              | 2,193              | 395                     | 131.72              | 2,193              | 2,675                   |
| 130.70              | 2,193              | 439                     | 131.74              | 2,193              | 2,719                   |
| 130.72              | 2,193              | 482                     | 131.76              | 2,193              | 2,763                   |
| 130.74              | 2,193              | 526                     | 131.78              | 2,193              | 2,807                   |
| 130.76              | 2,193              | 570                     | 131.80              | 2,193              | 2,851                   |
| 130.78              | 2,193              | 614                     | 131.82              | 2,193              | 2,895                   |
| 130.80              | 2,193              | 658                     | 131.84              | 2,193              | 2,939                   |
| 130.82              | 2,193              | 702                     | 131.86              | 2,193              | 2,982                   |
| 130.84              | 2,193              | 746                     | 131.88              | 2,193              | 3,026                   |
| 130.86              | 2,193              | 789                     | 131.90              | 2,193              | 3,070                   |
| 130.88              | 2,193              | 833                     | 131.92              | 2,193              | 3,114                   |
| 130.90              | 2,193              | 877                     | 131.94              | 2,193              | 3,158                   |
| 130.92              | 2,193              | 921                     | 131.96              | 2,193              | 3,202                   |
| 130.94              | 2,193              | 965                     | 131.98              | 2,193              | 3,246                   |
| 130.96              | 2,193              | 1,009                   | 132.00              | 2,193              | 3,290                   |
| 130.98              | 2,193              | 1,053                   | 132.02              | 2,193              | 3,333                   |
| 131.00              | 2,193              | 1,097                   | 132.04              | 2,193              | 3,377                   |
| 131.02              | 2,193              | 1,140                   | 132.06              | 2,193              | 3,421                   |
| 131.04              | 2,193              | 1,184                   | 132.08              | 2,193              | 3,465                   |
| 131.06              | 2,193              | 1,228                   | 132.10              | 2,193              | 3,509                   |
| 131.08              | 2,193              | 1,272                   | 132.12              | 2,193              | 3,553                   |
| 131.10              | 2,193              | 1,316                   | 132.14              | 2,193              | 3,597                   |
| 131.12              | 2,193              | 1,360                   | 132.16              | 2,193              | 3,640                   |
| 131.14              | 2,193              | 1,404                   | 132.18              | 2,193              | 3,684                   |
| 131.16              | 2,193              | 1,447                   | 132.20              | 2,193              | 3,728                   |
| 131.18              | 2,193              | 1,491                   | 132.22              | 2,193              | 3,772                   |
| 131.20              | 2,193              | 1,535                   | 132.24              | 2,193              | 3,816                   |
| 131.22              | 2,193              | 1,579                   | 132.26              | 2,193              | 3,860                   |
| 131.24              | 2,193              | 1,623                   | 132.28              | 2,193              | 3,904                   |
| 131.26              | 2,193              | 1,667                   | 132.30              | 2,193              | 3,947                   |
| 131.28              | 2,193              | 1,711                   | 132.32              | 2,193              | 3,991                   |
| 131.30              | 2,193              | 1,754                   | 132.34              | 2,193              | 4,035                   |
| 131.32              | 2,193              | 1,798                   | 132.36              | 2,193              | 4,079                   |
| 131.34              | 2,193              | 1,842                   | 132.38              | 2,193              | 4,123                   |
| 131.36              | 2,193              | 1,886                   | 132.40              | 2,193              | 4,167                   |
| 131.38              | 2,193              | 1,930                   | 132.42              | 2,193              | 4,211                   |
| 131.40              | 2,193              | 1,974                   | 132.44              | 2,193              | 4,254                   |
| 131.42              | 2,193              | 2,018                   | 132.46              | 2,193              | 4,298                   |
| 131.44              | 2,193              | 2,061                   | 132.48              | 2,193              | 4,342                   |
| 131.46              | 2,193              | 2,105                   | 132.50              | 2,193              | 4,386                   |
| 131.48              | 2,193              | 2,149                   |                     |                    |                         |
| 131.50              | 2,193              | 2,193                   |                     |                    |                         |
| 131.52              | 2,193              | 2,237                   |                     |                    |                         |

Summary for Link 1L: POI-1

Inflow Area = 558,528 sf, 45.65% Impervious, Inflow Depth = 0.08" for WQ Storm event  
Inflow = 1.88 cfs @ 1.30 hrs, Volume= 3,942 cf  
Primary = 1.88 cfs @ 1.30 hrs, Volume= 3,942 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs



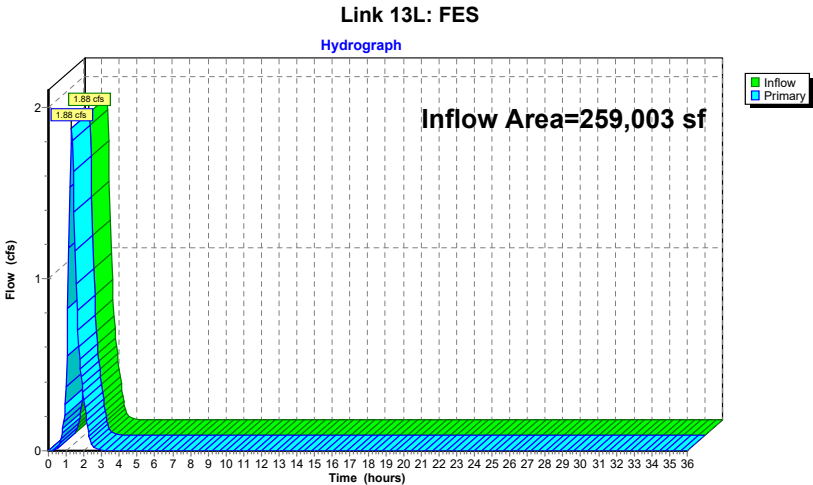
Hydrograph for Link 1L: POI-1

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.00         | 0.00             | 0.00          |
| 0.50         | 0.01         | 0.00             | 0.01          | 26.50        | 0.00         | 0.00             | 0.00          |
| 1.00         | 0.37         | 0.00             | 0.37          | 27.00        | 0.00         | 0.00             | 0.00          |
| 1.50         | 1.16         | 0.00             | 1.16          | 27.50        | 0.00         | 0.00             | 0.00          |
| 2.00         | 0.30         | 0.00             | 0.30          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.02         | 0.00             | 0.02          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.00         | 0.00             | 0.00          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.00         | 0.00             | 0.00          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.00         | 0.00             | 0.00          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.00         | 0.00             | 0.00          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.00         | 0.00             | 0.00          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.00         | 0.00             | 0.00          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.00         | 0.00             | 0.00          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.00         | 0.00             | 0.00          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.00         | 0.00             | 0.00          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.00         | 0.00             | 0.00          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.00         | 0.00             | 0.00          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.00         | 0.00             | 0.00          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.00         | 0.00             | 0.00          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.00         | 0.00             | 0.00          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.00         | 0.00             | 0.00          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 11.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 11.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 12.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 12.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 13.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 13.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 14.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 14.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 15.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 15.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 16.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 16.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 17.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 17.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 18.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 18.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 19.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 19.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 20.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 20.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 21.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 21.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 22.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 22.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 23.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 23.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 24.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 24.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 25.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 25.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |

Summary for Link 13L: FES

Inflow Area = 259,003 sf, 30.97% Impervious, Inflow Depth = 0.18" for WQ Storm event  
Inflow = 1.88 cfs @ 1.30 hrs, Volume= 3,942 cf  
Primary = 1.88 cfs @ 1.30 hrs, Volume= 3,942 cf, Atten= 0%, Lag= 0.0 min  
Routed to Link 1L : POI-1

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs



Hydrograph for Link 13L: FES

| Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) | Time (hours) | Inflow (cfs) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|------------------|---------------|--------------|--------------|------------------|---------------|
| 0.00         | 0.00         | 0.00             | 0.00          | 26.00        | 0.00         | 0.00             | 0.00          |
| 0.50         | 0.01         | 0.00             | 0.01          | 26.50        | 0.00         | 0.00             | 0.00          |
| 1.00         | 0.37         | 0.00             | 0.37          | 27.00        | 0.00         | 0.00             | 0.00          |
| 1.50         | 1.16         | 0.00             | 1.16          | 27.50        | 0.00         | 0.00             | 0.00          |
| 2.00         | 0.30         | 0.00             | 0.30          | 28.00        | 0.00         | 0.00             | 0.00          |
| 2.50         | 0.02         | 0.00             | 0.02          | 28.50        | 0.00         | 0.00             | 0.00          |
| 3.00         | 0.00         | 0.00             | 0.00          | 29.00        | 0.00         | 0.00             | 0.00          |
| 3.50         | 0.00         | 0.00             | 0.00          | 29.50        | 0.00         | 0.00             | 0.00          |
| 4.00         | 0.00         | 0.00             | 0.00          | 30.00        | 0.00         | 0.00             | 0.00          |
| 4.50         | 0.00         | 0.00             | 0.00          | 30.50        | 0.00         | 0.00             | 0.00          |
| 5.00         | 0.00         | 0.00             | 0.00          | 31.00        | 0.00         | 0.00             | 0.00          |
| 5.50         | 0.00         | 0.00             | 0.00          | 31.50        | 0.00         | 0.00             | 0.00          |
| 6.00         | 0.00         | 0.00             | 0.00          | 32.00        | 0.00         | 0.00             | 0.00          |
| 6.50         | 0.00         | 0.00             | 0.00          | 32.50        | 0.00         | 0.00             | 0.00          |
| 7.00         | 0.00         | 0.00             | 0.00          | 33.00        | 0.00         | 0.00             | 0.00          |
| 7.50         | 0.00         | 0.00             | 0.00          | 33.50        | 0.00         | 0.00             | 0.00          |
| 8.00         | 0.00         | 0.00             | 0.00          | 34.00        | 0.00         | 0.00             | 0.00          |
| 8.50         | 0.00         | 0.00             | 0.00          | 34.50        | 0.00         | 0.00             | 0.00          |
| 9.00         | 0.00         | 0.00             | 0.00          | 35.00        | 0.00         | 0.00             | 0.00          |
| 9.50         | 0.00         | 0.00             | 0.00          | 35.50        | 0.00         | 0.00             | 0.00          |
| 10.00        | 0.00         | 0.00             | 0.00          | 36.00        | 0.00         | 0.00             | 0.00          |
| 10.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 11.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 11.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 12.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 12.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 13.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 13.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 14.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 14.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 15.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 15.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 16.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 16.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 17.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 17.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 18.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 18.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 19.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 19.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 20.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 20.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 21.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 21.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 22.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 22.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 23.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 23.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 24.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 24.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 25.00        | 0.00         | 0.00             | 0.00          |              |              |                  |               |
| 25.50        | 0.00         | 0.00             | 0.00          |              |              |                  |               |

## 2101ELK-STM Analysis POI-1 - Proposed

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- 225 Pond 28P: GI-3
- 231 Pond 31P: GI-6
- 237 Pond 43P: GI-11
- 243 Link 1L: POI-1
- 245 Link 13L: FES

#### 2-Year-2050 Event

- 247 Node Listing
- 249 Subcat 1S: GI-1 Pervious
- 251 Subcat 2S: GI-9 Pervious
- 253 Subcat 3S: GI-1 Impervious
- 255 Subcat 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious)
- 258 Subcat 6S: GI-9 Impervious
- 260 Subcat 15S: GI-2 Pervious

## 2101ELK-STM Analysis POI-1 - Proposed

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| 262 | Subcat 16S: GI-2 Impervious                     |
| 265 | Subcat 26S: GI-3 Pervious                       |
| 267 | Subcat 27S: GI-3 Impervious                     |
| 270 | Subcat 29S: GI-6 Pervious                       |
| 272 | Subcat 30S: GI-6 Impervious                     |
| 275 | Subcat 41S: GI-11 Pervious                      |
| 278 | Subcat 42S: GI-11 Impervious                    |
| 281 | Subcat 46S: North Undisturbed Area (Pervious)   |
| 284 | Subcat 47S: North Undisturbed Area (Impervious) |
| 287 | Pond 2P: GI-1                                   |
| 293 | Pond 7P: GI-9                                   |
| 299 | Pond 14P: GI-2                                  |
| 305 | Pond 28P: GI-3                                  |
| 311 | Pond 31P: GI-6                                  |
| 317 | Pond 43P: GI-11                                 |
| 323 | Link 1L: POI-1                                  |
| 325 | Link 13L: FES                                   |

### 10-Year-2050 Event

|     |                                                               |
|-----|---------------------------------------------------------------|
| 327 | Node Listing                                                  |
| 329 | Subcat 1S: GI-1 Pervious                                      |
| 331 | Subcat 2S: GI-9 Pervious                                      |
| 333 | Subcat 3S: GI-1 Impervious                                    |
| 335 | Subcat 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious) |
| 338 | Subcat 6S: GI-9 Impervious                                    |
| 340 | Subcat 15S: GI-2 Pervious                                     |
| 342 | Subcat 16S: GI-2 Impervious                                   |
| 345 | Subcat 26S: GI-3 Pervious                                     |
| 347 | Subcat 27S: GI-3 Impervious                                   |
| 350 | Subcat 29S: GI-6 Pervious                                     |
| 352 | Subcat 30S: GI-6 Impervious                                   |
| 355 | Subcat 41S: GI-11 Pervious                                    |
| 358 | Subcat 42S: GI-11 Impervious                                  |
| 361 | Subcat 46S: North Undisturbed Area (Pervious)                 |
| 364 | Subcat 47S: North Undisturbed Area (Impervious)               |
| 367 | Pond 2P: GI-1                                                 |
| 373 | Pond 7P: GI-9                                                 |
| 379 | Pond 14P: GI-2                                                |
| 385 | Pond 28P: GI-3                                                |
| 391 | Pond 31P: GI-6                                                |
| 397 | Pond 43P: GI-11                                               |
| 403 | Link 1L: POI-1                                                |
| 405 | Link 13L: FES                                                 |

### 100-Year-2050 Event

|     |                          |
|-----|--------------------------|
| 407 | Node Listing             |
| 409 | Subcat 1S: GI-1 Pervious |
| 411 | Subcat 2S: GI-9 Pervious |

## 2101ELK-STM Analysis POI-1 - Proposed

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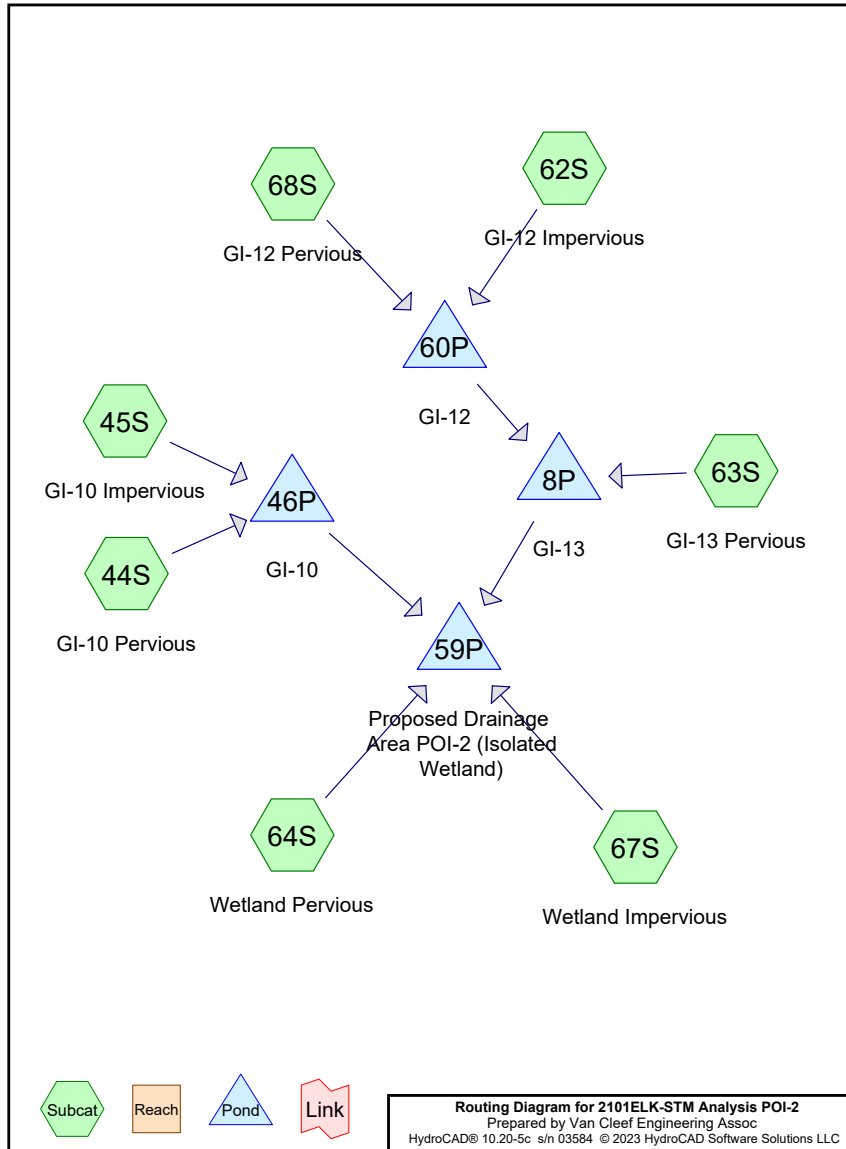
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|     |                                                               |
|-----|---------------------------------------------------------------|
| 413 | Subcat 3S: GI-1 Impervious                                    |
| 415 | Subcat 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious) |
| 418 | Subcat 6S: GI-9 Impervious                                    |
| 420 | Subcat 15S: GI-2 Pervious                                     |
| 422 | Subcat 16S: GI-2 Impervious                                   |
| 425 | Subcat 26S: GI-3 Pervious                                     |
| 427 | Subcat 27S: GI-3 Impervious                                   |
| 430 | Subcat 29S: GI-6 Pervious                                     |
| 432 | Subcat 30S: GI-6 Impervious                                   |
| 435 | Subcat 41S: GI-11 Pervious                                    |
| 438 | Subcat 42S: GI-11 Impervious                                  |
| 441 | Subcat 46S: North Undisturbed Area (Pervious)                 |
| 444 | Subcat 47S: North Undisturbed Area (Impervious)               |
| 447 | Pond 2P: GI-1                                                 |
| 453 | Pond 7P: GI-9                                                 |
| 459 | Pond 14P: GI-2                                                |
| 465 | Pond 28P: GI-3                                                |
| 471 | Pond 31P: GI-6                                                |
| 477 | Pond 43P: GI-11                                               |
| 483 | Link 1L: POI-1                                                |
| 485 | Link 13L: FES                                                 |

### WQ Storm Event

|     |                                                               |
|-----|---------------------------------------------------------------|
| 487 | Node Listing                                                  |
| 489 | Subcat 1S: GI-1 Pervious                                      |
| 491 | Subcat 2S: GI-9 Pervious                                      |
| 493 | Subcat 3S: GI-1 Impervious                                    |
| 495 | Subcat 5S: Proposed Disturbed Bypass Area to POI-1 (Pervious) |
| 498 | Subcat 6S: GI-9 Impervious                                    |
| 500 | Subcat 15S: GI-2 Pervious                                     |
| 502 | Subcat 16S: GI-2 Impervious                                   |
| 505 | Subcat 26S: GI-3 Pervious                                     |
| 507 | Subcat 27S: GI-3 Impervious                                   |
| 510 | Subcat 29S: GI-6 Pervious                                     |
| 512 | Subcat 30S: GI-6 Impervious                                   |
| 515 | Subcat 41S: GI-11 Pervious                                    |
| 518 | Subcat 42S: GI-11 Impervious                                  |
| 521 | Subcat 46S: North Undisturbed Area (Pervious)                 |
| 524 | Subcat 47S: North Undisturbed Area (Impervious)               |
| 527 | Pond 2P: GI-1                                                 |
| 533 | Pond 7P: GI-9                                                 |
| 539 | Pond 14P: GI-2                                                |
| 545 | Pond 28P: GI-3                                                |
| 551 | Pond 31P: GI-6                                                |
| 557 | Pond 43P: GI-11                                               |
| 563 | Link 1L: POI-1                                                |
| 565 | Link 13L: FES                                                 |



## 2101ELK-STM Analysis POI-2

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### Rainfall Events Listing

| Event# | Event Name    | Storm Type  | Curve | Mode    | Duration (hours) | B/B | Depth (inches) | AMC | P2 (inches) |
|--------|---------------|-------------|-------|---------|------------------|-----|----------------|-----|-------------|
| 1      | 2-Year-2020   | NOAA 24-hr  | C     | Default | 24.00            | 1   | 3.45           | 2   | 3.45        |
| 2      | 10-Year-2020  | NOAA 24-hr  | C     | Default | 24.00            | 1   | 5.35           | 2   | 3.45        |
| 3      | 100-Year-2020 | NOAA 24-hr  | C     | Default | 24.00            | 1   | 9.06           | 2   | 3.45        |
| 4      | 2-Year-2050   | NOAA 24-hr  | C     | Default | 24.00            | 1   | 3.92           | 2   | 3.92        |
| 5      | 10-Year-2050  | NOAA 24-hr  | C     | Default | 24.00            | 1   | 6.21           | 2   | 3.92        |
| 6      | 100-Year-2050 | NOAA 24-hr  | C     | Default | 24.00            | 1   | 12.06          | 2   | 3.92        |
| 7      | WQ Storm      | NJ DEP 2-hr |       | Default | 2.00             | 1   | 1.25           | 2   | 3.92        |

| Area Listing (selected nodes) |    |                                                    |
|-------------------------------|----|----------------------------------------------------|
| Area<br>(sq-ft)               | CN | Description<br>(subcatchment-numbers)              |
| 95,130                        | 39 | >75% Grass cover, Good, HSG A (44S, 63S, 64S, 68S) |
| 14,462                        | 61 | >75% Grass cover, Good, HSG B (63S, 68S)           |
| 79,383                        | 98 | Paved parking, HSG A (45S, 62S, 67S)               |
| 50,964                        | 30 | Woods, Good, HSG A (64S)                           |
| 239,939                       | 58 | TOTAL AREA                                         |

| Soil Listing (selected nodes) |               |                                   |
|-------------------------------|---------------|-----------------------------------|
| Area<br>(sq-ft)               | Soil<br>Group | Subcatchment<br>Numbers           |
| 225,477                       | HSG A         | 44S, 45S, 62S, 63S, 64S, 67S, 68S |
| 14,462                        | HSG B         | 63S, 68S                          |
| 0                             | HSG C         |                                   |
| 0                             | HSG D         |                                   |
| 0                             | Other         |                                   |
| 239,939                       |               | TOTAL AREA                        |



| Ground Covers (selected nodes) |                  |                  |                  |                  |                  |                           |
|--------------------------------|------------------|------------------|------------------|------------------|------------------|---------------------------|
| HSG-A<br>(sq-ft)               | HSG-B<br>(sq-ft) | HSG-C<br>(sq-ft) | HSG-D<br>(sq-ft) | Other<br>(sq-ft) | Total<br>(sq-ft) | Ground<br>Cover           |
| 95,130                         | 14,462           | 0                | 0                | 0                | 109,592          | >75% Grass<br>cover, Good |
| 79,383                         | 0                | 0                | 0                | 0                | 79,383           | Paved parking             |
| 50,964                         | 0                | 0                | 0                | 0                | 50,964           | Woods, Good               |
| 225,477                        | 14,462           | 0                | 0                | 0                | 239,939          | TOTAL AREA                |

Su  
Nu

| Pipe Listing (selected nodes) |                |                     |                      |                  |                  |       |                   |                         |                         |              |
|-------------------------------|----------------|---------------------|----------------------|------------------|------------------|-------|-------------------|-------------------------|-------------------------|--------------|
| Line#                         | Node<br>Number | In-Invert<br>(feet) | Out-Invert<br>(feet) | Length<br>(feet) | Slope<br>(ft/ft) | n     | Width<br>(inches) | Diam/Height<br>(inches) | Inside-Fill<br>(inches) | Node<br>Name |
| 1                             | 60P            | 127.00              | 127.00               | 83.0             | 0.0000           | 0.012 | 0.0               | 15.0                    | 0.0                     |              |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

|                                                                                                                                                     |                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Subcatchment44S: GI-10 Pervious                                                                                                                     | Runoff Area=13,028 sf 0.00% Impervious Runoff Depth=0.01"<br>Flow Length=91' Tc=11.2 min CN=39 Runoff=0.00 cfs 7 cf                           |
| Subcatchment45S: GI-10 Impervious                                                                                                                   | Runoff Area=19,702 sf 100.00% Impervious Runoff Depth=3.22"<br>Flow Length=660' Tc=4.5 min CN=98 Runoff=1.74 cfs 5,281 cf                     |
| Subcatchment62S: GI-12 Impervious                                                                                                                   | Runoff Area=47,814 sf 100.00% Impervious Runoff Depth=3.22"<br>Flow Length=147' Tc=1.6 min CN=98 Runoff=4.41 cfs 12,817 cf                    |
| Subcatchment63S: GI-13 Pervious                                                                                                                     | Runoff Area=17,103 sf 0.00% Impervious Runoff Depth=0.03"<br>Flow Length=90' Slope=0.0100 '/' Tc=10.2 min CN=42 Runoff=0.00 cfs 47 cf         |
| Subcatchment64S: Wetland Pervious                                                                                                                   | Runoff Area=75,754 sf 0.00% Impervious Runoff Depth=0.00"<br>Flow Length=161' Tc=10.8 min CN=33 Runoff=0.00 cfs 0 cf                          |
| Subcatchment67S: Wetland Impervious                                                                                                                 | Runoff Area=11,867 sf 100.00% Impervious Runoff Depth=3.22"<br>Flow Length=151' Tc=0.9 min CN=98 Runoff=1.10 cfs 3,181 cf                     |
| Subcatchment68S: GI-12 Pervious                                                                                                                     | Runoff Area=54,671 sf 0.00% Impervious Runoff Depth=0.06"<br>Flow Length=93' Tc=5.9 min CN=44 Runoff=0.01 cfs 273 cf                          |
| Pond 8P: GI-13                                                                                                                                      | Peak Elev=126.00' Storage=0 cf Inflow=0.00 cfs 47 cf<br>Discarded=0.00 cfs 47 cf Primary=0.00 cfs 0 cf Outflow=0.00 cfs 47 cf                 |
| Pond 46P: GI-10                                                                                                                                     | Peak Elev=125.01' Storage=5,126 cf Inflow=1.74 cfs 5,288 cf<br>Outflow=0.02 cfs 198 cf                                                        |
| Pond 59P: Proposed Drainage Area POI-2                                                                                                              | Peak Elev=123.90' Storage=3,379 cf Inflow=1.10 cfs 3,379 cf<br>Outflow=0.00 cfs 0 cf                                                          |
| Pond 60P: GI-12                                                                                                                                     | Peak Elev=126.46' Storage=6,327 cf Inflow=4.41 cfs 13,090 cf<br>Discarded=0.16 cfs 13,091 cf Primary=0.00 cfs 0 cf Outflow=0.16 cfs 13,091 cf |
| Total Runoff Area = 239,939 sf Runoff Volume = 21,606 cf Average Runoff Depth = 1.08"<br>66.92% Pervious = 160,556 sf 33.08% Impervious = 79,383 sf |                                                                                                                                               |

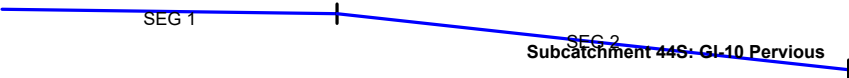
Summary for Subcatchment 44S: GI-10 Pervious

Runoff = 0.00 cfs @ 24.05 hrs, Volume= 7 cf, Depth= 0.01"  
Routed to Pond 46P : GI-10

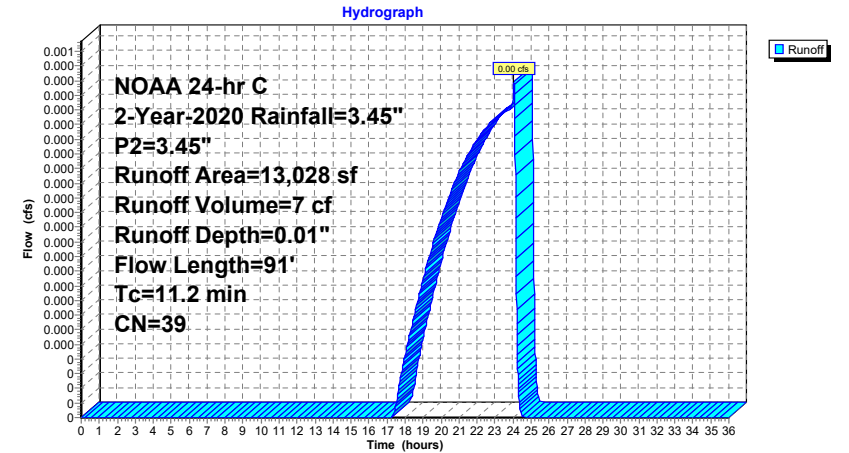
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 13,028    | 39 | >75% Grass cover, Good, HSG A |
| 13,028    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                          |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------|
| 7.0      | 36            | 0.0140        | 0.09              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.45" |
| 4.2      | 55            | 0.1180        | 0.22              |                | Sheet Flow, SEG 2<br>Grass: Dense n= 0.240 P2= 3.45" |
| 11.2     | 91            | Total         |                   |                |                                                      |



Subcatchment 44S: GI-10 Pervious



Hydrograph for Subcatchment 44S: GI-10 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 0.01               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 0.01               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 0.01               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 0.01               | 0.00            |
| 2.00            | 0.08                | 0.00               | 0.00            | 28.00           | 3.45                | 0.01               | 0.00            |
| 2.50            | 0.10                | 0.00               | 0.00            | 28.50           | 3.45                | 0.01               | 0.00            |
| 3.00            | 0.12                | 0.00               | 0.00            | 29.00           | 3.45                | 0.01               | 0.00            |
| 3.50            | 0.14                | 0.00               | 0.00            | 29.50           | 3.45                | 0.01               | 0.00            |
| 4.00            | 0.17                | 0.00               | 0.00            | 30.00           | 3.45                | 0.01               | 0.00            |
| 4.50            | 0.19                | 0.00               | 0.00            | 30.50           | 3.45                | 0.01               | 0.00            |
| 5.00            | 0.22                | 0.00               | 0.00            | 31.00           | 3.45                | 0.01               | 0.00            |
| 5.50            | 0.25                | 0.00               | 0.00            | 31.50           | 3.45                | 0.01               | 0.00            |
| 6.00            | 0.27                | 0.00               | 0.00            | 32.00           | 3.45                | 0.01               | 0.00            |
| 6.50            | 0.30                | 0.00               | 0.00            | 32.50           | 3.45                | 0.01               | 0.00            |
| 7.00            | 0.34                | 0.00               | 0.00            | 33.00           | 3.45                | 0.01               | 0.00            |
| 7.50            | 0.37                | 0.00               | 0.00            | 33.50           | 3.45                | 0.01               | 0.00            |
| 8.00            | 0.41                | 0.00               | 0.00            | 34.00           | 3.45                | 0.01               | 0.00            |
| 8.50            | 0.46                | 0.00               | 0.00            | 34.50           | 3.45                | 0.01               | 0.00            |
| 9.00            | 0.50                | 0.00               | 0.00            | 35.00           | 3.45                | 0.01               | 0.00            |
| 9.50            | 0.56                | 0.00               | 0.00            | 35.50           | 3.45                | 0.01               | 0.00            |
| 10.00           | 0.63                | 0.00               | 0.00            | 36.00           | 3.45                | 0.01               | 0.00            |
| 10.50           | 0.71                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.64                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.43                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 2.62                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 2.74                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 2.82                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 2.89                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 2.95                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 2.99                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 3.04                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 3.08                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 3.11                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 3.15                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.00           | 3.18                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.50           | 3.20                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.00           | 3.23                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.50           | 3.26                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.00           | 3.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.50           | 3.31                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.00           | 3.33                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.50           | 3.35                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.00           | 3.37                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.50           | 3.39                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.00           | 3.41                | 0.01               | 0.00            |                 |                     |                    |                 |
| 23.50           | 3.43                | 0.01               | 0.00            |                 |                     |                    |                 |
| 24.00           | 3.45                | 0.01               | 0.00            |                 |                     |                    |                 |
| 24.50           | 3.45                | 0.01               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 0.01               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 0.01               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 45S: GI-10 Impervious

Runoff = 1.74 cfs @ 12.12 hrs, Volume= 5,281 cf, Depth= 3.22"  
Routed to Pond 46P : GI-10

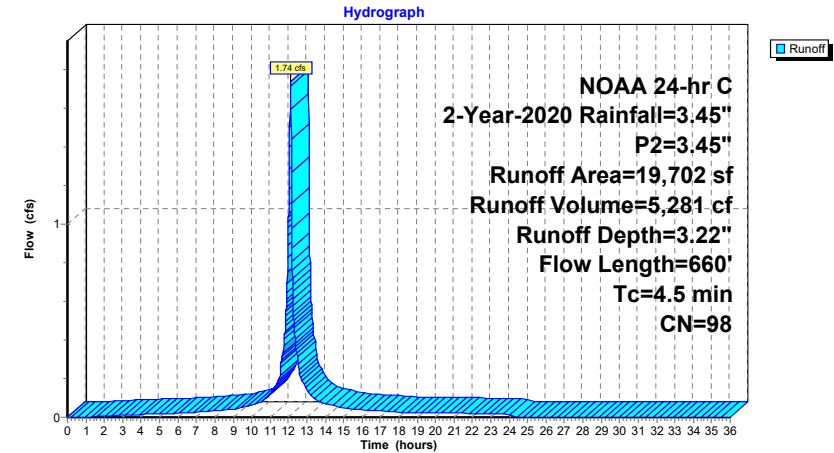
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 19,702    | 98 | Paved parking, HSG A    |
| 19,702    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------|
| 1.3      | 100           | 0.0140        | 1.24              |                | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.45"             |
| 2.0      | 295           | 0.0140        | 2.40              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps              |
| 1.0      | 247           | 0.0200        | 4.22              | 0.84           | <b>Channel Flow, SEG 3</b><br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2      | 18            | 0.0560        | 1.66              |                | <b>Shallow Concentrated Flow, SEG 4</b><br>Short Grass Pasture Kv= 7.0 fps |
| 4.5      | 660           | Total         |                   |                |                                                                            |



Subcatchment 45S: GI-10 Impervious



Hydrograph for Subcatchment 45S: GI-10 Impervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 3.45             | 3.22            | 0.00         |
| 0.50         | 0.02             | 0.00            | 0.00         | 26.50        | 3.45             | 3.22            | 0.00         |
| 1.00         | 0.04             | 0.00            | 0.00         | 27.00        | 3.45             | 3.22            | 0.00         |
| 1.50         | 0.06             | 0.00            | 0.00         | 27.50        | 3.45             | 3.22            | 0.00         |
| 2.00         | 0.08             | 0.01            | 0.01         | 28.00        | 3.45             | 3.22            | 0.00         |
| 2.50         | 0.10             | 0.01            | 0.01         | 28.50        | 3.45             | 3.22            | 0.00         |
| 3.00         | 0.12             | 0.02            | 0.01         | 29.00        | 3.45             | 3.22            | 0.00         |
| 3.50         | 0.14             | 0.04            | 0.01         | 29.50        | 3.45             | 3.22            | 0.00         |
| 4.00         | 0.17             | 0.05            | 0.01         | 30.00        | 3.45             | 3.22            | 0.00         |
| 4.50         | 0.19             | 0.07            | 0.02         | 30.50        | 3.45             | 3.22            | 0.00         |
| 5.00         | 0.22             | 0.08            | 0.02         | 31.00        | 3.45             | 3.22            | 0.00         |
| 5.50         | 0.25             | 0.10            | 0.02         | 31.50        | 3.45             | 3.22            | 0.00         |
| 6.00         | 0.27             | 0.12            | 0.02         | 32.00        | 3.45             | 3.22            | 0.00         |
| 6.50         | 0.30             | 0.15            | 0.02         | 32.50        | 3.45             | 3.22            | 0.00         |
| 7.00         | 0.34             | 0.17            | 0.03         | 33.00        | 3.45             | 3.22            | 0.00         |
| 7.50         | 0.37             | 0.21            | 0.03         | 33.50        | 3.45             | 3.22            | 0.00         |
| 8.00         | 0.41             | 0.24            | 0.03         | 34.00        | 3.45             | 3.22            | 0.00         |
| 8.50         | 0.46             | 0.28            | 0.04         | 34.50        | 3.45             | 3.22            | 0.00         |
| 9.00         | 0.50             | 0.32            | 0.04         | 35.00        | 3.45             | 3.22            | 0.00         |
| 9.50         | 0.56             | 0.37            | 0.05         | 35.50        | 3.45             | 3.22            | 0.00         |
| 10.00        | 0.63             | 0.44            | 0.06         | 36.00        | 3.45             | 3.22            | 0.00         |
| 10.50        | 0.71             | 0.51            | 0.07         |              |                  |                 |              |
| 11.00        | 0.83             | 0.63            | 0.12         |              |                  |                 |              |
| 11.50        | 1.02             | 0.81            | 0.20         |              |                  |                 |              |
| 12.00        | 1.64             | 1.42            | 1.01         |              |                  |                 |              |
| 12.50        | 2.43             | 2.20            | 0.32         |              |                  |                 |              |
| 13.00        | 2.62             | 2.39            | 0.14         |              |                  |                 |              |
| 13.50        | 2.74             | 2.51            | 0.09         |              |                  |                 |              |
| 14.00        | 2.82             | 2.59            | 0.07         |              |                  |                 |              |
| 14.50        | 2.89             | 2.66            | 0.06         |              |                  |                 |              |
| 15.00        | 2.95             | 2.71            | 0.05         |              |                  |                 |              |
| 15.50        | 2.99             | 2.76            | 0.04         |              |                  |                 |              |
| 16.00        | 3.04             | 2.80            | 0.04         |              |                  |                 |              |
| 16.50        | 3.08             | 2.84            | 0.04         |              |                  |                 |              |
| 17.00        | 3.11             | 2.88            | 0.03         |              |                  |                 |              |
| 17.50        | 3.15             | 2.91            | 0.03         |              |                  |                 |              |
| 18.00        | 3.18             | 2.94            | 0.03         |              |                  |                 |              |
| 18.50        | 3.20             | 2.97            | 0.02         |              |                  |                 |              |
| 19.00        | 3.23             | 3.00            | 0.02         |              |                  |                 |              |
| 19.50        | 3.26             | 3.02            | 0.02         |              |                  |                 |              |
| 20.00        | 3.28             | 3.05            | 0.02         |              |                  |                 |              |
| 20.50        | 3.31             | 3.07            | 0.02         |              |                  |                 |              |
| 21.00        | 3.33             | 3.10            | 0.02         |              |                  |                 |              |
| 21.50        | 3.35             | 3.12            | 0.02         |              |                  |                 |              |
| 22.00        | 3.37             | 3.14            | 0.02         |              |                  |                 |              |
| 22.50        | 3.39             | 3.16            | 0.02         |              |                  |                 |              |
| 23.00        | 3.41             | 3.18            | 0.02         |              |                  |                 |              |
| 23.50        | 3.43             | 3.20            | 0.02         |              |                  |                 |              |
| 24.00        | 3.45             | 3.22            | 0.02         |              |                  |                 |              |
| 24.50        | 3.45             | 3.22            | 0.00         |              |                  |                 |              |
| 25.00        | 3.45             | 3.22            | 0.00         |              |                  |                 |              |
| 25.50        | 3.45             | 3.22            | 0.00         |              |                  |                 |              |

Summary for Subcatchment 62S: GI-12 Impervious

Runoff = 4.41 cfs @ 12.10 hrs, Volume= 12,817 cf, Depth= 3.22"  
Routed to Pond 60P : GI-12

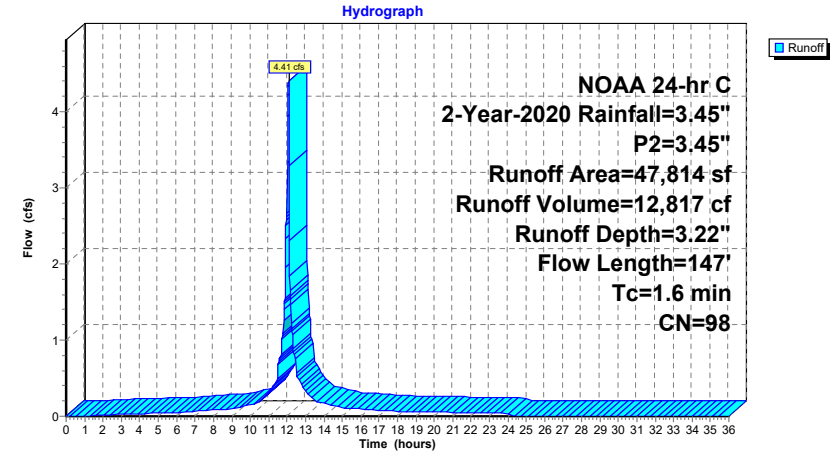
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 47,814    | 98 | Paved parking, HSG A    |
| 47,814    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 1.1      | 85            | 0.0160        | 1.26              |                | Sheet Flow, SEG 1R<br>Smooth surfaces n= 0.011 P2= 3.45"            |
| 0.2      | 30            | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2      | 21            | 0.0100        | 2.03              |                | Shallow Concentrated Flow, SEG 3<br>Paved Kv= 20.3 fps              |
| 0.1      | 11            | 0.1360        | 2.58              |                | Shallow Concentrated Flow, SEG 4<br>Short Grass Pasture Kv= 7.0 fps |
| 1.6      | 147           | Total         |                   |                |                                                                     |



Subcatchment 62S: GI-12 Impervious



**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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**Hydrograph for Subcatchment 62S: GI-12 Impervious**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 3.22               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 3.22               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 3.22               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.01            | 27.50           | 3.45                | 3.22               | 0.00            |
| 2.00            | 0.08                | 0.01               | 0.01            | 28.00           | 3.45                | 3.22               | 0.00            |
| 2.50            | 0.10                | 0.01               | 0.02            | 28.50           | 3.45                | 3.22               | 0.00            |
| 3.00            | 0.12                | 0.02               | 0.02            | 29.00           | 3.45                | 3.22               | 0.00            |
| 3.50            | 0.14                | 0.04               | 0.03            | 29.50           | 3.45                | 3.22               | 0.00            |
| 4.00            | 0.17                | 0.05               | 0.03            | 30.00           | 3.45                | 3.22               | 0.00            |
| 4.50            | 0.19                | 0.07               | 0.04            | 30.50           | 3.45                | 3.22               | 0.00            |
| 5.00            | 0.22                | 0.08               | 0.04            | 31.00           | 3.45                | 3.22               | 0.00            |
| 5.50            | 0.25                | 0.10               | 0.04            | 31.50           | 3.45                | 3.22               | 0.00            |
| 6.00            | 0.27                | 0.12               | 0.05            | 32.00           | 3.45                | 3.22               | 0.00            |
| 6.50            | 0.30                | 0.15               | 0.06            | 32.50           | 3.45                | 3.22               | 0.00            |
| 7.00            | 0.34                | 0.17               | 0.06            | 33.00           | 3.45                | 3.22               | 0.00            |
| 7.50            | 0.37                | 0.21               | 0.07            | 33.50           | 3.45                | 3.22               | 0.00            |
| 8.00            | 0.41                | 0.24               | 0.08            | 34.00           | 3.45                | 3.22               | 0.00            |
| 8.50            | 0.46                | 0.28               | 0.09            | 34.50           | 3.45                | 3.22               | 0.00            |
| 9.00            | 0.50                | 0.32               | 0.10            | 35.00           | 3.45                | 3.22               | 0.00            |
| 9.50            | 0.56                | 0.37               | 0.12            | 35.50           | 3.45                | 3.22               | 0.00            |
| 10.00           | 0.63                | 0.44               | 0.15            | 36.00           | 3.45                | 3.22               | 0.00            |
| 10.50           | 0.71                | 0.51               | 0.18            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.63               | 0.29            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.81               | 0.48            |                 |                     |                    |                 |
| 12.00           | 1.64                | 1.42               | <b>2.63</b>     |                 |                     |                    |                 |
| 12.50           | 2.43                | 2.20               | <b>0.77</b>     |                 |                     |                    |                 |
| 13.00           | 2.62                | 2.39               | 0.34            |                 |                     |                    |                 |
| 13.50           | 2.74                | 2.51               | 0.21            |                 |                     |                    |                 |
| 14.00           | 2.82                | 2.59               | 0.17            |                 |                     |                    |                 |
| 14.50           | 2.89                | 2.66               | 0.14            |                 |                     |                    |                 |
| 15.00           | 2.95                | 2.71               | 0.11            |                 |                     |                    |                 |
| 15.50           | 2.99                | 2.76               | 0.10            |                 |                     |                    |                 |
| 16.00           | 3.04                | 2.80               | 0.09            |                 |                     |                    |                 |
| 16.50           | 3.08                | 2.84               | 0.09            |                 |                     |                    |                 |
| 17.00           | 3.11                | 2.88               | 0.08            |                 |                     |                    |                 |
| 17.50           | 3.15                | 2.91               | 0.07            |                 |                     |                    |                 |
| 18.00           | 3.18                | 2.94               | 0.06            |                 |                     |                    |                 |
| 18.50           | 3.20                | 2.97               | 0.06            |                 |                     |                    |                 |
| 19.00           | 3.23                | 3.00               | 0.06            |                 |                     |                    |                 |
| 19.50           | 3.26                | 3.02               | 0.06            |                 |                     |                    |                 |
| 20.00           | 3.28                | 3.05               | 0.05            |                 |                     |                    |                 |
| 20.50           | 3.31                | 3.07               | 0.05            |                 |                     |                    |                 |
| 21.00           | 3.33                | 3.10               | 0.05            |                 |                     |                    |                 |
| 21.50           | 3.35                | 3.12               | 0.05            |                 |                     |                    |                 |
| 22.00           | 3.37                | 3.14               | 0.05            |                 |                     |                    |                 |
| 22.50           | 3.39                | 3.16               | 0.04            |                 |                     |                    |                 |
| 23.00           | 3.41                | 3.18               | 0.04            |                 |                     |                    |                 |
| 23.50           | 3.43                | 3.20               | 0.04            |                 |                     |                    |                 |
| 24.00           | <b>3.45</b>         | <b>3.22</b>        | 0.05            |                 |                     |                    |                 |
| 24.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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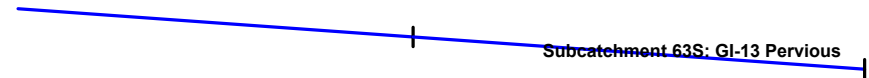
**Summary for Subcatchment 63S: GI-13 Pervious**

Runoff = 0.00 cfs @ 24.04 hrs, Volume= 47 cf, Depth= 0.03"  
Routed to Pond 8P : GI-13

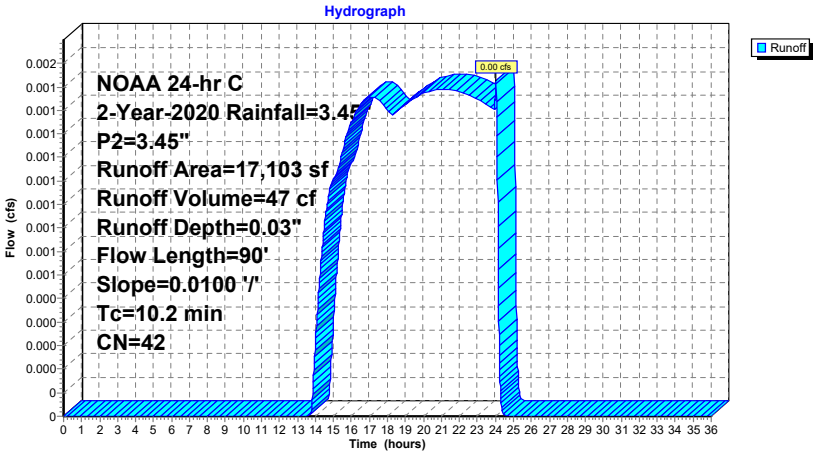
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 14,703    | 39 | >75% Grass cover, Good, HSG A |
| 2,400     | 61 | >75% Grass cover, Good, HSG B |
| 17,103    | 42 | Weighted Average              |
| 17,103    |    | 100.00% Pervious Area         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                              |
|-------------|------------------|------------------|----------------------|-------------------|------------------------------------------------------------------------------------------|
| 9.1         | 42               | 0.0100           | 0.08                 |                   | <b>Sheet Flow,</b><br>Grass: Dense n= 0.240 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 1.1         | 48               | 0.0100           | 0.70                 |                   | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                     |
| 10.2        | 90               |                  |                      |                   | Total                                                                                    |



Subcatchment 63S: GI-13 Pervious



Hydrograph for Subcatchment 63S: GI-13 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 0.03               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 0.03               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 0.03               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 0.03               | 0.00            |
| 2.00            | 0.08                | 0.00               | 0.00            | 28.00           | 3.45                | 0.03               | 0.00            |
| 2.50            | 0.10                | 0.00               | 0.00            | 28.50           | 3.45                | 0.03               | 0.00            |
| 3.00            | 0.12                | 0.00               | 0.00            | 29.00           | 3.45                | 0.03               | 0.00            |
| 3.50            | 0.14                | 0.00               | 0.00            | 29.50           | 3.45                | 0.03               | 0.00            |
| 4.00            | 0.17                | 0.00               | 0.00            | 30.00           | 3.45                | 0.03               | 0.00            |
| 4.50            | 0.19                | 0.00               | 0.00            | 30.50           | 3.45                | 0.03               | 0.00            |
| 5.00            | 0.22                | 0.00               | 0.00            | 31.00           | 3.45                | 0.03               | 0.00            |
| 5.50            | 0.25                | 0.00               | 0.00            | 31.50           | 3.45                | 0.03               | 0.00            |
| 6.00            | 0.27                | 0.00               | 0.00            | 32.00           | 3.45                | 0.03               | 0.00            |
| 6.50            | 0.30                | 0.00               | 0.00            | 32.50           | 3.45                | 0.03               | 0.00            |
| 7.00            | 0.34                | 0.00               | 0.00            | 33.00           | 3.45                | 0.03               | 0.00            |
| 7.50            | 0.37                | 0.00               | 0.00            | 33.50           | 3.45                | 0.03               | 0.00            |
| 8.00            | 0.41                | 0.00               | 0.00            | 34.00           | 3.45                | 0.03               | 0.00            |
| 8.50            | 0.46                | 0.00               | 0.00            | 34.50           | 3.45                | 0.03               | 0.00            |
| 9.00            | 0.50                | 0.00               | 0.00            | 35.00           | 3.45                | 0.03               | 0.00            |
| 9.50            | 0.56                | 0.00               | 0.00            | 35.50           | 3.45                | 0.03               | 0.00            |
| 10.00           | 0.63                | 0.00               | 0.00            | 36.00           | 3.45                | 0.03               | 0.00            |
| 10.50           | 0.71                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.64                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.43                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 2.62                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 2.74                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 2.82                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 2.89                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 2.95                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 2.99                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 3.04                | 0.01               | 0.00            |                 |                     |                    |                 |
| 16.50           | 3.08                | 0.01               | 0.00            |                 |                     |                    |                 |
| 17.00           | 3.11                | 0.01               | 0.00            |                 |                     |                    |                 |
| 17.50           | 3.15                | 0.01               | 0.00            |                 |                     |                    |                 |
| 18.00           | 3.18                | 0.01               | 0.00            |                 |                     |                    |                 |
| 18.50           | 3.20                | 0.01               | 0.00            |                 |                     |                    |                 |
| 19.00           | 3.23                | 0.02               | 0.00            |                 |                     |                    |                 |
| 19.50           | 3.26                | 0.02               | 0.00            |                 |                     |                    |                 |
| 20.00           | 3.28                | 0.02               | 0.00            |                 |                     |                    |                 |
| 20.50           | 3.31                | 0.02               | 0.00            |                 |                     |                    |                 |
| 21.00           | 3.33                | 0.02               | 0.00            |                 |                     |                    |                 |
| 21.50           | 3.35                | 0.02               | 0.00            |                 |                     |                    |                 |
| 22.00           | 3.37                | 0.03               | 0.00            |                 |                     |                    |                 |
| 22.50           | 3.39                | 0.03               | 0.00            |                 |                     |                    |                 |
| 23.00           | 3.41                | 0.03               | 0.00            |                 |                     |                    |                 |
| 23.50           | 3.43                | 0.03               | 0.00            |                 |                     |                    |                 |
| 24.00           | 3.45                | 0.03               | 0.00            |                 |                     |                    |                 |
| 24.50           | 3.45                | 0.03               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 0.03               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 0.03               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 64S: Wetland Pervious

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

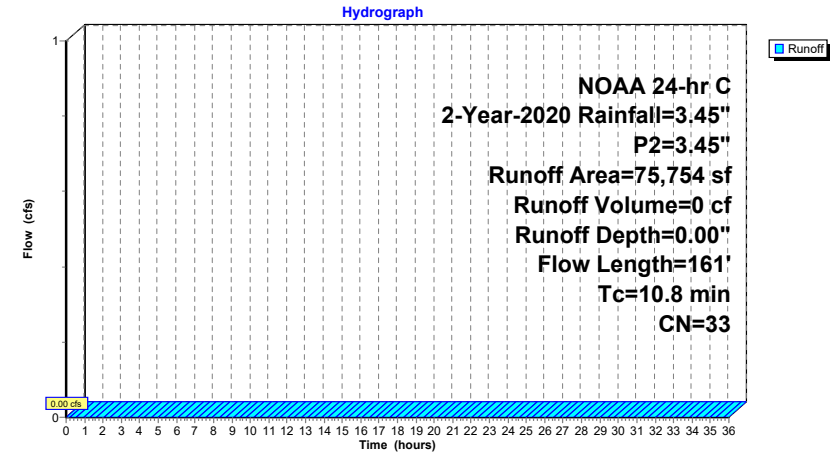
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 24,790    | 39 | >75% Grass cover, Good, HSG A |
| 50,964    | 30 | Woods, Good, HSG A            |
| 75,754    | 33 | Weighted Average              |
| 75,754    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                  |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------|
| 9.1      | 39            | 0.0240        | 0.07              |                | Sheet Flow,<br>Woods: Light underbrush n= 0.400 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 1.7      | 122           | 0.0570        | 1.19              |                | Shallow Concentrated Flow,<br>Woodland Kv= 5.0 fps                                           |
| 10.8     | 161           |               |                   |                | Total                                                                                        |



Subcatchment 64S: Wetland Pervious





**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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**Hydrograph for Subcatchment 64S: Wetland Pervious**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 0.00               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 0.00               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 0.00               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 0.00               | 0.00            |
| 2.00            | 0.08                | 0.00               | 0.00            | 28.00           | 3.45                | 0.00               | 0.00            |
| 2.50            | 0.10                | 0.00               | 0.00            | 28.50           | 3.45                | 0.00               | 0.00            |
| 3.00            | 0.12                | 0.00               | 0.00            | 29.00           | 3.45                | 0.00               | 0.00            |
| 3.50            | 0.14                | 0.00               | 0.00            | 29.50           | 3.45                | 0.00               | 0.00            |
| 4.00            | 0.17                | 0.00               | 0.00            | 30.00           | 3.45                | 0.00               | 0.00            |
| 4.50            | 0.19                | 0.00               | 0.00            | 30.50           | 3.45                | 0.00               | 0.00            |
| 5.00            | 0.22                | 0.00               | 0.00            | 31.00           | 3.45                | 0.00               | 0.00            |
| 5.50            | 0.25                | 0.00               | 0.00            | 31.50           | 3.45                | 0.00               | 0.00            |
| 6.00            | 0.27                | 0.00               | 0.00            | 32.00           | 3.45                | 0.00               | 0.00            |
| 6.50            | 0.30                | 0.00               | 0.00            | 32.50           | 3.45                | 0.00               | 0.00            |
| 7.00            | 0.34                | 0.00               | 0.00            | 33.00           | 3.45                | 0.00               | 0.00            |
| 7.50            | 0.37                | 0.00               | 0.00            | 33.50           | 3.45                | 0.00               | 0.00            |
| 8.00            | 0.41                | 0.00               | 0.00            | 34.00           | 3.45                | 0.00               | 0.00            |
| 8.50            | 0.46                | 0.00               | 0.00            | 34.50           | 3.45                | 0.00               | 0.00            |
| 9.00            | 0.50                | 0.00               | 0.00            | 35.00           | 3.45                | 0.00               | 0.00            |
| 9.50            | 0.56                | 0.00               | 0.00            | 35.50           | 3.45                | 0.00               | 0.00            |
| 10.00           | 0.63                | 0.00               | 0.00            | 36.00           | 3.45                | 0.00               | 0.00            |
| 10.50           | 0.71                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.64                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.43                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 2.62                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 2.74                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 2.82                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 2.89                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 2.95                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 2.99                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 3.04                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 3.08                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 3.11                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 3.15                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.00           | 3.18                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.50           | 3.20                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.00           | 3.23                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.50           | 3.26                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.00           | 3.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.50           | 3.31                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.00           | 3.33                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.50           | 3.35                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.00           | 3.37                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.50           | 3.39                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.00           | 3.41                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.50           | 3.43                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.00           | 3.45                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.50           | 3.45                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 0.00               | 0.00            |                 |                     |                    |                 |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Summary for Subcatchment 67S: Wetland Impervious**

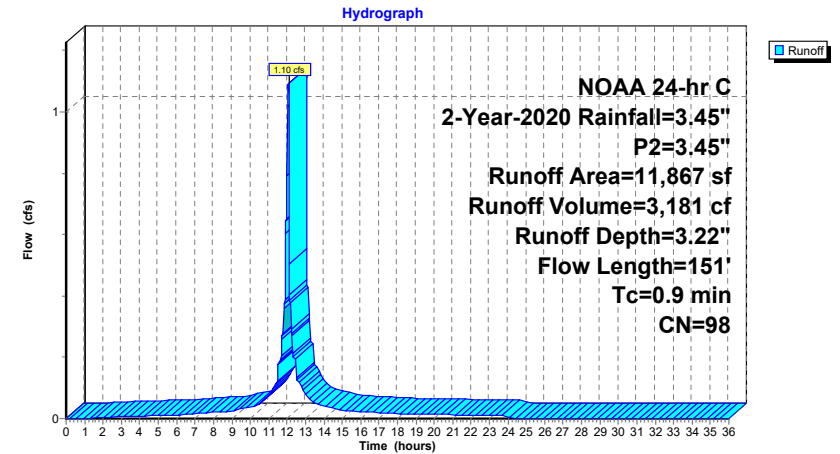
Runoff = 1.10 cfs @ 12.09 hrs, Volume= 3,181 cf, Depth= 3.22"  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 11,867    | 98 | Paved parking, HSG A    |
| 11,867    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                 |
|----------|---------------|---------------|-------------------|----------------|-------------------------------------------------------------|
| 0.5      | 36            | 0.0200        | 1.16              |                | Sheet Flow,<br>Smooth surfaces n= 0.011 P2= 3.45"           |
| 0.4      | 115           | 0.1250        | 5.30              |                | Shallow Concentrated Flow,<br>Grassed Waterway Kv= 15.0 fps |
| 0.9      | 151           | Total         |                   |                |                                                             |

Subcatchment 67S: Wetland Impervious

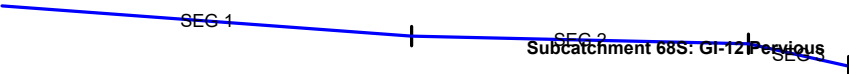
**Subcatchment 67S: Wetland Impervious**

Hydrograph for Subcatchment 67S: Wetland Impervious

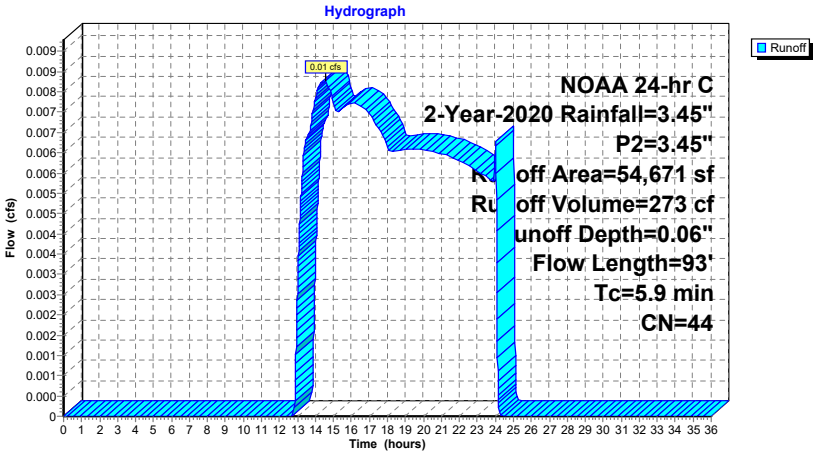
| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 3.22               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 3.22               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 3.22               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 3.22               | 0.00            |
| 2.00            | 0.08                | 0.01               | 0.00            | 28.00           | 3.45                | 3.22               | 0.00            |
| 2.50            | 0.10                | 0.01               | 0.00            | 28.50           | 3.45                | 3.22               | 0.00            |
| 3.00            | 0.12                | 0.02               | 0.01            | 29.00           | 3.45                | 3.22               | 0.00            |
| 3.50            | 0.14                | 0.04               | 0.01            | 29.50           | 3.45                | 3.22               | 0.00            |
| 4.00            | 0.17                | 0.05               | 0.01            | 30.00           | 3.45                | 3.22               | 0.00            |
| 4.50            | 0.19                | 0.07               | 0.01            | 30.50           | 3.45                | 3.22               | 0.00            |
| 5.00            | 0.22                | 0.08               | 0.01            | 31.00           | 3.45                | 3.22               | 0.00            |
| 5.50            | 0.25                | 0.10               | 0.01            | 31.50           | 3.45                | 3.22               | 0.00            |
| 6.00            | 0.27                | 0.12               | 0.01            | 32.00           | 3.45                | 3.22               | 0.00            |
| 6.50            | 0.30                | 0.15               | 0.01            | 32.50           | 3.45                | 3.22               | 0.00            |
| 7.00            | 0.34                | 0.17               | 0.02            | 33.00           | 3.45                | 3.22               | 0.00            |
| 7.50            | 0.37                | 0.21               | 0.02            | 33.50           | 3.45                | 3.22               | 0.00            |
| 8.00            | 0.41                | 0.24               | 0.02            | 34.00           | 3.45                | 3.22               | 0.00            |
| 8.50            | 0.46                | 0.28               | 0.02            | 34.50           | 3.45                | 3.22               | 0.00            |
| 9.00            | 0.50                | 0.32               | 0.02            | 35.00           | 3.45                | 3.22               | 0.00            |
| 9.50            | 0.56                | 0.37               | 0.03            | 35.50           | 3.45                | 3.22               | 0.00            |
| 10.00           | 0.63                | 0.44               | 0.04            | 36.00           | 3.45                | 3.22               | 0.00            |
| 10.50           | 0.71                | 0.51               | 0.05            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.63               | 0.07            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.81               | 0.12            |                 |                     |                    |                 |
| 12.00           | 1.64                | 1.42               | 0.66            |                 |                     |                    |                 |
| 12.50           | 2.43                | 2.20               | 0.19            |                 |                     |                    |                 |
| 13.00           | 2.62                | 2.39               | 0.08            |                 |                     |                    |                 |
| 13.50           | 2.74                | 2.51               | 0.05            |                 |                     |                    |                 |
| 14.00           | 2.82                | 2.59               | 0.04            |                 |                     |                    |                 |
| 14.50           | 2.89                | 2.66               | 0.03            |                 |                     |                    |                 |
| 15.00           | 2.95                | 2.71               | 0.03            |                 |                     |                    |                 |
| 15.50           | 2.99                | 2.76               | 0.02            |                 |                     |                    |                 |
| 16.00           | 3.04                | 2.80               | 0.02            |                 |                     |                    |                 |
| 16.50           | 3.08                | 2.84               | 0.02            |                 |                     |                    |                 |
| 17.00           | 3.11                | 2.88               | 0.02            |                 |                     |                    |                 |
| 17.50           | 3.15                | 2.91               | 0.02            |                 |                     |                    |                 |
| 18.00           | 3.18                | 2.94               | 0.02            |                 |                     |                    |                 |
| 18.50           | 3.20                | 2.97               | 0.01            |                 |                     |                    |                 |
| 19.00           | 3.23                | 3.00               | 0.01            |                 |                     |                    |                 |
| 19.50           | 3.26                | 3.02               | 0.01            |                 |                     |                    |                 |
| 20.00           | 3.28                | 3.05               | 0.01            |                 |                     |                    |                 |
| 20.50           | 3.31                | 3.07               | 0.01            |                 |                     |                    |                 |
| 21.00           | 3.33                | 3.10               | 0.01            |                 |                     |                    |                 |
| 21.50           | 3.35                | 3.12               | 0.01            |                 |                     |                    |                 |
| 22.00           | 3.37                | 3.14               | 0.01            |                 |                     |                    |                 |
| 22.50           | 3.39                | 3.16               | 0.01            |                 |                     |                    |                 |
| 23.00           | 3.41                | 3.18               | 0.01            |                 |                     |                    |                 |
| 23.50           | 3.43                | 3.20               | 0.01            |                 |                     |                    |                 |
| 24.00           | 3.45                | 3.22               | 0.01            |                 |                     |                    |                 |
| 24.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 68S: GI-12 Pervious

| Runoff = 0.01 cfs @ 14.54 hrs, Volume= 273 cf, Depth= 0.06"                              |               |                               |                   |                |                                         |
|------------------------------------------------------------------------------------------|---------------|-------------------------------|-------------------|----------------|-----------------------------------------|
| Routed to Pond 60P : GI-12                                                               |               |                               |                   |                |                                         |
| Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs |               |                               |                   |                |                                         |
| NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"                                        |               |                               |                   |                |                                         |
| Area (sf)                                                                                | CN            | Description                   |                   |                |                                         |
| 42,609                                                                                   | 39            | >75% Grass cover, Good, HSG A |                   |                |                                         |
| 12,062                                                                                   | 61            | >75% Grass cover, Good, HSG B |                   |                |                                         |
| 54,671                                                                                   | 44            | Weighted Average              |                   |                |                                         |
| 54,671                                                                                   |               | 100.00% Pervious Area         |                   |                |                                         |
| Tc (min)                                                                                 | Length (feet) | Slope (ft/ft)                 | Velocity (ft/sec) | Capacity (cfs) | Description                             |
| 5.2                                                                                      | 45            | 0.0450                        | 0.14              |                | <b>Sheet Flow, SEG 1</b>                |
|                                                                                          |               |                               |                   |                | Grass: Dense n= 0.240 P2= 3.45"         |
| 0.6                                                                                      | 37            | 0.0140                        | 1.02              |                | <b>Sheet Flow, SEG 2</b>                |
|                                                                                          |               |                               |                   |                | Smooth surfaces n= 0.011 P2= 3.45"      |
| 0.1                                                                                      | 11            | 0.1360                        | 2.58              |                | <b>Shallow Concentrated Flow, SEG 3</b> |
|                                                                                          |               |                               |                   |                | Short Grass Pasture Kv= 7.0 fps         |
| 5.9                                                                                      | 93            | Total                         |                   |                |                                         |



Subcatchment 68S: GI-12 Pervious



Hydrograph for Subcatchment 68S: GI-12 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 0.06               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 0.06               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 0.06               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 0.06               | 0.00            |
| 2.00            | 0.08                | 0.00               | 0.00            | 28.00           | 3.45                | 0.06               | 0.00            |
| 2.50            | 0.10                | 0.00               | 0.00            | 28.50           | 3.45                | 0.06               | 0.00            |
| 3.00            | 0.12                | 0.00               | 0.00            | 29.00           | 3.45                | 0.06               | 0.00            |
| 3.50            | 0.14                | 0.00               | 0.00            | 29.50           | 3.45                | 0.06               | 0.00            |
| 4.00            | 0.17                | 0.00               | 0.00            | 30.00           | 3.45                | 0.06               | 0.00            |
| 4.50            | 0.19                | 0.00               | 0.00            | 30.50           | 3.45                | 0.06               | 0.00            |
| 5.00            | 0.22                | 0.00               | 0.00            | 31.00           | 3.45                | 0.06               | 0.00            |
| 5.50            | 0.25                | 0.00               | 0.00            | 31.50           | 3.45                | 0.06               | 0.00            |
| 6.00            | 0.27                | 0.00               | 0.00            | 32.00           | 3.45                | 0.06               | 0.00            |
| 6.50            | 0.30                | 0.00               | 0.00            | 32.50           | 3.45                | 0.06               | 0.00            |
| 7.00            | 0.34                | 0.00               | 0.00            | 33.00           | 3.45                | 0.06               | 0.00            |
| 7.50            | 0.37                | 0.00               | 0.00            | 33.50           | 3.45                | 0.06               | 0.00            |
| 8.00            | 0.41                | 0.00               | 0.00            | 34.00           | 3.45                | 0.06               | 0.00            |
| 8.50            | 0.46                | 0.00               | 0.00            | 34.50           | 3.45                | 0.06               | 0.00            |
| 9.00            | 0.50                | 0.00               | 0.00            | 35.00           | 3.45                | 0.06               | 0.00            |
| 9.50            | 0.56                | 0.00               | 0.00            | 35.50           | 3.45                | 0.06               | 0.00            |
| 10.00           | 0.63                | 0.00               | 0.00            | 36.00           | 3.45                | 0.06               | 0.00            |
| 10.50           | 0.71                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.64                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.43                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 2.62                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 2.74                | 0.00               | 0.01            |                 |                     |                    |                 |
| 14.00           | 2.82                | 0.01               | 0.01            |                 |                     |                    |                 |
| 14.50           | 2.89                | 0.01               | 0.01            |                 |                     |                    |                 |
| 15.00           | 2.95                | 0.01               | 0.01            |                 |                     |                    |                 |
| 15.50           | 2.99                | 0.02               | 0.01            |                 |                     |                    |                 |
| 16.00           | 3.04                | 0.02               | 0.01            |                 |                     |                    |                 |
| 16.50           | 3.08                | 0.02               | 0.01            |                 |                     |                    |                 |
| 17.00           | 3.11                | 0.02               | 0.01            |                 |                     |                    |                 |
| 17.50           | 3.15                | 0.03               | 0.01            |                 |                     |                    |                 |
| 18.00           | 3.18                | 0.03               | 0.01            |                 |                     |                    |                 |
| 18.50           | 3.20                | 0.03               | 0.01            |                 |                     |                    |                 |
| 19.00           | 3.23                | 0.03               | 0.01            |                 |                     |                    |                 |
| 19.50           | 3.26                | 0.04               | 0.01            |                 |                     |                    |                 |
| 20.00           | 3.28                | 0.04               | 0.01            |                 |                     |                    |                 |
| 20.50           | 3.31                | 0.04               | 0.01            |                 |                     |                    |                 |
| 21.00           | 3.33                | 0.05               | 0.01            |                 |                     |                    |                 |
| 21.50           | 3.35                | 0.05               | 0.01            |                 |                     |                    |                 |
| 22.00           | 3.37                | 0.05               | 0.01            |                 |                     |                    |                 |
| 22.50           | 3.39                | 0.05               | 0.01            |                 |                     |                    |                 |
| 23.00           | 3.41                | 0.06               | 0.01            |                 |                     |                    |                 |
| 23.50           | 3.43                | 0.06               | 0.01            |                 |                     |                    |                 |
| 24.00           | 3.45                | 0.06               | 0.01            |                 |                     |                    |                 |
| 24.50           | 3.45                | 0.06               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 0.06               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 0.06               | 0.00            |                 |                     |                    |                 |

Summary for Pond 8P: GI-13

Inflow Area = 119,588 sf, 39.98% Impervious, Inflow Depth = 0.00" for 2-Year-2020 event  
Inflow = 0.00 cfs @ 24.04 hrs, Volume= 47 cf  
Outflow = 0.00 cfs @ 24.04 hrs, Volume= 47 cf, Atten= 0%, Lag= 0.0 min  
Discarded = 0.00 cfs @ 24.04 hrs, Volume= 47 cf  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 126.00' @ 0.00 hrs Surf.Area= 4,028 sf Storage= 0 cf

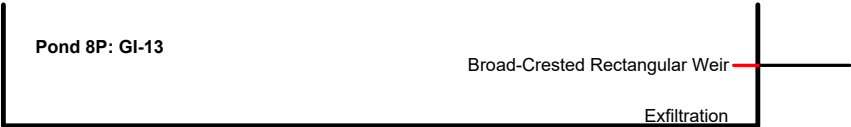
Plug-Flow detention time= (not calculated: outflow precedes inflow)  
Center-of-Mass det. time= 0.0 min ( 1,162.0 - 1,162.0 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 126.00' | 23,208 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

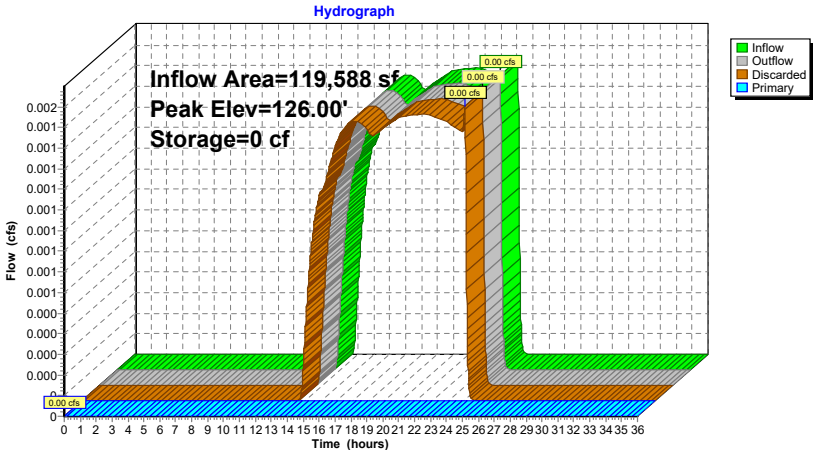
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 126.00           | 4,028             | 0                      | 0                      |
| 130.00           | 7,576             | 23,208                 | 23,208                 |

| Device | Routing | Invert  | Outlet Devices                                                                                                                                                                                                                                                                                                                                                                                              |
|--------|---------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary | 128.00' | 5.0' long + 3.0 ' SideZ x 6.0' breadth Broad-Crested Rectangular Weir<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00<br>2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65<br>2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83<br>#2 Discarded 126.00' 0.500 in/hr Exfiltration over Surface area<br>Conductivity to Groundwater Elevation = 1.00' |

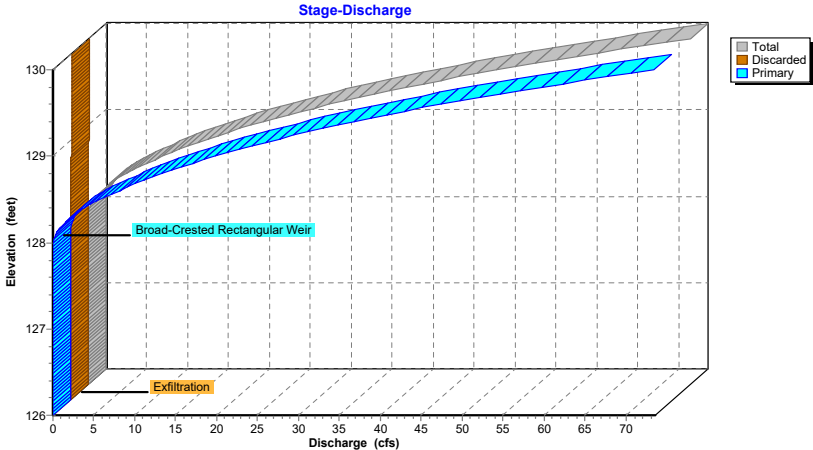
Discarded OutFlow Max=0.00 cfs @ 24.04 hrs HW=126.00' (Free Discharge)  
↳2=Exfiltration (Passes 0.00 cfs of 0.05 cfs potential flow)  
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=126.00' TW=123.25' (Dynamic Tailwater)  
↳1=Broad-Crested Rectangular Weir( Controls 0.00 cfs)

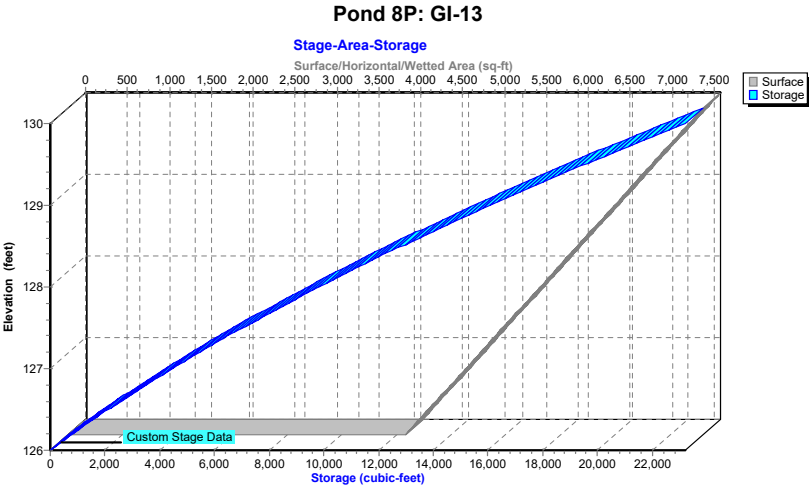


Pond 8P: GI-13



Pond 8P: GI-13





Hydrograph for Pond 8P: GI-13

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Outflow (cfs) | Discarded (cfs) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|-----------------|---------------|
| 0.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 1.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 2.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 3.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 4.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 5.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 6.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 7.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 8.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 9.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 10.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 11.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 12.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 13.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 14.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 15.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 16.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 17.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 18.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 19.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 20.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 21.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 22.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 23.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 24.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 25.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 26.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 27.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 28.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 29.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 30.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 31.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 32.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 33.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 34.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 35.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 36.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 8P: GI-13**

| Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) |
|---------------------|--------------------|--------------------|------------------|---------------------|--------------------|--------------------|------------------|
| 126.00              | 0.00               | 0.00               | 0.00             | 128.60              | 8.16               | 0.07               | 8.08             |
| 126.05              | 0.05               | 0.05               | 0.00             | 128.65              | 9.34               | 0.08               | 9.26             |
| 126.10              | 0.05               | 0.05               | 0.00             | 128.70              | 10.60              | 0.08               | 10.52            |
| 126.15              | 0.05               | 0.05               | 0.00             | 128.75              | 11.94              | 0.08               | 11.86            |
| 126.20              | 0.05               | 0.05               | 0.00             | 128.80              | 13.35              | 0.08               | 13.27            |
| 126.25              | 0.05               | 0.05               | 0.00             | 128.85              | 14.86              | 0.08               | 14.79            |
| 126.30              | 0.05               | 0.05               | 0.00             | 128.90              | 16.46              | 0.08               | 16.38            |
| 126.35              | 0.05               | 0.05               | 0.00             | 128.95              | 18.14              | 0.08               | 18.07            |
| 126.40              | 0.05               | 0.05               | 0.00             | 129.00              | 19.91              | 0.08               | 19.83            |
| 126.45              | 0.05               | 0.05               | 0.00             | 129.05              | 21.74              | 0.08               | 21.66            |
| 126.50              | 0.05               | 0.05               | 0.00             | 129.10              | 23.66              | 0.08               | 23.58            |
| 126.55              | 0.05               | 0.05               | 0.00             | 129.15              | 25.66              | 0.08               | 25.58            |
| 126.60              | 0.05               | 0.05               | 0.00             | 129.20              | 27.74              | 0.08               | 27.66            |
| 126.65              | 0.05               | 0.05               | 0.00             | 129.25              | 29.88              | 0.08               | 29.80            |
| 126.70              | 0.05               | 0.05               | 0.00             | 129.30              | 32.10              | 0.08               | 32.01            |
| 126.75              | 0.05               | 0.05               | 0.00             | 129.35              | 34.40              | 0.08               | 34.32            |
| 126.80              | 0.06               | 0.06               | 0.00             | 129.40              | 36.78              | 0.08               | 36.70            |
| 126.85              | 0.06               | 0.06               | 0.00             | 129.45              | 39.32              | 0.08               | 39.24            |
| 126.90              | 0.06               | 0.06               | 0.00             | 129.50              | 41.95              | 0.08               | 41.87            |
| 126.95              | 0.06               | 0.06               | 0.00             | 129.55              | 44.68              | 0.08               | 44.59            |
| 127.00              | 0.06               | 0.06               | 0.00             | 129.60              | 47.50              | 0.09               | 47.41            |
| 127.05              | 0.06               | 0.06               | 0.00             | 129.65              | 50.41              | 0.09               | 50.32            |
| 127.10              | 0.06               | 0.06               | 0.00             | 129.70              | 53.42              | 0.09               | 53.33            |
| 127.15              | 0.06               | 0.06               | 0.00             | 129.75              | 56.53              | 0.09               | 56.44            |
| 127.20              | 0.06               | 0.06               | 0.00             | 129.80              | 59.73              | 0.09               | 59.64            |
| 127.25              | 0.06               | 0.06               | 0.00             | 129.85              | 63.04              | 0.09               | 62.95            |
| 127.30              | 0.06               | 0.06               | 0.00             | 129.90              | 66.44              | 0.09               | 66.35            |
| 127.35              | 0.06               | 0.06               | 0.00             | 129.95              | 69.94              | 0.09               | 69.85            |
| 127.40              | 0.06               | 0.06               | 0.00             | 130.00              | <b>73.54</b>       | <b>0.09</b>        | <b>73.45</b>     |
| 127.45              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.50              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.55              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.60              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.65              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.70              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.75              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.80              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.85              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.90              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.95              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 128.00              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 128.05              | 0.20               | 0.07               | 0.14             |                     |                    |                    |                  |
| 128.10              | 0.46               | 0.07               | 0.39             |                     |                    |                    |                  |
| 128.15              | 0.81               | 0.07               | 0.74             |                     |                    |                    |                  |
| 128.20              | 1.23               | 0.07               | 1.16             |                     |                    |                    |                  |
| 128.25              | 1.75               | 0.07               | 1.68             |                     |                    |                    |                  |
| 128.30              | 2.36               | 0.07               | 2.29             |                     |                    |                    |                  |
| 128.35              | 3.06               | 0.07               | 2.99             |                     |                    |                    |                  |
| 128.40              | 3.86               | 0.07               | 3.78             |                     |                    |                    |                  |
| 128.45              | 4.77               | 0.07               | 4.69             |                     |                    |                    |                  |
| 128.50              | 5.78               | 0.07               | 5.71             |                     |                    |                    |                  |
| 128.55              | 6.91               | 0.07               | 6.84             |                     |                    |                    |                  |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 8P: GI-13**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 126.00              | 4,028              | 0                       | 128.60              | 6,334              | 13,471                  |
| 126.05              | 4,072              | 203                     | 128.65              | 6,379              | 13,789                  |
| 126.10              | 4,117              | 407                     | 128.70              | 6,423              | 14,109                  |
| 126.15              | 4,161              | 614                     | 128.75              | 6,467              | 14,431                  |
| 126.20              | 4,205              | 823                     | 128.80              | 6,512              | 14,755                  |
| 126.25              | 4,250              | 1,035                   | 128.85              | 6,556              | 15,082                  |
| 126.30              | 4,294              | 1,248                   | 128.90              | 6,600              | 15,411                  |
| 126.35              | 4,338              | 1,464                   | 128.95              | 6,645              | 15,742                  |
| 126.40              | 4,383              | 1,682                   | 129.00              | 6,689              | 16,076                  |
| 126.45              | 4,427              | 1,902                   | 129.05              | 6,733              | 16,411                  |
| 126.50              | 4,472              | 2,125                   | 129.10              | 6,778              | 16,749                  |
| 126.55              | 4,516              | 2,350                   | 129.15              | 6,822              | 17,089                  |
| 126.60              | 4,560              | 2,576                   | 129.20              | 6,866              | 17,431                  |
| 126.65              | 4,605              | 2,806                   | 129.25              | 6,911              | 17,775                  |
| 126.70              | 4,649              | 3,037                   | 129.30              | 6,955              | 18,122                  |
| 126.75              | 4,693              | 3,270                   | 129.35              | 6,999              | 18,471                  |
| 126.80              | 4,738              | 3,506                   | 129.40              | 7,044              | 18,822                  |
| 126.85              | 4,782              | 3,744                   | 129.45              | 7,088              | 19,175                  |
| 126.90              | 4,826              | 3,984                   | 129.50              | 7,133              | 19,531                  |
| 126.95              | 4,871              | 4,227                   | 129.55              | 7,177              | 19,889                  |
| 127.00              | 4,915              | 4,472                   | 129.60              | 7,221              | 20,249                  |
| 127.05              | 4,959              | 4,718                   | 129.65              | 7,266              | 20,611                  |
| 127.10              | 5,004              | 4,967                   | 129.70              | 7,310              | 20,975                  |
| 127.15              | 5,048              | 5,219                   | 129.75              | 7,354              | 21,342                  |
| 127.20              | 5,092              | 5,472                   | 129.80              | 7,399              | 21,711                  |
| 127.25              | 5,137              | 5,728                   | 129.85              | 7,443              | 22,082                  |
| 127.30              | 5,181              | 5,986                   | 129.90              | 7,487              | 22,455                  |
| 127.35              | 5,225              | 6,246                   | 129.95              | 7,532              | 22,830                  |
| 127.40              | 5,270              | 6,508                   | 130.00              | <b>7,576</b>       | <b>23,208</b>           |
| 127.45              | 5,314              | 6,773                   |                     |                    |                         |
| 127.50              | 5,359              | 7,040                   |                     |                    |                         |
| 127.55              | 5,403              | 7,309                   |                     |                    |                         |
| 127.60              | 5,447              | 7,580                   |                     |                    |                         |
| 127.65              | 5,492              | 7,854                   |                     |                    |                         |
| 127.70              | 5,536              | 8,129                   |                     |                    |                         |
| 127.75              | 5,580              | 8,407                   |                     |                    |                         |
| 127.80              | 5,625              | 8,687                   |                     |                    |                         |
| 127.85              | 5,669              | 8,970                   |                     |                    |                         |
| 127.90              | 5,713              | 9,254                   |                     |                    |                         |
| 127.95              | 5,758              | 9,541                   |                     |                    |                         |
| 128.00              | 5,802              | 9,830                   |                     |                    |                         |
| 128.05              | 5,846              | 10,121                  |                     |                    |                         |
| 128.10              | 5,891              | 10,415                  |                     |                    |                         |
| 128.15              | 5,935              | 10,710                  |                     |                    |                         |
| 128.20              | 5,979              | 11,008                  |                     |                    |                         |
| 128.25              | 6,024              | 11,308                  |                     |                    |                         |
| 128.30              | 6,068              | 11,611                  |                     |                    |                         |
| 128.35              | 6,112              | 11,915                  |                     |                    |                         |
| 128.40              | 6,157              | 12,222                  |                     |                    |                         |
| 128.45              | 6,201              | 12,531                  |                     |                    |                         |
| 128.50              | 6,246              | 12,842                  |                     |                    |                         |
| 128.55              | 6,290              | 13,155                  |                     |                    |                         |

Summary for Pond 46P: GI-10

Inflow Area = 32,730 sf, 60.20% Impervious, Inflow Depth = 1.94" for 2-Year-2020 event  
Inflow = 1.74 cfs @ 12.12 hrs, Volume= 5,288 cf  
Outflow = 0.02 cfs @ 22.66 hrs, Volume= 198 cf, Atten= 99%, Lag= 632.8 min  
Primary = 0.02 cfs @ 22.66 hrs, Volume= 198 cf  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

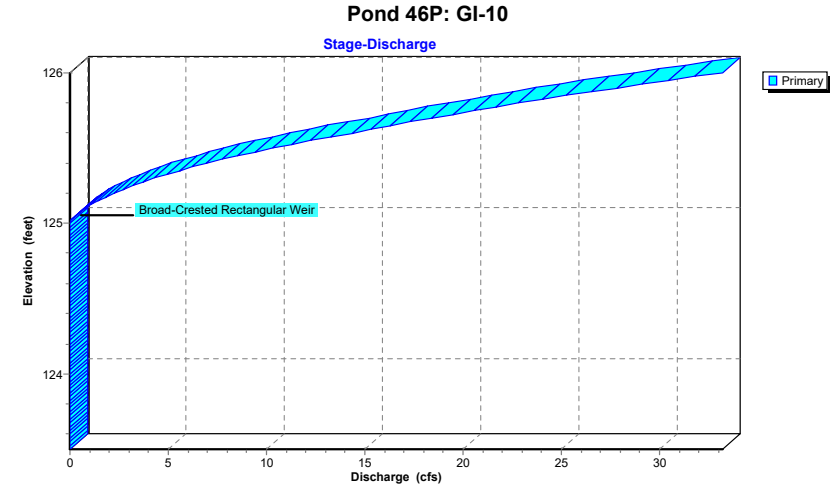
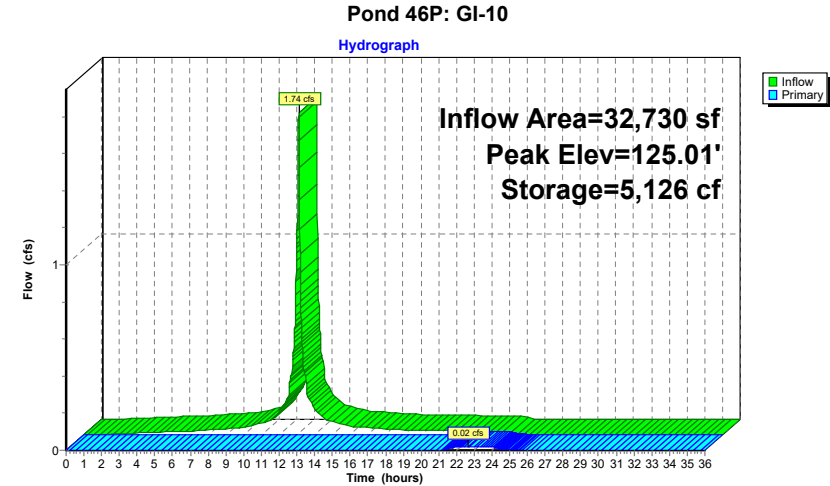
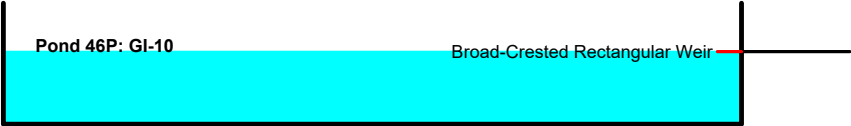
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 125.01' @ 22.66 hrs Surf.Area= 4,176 sf Storage= 5,126 cf

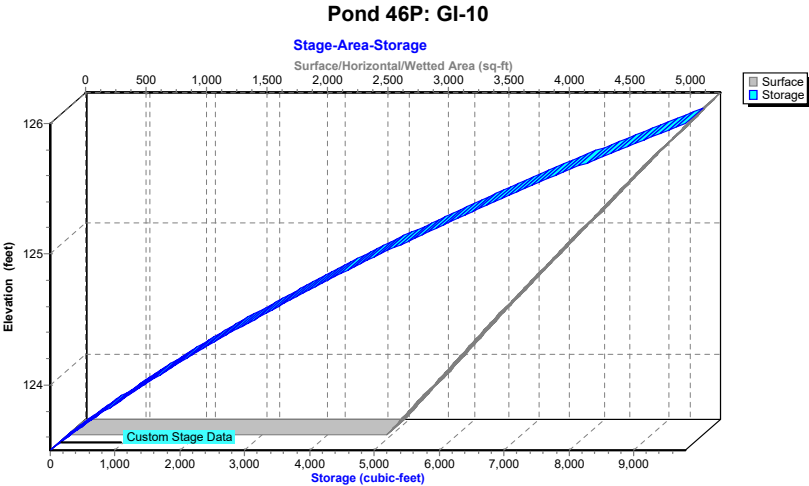
Plug-Flow detention time= 1,135.1 min calculated for 198 cf (4% of inflow)  
Center-of-Mass det. time= 635.1 min ( 1,390.3 - 755.3 )

| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 123.50'           | 9,792 cf               | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 123.50           | 2,638             | 0                      | 0                                                   |
| 124.50           | 3,639             | 3,139                  | 3,139                                               |
| 125.50           | 4,696             | 4,168                  | 7,306                                               |
| 126.00           | 5,246             | 2,486                  | 9,792                                               |

| Device                                                        | Routing | Invert  | Outlet Devices                                                            |
|---------------------------------------------------------------|---------|---------|---------------------------------------------------------------------------|
| #1                                                            | Primary | 125.00' | 10.0' long + 3.0 ' /' SideZ x 6.0' breadth Broad-Crested Rectangular Weir |
| Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 |         |         |                                                                           |
| 2.50 3.00 3.50 4.00 4.50 5.00 5.50                            |         |         |                                                                           |
| Coef. (English) 2.37 2.51 2.70 2.68 2.67 2.65 2.65 2.65       |         |         |                                                                           |
| 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83                       |         |         |                                                                           |

Primary OutFlow Max=0.02 cfs @ 22.66 hrs HW=125.01' TW=123.88' (Dynamic Tailwater)  
1=Broad-Crested Rectangular Weir (Weir Controls 0.02 cfs @ 0.22 fps)





Hydrograph for Pond 46P: GI-10

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 123.50           | 0.00          |
| 1.00         | 0.00         | 0                    | 123.50           | 0.00          |
| 2.00         | 0.01         | 8                    | 123.50           | 0.00          |
| 3.00         | 0.01         | 35                   | 123.51           | 0.00          |
| 4.00         | 0.01         | 78                   | 123.53           | 0.00          |
| 5.00         | 0.02         | 133                  | 123.55           | 0.00          |
| 6.00         | 0.02         | 198                  | 123.57           | 0.00          |
| 7.00         | 0.03         | 281                  | 123.60           | 0.00          |
| 8.00         | 0.03         | 387                  | 123.64           | 0.00          |
| 9.00         | 0.04         | 518                  | 123.69           | 0.00          |
| 10.00        | 0.06         | 701                  | 123.75           | 0.00          |
| 11.00        | 0.12         | 997                  | 123.85           | 0.00          |
| 12.00        | 1.01         | 2,071                | 124.19           | 0.00          |
| 13.00        | 0.14         | 3,892                | 124.70           | 0.00          |
| 14.00        | 0.07         | 4,235                | 124.79           | 0.00          |
| 15.00        | 0.05         | 4,445                | 124.84           | 0.00          |
| 16.00        | 0.04         | 4,595                | 124.88           | 0.00          |
| 17.00        | 0.03         | 4,723                | 124.91           | 0.00          |
| 18.00        | 0.03         | 4,827                | 124.94           | 0.00          |
| 19.00        | 0.02         | 4,917                | 124.96           | 0.00          |
| 20.00        | 0.02         | 5,001                | 124.98           | 0.00          |
| 21.00        | 0.02         | 5,079                | 125.00           | 0.00          |
| 22.00        | 0.02         | 5,123                | 125.01           | 0.02          |
| 23.00        | 0.02         | 5,125                | 125.01           | 0.02          |
| 24.00        | 0.02         | 5,124                | 125.01           | 0.02          |
| 25.00        | 0.00         | 5,100                | 125.00           | 0.00          |
| 26.00        | 0.00         | 5,095                | 125.00           | 0.00          |
| 27.00        | 0.00         | 5,093                | 125.00           | 0.00          |
| 28.00        | 0.00         | 5,092                | 125.00           | 0.00          |
| 29.00        | 0.00         | 5,091                | 125.00           | 0.00          |
| 30.00        | 0.00         | 5,091                | 125.00           | 0.00          |
| 31.00        | 0.00         | 5,091                | 125.00           | 0.00          |
| 32.00        | 0.00         | 5,091                | 125.00           | 0.00          |
| 33.00        | 0.00         | 5,090                | 125.00           | 0.00          |
| 34.00        | 0.00         | 5,090                | 125.00           | 0.00          |
| 35.00        | 0.00         | 5,090                | 125.00           | 0.00          |
| 36.00        | 0.00         | 5,090                | 125.00           | 0.00          |



Stage-Discharge for Pond 46P: GI-10

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 123.50              | 0.00             | 124.54              | 0.00             | 125.58              | 13.49            |
| 123.52              | 0.00             | 124.56              | 0.00             | 125.60              | 14.36            |
| 123.54              | 0.00             | 124.58              | 0.00             | 125.62              | 15.13            |
| 123.56              | 0.00             | 124.60              | 0.00             | 125.64              | 15.92            |
| 123.58              | 0.00             | 124.62              | 0.00             | 125.66              | 16.73            |
| 123.60              | 0.00             | 124.64              | 0.00             | 125.68              | 17.56            |
| 123.62              | 0.00             | 124.66              | 0.00             | 125.70              | 18.40            |
| 123.64              | 0.00             | 124.68              | 0.00             | 125.72              | 19.26            |
| 123.66              | 0.00             | 124.70              | 0.00             | 125.74              | 20.13            |
| 123.68              | 0.00             | 124.72              | 0.00             | 125.76              | 21.03            |
| 123.70              | 0.00             | 124.74              | 0.00             | 125.78              | 21.93            |
| 123.72              | 0.00             | 124.76              | 0.00             | 125.80              | 22.86            |
| 123.74              | 0.00             | 124.78              | 0.00             | 125.82              | 23.82            |
| 123.76              | 0.00             | 124.80              | 0.00             | 125.84              | 24.79            |
| 123.78              | 0.00             | 124.82              | 0.00             | 125.86              | 25.79            |
| 123.80              | 0.00             | 124.84              | 0.00             | 125.88              | 26.80            |
| 123.82              | 0.00             | 124.86              | 0.00             | 125.90              | 27.82            |
| 123.84              | 0.00             | 124.88              | 0.00             | 125.92              | 28.87            |
| 123.86              | 0.00             | 124.90              | 0.00             | 125.94              | 29.93            |
| 123.88              | 0.00             | 124.92              | 0.00             | 125.96              | 31.02            |
| 123.90              | 0.00             | 124.94              | 0.00             | 125.98              | 32.12            |
| 123.92              | 0.00             | 124.96              | 0.00             | 126.00              | 33.23            |
| 123.94              | 0.00             | 124.98              | 0.00             |                     |                  |
| 123.96              | 0.00             | 125.00              | 0.00             |                     |                  |
| 123.98              | 0.00             | 125.02              | 0.07             |                     |                  |
| 124.00              | 0.00             | 125.04              | 0.19             |                     |                  |
| 124.02              | 0.00             | 125.06              | 0.35             |                     |                  |
| 124.04              | 0.00             | 125.08              | 0.55             |                     |                  |
| 124.06              | 0.00             | 125.10              | 0.77             |                     |                  |
| 124.08              | 0.00             | 125.12              | 1.01             |                     |                  |
| 124.10              | 0.00             | 125.14              | 1.28             |                     |                  |
| 124.12              | 0.00             | 125.16              | 1.58             |                     |                  |
| 124.14              | 0.00             | 125.18              | 1.89             |                     |                  |
| 124.16              | 0.00             | 125.20              | 2.22             |                     |                  |
| 124.18              | 0.00             | 125.22              | 2.59             |                     |                  |
| 124.20              | 0.00             | 125.24              | 2.98             |                     |                  |
| 124.22              | 0.00             | 125.26              | 3.40             |                     |                  |
| 124.24              | 0.00             | 125.28              | 3.84             |                     |                  |
| 124.26              | 0.00             | 125.30              | 4.30             |                     |                  |
| 124.28              | 0.00             | 125.32              | 4.78             |                     |                  |
| 124.30              | 0.00             | 125.34              | 5.29             |                     |                  |
| 124.32              | 0.00             | 125.36              | 5.82             |                     |                  |
| 124.34              | 0.00             | 125.38              | 6.38             |                     |                  |
| 124.36              | 0.00             | 125.40              | 6.96             |                     |                  |
| 124.38              | 0.00             | 125.42              | 7.58             |                     |                  |
| 124.40              | 0.00             | 125.44              | 8.22             |                     |                  |
| 124.42              | 0.00             | 125.46              | 8.89             |                     |                  |
| 124.44              | 0.00             | 125.48              | 9.59             |                     |                  |
| 124.46              | 0.00             | 125.50              | 10.32            |                     |                  |
| 124.48              | 0.00             | 125.52              | 11.07            |                     |                  |
| 124.50              | 0.00             | 125.54              | 11.85            |                     |                  |
| 124.52              | 0.00             | 125.56              | 12.65            |                     |                  |

Stage-Area-Storage for Pond 46P: GI-10

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|
| 123.50              | 2,638              | 0                       |
| 123.55              | 2,688              | 133                     |
| 123.60              | 2,738              | 269                     |
| 123.65              | 2,788              | 407                     |
| 123.70              | 2,838              | 548                     |
| 123.75              | 2,888              | 691                     |
| 123.80              | 2,938              | 836                     |
| 123.85              | 2,988              | 985                     |
| 123.90              | 3,038              | 1,135                   |
| 123.95              | 3,088              | 1,288                   |
| 124.00              | 3,139              | 1,444                   |
| 124.05              | 3,189              | 1,602                   |
| 124.10              | 3,239              | 1,763                   |
| 124.15              | 3,289              | 1,926                   |
| 124.20              | 3,339              | 2,092                   |
| 124.25              | 3,389              | 2,260                   |
| 124.30              | 3,439              | 2,431                   |
| 124.35              | 3,489              | 2,604                   |
| 124.40              | 3,539              | 2,780                   |
| 124.45              | 3,589              | 2,958                   |
| 124.50              | 3,639              | 3,139                   |
| 124.55              | 3,692              | 3,322                   |
| 124.60              | 3,745              | 3,508                   |
| 124.65              | 3,798              | 3,696                   |
| 124.70              | 3,850              | 3,887                   |
| 124.75              | 3,903              | 4,081                   |
| 124.80              | 3,956              | 4,278                   |
| 124.85              | 4,009              | 4,477                   |
| 124.90              | 4,062              | 4,679                   |
| 124.95              | 4,115              | 4,883                   |
| 125.00              | 4,168              | 5,090                   |
| 125.05              | 4,220              | 5,300                   |
| 125.10              | 4,273              | 5,512                   |
| 125.15              | 4,326              | 5,727                   |
| 125.20              | 4,379              | 5,945                   |
| 125.25              | 4,432              | 6,165                   |
| 125.30              | 4,485              | 6,388                   |
| 125.35              | 4,537              | 6,613                   |
| 125.40              | 4,590              | 6,842                   |
| 125.45              | 4,643              | 7,073                   |
| 125.50              | 4,696              | 7,306                   |
| 125.55              | 4,751              | 7,542                   |
| 125.60              | 4,806              | 7,781                   |
| 125.65              | 4,861              | 8,023                   |
| 125.70              | 4,916              | 8,267                   |
| 125.75              | 4,971              | 8,514                   |
| 125.80              | 5,026              | 8,764                   |
| 125.85              | 5,081              | 9,017                   |
| 125.90              | 5,136              | 9,272                   |
| 125.95              | 5,191              | 9,531                   |
| 126.00              | 5,246              | 9,792                   |

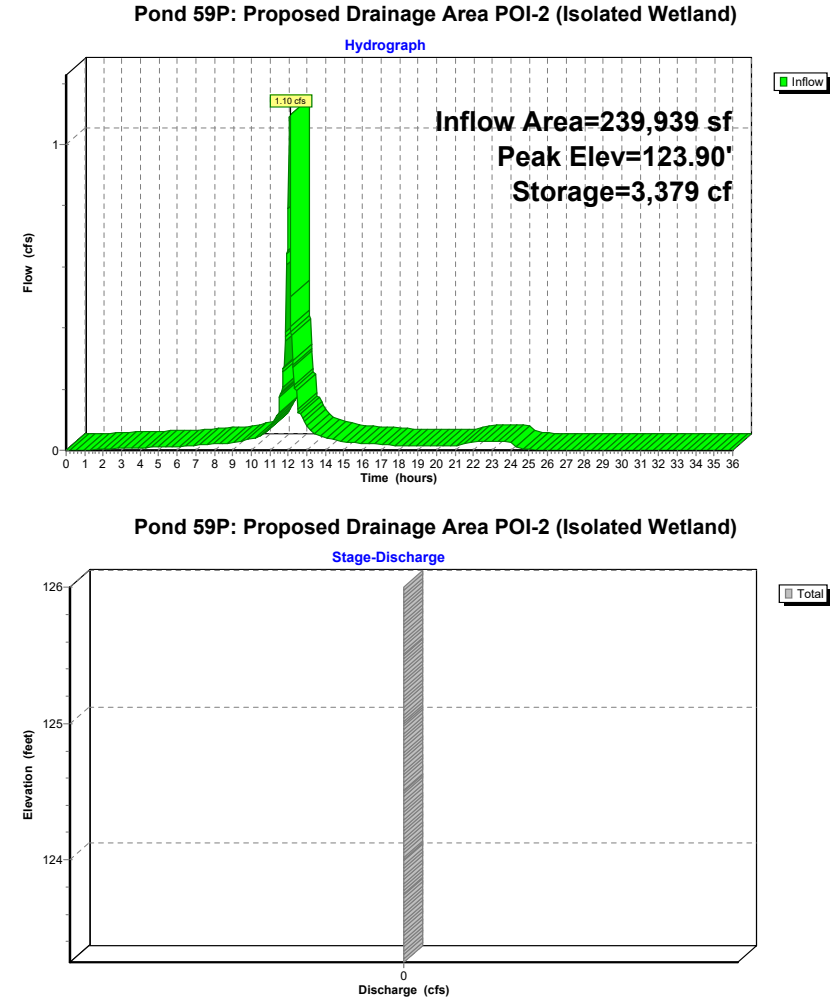
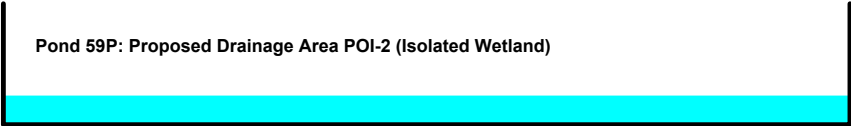
Summary for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

Inflow Area = 239,939 sf, 33.08% Impervious, Inflow Depth = 0.17" for 2-Year-2020 event  
Inflow = 1.10 cfs @ 12.09 hrs, Volume= 3,379 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

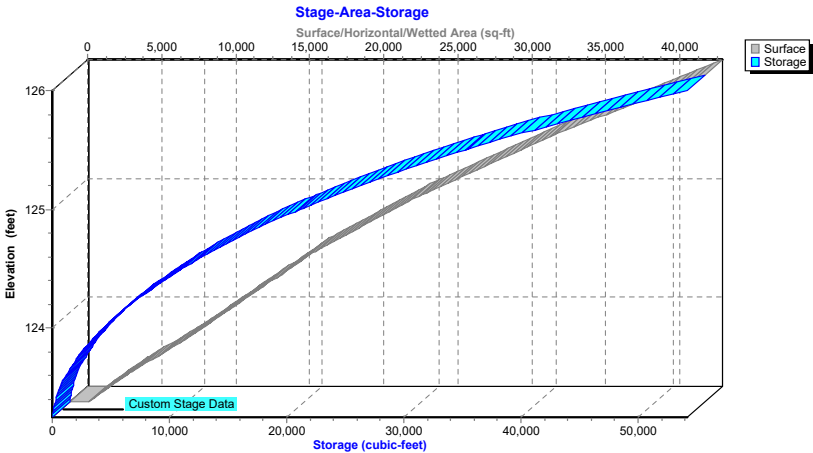
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 123.90' @ 36.00 hrs Surf.Area= 9,283 sf Storage= 3,379 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 123.25'           | 54,210 cf              | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 123.25           | 1,260             | 0                      | 0                                                   |
| 123.50           | 4,142             | 675                    | 675                                                 |
| 123.75           | 7,451             | 1,449                  | 2,124                                               |
| 124.00           | 10,505            | 2,245                  | 4,369                                               |
| 124.50           | 16,329            | 6,709                  | 11,077                                              |
| 125.00           | 23,865            | 10,049                 | 21,126                                              |
| 125.50           | 32,790            | 14,164                 | 35,290                                              |
| 126.00           | 42,891            | 18,920                 | 54,210                                              |



Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)



Hydrograph for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) |
|--------------|--------------|----------------------|------------------|--------------|--------------|----------------------|------------------|
| 0.00         | 0.00         | 0                    | 123.25           | 26.00        | 0.00         | 3,375                | 123.90           |
| 0.50         | 0.00         | 0                    | 123.25           | 26.50        | 0.00         | 3,376                | 123.90           |
| 1.00         | 0.00         | 0                    | 123.25           | 27.00        | 0.00         | 3,377                | 123.90           |
| 1.50         | 0.00         | 1                    | 123.25           | 27.50        | 0.00         | 3,377                | 123.90           |
| 2.00         | 0.00         | 6                    | 123.25           | 28.00        | 0.00         | 3,378                | 123.90           |
| 2.50         | 0.00         | 13                   | 123.26           | 28.50        | 0.00         | 3,378                | 123.90           |
| 3.00         | 0.01         | 22                   | 123.27           | 29.00        | 0.00         | 3,378                | 123.90           |
| 3.50         | 0.01         | 34                   | 123.27           | 29.50        | 0.00         | 3,378                | 123.90           |
| 4.00         | 0.01         | 48                   | 123.28           | 30.00        | 0.00         | 3,378                | 123.90           |
| 4.50         | 0.01         | 64                   | 123.29           | 30.50        | 0.00         | 3,378                | 123.90           |
| 5.00         | 0.01         | 82                   | 123.30           | 31.00        | 0.00         | 3,379                | 123.90           |
| 5.50         | 0.01         | 101                  | 123.31           | 31.50        | 0.00         | 3,379                | 123.90           |
| 6.00         | 0.01         | 122                  | 123.32           | 32.00        | 0.00         | 3,379                | 123.90           |
| 6.50         | 0.01         | 145                  | 123.33           | 32.50        | 0.00         | 3,379                | 123.90           |
| 7.00         | 0.02         | 172                  | 123.35           | 33.00        | 0.00         | 3,379                | 123.90           |
| 7.50         | 0.02         | 203                  | 123.36           | 33.50        | 0.00         | 3,379                | 123.90           |
| 8.00         | 0.02         | 237                  | 123.37           | 34.00        | 0.00         | 3,379                | 123.90           |
| 8.50         | 0.02         | 275                  | 123.38           | 34.50        | 0.00         | 3,379                | 123.90           |
| 9.00         | 0.02         | 317                  | 123.40           | 35.00        | 0.00         | 3,379                | 123.90           |
| 9.50         | 0.03         | 367                  | 123.42           | 35.50        | 0.00         | 3,379                | 123.90           |
| 10.00        | 0.04         | 430                  | 123.43           | 36.00        | 0.00         | 3,379                | 123.90           |
| 10.50        | 0.05         | 506                  | 123.46           |              |              |                      |                  |
| 11.00        | 0.07         | 615                  | 123.49           |              |              |                      |                  |
| 11.50        | 0.12         | 795                  | 123.53           |              |              |                      |                  |
| 12.00        | 0.66         | 1,374                | 123.64           |              |              |                      |                  |
| 12.50        | 0.19         | 2,168                | 123.76           |              |              |                      |                  |
| 13.00        | 0.08         | 2,361                | 123.78           |              |              |                      |                  |
| 13.50        | 0.05         | 2,478                | 123.80           |              |              |                      |                  |
| 14.00        | 0.04         | 2,559                | 123.81           |              |              |                      |                  |
| 14.50        | 0.03         | 2,628                | 123.81           |              |              |                      |                  |
| 15.00        | 0.03         | 2,683                | 123.82           |              |              |                      |                  |
| 15.50        | 0.02         | 2,730                | 123.83           |              |              |                      |                  |
| 16.00        | 0.02         | 2,773                | 123.83           |              |              |                      |                  |
| 16.50        | 0.02         | 2,812                | 123.84           |              |              |                      |                  |
| 17.00        | 0.02         | 2,848                | 123.84           |              |              |                      |                  |
| 17.50        | 0.02         | 2,881                | 123.84           |              |              |                      |                  |
| 18.00        | 0.02         | 2,911                | 123.85           |              |              |                      |                  |
| 18.50        | 0.01         | 2,938                | 123.85           |              |              |                      |                  |
| 19.00        | 0.01         | 2,964                | 123.85           |              |              |                      |                  |
| 19.50        | 0.01         | 2,989                | 123.86           |              |              |                      |                  |
| 20.00        | 0.01         | 3,014                | 123.86           |              |              |                      |                  |
| 20.50        | 0.01         | 3,038                | 123.86           |              |              |                      |                  |
| 21.00        | 0.01         | 3,060                | 123.86           |              |              |                      |                  |
| 21.50        | 0.02         | 3,087                | 123.87           |              |              |                      |                  |
| 22.00        | 0.03         | 3,133                | 123.87           |              |              |                      |                  |
| 22.50        | 0.03         | 3,185                | 123.88           |              |              |                      |                  |
| 23.00        | 0.03         | 3,238                | 123.88           |              |              |                      |                  |
| 23.50        | 0.03         | 3,289                | 123.89           |              |              |                      |                  |
| 24.00        | 0.03         | 3,339                | 123.90           |              |              |                      |                  |
| 24.50        | 0.01         | 3,361                | 123.90           |              |              |                      |                  |
| 25.00        | 0.00         | 3,369                | 123.90           |              |              |                      |                  |
| 25.50        | 0.00         | 3,373                | 123.90           |              |              |                      |                  |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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**Stage-Discharge for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)**

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 123.25              | 0.00               | 124.29              | 0.00               | 125.33              | 0.00               |
| 123.27              | 0.00               | 124.31              | 0.00               | 125.35              | 0.00               |
| 123.29              | 0.00               | 124.33              | 0.00               | 125.37              | 0.00               |
| 123.31              | 0.00               | 124.35              | 0.00               | 125.39              | 0.00               |
| 123.33              | 0.00               | 124.37              | 0.00               | 125.41              | 0.00               |
| 123.35              | 0.00               | 124.39              | 0.00               | 125.43              | 0.00               |
| 123.37              | 0.00               | 124.41              | 0.00               | 125.45              | 0.00               |
| 123.39              | 0.00               | 124.43              | 0.00               | 125.47              | 0.00               |
| 123.41              | 0.00               | 124.45              | 0.00               | 125.49              | 0.00               |
| 123.43              | 0.00               | 124.47              | 0.00               | 125.51              | 0.00               |
| 123.45              | 0.00               | 124.49              | 0.00               | 125.53              | 0.00               |
| 123.47              | 0.00               | 124.51              | 0.00               | 125.55              | 0.00               |
| 123.49              | 0.00               | 124.53              | 0.00               | 125.57              | 0.00               |
| 123.51              | 0.00               | 124.55              | 0.00               | 125.59              | 0.00               |
| 123.53              | 0.00               | 124.57              | 0.00               | 125.61              | 0.00               |
| 123.55              | 0.00               | 124.59              | 0.00               | 125.63              | 0.00               |
| 123.57              | 0.00               | 124.61              | 0.00               | 125.65              | 0.00               |
| 123.59              | 0.00               | 124.63              | 0.00               | 125.67              | 0.00               |
| 123.61              | 0.00               | 124.65              | 0.00               | 125.69              | 0.00               |
| 123.63              | 0.00               | 124.67              | 0.00               | 125.71              | 0.00               |
| 123.65              | 0.00               | 124.69              | 0.00               | 125.73              | 0.00               |
| 123.67              | 0.00               | 124.71              | 0.00               | 125.75              | 0.00               |
| 123.69              | 0.00               | 124.73              | 0.00               | 125.77              | 0.00               |
| 123.71              | 0.00               | 124.75              | 0.00               | 125.79              | 0.00               |
| 123.73              | 0.00               | 124.77              | 0.00               | 125.81              | 0.00               |
| 123.75              | 0.00               | 124.79              | 0.00               | 125.83              | 0.00               |
| 123.77              | 0.00               | 124.81              | 0.00               | 125.85              | 0.00               |
| 123.79              | 0.00               | 124.83              | 0.00               | 125.87              | 0.00               |
| 123.81              | 0.00               | 124.85              | 0.00               | 125.89              | 0.00               |
| 123.83              | 0.00               | 124.87              | 0.00               | 125.91              | 0.00               |
| 123.85              | 0.00               | 124.89              | 0.00               | 125.93              | 0.00               |
| 123.87              | 0.00               | 124.91              | 0.00               | 125.95              | 0.00               |
| 123.89              | 0.00               | 124.93              | 0.00               | 125.97              | 0.00               |
| 123.91              | 0.00               | 124.95              | 0.00               | 125.99              | 0.00               |
| 123.93              | 0.00               | 124.97              | 0.00               |                     |                    |
| 123.95              | 0.00               | 124.99              | 0.00               |                     |                    |
| 123.97              | 0.00               | 125.01              | 0.00               |                     |                    |
| 123.99              | 0.00               | 125.03              | 0.00               |                     |                    |
| 124.01              | 0.00               | 125.05              | 0.00               |                     |                    |
| 124.03              | 0.00               | 125.07              | 0.00               |                     |                    |
| 124.05              | 0.00               | 125.09              | 0.00               |                     |                    |
| 124.07              | 0.00               | 125.11              | 0.00               |                     |                    |
| 124.09              | 0.00               | 125.13              | 0.00               |                     |                    |
| 124.11              | 0.00               | 125.15              | 0.00               |                     |                    |
| 124.13              | 0.00               | 125.17              | 0.00               |                     |                    |
| 124.15              | 0.00               | 125.19              | 0.00               |                     |                    |
| 124.17              | 0.00               | 125.21              | 0.00               |                     |                    |
| 124.19              | 0.00               | 125.23              | 0.00               |                     |                    |
| 124.21              | 0.00               | 125.25              | 0.00               |                     |                    |
| 124.23              | 0.00               | 125.27              | 0.00               |                     |                    |
| 124.25              | 0.00               | 125.29              | 0.00               |                     |                    |
| 124.27              | 0.00               | 125.31              | 0.00               |                     |                    |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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**Stage-Area-Storage for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 123.25              | 1,260              | 0                       | 125.85              | 39,861             | 48,003                  |
| 123.30              | 1,836              | 77                      | 125.90              | 40,871             | 50,022                  |
| 123.35              | 2,413              | 184                     | 125.95              | 41,881             | 52,091                  |
| 123.40              | 2,989              | 319                     | 126.00              | <b>42,891</b>      | <b>54,210</b>           |
| 123.45              | 3,566              | 483                     |                     |                    |                         |
| 123.50              | 4,142              | 675                     |                     |                    |                         |
| 123.55              | 4,804              | 899                     |                     |                    |                         |
| 123.60              | 5,466              | 1,156                   |                     |                    |                         |
| 123.65              | 6,127              | 1,445                   |                     |                    |                         |
| 123.70              | 6,789              | 1,768                   |                     |                    |                         |
| 123.75              | 7,451              | 2,124                   |                     |                    |                         |
| 123.80              | 8,062              | 2,512                   |                     |                    |                         |
| 123.85              | 8,673              | 2,931                   |                     |                    |                         |
| 123.90              | 9,283              | 3,379                   |                     |                    |                         |
| 123.95              | 9,894              | 3,859                   |                     |                    |                         |
| 124.00              | 10,505             | 4,369                   |                     |                    |                         |
| 124.05              | 11,087             | 4,909                   |                     |                    |                         |
| 124.10              | 11,670             | 5,478                   |                     |                    |                         |
| 124.15              | 12,252             | 6,076                   |                     |                    |                         |
| 124.20              | 12,835             | 6,703                   |                     |                    |                         |
| 124.25              | 13,417             | 7,359                   |                     |                    |                         |
| 124.30              | 13,999             | 8,045                   |                     |                    |                         |
| 124.35              | 14,582             | 8,759                   |                     |                    |                         |
| 124.40              | 15,164             | 9,503                   |                     |                    |                         |
| 124.45              | 15,747             | 10,275                  |                     |                    |                         |
| 124.50              | 16,329             | 11,077                  |                     |                    |                         |
| 124.55              | 17,083             | 11,913                  |                     |                    |                         |
| 124.60              | 17,836             | 12,786                  |                     |                    |                         |
| 124.65              | 18,590             | 13,696                  |                     |                    |                         |
| 124.70              | 19,343             | 14,645                  |                     |                    |                         |
| 124.75              | 20,097             | 15,631                  |                     |                    |                         |
| 124.80              | 20,851             | 16,654                  |                     |                    |                         |
| 124.85              | 21,604             | 17,716                  |                     |                    |                         |
| 124.90              | 22,358             | 18,815                  |                     |                    |                         |
| 124.95              | 23,111             | 19,951                  |                     |                    |                         |
| 125.00              | 23,865             | 21,126                  |                     |                    |                         |
| 125.05              | 24,757             | 22,341                  |                     |                    |                         |
| 125.10              | 25,650             | 23,602                  |                     |                    |                         |
| 125.15              | 26,543             | 24,906                  |                     |                    |                         |
| 125.20              | 27,435             | 26,256                  |                     |                    |                         |
| 125.25              | 28,328             | 27,650                  |                     |                    |                         |
| 125.30              | 29,220             | 29,089                  |                     |                    |                         |
| 125.35              | 30,112             | 30,572                  |                     |                    |                         |
| 125.40              | 31,005             | 32,100                  |                     |                    |                         |
| 125.45              | 31,898             | 33,672                  |                     |                    |                         |
| 125.50              | 32,790             | 35,290                  |                     |                    |                         |
| 125.55              | 33,800             | 36,954                  |                     |                    |                         |
| 125.60              | 34,810             | 38,670                  |                     |                    |                         |
| 125.65              | 35,820             | 40,435                  |                     |                    |                         |
| 125.70              | 36,830             | 42,252                  |                     |                    |                         |
| 125.75              | 37,841             | 44,118                  |                     |                    |                         |
| 125.80              | 38,851             | 46,036                  |                     |                    |                         |

Summary for Pond 60P: GI-12

Inflow Area = 102,485 sf, 46.65% Impervious, Inflow Depth = 1.53" for 2-Year-2020 event  
Inflow = 4.41 cfs @ 12.10 hrs, Volume= 13,090 cf  
Outflow = 0.16 cfs @ 14.22 hrs, Volume= 13,091 cf, Atten= 96%, Lag= 127.4 min  
Discarded = 0.16 cfs @ 14.22 hrs, Volume= 13,091 cf  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Routed to Pond 8P : GI-13

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 126.46' @ 14.22 hrs Surf.Area= 14,045 sf Storage= 6,327 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)  
Center-of-Mass det. time= 332.5 min ( 1,091.6 - 759.1 )

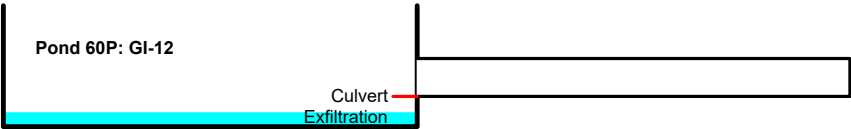
| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 126.00' | 66,186 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 126.00           | 13,291            | 0                      | 0                      |
| 130.00           | 19,802            | 66,186                 | 66,186                 |

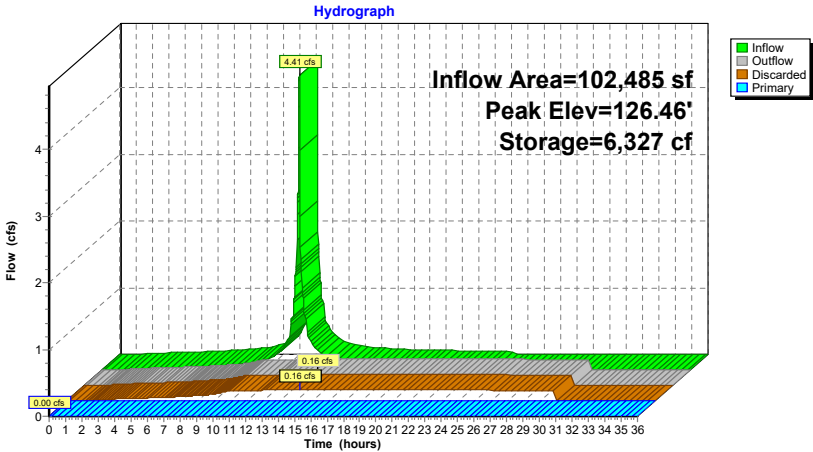
| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                                        |
|--------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary   | 127.00' | 15.0" Round Culvert<br>L= 83.0' CMP, mitered to conform to fill, Ke= 0.700<br>Inlet / Outlet Invert= 127.00' / 127.00' S= 0.0000 '/ Cc= 0.900<br>n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf |
| #2     | Discarded | 126.00' | 0.500 in/hr Exfiltration over Surface area<br>Conductivity to Groundwater Elevation = 1.00'                                                                                                           |

Discarded OutFlow Max=0.16 cfs @ 14.22 hrs HW=126.46' (Free Discharge)  
2=Exfiltration ( Controls 0.16 cfs)

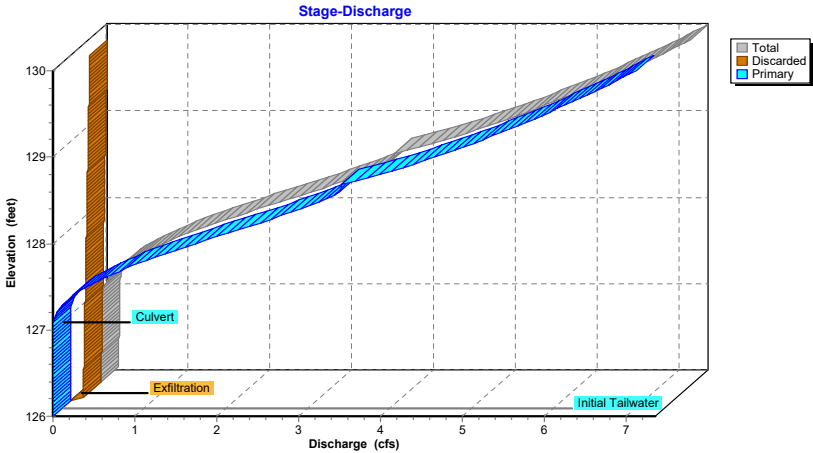
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=126.00' TW=126.00' (Dynamic Tailwater)  
1=Culvert ( Controls 0.00 cfs)

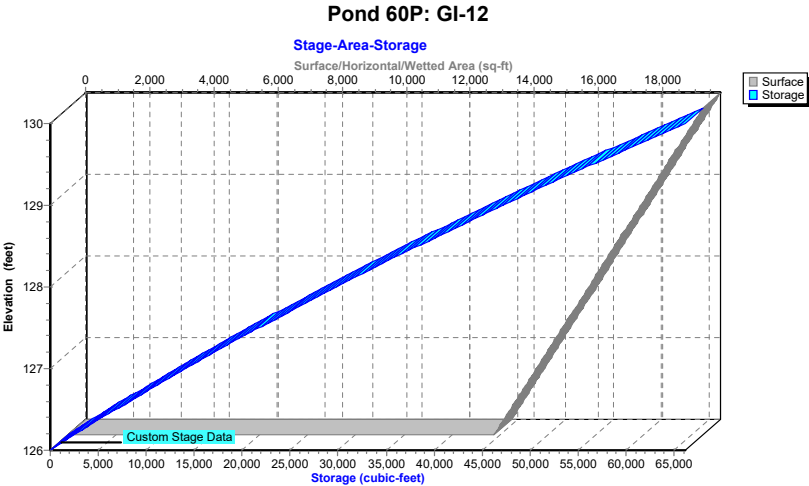


Pond 60P: GI-12



Pond 60P: GI-12





Hydrograph for Pond 60P: GI-12

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Outflow (cfs) | Discarded (cfs) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|-----------------|---------------|
| 0.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 1.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 2.00         | 0.01         | 0                    | 126.00           | 0.01          | 0.01            | 0.00          |
| 3.00         | 0.02         | 0                    | 126.00           | 0.02          | 0.02            | 0.00          |
| 4.00         | 0.03         | 0                    | 126.00           | 0.03          | 0.03            | 0.00          |
| 5.00         | 0.04         | 0                    | 126.00           | 0.04          | 0.04            | 0.00          |
| 6.00         | 0.05         | 0                    | 126.00           | 0.05          | 0.05            | 0.00          |
| 7.00         | 0.06         | 0                    | 126.00           | 0.06          | 0.06            | 0.00          |
| 8.00         | 0.08         | 0                    | 126.00           | 0.08          | 0.08            | 0.00          |
| 9.00         | 0.10         | 0                    | 126.00           | 0.10          | 0.10            | 0.00          |
| 10.00        | 0.15         | 0                    | 126.00           | 0.15          | 0.15            | 0.00          |
| 11.00        | 0.29         | 185                  | 126.01           | 0.15          | 0.15            | 0.00          |
| 12.00        | 2.63         | 2,595                | 126.19           | 0.16          | 0.16            | 0.00          |
| 13.00        | 0.34         | 6,081                | 126.45           | 0.16          | 0.16            | 0.00          |
| 14.00        | 0.18         | 6,322                | 126.46           | 0.16          | 0.16            | 0.00          |
| 15.00        | 0.12         | 6,265                | 126.46           | 0.16          | 0.16            | 0.00          |
| 16.00        | 0.10         | 6,067                | 126.44           | 0.16          | 0.16            | 0.00          |
| 17.00        | 0.09         | 5,816                | 126.43           | 0.16          | 0.16            | 0.00          |
| 18.00        | 0.07         | 5,509                | 126.40           | 0.16          | 0.16            | 0.00          |
| 19.00        | 0.06         | 5,165                | 126.38           | 0.16          | 0.16            | 0.00          |
| 20.00        | 0.06         | 4,810                | 126.35           | 0.16          | 0.16            | 0.00          |
| 21.00        | 0.06         | 4,442                | 126.33           | 0.16          | 0.16            | 0.00          |
| 22.00        | 0.05         | 4,063                | 126.30           | 0.16          | 0.16            | 0.00          |
| 23.00        | 0.05         | 3,671                | 126.27           | 0.16          | 0.16            | 0.00          |
| 24.00        | 0.06         | 3,269                | 126.24           | 0.16          | 0.16            | 0.00          |
| 25.00        | 0.00         | 2,706                | 126.20           | 0.16          | 0.16            | 0.00          |
| 26.00        | 0.00         | 2,139                | 126.16           | 0.16          | 0.16            | 0.00          |
| 27.00        | 0.00         | 1,575                | 126.12           | 0.16          | 0.16            | 0.00          |
| 28.00        | 0.00         | 1,015                | 126.08           | 0.16          | 0.16            | 0.00          |
| 29.00        | 0.00         | 457                  | 126.03           | 0.15          | 0.15            | 0.00          |
| 30.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 31.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 32.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 33.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 34.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 35.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 36.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 60P: GI-12**

| Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) |
|---------------------|--------------------|--------------------|------------------|---------------------|--------------------|--------------------|------------------|
| 126.00              | 0.00               | 0.00               | 0.00             | 128.60              | 3.70               | 0.21               | 3.49             |
| 126.05              | 0.15               | 0.15               | 0.00             | 128.65              | 3.73               | 0.21               | 3.52             |
| 126.10              | 0.16               | 0.16               | 0.00             | 128.70              | 3.82               | 0.21               | 3.61             |
| 126.15              | 0.16               | 0.16               | 0.00             | 128.75              | 4.01               | 0.21               | 3.81             |
| 126.20              | 0.16               | 0.16               | 0.00             | 128.80              | 4.20               | 0.21               | 3.99             |
| 126.25              | 0.16               | 0.16               | 0.00             | 128.85              | 4.38               | 0.21               | 4.17             |
| 126.30              | 0.16               | 0.16               | 0.00             | 128.90              | 4.55               | 0.21               | 4.34             |
| 126.35              | 0.16               | 0.16               | 0.00             | 128.95              | 4.72               | 0.21               | 4.50             |
| 126.40              | 0.16               | 0.16               | 0.00             | 129.00              | 4.88               | 0.21               | 4.66             |
| 126.45              | 0.16               | 0.16               | 0.00             | 129.05              | 5.03               | 0.22               | 4.81             |
| 126.50              | 0.16               | 0.16               | 0.00             | 129.10              | 5.18               | 0.22               | 4.96             |
| 126.55              | 0.16               | 0.16               | 0.00             | 129.15              | 5.32               | 0.22               | 5.11             |
| 126.60              | 0.17               | 0.17               | 0.00             | 129.20              | 5.46               | 0.22               | 5.24             |
| 126.65              | 0.17               | 0.17               | 0.00             | 129.25              | 5.60               | 0.22               | 5.38             |
| 126.70              | 0.17               | 0.17               | 0.00             | 129.30              | 5.74               | 0.22               | 5.51             |
| 126.75              | 0.17               | 0.17               | 0.00             | 129.35              | 5.87               | 0.22               | 5.64             |
| 126.80              | 0.17               | 0.17               | 0.00             | 129.40              | 5.99               | 0.22               | 5.77             |
| 126.85              | 0.17               | 0.17               | 0.00             | 129.45              | 6.12               | 0.22               | 5.89             |
| 126.90              | 0.17               | 0.17               | 0.00             | 129.50              | 6.24               | 0.22               | 6.02             |
| 126.95              | 0.17               | 0.17               | 0.00             | 129.55              | 6.36               | 0.23               | 6.14             |
| 127.00              | 0.17               | 0.17               | 0.00             | 129.60              | 6.48               | 0.23               | 6.25             |
| 127.05              | 0.18               | 0.17               | 0.00             | 129.65              | 6.60               | 0.23               | 6.37             |
| 127.10              | 0.18               | 0.18               | 0.01             | 129.70              | 6.71               | 0.23               | 6.48             |
| 127.15              | 0.20               | 0.18               | 0.02             | 129.75              | 6.82               | 0.23               | 6.59             |
| 127.20              | 0.23               | 0.18               | 0.05             | 129.80              | 6.93               | 0.23               | 6.70             |
| 127.25              | 0.26               | 0.18               | 0.08             | 129.85              | 7.04               | 0.23               | 6.81             |
| 127.30              | 0.31               | 0.18               | 0.13             | 129.90              | 7.15               | 0.23               | 6.91             |
| 127.35              | 0.37               | 0.18               | 0.18             | 129.95              | 7.25               | 0.23               | 7.02             |
| 127.40              | 0.43               | 0.18               | 0.25             | 130.00              | <b>7.35</b>        | <b>0.24</b>        | <b>7.12</b>      |
| 127.45              | 0.51               | 0.18               | 0.33             |                     |                    |                    |                  |
| 127.50              | 0.60               | 0.18               | 0.42             |                     |                    |                    |                  |
| 127.55              | 0.70               | 0.19               | 0.51             |                     |                    |                    |                  |
| 127.60              | 0.81               | 0.19               | 0.62             |                     |                    |                    |                  |
| 127.65              | 0.92               | 0.19               | 0.74             |                     |                    |                    |                  |
| 127.70              | 1.05               | 0.19               | 0.86             |                     |                    |                    |                  |
| 127.75              | 1.18               | 0.19               | 0.99             |                     |                    |                    |                  |
| 127.80              | 1.32               | 0.19               | 1.13             |                     |                    |                    |                  |
| 127.85              | 1.47               | 0.19               | 1.28             |                     |                    |                    |                  |
| 127.90              | 1.62               | 0.19               | 1.43             |                     |                    |                    |                  |
| 127.95              | 1.78               | 0.19               | 1.58             |                     |                    |                    |                  |
| 128.00              | 1.94               | 0.19               | 1.74             |                     |                    |                    |                  |
| 128.05              | 2.10               | 0.20               | 1.90             |                     |                    |                    |                  |
| 128.10              | 2.27               | 0.20               | 2.07             |                     |                    |                    |                  |
| 128.15              | 2.43               | 0.20               | 2.23             |                     |                    |                    |                  |
| 128.20              | 2.60               | 0.20               | 2.40             |                     |                    |                    |                  |
| 128.25              | 2.76               | 0.20               | 2.56             |                     |                    |                    |                  |
| 128.30              | 2.93               | 0.20               | 2.72             |                     |                    |                    |                  |
| 128.35              | 3.08               | 0.20               | 2.88             |                     |                    |                    |                  |
| 128.40              | 3.23               | 0.20               | 3.03             |                     |                    |                    |                  |
| 128.45              | 3.37               | 0.20               | 3.17             |                     |                    |                    |                  |
| 128.50              | 3.50               | 0.20               | 3.30             |                     |                    |                    |                  |
| 128.55              | 3.61               | 0.21               | 3.41             |                     |                    |                    |                  |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 60P: GI-12**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 126.00              | 13,291             | 0                       | 128.60              | 17,523             | 40,058                  |
| 126.05              | 13,372             | 667                     | 128.65              | 17,605             | 40,937                  |
| 126.10              | 13,454             | 1,337                   | 128.70              | 17,686             | 41,819                  |
| 126.15              | 13,535             | 2,012                   | 128.75              | 17,767             | 42,705                  |
| 126.20              | 13,617             | 2,691                   | 128.80              | 17,849             | 43,596                  |
| 126.25              | 13,698             | 3,374                   | 128.85              | 17,930             | 44,490                  |
| 126.30              | 13,779             | 4,061                   | 128.90              | 18,011             | 45,389                  |
| 126.35              | 13,861             | 4,752                   | 128.95              | 18,093             | 46,291                  |
| 126.40              | 13,942             | 5,447                   | 129.00              | 18,174             | 47,198                  |
| 126.45              | 14,023             | 6,146                   | 129.05              | 18,256             | 48,109                  |
| 126.50              | 14,105             | 6,849                   | 129.10              | 18,337             | 49,023                  |
| 126.55              | 14,186             | 7,556                   | 129.15              | 18,418             | 49,942                  |
| 126.60              | 14,268             | 8,268                   | 129.20              | 18,500             | 50,865                  |
| 126.65              | 14,349             | 8,983                   | 129.25              | 18,581             | 51,792                  |
| 126.70              | 14,430             | 9,702                   | 129.30              | 18,663             | 52,723                  |
| 126.75              | 14,512             | 10,426                  | 129.35              | 18,744             | 53,659                  |
| 126.80              | 14,593             | 11,154                  | 129.40              | 18,825             | 54,598                  |
| 126.85              | 14,675             | 11,885                  | 129.45              | 18,907             | 55,541                  |
| 126.90              | 14,756             | 12,621                  | 129.50              | 18,988             | 56,488                  |
| 126.95              | 14,837             | 13,361                  | 129.55              | 19,070             | 57,440                  |
| 127.00              | 14,919             | 14,105                  | 129.60              | 19,151             | 58,395                  |
| 127.05              | 15,000             | 14,853                  | 129.65              | 19,232             | 59,355                  |
| 127.10              | 15,082             | 15,605                  | 129.70              | 19,314             | 60,319                  |
| 127.15              | 15,163             | 16,361                  | 129.75              | 19,395             | 61,286                  |
| 127.20              | 15,244             | 17,121                  | 129.80              | 19,476             | 62,258                  |
| 127.25              | 15,326             | 17,885                  | 129.85              | 19,558             | 63,234                  |
| 127.30              | 15,407             | 18,654                  | 129.90              | 19,639             | 64,214                  |
| 127.35              | 15,488             | 19,426                  | 129.95              | 19,721             | 65,198                  |
| 127.40              | 15,570             | 20,203                  | 130.00              | <b>19,802</b>      | <b>66,186</b>           |
| 127.45              | 15,651             | 20,983                  |                     |                    |                         |
| 127.50              | 15,733             | 21,768                  |                     |                    |                         |
| 127.55              | 15,814             | 22,556                  |                     |                    |                         |
| 127.60              | 15,895             | 23,349                  |                     |                    |                         |
| 127.65              | 15,977             | 24,146                  |                     |                    |                         |
| 127.70              | 16,058             | 24,947                  |                     |                    |                         |
| 127.75              | 16,140             | 25,752                  |                     |                    |                         |
| 127.80              | 16,221             | 26,561                  |                     |                    |                         |
| 127.85              | 16,302             | 27,374                  |                     |                    |                         |
| 127.90              | 16,384             | 28,191                  |                     |                    |                         |
| 127.95              | 16,465             | 29,012                  |                     |                    |                         |
| 128.00              | 16,547             | 29,838                  |                     |                    |                         |
| 128.05              | 16,628             | 30,667                  |                     |                    |                         |
| 128.10              | 16,709             | 31,500                  |                     |                    |                         |
| 128.15              | 16,791             | 32,338                  |                     |                    |                         |
| 128.20              | 16,872             | 33,179                  |                     |                    |                         |
| 128.25              | 16,953             | 34,025                  |                     |                    |                         |
| 128.30              | 17,035             | 34,875                  |                     |                    |                         |
| 128.35              | 17,116             | 35,728                  |                     |                    |                         |
| 128.40              | 17,198             | 36,586                  |                     |                    |                         |
| 128.45              | 17,279             | 37,448                  |                     |                    |                         |
| 128.50              | 17,360             | 38,314                  |                     |                    |                         |
| 128.55              | 17,442             | 39,184                  |                     |                    |                         |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

|                                               |                                                                                                                                                |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Subcatchment44S: GI-10 Pervious</b>        | Runoff Area=13,028 sf 0.00% Impervious Runoff Depth=0.28"<br>Flow Length=91' Tc=11.2 min CN=39 Runoff=0.02 cfs 300 cf                          |
| <b>Subcatchment45S: GI-10 Impervious</b>      | Runoff Area=19,702 sf 100.00% Impervious Runoff Depth=5.11"<br>Flow Length=660' Tc=4.5 min CN=98 Runoff=2.72 cfs 8,394 cf                      |
| <b>Subcatchment62S: GI-12 Impervious</b>      | Runoff Area=47,814 sf 100.00% Impervious Runoff Depth=5.11"<br>Flow Length=147' Tc=1.6 min CN=98 Runoff=6.88 cfs 20,371 cf                     |
| <b>Subcatchment63S: GI-13 Pervious</b>        | Runoff Area=17,103 sf 0.00% Impervious Runoff Depth=0.41"<br>Flow Length=90' Slope=0.0100 '/' Tc=10.2 min CN=42 Runoff=0.06 cfs 582 cf         |
| <b>Subcatchment64S: Wetland Pervious</b>      | Runoff Area=75,754 sf 0.00% Impervious Runoff Depth=0.08"<br>Flow Length=161' Tc=10.8 min CN=33 Runoff=0.01 cfs 486 cf                         |
| <b>Subcatchment67S: Wetland Impervious</b>    | Runoff Area=11,867 sf 100.00% Impervious Runoff Depth=5.11"<br>Flow Length=151' Tc=0.9 min CN=98 Runoff=1.71 cfs 5,056 cf                      |
| <b>Subcatchment68S: GI-12 Pervious</b>        | Runoff Area=54,671 sf 0.00% Impervious Runoff Depth=0.51"<br>Flow Length=93' Tc=5.9 min CN=44 Runoff=0.39 cfs 2,307 cf                         |
| <b>Pond 8P: GI-13</b>                         | Peak Elev=126.00' Storage=12 cf Inflow=0.06 cfs 582 cf<br>Discarded=0.05 cfs 582 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 582 cf              |
| <b>Pond 46P: GI-10</b>                        | Peak Elev=125.07' Storage=5,403 cf Inflow=2.72 cfs 8,694 cf<br>Outflow=0.49 cfs 3,604 cf                                                       |
| <b>Pond 59P: Proposed Drainage Area POI-2</b> | Peak Elev=124.38' Storage=9,146 cf Inflow=1.71 cfs 9,146 cf<br>Outflow=0.00 cfs 0 cf                                                           |
| <b>Pond 60P: GI-12</b>                        | Peak Elev=126.91' Storage=12,814 cf Inflow=7.07 cfs 22,679 cf<br>Discarded=0.17 cfs 18,501 cf Primary=0.00 cfs 0 cf Outflow=0.17 cfs 18,501 cf |

**Total Runoff Area = 239,939 sf Runoff Volume = 37,497 cf Average Runoff Depth = 1.88"**  
**66.92% Pervious = 160,556 sf 33.08% Impervious = 79,383 sf**

### Summary for Subcatchment 44S: GI-10 Pervious

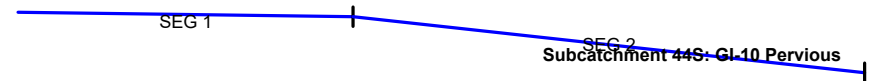
Runoff = 0.02 cfs @ 12.58 hrs, Volume= 300 cf, Depth= 0.28"  
 Routed to Pond 46P : GI-10

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

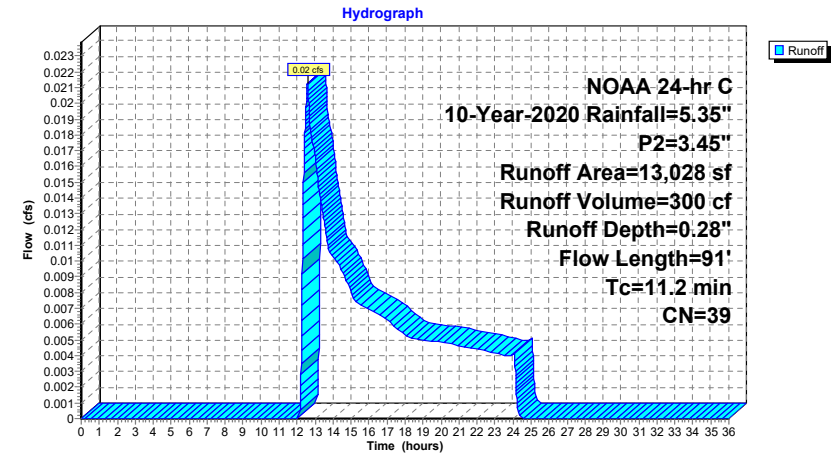
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 13,028    | 39 | >75% Grass cover, Good, HSG A |
| 13,028    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                 |
|----------|---------------|---------------|-------------------|----------------|-------------------------------------------------------------|
| 7.0      | 36            | 0.0140        | 0.09              |                | <b>Sheet Flow, SEG 1</b><br>Grass: Dense n= 0.240 P2= 3.45" |
| 4.2      | 55            | 0.1180        | 0.22              |                | <b>Sheet Flow, SEG 2</b><br>Grass: Dense n= 0.240 P2= 3.45" |
| 11.2     | 91            | Total         |                   |                |                                                             |



### Subcatchment 44S: GI-10 Pervious



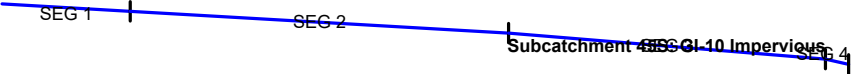


Hydrograph for Subcatchment 44S: GI-10 Pervious

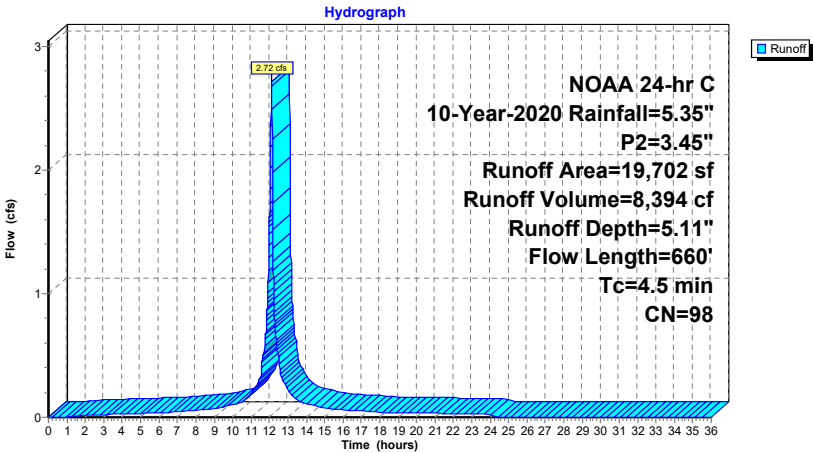
| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 0.28               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 0.28               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 0.28               | 0.00            |
| 1.50            | 0.09                | 0.00               | 0.00            | 27.50           | 5.35                | 0.28               | 0.00            |
| 2.00            | 0.12                | 0.00               | 0.00            | 28.00           | 5.35                | 0.28               | 0.00            |
| 2.50            | 0.15                | 0.00               | 0.00            | 28.50           | 5.35                | 0.28               | 0.00            |
| 3.00            | 0.19                | 0.00               | 0.00            | 29.00           | 5.35                | 0.28               | 0.00            |
| 3.50            | 0.22                | 0.00               | 0.00            | 29.50           | 5.35                | 0.28               | 0.00            |
| 4.00            | 0.26                | 0.00               | 0.00            | 30.00           | 5.35                | 0.28               | 0.00            |
| 4.50            | 0.30                | 0.00               | 0.00            | 30.50           | 5.35                | 0.28               | 0.00            |
| 5.00            | 0.34                | 0.00               | 0.00            | 31.00           | 5.35                | 0.28               | 0.00            |
| 5.50            | 0.38                | 0.00               | 0.00            | 31.50           | 5.35                | 0.28               | 0.00            |
| 6.00            | 0.42                | 0.00               | 0.00            | 32.00           | 5.35                | 0.28               | 0.00            |
| 6.50            | 0.47                | 0.00               | 0.00            | 32.50           | 5.35                | 0.28               | 0.00            |
| 7.00            | 0.52                | 0.00               | 0.00            | 33.00           | 5.35                | 0.28               | 0.00            |
| 7.50            | 0.58                | 0.00               | 0.00            | 33.50           | 5.35                | 0.28               | 0.00            |
| 8.00            | 0.64                | 0.00               | 0.00            | 34.00           | 5.35                | 0.28               | 0.00            |
| 8.50            | 0.71                | 0.00               | 0.00            | 34.50           | 5.35                | 0.28               | 0.00            |
| 9.00            | 0.78                | 0.00               | 0.00            | 35.00           | 5.35                | 0.28               | 0.00            |
| 9.50            | 0.87                | 0.00               | 0.00            | 35.50           | 5.35                | 0.28               | 0.00            |
| 10.00           | 0.98                | 0.00               | 0.00            | 36.00           | 5.35                | 0.28               | 0.00            |
| 10.50           | 1.10                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.58                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.55                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 3.77                | 0.03               | 0.02            |                 |                     |                    |                 |
| 13.00           | 4.07                | 0.05               | 0.02            |                 |                     |                    |                 |
| 13.50           | 4.25                | 0.07               | 0.01            |                 |                     |                    |                 |
| 14.00           | 4.37                | 0.09               | 0.01            |                 |                     |                    |                 |
| 14.50           | 4.48                | 0.11               | 0.01            |                 |                     |                    |                 |
| 15.00           | 4.57                | 0.12               | 0.01            |                 |                     |                    |                 |
| 15.50           | 4.64                | 0.13               | 0.01            |                 |                     |                    |                 |
| 16.00           | 4.71                | 0.15               | 0.01            |                 |                     |                    |                 |
| 16.50           | 4.77                | 0.16               | 0.01            |                 |                     |                    |                 |
| 17.00           | 4.83                | 0.17               | 0.01            |                 |                     |                    |                 |
| 17.50           | 4.88                | 0.18               | 0.01            |                 |                     |                    |                 |
| 18.00           | 4.93                | 0.19               | 0.01            |                 |                     |                    |                 |
| 18.50           | 4.97                | 0.19               | 0.01            |                 |                     |                    |                 |
| 19.00           | 5.01                | 0.20               | 0.00            |                 |                     |                    |                 |
| 19.50           | 5.05                | 0.21               | 0.00            |                 |                     |                    |                 |
| 20.00           | 5.09                | 0.22               | 0.00            |                 |                     |                    |                 |
| 20.50           | 5.13                | 0.23               | 0.00            |                 |                     |                    |                 |
| 21.00           | 5.16                | 0.23               | 0.00            |                 |                     |                    |                 |
| 21.50           | 5.20                | 0.24               | 0.00            |                 |                     |                    |                 |
| 22.00           | 5.23                | 0.25               | 0.00            |                 |                     |                    |                 |
| 22.50           | 5.26                | 0.26               | 0.00            |                 |                     |                    |                 |
| 23.00           | 5.29                | 0.26               | 0.00            |                 |                     |                    |                 |
| 23.50           | 5.32                | 0.27               | 0.00            |                 |                     |                    |                 |
| 24.00           | 5.35                | 0.28               | 0.00            |                 |                     |                    |                 |
| 24.50           | 5.35                | 0.28               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 0.28               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 0.28               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 45S: GI-10 Impervious

| Runoff = 2.72 cfs @ 12.12 hrs, Volume= 8,394 cf, Depth= 5.11"<br>Routed to Pond 46P : GI-10                                                    |               |                         |                   |                |                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------|-------------------|----------------|----------------------------------------------------------------------------|
| Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs<br>NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45" |               |                         |                   |                |                                                                            |
| Area (sf)                                                                                                                                      | CN            | Description             |                   |                |                                                                            |
| 19,702                                                                                                                                         | 98            | Paved parking, HSG A    |                   |                |                                                                            |
| 19,702                                                                                                                                         |               | 100.00% Impervious Area |                   |                |                                                                            |
| Tc (min)                                                                                                                                       | Length (feet) | Slope (ft/ft)           | Velocity (ft/sec) | Capacity (cfs) | Description                                                                |
| 1.3                                                                                                                                            | 100           | 0.0140                  | 1.24              |                | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.45"             |
| 2.0                                                                                                                                            | 295           | 0.0140                  | 2.40              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps              |
| 1.0                                                                                                                                            | 247           | 0.0200                  | 4.22              | 0.84           | <b>Channel Flow, SEG 3</b><br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2                                                                                                                                            | 18            | 0.0560                  | 1.66              |                | <b>Shallow Concentrated Flow, SEG 4</b><br>Short Grass Pasture Kv= 7.0 fps |
| 4.5                                                                                                                                            | 660           | Total                   |                   |                |                                                                            |



Subcatchment 45S: GI-10 Impervious



Hydrograph for Subcatchment 45S: GI-10 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 5.11               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 5.11               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 5.11               | 0.00            |
| 1.50            | 0.09                | 0.01               | 0.01            | 27.50           | 5.35                | 5.11               | 0.00            |
| 2.00            | 0.12                | 0.02               | 0.01            | 28.00           | 5.35                | 5.11               | 0.00            |
| 2.50            | 0.15                | 0.04               | 0.02            | 28.50           | 5.35                | 5.11               | 0.00            |
| 3.00            | 0.19                | 0.06               | 0.02            | 29.00           | 5.35                | 5.11               | 0.00            |
| 3.50            | 0.22                | 0.09               | 0.02            | 29.50           | 5.35                | 5.11               | 0.00            |
| 4.00            | 0.26                | 0.11               | 0.03            | 30.00           | 5.35                | 5.11               | 0.00            |
| 4.50            | 0.30                | 0.15               | 0.03            | 30.50           | 5.35                | 5.11               | 0.00            |
| 5.00            | 0.34                | 0.18               | 0.03            | 31.00           | 5.35                | 5.11               | 0.00            |
| 5.50            | 0.38                | 0.21               | 0.03            | 31.50           | 5.35                | 5.11               | 0.00            |
| 6.00            | 0.42                | 0.25               | 0.03            | 32.00           | 5.35                | 5.11               | 0.00            |
| 6.50            | 0.47                | 0.29               | 0.04            | 32.50           | 5.35                | 5.11               | 0.00            |
| 7.00            | 0.52                | 0.34               | 0.04            | 33.00           | 5.35                | 5.11               | 0.00            |
| 7.50            | 0.58                | 0.39               | 0.05            | 33.50           | 5.35                | 5.11               | 0.00            |
| 8.00            | 0.64                | 0.45               | 0.05            | 34.00           | 5.35                | 5.11               | 0.00            |
| 8.50            | 0.71                | 0.51               | 0.06            | 34.50           | 5.35                | 5.11               | 0.00            |
| 9.00            | 0.78                | 0.58               | 0.07            | 35.00           | 5.35                | 5.11               | 0.00            |
| 9.50            | 0.87                | 0.66               | 0.08            | 35.50           | 5.35                | 5.11               | 0.00            |
| 10.00           | 0.98                | 0.77               | 0.10            | 36.00           | 5.35                | 5.11               | 0.00            |
| 10.50           | 1.10                | 0.89               | 0.12            |                 |                     |                    |                 |
| 11.00           | 1.28                | 1.07               | 0.19            |                 |                     |                    |                 |
| 11.50           | 1.58                | 1.36               | 0.31            |                 |                     |                    |                 |
| 12.00           | 2.55                | 2.32               | 1.58            |                 |                     |                    |                 |
| 12.50           | 3.77                | 3.53               | 0.50            |                 |                     |                    |                 |
| 13.00           | 4.07                | 3.83               | 0.22            |                 |                     |                    |                 |
| 13.50           | 4.25                | 4.01               | 0.14            |                 |                     |                    |                 |
| 14.00           | 4.37                | 4.14               | 0.11            |                 |                     |                    |                 |
| 14.50           | 4.48                | 4.25               | 0.09            |                 |                     |                    |                 |
| 15.00           | 4.57                | 4.33               | 0.07            |                 |                     |                    |                 |
| 15.50           | 4.64                | 4.41               | 0.06            |                 |                     |                    |                 |
| 16.00           | 4.71                | 4.47               | 0.06            |                 |                     |                    |                 |
| 16.50           | 4.77                | 4.53               | 0.05            |                 |                     |                    |                 |
| 17.00           | 4.83                | 4.59               | 0.05            |                 |                     |                    |                 |
| 17.50           | 4.88                | 4.64               | 0.05            |                 |                     |                    |                 |
| 18.00           | 4.93                | 4.69               | 0.04            |                 |                     |                    |                 |
| 18.50           | 4.97                | 4.73               | 0.04            |                 |                     |                    |                 |
| 19.00           | 5.01                | 4.77               | 0.04            |                 |                     |                    |                 |
| 19.50           | 5.05                | 4.81               | 0.04            |                 |                     |                    |                 |
| 20.00           | 5.09                | 4.85               | 0.03            |                 |                     |                    |                 |
| 20.50           | 5.13                | 4.89               | 0.03            |                 |                     |                    |                 |
| 21.00           | 5.16                | 4.92               | 0.03            |                 |                     |                    |                 |
| 21.50           | 5.20                | 4.96               | 0.03            |                 |                     |                    |                 |
| 22.00           | 5.23                | 4.99               | 0.03            |                 |                     |                    |                 |
| 22.50           | 5.26                | 5.02               | 0.03            |                 |                     |                    |                 |
| 23.00           | 5.29                | 5.05               | 0.03            |                 |                     |                    |                 |
| 23.50           | 5.32                | 5.08               | 0.03            |                 |                     |                    |                 |
| 24.00           | 5.35                | 5.11               | 0.03            |                 |                     |                    |                 |
| 24.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 62S: GI-12 Impervious

Runoff = 6.88 cfs @ 12.09 hrs, Volume= 20,371 cf, Depth= 5.11"  
Routed to Pond 60P : GI-12

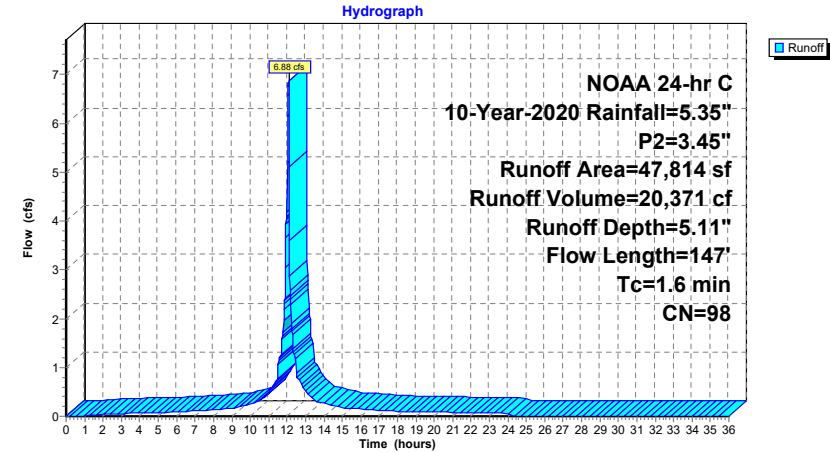
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 47,814    | 98 | Paved parking, HSG A    |
| 47,814    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 1.1      | 85            | 0.0160        | 1.26              |                | Sheet Flow, SEG 1R<br>Smooth surfaces n= 0.011 P2= 3.45"            |
| 0.2      | 30            | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2      | 21            | 0.0100        | 2.03              |                | Shallow Concentrated Flow, SEG 3<br>Paved Kv= 20.3 fps              |
| 0.1      | 11            | 0.1360        | 2.58              |                | Shallow Concentrated Flow, SEG 4<br>Short Grass Pasture Kv= 7.0 fps |
| 1.6      | 147           | Total         |                   |                |                                                                     |



Subcatchment 62S: GI-12 Impervious



**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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**Hydrograph for Subcatchment 62S: GI-12 Impervious**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 5.11               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 5.11               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.01            | 27.00           | 5.35                | 5.11               | 0.00            |
| 1.50            | 0.09                | 0.01               | 0.02            | 27.50           | 5.35                | 5.11               | 0.00            |
| 2.00            | 0.12                | 0.02               | 0.03            | 28.00           | 5.35                | 5.11               | 0.00            |
| 2.50            | 0.15                | 0.04               | 0.04            | 28.50           | 5.35                | 5.11               | 0.00            |
| 3.00            | 0.19                | 0.06               | 0.05            | 29.00           | 5.35                | 5.11               | 0.00            |
| 3.50            | 0.22                | 0.09               | 0.06            | 29.50           | 5.35                | 5.11               | 0.00            |
| 4.00            | 0.26                | 0.11               | 0.06            | 30.00           | 5.35                | 5.11               | 0.00            |
| 4.50            | 0.30                | 0.15               | 0.07            | 30.50           | 5.35                | 5.11               | 0.00            |
| 5.00            | 0.34                | 0.18               | 0.07            | 31.00           | 5.35                | 5.11               | 0.00            |
| 5.50            | 0.38                | 0.21               | 0.08            | 31.50           | 5.35                | 5.11               | 0.00            |
| 6.00            | 0.42                | 0.25               | 0.08            | 32.00           | 5.35                | 5.11               | 0.00            |
| 6.50            | 0.47                | 0.29               | 0.10            | 32.50           | 5.35                | 5.11               | 0.00            |
| 7.00            | 0.52                | 0.34               | 0.11            | 33.00           | 5.35                | 5.11               | 0.00            |
| 7.50            | 0.58                | 0.39               | 0.12            | 33.50           | 5.35                | 5.11               | 0.00            |
| 8.00            | 0.64                | 0.45               | 0.13            | 34.00           | 5.35                | 5.11               | 0.00            |
| 8.50            | 0.71                | 0.51               | 0.15            | 34.50           | 5.35                | 5.11               | 0.00            |
| 9.00            | 0.78                | 0.58               | 0.16            | 35.00           | 5.35                | 5.11               | 0.00            |
| 9.50            | 0.87                | 0.66               | 0.20            | 35.50           | 5.35                | 5.11               | 0.00            |
| 10.00           | 0.98                | 0.77               | 0.25            | 36.00           | 5.35                | 5.11               | 0.00            |
| 10.50           | 1.10                | 0.89               | 0.29            |                 |                     |                    |                 |
| 11.00           | 1.28                | 1.07               | 0.46            |                 |                     |                    |                 |
| 11.50           | 1.58                | 1.36               | 0.76            |                 |                     |                    |                 |
| 12.00           | 2.55                | 2.32               | <b>4.12</b>     |                 |                     |                    |                 |
| 12.50           | 3.77                | 3.53               | <b>1.19</b>     |                 |                     |                    |                 |
| 13.00           | 4.07                | 3.83               | 0.53            |                 |                     |                    |                 |
| 13.50           | 4.25                | 4.01               | 0.33            |                 |                     |                    |                 |
| 14.00           | 4.37                | 4.14               | 0.26            |                 |                     |                    |                 |
| 14.50           | 4.48                | 4.25               | 0.22            |                 |                     |                    |                 |
| 15.00           | 4.57                | 4.33               | 0.17            |                 |                     |                    |                 |
| 15.50           | 4.64                | 4.41               | 0.16            |                 |                     |                    |                 |
| 16.00           | 4.71                | 4.47               | 0.14            |                 |                     |                    |                 |
| 16.50           | 4.77                | 4.53               | 0.13            |                 |                     |                    |                 |
| 17.00           | 4.83                | 4.59               | 0.12            |                 |                     |                    |                 |
| 17.50           | 4.88                | 4.64               | 0.11            |                 |                     |                    |                 |
| 18.00           | 4.93                | 4.69               | 0.10            |                 |                     |                    |                 |
| 18.50           | 4.97                | 4.73               | 0.09            |                 |                     |                    |                 |
| 19.00           | 5.01                | 4.77               | 0.09            |                 |                     |                    |                 |
| 19.50           | 5.05                | 4.81               | 0.09            |                 |                     |                    |                 |
| 20.00           | 5.09                | 4.85               | 0.08            |                 |                     |                    |                 |
| 20.50           | 5.13                | 4.89               | 0.08            |                 |                     |                    |                 |
| 21.00           | 5.16                | 4.92               | 0.08            |                 |                     |                    |                 |
| 21.50           | 5.20                | 4.96               | 0.08            |                 |                     |                    |                 |
| 22.00           | 5.23                | 4.99               | 0.07            |                 |                     |                    |                 |
| 22.50           | 5.26                | 5.02               | 0.07            |                 |                     |                    |                 |
| 23.00           | 5.29                | 5.05               | 0.07            |                 |                     |                    |                 |
| 23.50           | 5.32                | 5.08               | 0.06            |                 |                     |                    |                 |
| 24.00           | <b>5.35</b>         | <b>5.11</b>        | 0.08            |                 |                     |                    |                 |
| 24.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Summary for Subcatchment 63S: GI-13 Pervious**

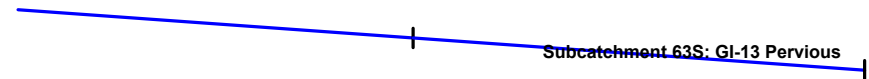
Runoff = 0.06 cfs @ 12.34 hrs, Volume= 582 cf, Depth= 0.41"  
Routed to Pond 8P : GI-13

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

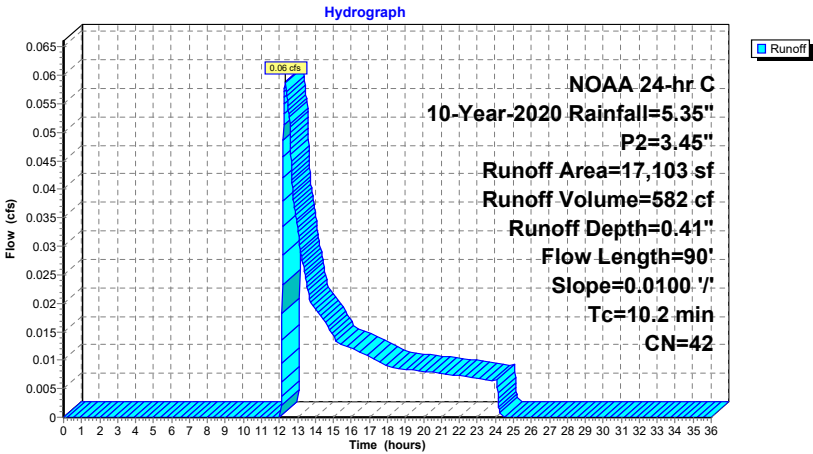
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 14,703    | 39 | >75% Grass cover, Good, HSG A |
| 2,400     | 61 | >75% Grass cover, Good, HSG B |
| 17,103    | 42 | Weighted Average              |
| 17,103    |    | 100.00% Pervious Area         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                              |
|-------------|------------------|------------------|----------------------|-------------------|------------------------------------------------------------------------------------------|
| 9.1         | 42               | 0.0100           | 0.08                 |                   | <b>Sheet Flow,</b><br>Grass: Dense n= 0.240 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 1.1         | 48               | 0.0100           | 0.70                 |                   | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                     |
| 10.2        | 90               |                  |                      |                   | Total                                                                                    |



Subcatchment 63S: GI-13 Pervious



Hydrograph for Subcatchment 63S: GI-13 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 0.41               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 0.41               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 0.41               | 0.00            |
| 1.50            | 0.09                | 0.00               | 0.00            | 27.50           | 5.35                | 0.41               | 0.00            |
| 2.00            | 0.12                | 0.00               | 0.00            | 28.00           | 5.35                | 0.41               | 0.00            |
| 2.50            | 0.15                | 0.00               | 0.00            | 28.50           | 5.35                | 0.41               | 0.00            |
| 3.00            | 0.19                | 0.00               | 0.00            | 29.00           | 5.35                | 0.41               | 0.00            |
| 3.50            | 0.22                | 0.00               | 0.00            | 29.50           | 5.35                | 0.41               | 0.00            |
| 4.00            | 0.26                | 0.00               | 0.00            | 30.00           | 5.35                | 0.41               | 0.00            |
| 4.50            | 0.30                | 0.00               | 0.00            | 30.50           | 5.35                | 0.41               | 0.00            |
| 5.00            | 0.34                | 0.00               | 0.00            | 31.00           | 5.35                | 0.41               | 0.00            |
| 5.50            | 0.38                | 0.00               | 0.00            | 31.50           | 5.35                | 0.41               | 0.00            |
| 6.00            | 0.42                | 0.00               | 0.00            | 32.00           | 5.35                | 0.41               | 0.00            |
| 6.50            | 0.47                | 0.00               | 0.00            | 32.50           | 5.35                | 0.41               | 0.00            |
| 7.00            | 0.52                | 0.00               | 0.00            | 33.00           | 5.35                | 0.41               | 0.00            |
| 7.50            | 0.58                | 0.00               | 0.00            | 33.50           | 5.35                | 0.41               | 0.00            |
| 8.00            | 0.64                | 0.00               | 0.00            | 34.00           | 5.35                | 0.41               | 0.00            |
| 8.50            | 0.71                | 0.00               | 0.00            | 34.50           | 5.35                | 0.41               | 0.00            |
| 9.00            | 0.78                | 0.00               | 0.00            | 35.00           | 5.35                | 0.41               | 0.00            |
| 9.50            | 0.87                | 0.00               | 0.00            | 35.50           | 5.35                | 0.41               | 0.00            |
| 10.00           | 0.98                | 0.00               | 0.00            | 36.00           | 5.35                | 0.41               | 0.00            |
| 10.50           | 1.10                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.58                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.55                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 3.77                | 0.07               | 0.05            |                 |                     |                    |                 |
| 13.00           | 4.07                | 0.11               | 0.03            |                 |                     |                    |                 |
| 13.50           | 4.25                | 0.14               | 0.02            |                 |                     |                    |                 |
| 14.00           | 4.37                | 0.17               | 0.02            |                 |                     |                    |                 |
| 14.50           | 4.48                | 0.19               | 0.02            |                 |                     |                    |                 |
| 15.00           | 4.57                | 0.21               | 0.01            |                 |                     |                    |                 |
| 15.50           | 4.64                | 0.23               | 0.01            |                 |                     |                    |                 |
| 16.00           | 4.71                | 0.24               | 0.01            |                 |                     |                    |                 |
| 16.50           | 4.77                | 0.26               | 0.01            |                 |                     |                    |                 |
| 17.00           | 4.83                | 0.27               | 0.01            |                 |                     |                    |                 |
| 17.50           | 4.88                | 0.28               | 0.01            |                 |                     |                    |                 |
| 18.00           | 4.93                | 0.29               | 0.01            |                 |                     |                    |                 |
| 18.50           | 4.97                | 0.30               | 0.01            |                 |                     |                    |                 |
| 19.00           | 5.01                | 0.31               | 0.01            |                 |                     |                    |                 |
| 19.50           | 5.05                | 0.33               | 0.01            |                 |                     |                    |                 |
| 20.00           | 5.09                | 0.34               | 0.01            |                 |                     |                    |                 |
| 20.50           | 5.13                | 0.35               | 0.01            |                 |                     |                    |                 |
| 21.00           | 5.16                | 0.36               | 0.01            |                 |                     |                    |                 |
| 21.50           | 5.20                | 0.36               | 0.01            |                 |                     |                    |                 |
| 22.00           | 5.23                | 0.37               | 0.01            |                 |                     |                    |                 |
| 22.50           | 5.26                | 0.38               | 0.01            |                 |                     |                    |                 |
| 23.00           | 5.29                | 0.39               | 0.01            |                 |                     |                    |                 |
| 23.50           | 5.32                | 0.40               | 0.01            |                 |                     |                    |                 |
| 24.00           | 5.35                | 0.41               | 0.01            |                 |                     |                    |                 |
| 24.50           | 5.35                | 0.41               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 0.41               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 0.41               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 64S: Wetland Pervious

Runoff = 0.01 cfs @ 16.48 hrs, Volume= 486 cf, Depth= 0.08"  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

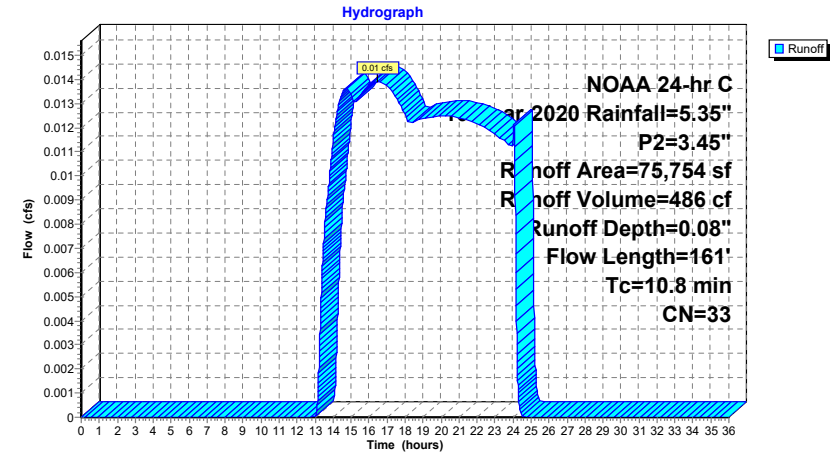
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 24,790    | 39 | >75% Grass cover, Good, HSG A |
| 50,964    | 30 | Woods, Good, HSG A            |
| 75,754    | 33 | Weighted Average              |
| 75,754    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                  |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------|
| 9.1      | 39            | 0.0240        | 0.07              |                | Sheet Flow,<br>Woods: Light underbrush n= 0.400 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 1.7      | 122           | 0.0570        | 1.19              |                | Shallow Concentrated Flow,<br>Woodland Kv= 5.0 fps                                           |
| 10.8     | 161           |               |                   |                | Total                                                                                        |



Subcatchment 64S: Wetland Pervious



**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Hydrograph for Subcatchment 64S: Wetland Pervious**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 0.08               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 0.08               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 0.08               | 0.00            |
| 1.50            | 0.09                | 0.00               | 0.00            | 27.50           | 5.35                | 0.08               | 0.00            |
| 2.00            | 0.12                | 0.00               | 0.00            | 28.00           | 5.35                | 0.08               | 0.00            |
| 2.50            | 0.15                | 0.00               | 0.00            | 28.50           | 5.35                | 0.08               | 0.00            |
| 3.00            | 0.19                | 0.00               | 0.00            | 29.00           | 5.35                | 0.08               | 0.00            |
| 3.50            | 0.22                | 0.00               | 0.00            | 29.50           | 5.35                | 0.08               | 0.00            |
| 4.00            | 0.26                | 0.00               | 0.00            | 30.00           | 5.35                | 0.08               | 0.00            |
| 4.50            | 0.30                | 0.00               | 0.00            | 30.50           | 5.35                | 0.08               | 0.00            |
| 5.00            | 0.34                | 0.00               | 0.00            | 31.00           | 5.35                | 0.08               | 0.00            |
| 5.50            | 0.38                | 0.00               | 0.00            | 31.50           | 5.35                | 0.08               | 0.00            |
| 6.00            | 0.42                | 0.00               | 0.00            | 32.00           | 5.35                | 0.08               | 0.00            |
| 6.50            | 0.47                | 0.00               | 0.00            | 32.50           | 5.35                | 0.08               | 0.00            |
| 7.00            | 0.52                | 0.00               | 0.00            | 33.00           | 5.35                | 0.08               | 0.00            |
| 7.50            | 0.58                | 0.00               | 0.00            | 33.50           | 5.35                | 0.08               | 0.00            |
| 8.00            | 0.64                | 0.00               | 0.00            | 34.00           | 5.35                | 0.08               | 0.00            |
| 8.50            | 0.71                | 0.00               | 0.00            | 34.50           | 5.35                | 0.08               | 0.00            |
| 9.00            | 0.78                | 0.00               | 0.00            | 35.00           | 5.35                | 0.08               | 0.00            |
| 9.50            | 0.87                | 0.00               | 0.00            | 35.50           | 5.35                | 0.08               | 0.00            |
| 10.00           | 0.98                | 0.00               | 0.00            | 36.00           | 5.35                | 0.08               | 0.00            |
| 10.50           | 1.10                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.58                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.55                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 3.77                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 4.07                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 4.25                | 0.00               | 0.01            |                 |                     |                    |                 |
| 14.00           | 4.37                | 0.00               | 0.01            |                 |                     |                    |                 |
| 14.50           | 4.48                | 0.01               | 0.01            |                 |                     |                    |                 |
| 15.00           | 4.57                | 0.01               | 0.01            |                 |                     |                    |                 |
| 15.50           | 4.64                | 0.02               | 0.01            |                 |                     |                    |                 |
| 16.00           | 4.71                | 0.02               | 0.01            |                 |                     |                    |                 |
| 16.50           | 4.77                | 0.02               | 0.01            |                 |                     |                    |                 |
| 17.00           | 4.83                | 0.03               | 0.01            |                 |                     |                    |                 |
| 17.50           | 4.88                | 0.03               | 0.01            |                 |                     |                    |                 |
| 18.00           | 4.93                | 0.04               | 0.01            |                 |                     |                    |                 |
| 18.50           | 4.97                | 0.04               | 0.01            |                 |                     |                    |                 |
| 19.00           | 5.01                | 0.04               | 0.01            |                 |                     |                    |                 |
| 19.50           | 5.05                | 0.05               | 0.01            |                 |                     |                    |                 |
| 20.00           | 5.09                | 0.05               | 0.01            |                 |                     |                    |                 |
| 20.50           | 5.13                | 0.05               | 0.01            |                 |                     |                    |                 |
| 21.00           | 5.16                | 0.06               | 0.01            |                 |                     |                    |                 |
| 21.50           | 5.20                | 0.06               | 0.01            |                 |                     |                    |                 |
| 22.00           | 5.23                | 0.06               | 0.01            |                 |                     |                    |                 |
| 22.50           | 5.26                | 0.07               | 0.01            |                 |                     |                    |                 |
| 23.00           | 5.29                | 0.07               | 0.01            |                 |                     |                    |                 |
| 23.50           | 5.32                | 0.07               | 0.01            |                 |                     |                    |                 |
| 24.00           | 5.35                | 0.08               | 0.01            |                 |                     |                    |                 |
| 24.50           | 5.35                | 0.08               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 0.08               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 0.08               | 0.00            |                 |                     |                    |                 |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Summary for Subcatchment 67S: Wetland Impervious**

Runoff = 1.71 cfs @ 12.09 hrs, Volume= 5,056 cf, Depth= 5.11"  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

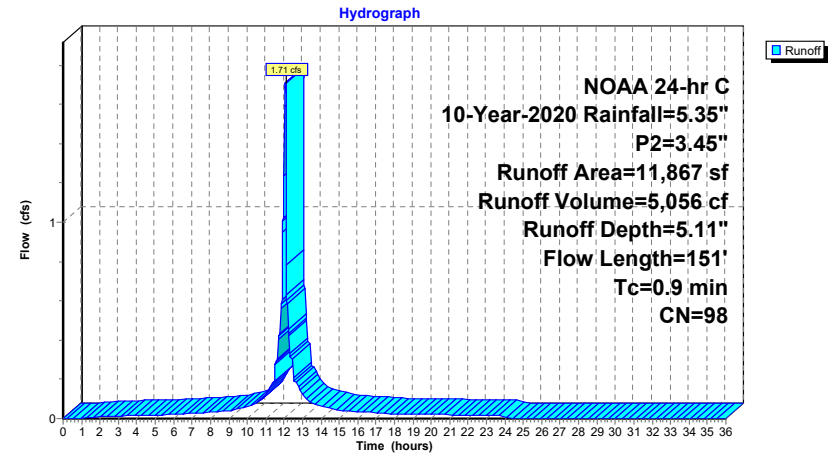
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 11,867    | 98 | Paved parking, HSG A    |
| 11,867    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                 |
|----------|---------------|---------------|-------------------|----------------|-------------------------------------------------------------|
| 0.5      | 36            | 0.0200        | 1.16              |                | Sheet Flow,<br>Smooth surfaces n= 0.011 P2= 3.45"           |
| 0.4      | 115           | 0.1250        | 5.30              |                | Shallow Concentrated Flow,<br>Grassed Waterway Kv= 15.0 fps |
| 0.9      | 151           | Total         |                   |                |                                                             |

Subcatchment 67S: Wetland Impervious

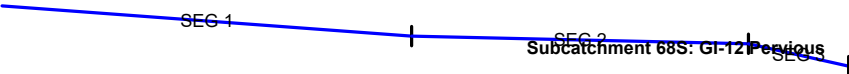
**Subcatchment 67S: Wetland Impervious**

Hydrograph for Subcatchment 67S: Wetland Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 5.11               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 5.11               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 5.11               | 0.00            |
| 1.50            | 0.09                | 0.01               | 0.01            | 27.50           | 5.35                | 5.11               | 0.00            |
| 2.00            | 0.12                | 0.02               | 0.01            | 28.00           | 5.35                | 5.11               | 0.00            |
| 2.50            | 0.15                | 0.04               | 0.01            | 28.50           | 5.35                | 5.11               | 0.00            |
| 3.00            | 0.19                | 0.06               | 0.01            | 29.00           | 5.35                | 5.11               | 0.00            |
| 3.50            | 0.22                | 0.09               | 0.01            | 29.50           | 5.35                | 5.11               | 0.00            |
| 4.00            | 0.26                | 0.11               | 0.02            | 30.00           | 5.35                | 5.11               | 0.00            |
| 4.50            | 0.30                | 0.15               | 0.02            | 30.50           | 5.35                | 5.11               | 0.00            |
| 5.00            | 0.34                | 0.18               | 0.02            | 31.00           | 5.35                | 5.11               | 0.00            |
| 5.50            | 0.38                | 0.21               | 0.02            | 31.50           | 5.35                | 5.11               | 0.00            |
| 6.00            | 0.42                | 0.25               | 0.02            | 32.00           | 5.35                | 5.11               | 0.00            |
| 6.50            | 0.47                | 0.29               | 0.02            | 32.50           | 5.35                | 5.11               | 0.00            |
| 7.00            | 0.52                | 0.34               | 0.03            | 33.00           | 5.35                | 5.11               | 0.00            |
| 7.50            | 0.58                | 0.39               | 0.03            | 33.50           | 5.35                | 5.11               | 0.00            |
| 8.00            | 0.64                | 0.45               | 0.03            | 34.00           | 5.35                | 5.11               | 0.00            |
| 8.50            | 0.71                | 0.51               | 0.04            | 34.50           | 5.35                | 5.11               | 0.00            |
| 9.00            | 0.78                | 0.58               | 0.04            | 35.00           | 5.35                | 5.11               | 0.00            |
| 9.50            | 0.87                | 0.66               | 0.05            | 35.50           | 5.35                | 5.11               | 0.00            |
| 10.00           | 0.98                | 0.77               | 0.06            | 36.00           | 5.35                | 5.11               | 0.00            |
| 10.50           | 1.10                | 0.89               | 0.07            |                 |                     |                    |                 |
| 11.00           | 1.28                | 1.07               | 0.11            |                 |                     |                    |                 |
| 11.50           | 1.58                | 1.36               | 0.19            |                 |                     |                    |                 |
| 12.00           | 2.55                | 2.32               | 1.02            |                 |                     |                    |                 |
| 12.50           | 3.77                | 3.53               | 0.30            |                 |                     |                    |                 |
| 13.00           | 4.07                | 3.83               | 0.13            |                 |                     |                    |                 |
| 13.50           | 4.25                | 4.01               | 0.08            |                 |                     |                    |                 |
| 14.00           | 4.37                | 4.14               | 0.07            |                 |                     |                    |                 |
| 14.50           | 4.48                | 4.25               | 0.05            |                 |                     |                    |                 |
| 15.00           | 4.57                | 4.33               | 0.04            |                 |                     |                    |                 |
| 15.50           | 4.64                | 4.41               | 0.04            |                 |                     |                    |                 |
| 16.00           | 4.71                | 4.47               | 0.04            |                 |                     |                    |                 |
| 16.50           | 4.77                | 4.53               | 0.03            |                 |                     |                    |                 |
| 17.00           | 4.83                | 4.59               | 0.03            |                 |                     |                    |                 |
| 17.50           | 4.88                | 4.64               | 0.03            |                 |                     |                    |                 |
| 18.00           | 4.93                | 4.69               | 0.02            |                 |                     |                    |                 |
| 18.50           | 4.97                | 4.73               | 0.02            |                 |                     |                    |                 |
| 19.00           | 5.01                | 4.77               | 0.02            |                 |                     |                    |                 |
| 19.50           | 5.05                | 4.81               | 0.02            |                 |                     |                    |                 |
| 20.00           | 5.09                | 4.85               | 0.02            |                 |                     |                    |                 |
| 20.50           | 5.13                | 4.89               | 0.02            |                 |                     |                    |                 |
| 21.00           | 5.16                | 4.92               | 0.02            |                 |                     |                    |                 |
| 21.50           | 5.20                | 4.96               | 0.02            |                 |                     |                    |                 |
| 22.00           | 5.23                | 4.99               | 0.02            |                 |                     |                    |                 |
| 22.50           | 5.26                | 5.02               | 0.02            |                 |                     |                    |                 |
| 23.00           | 5.29                | 5.05               | 0.02            |                 |                     |                    |                 |
| 23.50           | 5.32                | 5.08               | 0.02            |                 |                     |                    |                 |
| 24.00           | 5.35                | 5.11               | 0.02            |                 |                     |                    |                 |
| 24.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |

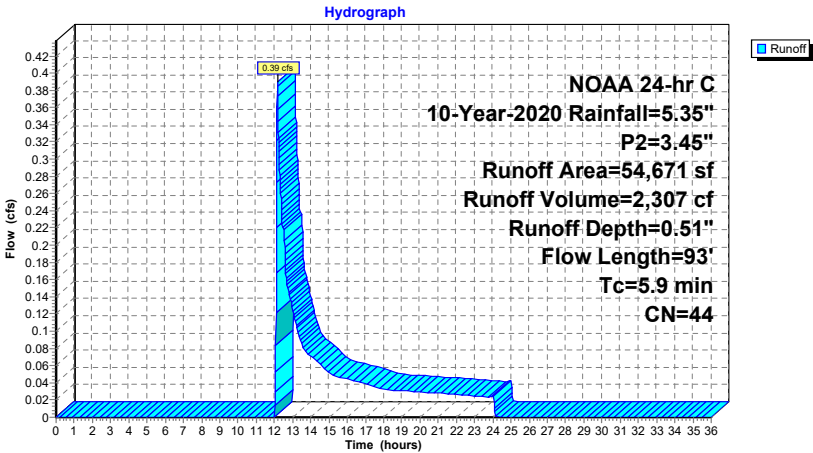
Summary for Subcatchment 68S: GI-12 Pervious

| Runoff = 0.39 cfs @ 12.16 hrs, Volume= 2,307 cf, Depth= 0.51"                                                                                  |               |                               |                   |                |                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------------|-------------------|----------------|----------------------------------------------------------------------------|
| Routed to Pond 60P : GI-12                                                                                                                     |               |                               |                   |                |                                                                            |
| Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs<br>NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45" |               |                               |                   |                |                                                                            |
| Area (sf)                                                                                                                                      | CN            | Description                   |                   |                |                                                                            |
| 42,609                                                                                                                                         | 39            | >75% Grass cover, Good, HSG A |                   |                |                                                                            |
| 12,062                                                                                                                                         | 61            | >75% Grass cover, Good, HSG B |                   |                |                                                                            |
| 54,671                                                                                                                                         | 44            | Weighted Average              |                   |                |                                                                            |
| 54,671                                                                                                                                         |               | 100.00% Pervious Area         |                   |                |                                                                            |
| Tc (min)                                                                                                                                       | Length (feet) | Slope (ft/ft)                 | Velocity (ft/sec) | Capacity (cfs) | Description                                                                |
| 5.2                                                                                                                                            | 45            | 0.0450                        | 0.14              |                | <b>Sheet Flow, SEG 1</b><br>Grass: Dense n= 0.240 P2= 3.45"                |
| 0.6                                                                                                                                            | 37            | 0.0140                        | 1.02              |                | <b>Sheet Flow, SEG 2</b><br>Smooth surfaces n= 0.011 P2= 3.45"             |
| 0.1                                                                                                                                            | 11            | 0.1360                        | 2.58              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Short Grass Pasture Kv= 7.0 fps |
| 5.9                                                                                                                                            | 93            | Total                         |                   |                |                                                                            |





Subcatchment 68S: GI-12 Pervious



Hydrograph for Subcatchment 68S: GI-12 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 0.51               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 0.51               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 0.51               | 0.00            |
| 1.50            | 0.09                | 0.00               | 0.00            | 27.50           | 5.35                | 0.51               | 0.00            |
| 2.00            | 0.12                | 0.00               | 0.00            | 28.00           | 5.35                | 0.51               | 0.00            |
| 2.50            | 0.15                | 0.00               | 0.00            | 28.50           | 5.35                | 0.51               | 0.00            |
| 3.00            | 0.19                | 0.00               | 0.00            | 29.00           | 5.35                | 0.51               | 0.00            |
| 3.50            | 0.22                | 0.00               | 0.00            | 29.50           | 5.35                | 0.51               | 0.00            |
| 4.00            | 0.26                | 0.00               | 0.00            | 30.00           | 5.35                | 0.51               | 0.00            |
| 4.50            | 0.30                | 0.00               | 0.00            | 30.50           | 5.35                | 0.51               | 0.00            |
| 5.00            | 0.34                | 0.00               | 0.00            | 31.00           | 5.35                | 0.51               | 0.00            |
| 5.50            | 0.38                | 0.00               | 0.00            | 31.50           | 5.35                | 0.51               | 0.00            |
| 6.00            | 0.42                | 0.00               | 0.00            | 32.00           | 5.35                | 0.51               | 0.00            |
| 6.50            | 0.47                | 0.00               | 0.00            | 32.50           | 5.35                | 0.51               | 0.00            |
| 7.00            | 0.52                | 0.00               | 0.00            | 33.00           | 5.35                | 0.51               | 0.00            |
| 7.50            | 0.58                | 0.00               | 0.00            | 33.50           | 5.35                | 0.51               | 0.00            |
| 8.00            | 0.64                | 0.00               | 0.00            | 34.00           | 5.35                | 0.51               | 0.00            |
| 8.50            | 0.71                | 0.00               | 0.00            | 34.50           | 5.35                | 0.51               | 0.00            |
| 9.00            | 0.78                | 0.00               | 0.00            | 35.00           | 5.35                | 0.51               | 0.00            |
| 9.50            | 0.87                | 0.00               | 0.00            | 35.50           | 5.35                | 0.51               | 0.00            |
| 10.00           | 0.98                | 0.00               | 0.00            | 36.00           | 5.35                | 0.51               | 0.00            |
| 10.50           | 1.10                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.58                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.55                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 3.77                | 0.11               | 0.22            |                 |                     |                    |                 |
| 13.00           | 4.07                | 0.16               | 0.13            |                 |                     |                    |                 |
| 13.50           | 4.25                | 0.20               | 0.09            |                 |                     |                    |                 |
| 14.00           | 4.37                | 0.23               | 0.07            |                 |                     |                    |                 |
| 14.50           | 4.48                | 0.26               | 0.06            |                 |                     |                    |                 |
| 15.00           | 4.57                | 0.28               | 0.05            |                 |                     |                    |                 |
| 15.50           | 4.64                | 0.30               | 0.05            |                 |                     |                    |                 |
| 16.00           | 4.71                | 0.31               | 0.04            |                 |                     |                    |                 |
| 16.50           | 4.77                | 0.33               | 0.04            |                 |                     |                    |                 |
| 17.00           | 4.83                | 0.35               | 0.04            |                 |                     |                    |                 |
| 17.50           | 4.88                | 0.36               | 0.04            |                 |                     |                    |                 |
| 18.00           | 4.93                | 0.38               | 0.03            |                 |                     |                    |                 |
| 18.50           | 4.97                | 0.39               | 0.03            |                 |                     |                    |                 |
| 19.00           | 5.01                | 0.40               | 0.03            |                 |                     |                    |                 |
| 19.50           | 5.05                | 0.41               | 0.03            |                 |                     |                    |                 |
| 20.00           | 5.09                | 0.42               | 0.03            |                 |                     |                    |                 |
| 20.50           | 5.13                | 0.43               | 0.03            |                 |                     |                    |                 |
| 21.00           | 5.16                | 0.45               | 0.03            |                 |                     |                    |                 |
| 21.50           | 5.20                | 0.46               | 0.03            |                 |                     |                    |                 |
| 22.00           | 5.23                | 0.47               | 0.03            |                 |                     |                    |                 |
| 22.50           | 5.26                | 0.48               | 0.03            |                 |                     |                    |                 |
| 23.00           | 5.29                | 0.49               | 0.02            |                 |                     |                    |                 |
| 23.50           | 5.32                | 0.50               | 0.02            |                 |                     |                    |                 |
| 24.00           | 5.35                | 0.51               | 0.03            |                 |                     |                    |                 |
| 24.50           | 5.35                | 0.51               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 0.51               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 0.51               | 0.00            |                 |                     |                    |                 |

Summary for Pond 8P: GI-13

Inflow Area = 119,588 sf, 39.98% Impervious, Inflow Depth = 0.06" for 10-Year-2020 event  
Inflow = 0.06 cfs @ 12.34 hrs, Volume= 582 cf  
Outflow = 0.05 cfs @ 12.63 hrs, Volume= 582 cf, Atten= 21%, Lag= 17.5 min  
Discarded = 0.05 cfs @ 12.63 hrs, Volume= 582 cf  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 126.00' @ 12.63 hrs Surf.Area= 4,031 sf Storage= 12 cf

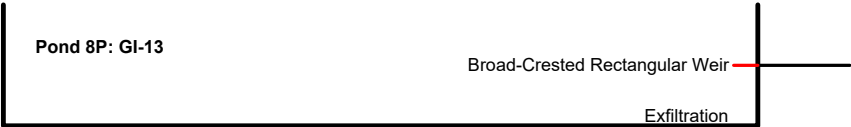
Plug-Flow detention time= (not calculated: outflow precedes inflow)  
Center-of-Mass det. time= 0.6 min ( 968.5 - 967.9 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 126.00' | 23,208 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

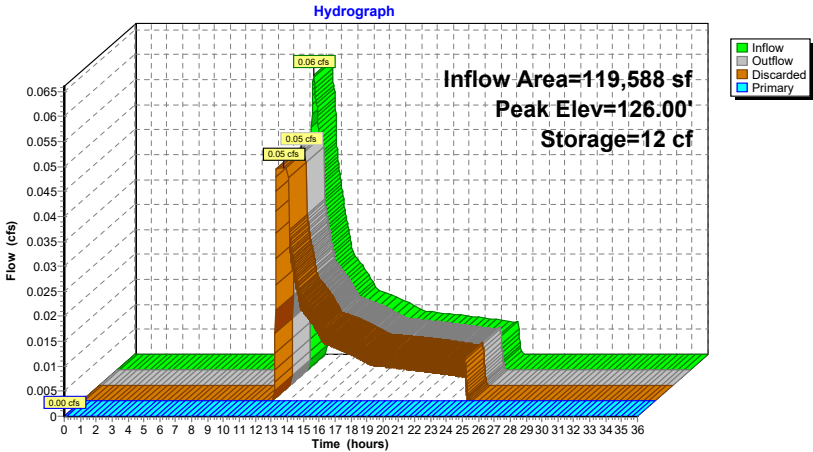
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 126.00           | 4,028             | 0                      | 0                      |
| 130.00           | 7,576             | 23,208                 | 23,208                 |

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                                                                                                                          |
|--------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary   | 128.00' | 5.0' long + 3.0 ' SideZ x 6.0' breadth Broad-Crested Rectangular Weir<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00<br>2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65<br>2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83 |
| #2     | Discarded | 126.00' | 0.500 in/hr Exfiltration over Surface area<br>Conductivity to Groundwater Elevation = 1.00'                                                                                                                                                                                             |

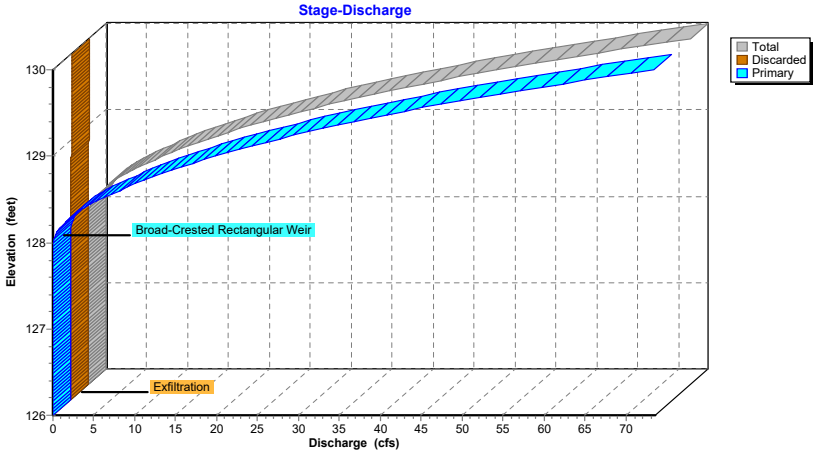
Discarded OutFlow Max=0.05 cfs @ 12.63 hrs HW=126.00' (Free Discharge)  
↳2=Exfiltration ( Controls 0.05 cfs)  
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=126.00' TW=123.25' (Dynamic Tailwater)  
↳1=Broad-Crested Rectangular Weir( Controls 0.00 cfs)

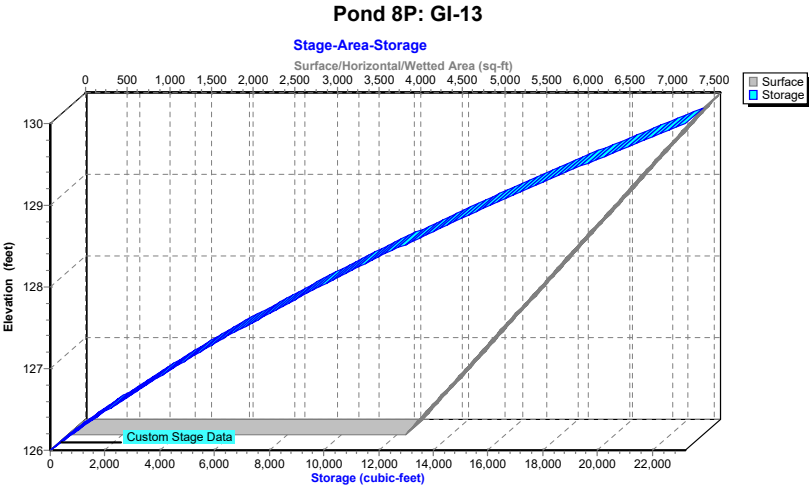


Pond 8P: GI-13



Pond 8P: GI-13





Hydrograph for Pond 8P: GI-13

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Outflow (cfs) | Discarded (cfs) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|-----------------|---------------|
| 0.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 1.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 2.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 3.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 4.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 5.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 6.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 7.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 8.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 9.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 10.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 11.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 12.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 13.00        | 0.03         | 1                    | 126.00           | 0.05          | 0.05            | 0.00          |
| 14.00        | 0.02         | 0                    | 126.00           | 0.02          | 0.02            | 0.00          |
| 15.00        | 0.01         | 0                    | 126.00           | 0.02          | 0.02            | 0.00          |
| 16.00        | 0.01         | 0                    | 126.00           | 0.01          | 0.01            | 0.00          |
| 17.00        | 0.01         | 0                    | 126.00           | 0.01          | 0.01            | 0.00          |
| 18.00        | 0.01         | 0                    | 126.00           | 0.01          | 0.01            | 0.00          |
| 19.00        | 0.01         | 0                    | 126.00           | 0.01          | 0.01            | 0.00          |
| 20.00        | 0.01         | 0                    | 126.00           | 0.01          | 0.01            | 0.00          |
| 21.00        | 0.01         | 0                    | 126.00           | 0.01          | 0.01            | 0.00          |
| 22.00        | 0.01         | 0                    | 126.00           | 0.01          | 0.01            | 0.00          |
| 23.00        | 0.01         | 0                    | 126.00           | 0.01          | 0.01            | 0.00          |
| 24.00        | 0.01         | 0                    | 126.00           | 0.01          | 0.01            | 0.00          |
| 25.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 26.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 27.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 28.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 29.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 30.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 31.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 32.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 33.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 34.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 35.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 36.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 8P: GI-13**

| Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) |
|---------------------|--------------------|--------------------|------------------|---------------------|--------------------|--------------------|------------------|
| 126.00              | 0.00               | 0.00               | 0.00             | 128.60              | 8.16               | 0.07               | 8.08             |
| 126.05              | 0.05               | 0.05               | 0.00             | 128.65              | 9.34               | 0.08               | 9.26             |
| 126.10              | 0.05               | 0.05               | 0.00             | 128.70              | 10.60              | 0.08               | 10.52            |
| 126.15              | 0.05               | 0.05               | 0.00             | 128.75              | 11.94              | 0.08               | 11.86            |
| 126.20              | 0.05               | 0.05               | 0.00             | 128.80              | 13.35              | 0.08               | 13.27            |
| 126.25              | 0.05               | 0.05               | 0.00             | 128.85              | 14.86              | 0.08               | 14.79            |
| 126.30              | 0.05               | 0.05               | 0.00             | 128.90              | 16.46              | 0.08               | 16.38            |
| 126.35              | 0.05               | 0.05               | 0.00             | 128.95              | 18.14              | 0.08               | 18.07            |
| 126.40              | 0.05               | 0.05               | 0.00             | 129.00              | 19.91              | 0.08               | 19.83            |
| 126.45              | 0.05               | 0.05               | 0.00             | 129.05              | 21.74              | 0.08               | 21.66            |
| 126.50              | 0.05               | 0.05               | 0.00             | 129.10              | 23.66              | 0.08               | 23.58            |
| 126.55              | 0.05               | 0.05               | 0.00             | 129.15              | 25.66              | 0.08               | 25.58            |
| 126.60              | 0.05               | 0.05               | 0.00             | 129.20              | 27.74              | 0.08               | 27.66            |
| 126.65              | 0.05               | 0.05               | 0.00             | 129.25              | 29.88              | 0.08               | 29.80            |
| 126.70              | 0.05               | 0.05               | 0.00             | 129.30              | 32.10              | 0.08               | 32.01            |
| 126.75              | 0.05               | 0.05               | 0.00             | 129.35              | 34.40              | 0.08               | 34.32            |
| 126.80              | 0.06               | 0.06               | 0.00             | 129.40              | 36.78              | 0.08               | 36.70            |
| 126.85              | 0.06               | 0.06               | 0.00             | 129.45              | 39.32              | 0.08               | 39.24            |
| 126.90              | 0.06               | 0.06               | 0.00             | 129.50              | 41.95              | 0.08               | 41.87            |
| 126.95              | 0.06               | 0.06               | 0.00             | 129.55              | 44.68              | 0.08               | 44.59            |
| 127.00              | 0.06               | 0.06               | 0.00             | 129.60              | 47.50              | 0.09               | 47.41            |
| 127.05              | 0.06               | 0.06               | 0.00             | 129.65              | 50.41              | 0.09               | 50.32            |
| 127.10              | 0.06               | 0.06               | 0.00             | 129.70              | 53.42              | 0.09               | 53.33            |
| 127.15              | 0.06               | 0.06               | 0.00             | 129.75              | 56.53              | 0.09               | 56.44            |
| 127.20              | 0.06               | 0.06               | 0.00             | 129.80              | 59.73              | 0.09               | 59.64            |
| 127.25              | 0.06               | 0.06               | 0.00             | 129.85              | 63.04              | 0.09               | 62.95            |
| 127.30              | 0.06               | 0.06               | 0.00             | 129.90              | 66.44              | 0.09               | 66.35            |
| 127.35              | 0.06               | 0.06               | 0.00             | 129.95              | 69.94              | 0.09               | 69.85            |
| 127.40              | 0.06               | 0.06               | 0.00             | 130.00              | <b>73.54</b>       | <b>0.09</b>        | <b>73.45</b>     |
| 127.45              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.50              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.55              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.60              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.65              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.70              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.75              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.80              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.85              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.90              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.95              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 128.00              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 128.05              | 0.20               | 0.07               | 0.14             |                     |                    |                    |                  |
| 128.10              | 0.46               | 0.07               | 0.39             |                     |                    |                    |                  |
| 128.15              | 0.81               | 0.07               | 0.74             |                     |                    |                    |                  |
| 128.20              | 1.23               | 0.07               | 1.16             |                     |                    |                    |                  |
| 128.25              | 1.75               | 0.07               | 1.68             |                     |                    |                    |                  |
| 128.30              | 2.36               | 0.07               | 2.29             |                     |                    |                    |                  |
| 128.35              | 3.06               | 0.07               | 2.99             |                     |                    |                    |                  |
| 128.40              | 3.86               | 0.07               | 3.78             |                     |                    |                    |                  |
| 128.45              | 4.77               | 0.07               | 4.69             |                     |                    |                    |                  |
| 128.50              | 5.78               | 0.07               | 5.71             |                     |                    |                    |                  |
| 128.55              | 6.91               | 0.07               | 6.84             |                     |                    |                    |                  |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 8P: GI-13**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 126.00              | 4,028              | 0                       | 128.60              | 6,334              | 13,471                  |
| 126.05              | 4,072              | 203                     | 128.65              | 6,379              | 13,789                  |
| 126.10              | 4,117              | 407                     | 128.70              | 6,423              | 14,109                  |
| 126.15              | 4,161              | 614                     | 128.75              | 6,467              | 14,431                  |
| 126.20              | 4,205              | 823                     | 128.80              | 6,512              | 14,755                  |
| 126.25              | 4,250              | 1,035                   | 128.85              | 6,556              | 15,082                  |
| 126.30              | 4,294              | 1,248                   | 128.90              | 6,600              | 15,411                  |
| 126.35              | 4,338              | 1,464                   | 128.95              | 6,645              | 15,742                  |
| 126.40              | 4,383              | 1,682                   | 129.00              | 6,689              | 16,076                  |
| 126.45              | 4,427              | 1,902                   | 129.05              | 6,733              | 16,411                  |
| 126.50              | 4,472              | 2,125                   | 129.10              | 6,778              | 16,749                  |
| 126.55              | 4,516              | 2,350                   | 129.15              | 6,822              | 17,089                  |
| 126.60              | 4,560              | 2,576                   | 129.20              | 6,866              | 17,431                  |
| 126.65              | 4,605              | 2,806                   | 129.25              | 6,911              | 17,775                  |
| 126.70              | 4,649              | 3,037                   | 129.30              | 6,955              | 18,122                  |
| 126.75              | 4,693              | 3,270                   | 129.35              | 6,999              | 18,471                  |
| 126.80              | 4,738              | 3,506                   | 129.40              | 7,044              | 18,822                  |
| 126.85              | 4,782              | 3,744                   | 129.45              | 7,088              | 19,175                  |
| 126.90              | 4,826              | 3,984                   | 129.50              | 7,133              | 19,531                  |
| 126.95              | 4,871              | 4,227                   | 129.55              | 7,177              | 19,889                  |
| 127.00              | 4,915              | 4,472                   | 129.60              | 7,221              | 20,249                  |
| 127.05              | 4,959              | 4,718                   | 129.65              | 7,266              | 20,611                  |
| 127.10              | 5,004              | 4,967                   | 129.70              | 7,310              | 20,975                  |
| 127.15              | 5,048              | 5,219                   | 129.75              | 7,354              | 21,342                  |
| 127.20              | 5,092              | 5,472                   | 129.80              | 7,399              | 21,711                  |
| 127.25              | 5,137              | 5,728                   | 129.85              | 7,443              | 22,082                  |
| 127.30              | 5,181              | 5,986                   | 129.90              | 7,487              | 22,455                  |
| 127.35              | 5,225              | 6,246                   | 129.95              | 7,532              | 22,830                  |
| 127.40              | 5,270              | 6,508                   | 130.00              | <b>7,576</b>       | <b>23,208</b>           |
| 127.45              | 5,314              | 6,773                   |                     |                    |                         |
| 127.50              | 5,359              | 7,040                   |                     |                    |                         |
| 127.55              | 5,403              | 7,309                   |                     |                    |                         |
| 127.60              | 5,447              | 7,580                   |                     |                    |                         |
| 127.65              | 5,492              | 7,854                   |                     |                    |                         |
| 127.70              | 5,536              | 8,129                   |                     |                    |                         |
| 127.75              | 5,580              | 8,407                   |                     |                    |                         |
| 127.80              | 5,625              | 8,687                   |                     |                    |                         |
| 127.85              | 5,669              | 8,970                   |                     |                    |                         |
| 127.90              | 5,713              | 9,254                   |                     |                    |                         |
| 127.95              | 5,758              | 9,541                   |                     |                    |                         |
| 128.00              | 5,802              | 9,830                   |                     |                    |                         |
| 128.05              | 5,846              | 10,121                  |                     |                    |                         |
| 128.10              | 5,891              | 10,415                  |                     |                    |                         |
| 128.15              | 5,935              | 10,710                  |                     |                    |                         |
| 128.20              | 5,979              | 11,008                  |                     |                    |                         |
| 128.25              | 6,024              | 11,308                  |                     |                    |                         |
| 128.30              | 6,068              | 11,611                  |                     |                    |                         |
| 128.35              | 6,112              | 11,915                  |                     |                    |                         |
| 128.40              | 6,157              | 12,222                  |                     |                    |                         |
| 128.45              | 6,201              | 12,531                  |                     |                    |                         |
| 128.50              | 6,246              | 12,842                  |                     |                    |                         |
| 128.55              | 6,290              | 13,155                  |                     |                    |                         |

Summary for Pond 46P: GI-10

Inflow Area = 32,730 sf, 60.20% Impervious, Inflow Depth = 3.19" for 10-Year-2020 event  
Inflow = 2.72 cfs @ 12.12 hrs, Volume= 8,694 cf  
Outflow = 0.49 cfs @ 12.54 hrs, Volume= 3,604 cf, Atten= 82%, Lag= 25.3 min  
Primary = 0.49 cfs @ 12.54 hrs, Volume= 3,604 cf  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

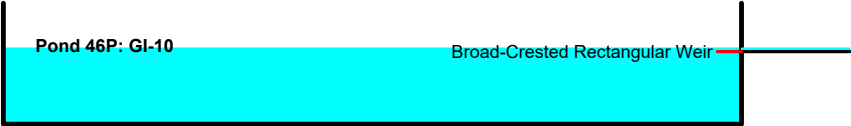
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 125.07' @ 12.54 hrs Surf.Area= 4,246 sf Storage= 5,403 cf

Plug-Flow detention time= 349.3 min calculated for 3,604 cf (41% of inflow)  
Center-of-Mass det. time= 189.5 min ( 944.6 - 755.1 )

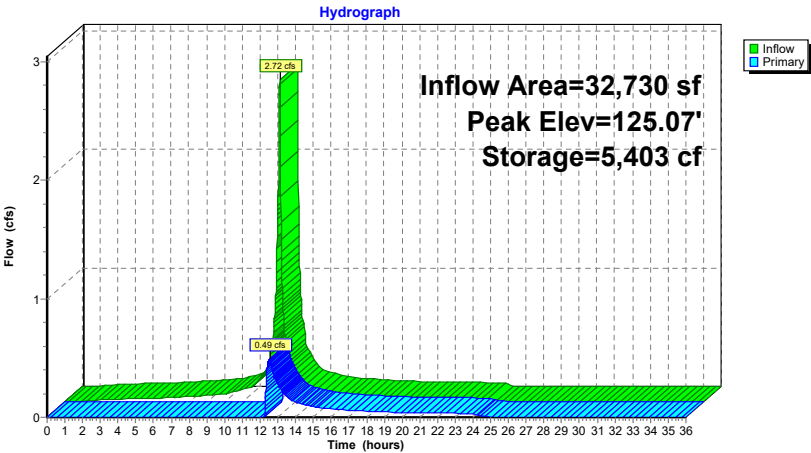
| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 123.50'           | 9,792 cf               | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 123.50           | 2,638             | 0                      | 0                                                   |
| 124.50           | 3,639             | 3,139                  | 3,139                                               |
| 125.50           | 4,696             | 4,168                  | 7,306                                               |
| 126.00           | 5,246             | 2,486                  | 9,792                                               |

| Device                                                        | Routing | Invert  | Outlet Devices                                                            |
|---------------------------------------------------------------|---------|---------|---------------------------------------------------------------------------|
| #1                                                            | Primary | 125.00' | 10.0' long + 3.0 ' /' SideZ x 6.0' breadth Broad-Crested Rectangular Weir |
| Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 |         |         |                                                                           |
| 2.50 3.00 3.50 4.00 4.50 5.00 5.50                            |         |         |                                                                           |
| Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65  |         |         |                                                                           |
| 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83                       |         |         |                                                                           |

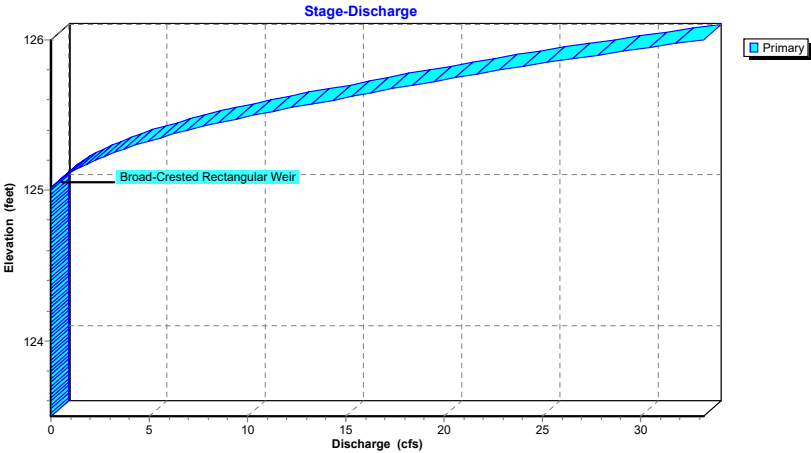
Primary OutFlow Max=0.49 cfs @ 12.54 hrs HW=125.07' TW=123.95' (Dynamic Tailwater)  
1=Broad-Crested Rectangular Weir (Weir Controls 0.49 cfs @ 0.64 fps)

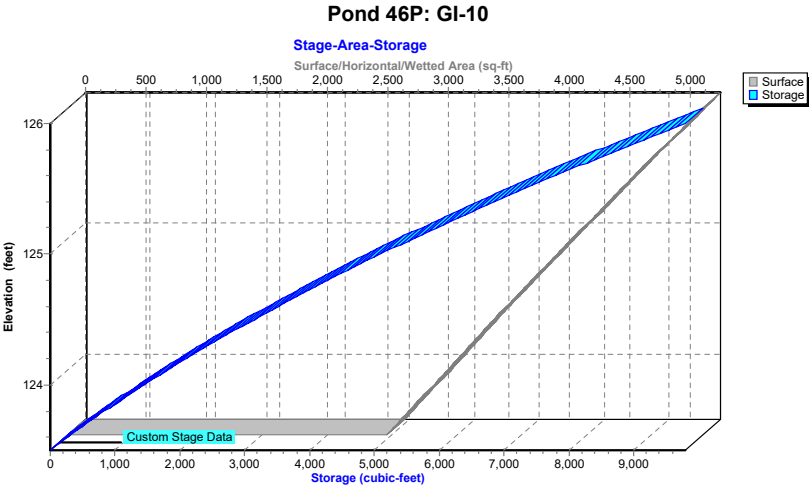


Pond 46P: GI-10



Pond 46P: GI-10





Hydrograph for Pond 46P: GI-10

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 123.50           | 0.00          |
| 1.00         | 0.00         | 1                    | 123.50           | 0.00          |
| 2.00         | 0.01         | 34                   | 123.51           | 0.00          |
| 3.00         | 0.02         | 97                   | 123.54           | 0.00          |
| 4.00         | 0.03         | 182                  | 123.57           | 0.00          |
| 5.00         | 0.03         | 285                  | 123.61           | 0.00          |
| 6.00         | 0.03         | 402                  | 123.65           | 0.00          |
| 7.00         | 0.04         | 543                  | 123.70           | 0.00          |
| 8.00         | 0.05         | 722                  | 123.76           | 0.00          |
| 9.00         | 0.07         | 937                  | 123.83           | 0.00          |
| 10.00        | 0.10         | 1,234                | 123.93           | 0.00          |
| 11.00        | 0.19         | 1,706                | 124.08           | 0.00          |
| 12.00        | 1.58         | 3,397                | 124.57           | 0.00          |
| 13.00        | 0.24         | 5,306                | 125.05           | 0.28          |
| 14.00        | 0.12         | 5,219                | 125.03           | 0.13          |
| 15.00        | 0.08         | 5,190                | 125.02           | 0.09          |
| 16.00        | 0.07         | 5,175                | 125.02           | 0.07          |
| 17.00        | 0.06         | 5,166                | 125.02           | 0.06          |
| 18.00        | 0.05         | 5,157                | 125.02           | 0.05          |
| 19.00        | 0.04         | 5,152                | 125.01           | 0.04          |
| 20.00        | 0.04         | 5,149                | 125.01           | 0.04          |
| 21.00        | 0.04         | 5,147                | 125.01           | 0.04          |
| 22.00        | 0.03         | 5,144                | 125.01           | 0.04          |
| 23.00        | 0.03         | 5,141                | 125.01           | 0.03          |
| 24.00        | 0.03         | 5,139                | 125.01           | 0.03          |
| 25.00        | 0.00         | 5,102                | 125.00           | 0.00          |
| 26.00        | 0.00         | 5,095                | 125.00           | 0.00          |
| 27.00        | 0.00         | 5,093                | 125.00           | 0.00          |
| 28.00        | 0.00         | 5,092                | 125.00           | 0.00          |
| 29.00        | 0.00         | 5,091                | 125.00           | 0.00          |
| 30.00        | 0.00         | 5,091                | 125.00           | 0.00          |
| 31.00        | 0.00         | 5,091                | 125.00           | 0.00          |
| 32.00        | 0.00         | 5,091                | 125.00           | 0.00          |
| 33.00        | 0.00         | 5,090                | 125.00           | 0.00          |
| 34.00        | 0.00         | 5,090                | 125.00           | 0.00          |
| 35.00        | 0.00         | 5,090                | 125.00           | 0.00          |
| 36.00        | 0.00         | 5,090                | 125.00           | 0.00          |

Stage-Discharge for Pond 46P: GI-10

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 123.50              | 0.00             | 124.54              | 0.00             | 125.58              | 13.49            |
| 123.52              | 0.00             | 124.56              | 0.00             | 125.60              | 14.36            |
| 123.54              | 0.00             | 124.58              | 0.00             | 125.62              | 15.13            |
| 123.56              | 0.00             | 124.60              | 0.00             | 125.64              | 15.92            |
| 123.58              | 0.00             | 124.62              | 0.00             | 125.66              | 16.73            |
| 123.60              | 0.00             | 124.64              | 0.00             | 125.68              | 17.56            |
| 123.62              | 0.00             | 124.66              | 0.00             | 125.70              | 18.40            |
| 123.64              | 0.00             | 124.68              | 0.00             | 125.72              | 19.26            |
| 123.66              | 0.00             | 124.70              | 0.00             | 125.74              | 20.13            |
| 123.68              | 0.00             | 124.72              | 0.00             | 125.76              | 21.03            |
| 123.70              | 0.00             | 124.74              | 0.00             | 125.78              | 21.93            |
| 123.72              | 0.00             | 124.76              | 0.00             | 125.80              | 22.86            |
| 123.74              | 0.00             | 124.78              | 0.00             | 125.82              | 23.82            |
| 123.76              | 0.00             | 124.80              | 0.00             | 125.84              | 24.79            |
| 123.78              | 0.00             | 124.82              | 0.00             | 125.86              | 25.79            |
| 123.80              | 0.00             | 124.84              | 0.00             | 125.88              | 26.80            |
| 123.82              | 0.00             | 124.86              | 0.00             | 125.90              | 27.82            |
| 123.84              | 0.00             | 124.88              | 0.00             | 125.92              | 28.87            |
| 123.86              | 0.00             | 124.90              | 0.00             | 125.94              | 29.93            |
| 123.88              | 0.00             | 124.92              | 0.00             | 125.96              | 31.02            |
| 123.90              | 0.00             | 124.94              | 0.00             | 125.98              | 32.12            |
| 123.92              | 0.00             | 124.96              | 0.00             | 126.00              | 33.23            |
| 123.94              | 0.00             | 124.98              | 0.00             |                     |                  |
| 123.96              | 0.00             | 125.00              | 0.00             |                     |                  |
| 123.98              | 0.00             | 125.02              | 0.07             |                     |                  |
| 124.00              | 0.00             | 125.04              | 0.19             |                     |                  |
| 124.02              | 0.00             | 125.06              | 0.35             |                     |                  |
| 124.04              | 0.00             | 125.08              | 0.55             |                     |                  |
| 124.06              | 0.00             | 125.10              | 0.77             |                     |                  |
| 124.08              | 0.00             | 125.12              | 1.01             |                     |                  |
| 124.10              | 0.00             | 125.14              | 1.28             |                     |                  |
| 124.12              | 0.00             | 125.16              | 1.58             |                     |                  |
| 124.14              | 0.00             | 125.18              | 1.89             |                     |                  |
| 124.16              | 0.00             | 125.20              | 2.22             |                     |                  |
| 124.18              | 0.00             | 125.22              | 2.59             |                     |                  |
| 124.20              | 0.00             | 125.24              | 2.98             |                     |                  |
| 124.22              | 0.00             | 125.26              | 3.40             |                     |                  |
| 124.24              | 0.00             | 125.28              | 3.84             |                     |                  |
| 124.26              | 0.00             | 125.30              | 4.30             |                     |                  |
| 124.28              | 0.00             | 125.32              | 4.78             |                     |                  |
| 124.30              | 0.00             | 125.34              | 5.29             |                     |                  |
| 124.32              | 0.00             | 125.36              | 5.82             |                     |                  |
| 124.34              | 0.00             | 125.38              | 6.38             |                     |                  |
| 124.36              | 0.00             | 125.40              | 6.96             |                     |                  |
| 124.38              | 0.00             | 125.42              | 7.58             |                     |                  |
| 124.40              | 0.00             | 125.44              | 8.22             |                     |                  |
| 124.42              | 0.00             | 125.46              | 8.89             |                     |                  |
| 124.44              | 0.00             | 125.48              | 9.59             |                     |                  |
| 124.46              | 0.00             | 125.50              | 10.32            |                     |                  |
| 124.48              | 0.00             | 125.52              | 11.07            |                     |                  |
| 124.50              | 0.00             | 125.54              | 11.85            |                     |                  |
| 124.52              | 0.00             | 125.56              | 12.65            |                     |                  |

Stage-Area-Storage for Pond 46P: GI-10

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|
| 123.50              | 2,638              | 0                       |
| 123.55              | 2,688              | 133                     |
| 123.60              | 2,738              | 269                     |
| 123.65              | 2,788              | 407                     |
| 123.70              | 2,838              | 548                     |
| 123.75              | 2,888              | 691                     |
| 123.80              | 2,938              | 836                     |
| 123.85              | 2,988              | 985                     |
| 123.90              | 3,038              | 1,135                   |
| 123.95              | 3,088              | 1,288                   |
| 124.00              | 3,139              | 1,444                   |
| 124.05              | 3,189              | 1,602                   |
| 124.10              | 3,239              | 1,763                   |
| 124.15              | 3,289              | 1,926                   |
| 124.20              | 3,339              | 2,092                   |
| 124.25              | 3,389              | 2,260                   |
| 124.30              | 3,439              | 2,431                   |
| 124.35              | 3,489              | 2,604                   |
| 124.40              | 3,539              | 2,780                   |
| 124.45              | 3,589              | 2,958                   |
| 124.50              | 3,639              | 3,139                   |
| 124.55              | 3,692              | 3,322                   |
| 124.60              | 3,745              | 3,508                   |
| 124.65              | 3,798              | 3,696                   |
| 124.70              | 3,850              | 3,887                   |
| 124.75              | 3,903              | 4,081                   |
| 124.80              | 3,956              | 4,278                   |
| 124.85              | 4,009              | 4,477                   |
| 124.90              | 4,062              | 4,679                   |
| 124.95              | 4,115              | 4,883                   |
| 125.00              | 4,168              | 5,090                   |
| 125.05              | 4,220              | 5,300                   |
| 125.10              | 4,273              | 5,512                   |
| 125.15              | 4,326              | 5,727                   |
| 125.20              | 4,379              | 5,945                   |
| 125.25              | 4,432              | 6,165                   |
| 125.30              | 4,485              | 6,388                   |
| 125.35              | 4,537              | 6,613                   |
| 125.40              | 4,590              | 6,842                   |
| 125.45              | 4,643              | 7,073                   |
| 125.50              | 4,696              | 7,306                   |
| 125.55              | 4,751              | 7,542                   |
| 125.60              | 4,806              | 7,781                   |
| 125.65              | 4,861              | 8,023                   |
| 125.70              | 4,916              | 8,267                   |
| 125.75              | 4,971              | 8,514                   |
| 125.80              | 5,026              | 8,764                   |
| 125.85              | 5,081              | 9,017                   |
| 125.90              | 5,136              | 9,272                   |
| 125.95              | 5,191              | 9,531                   |
| 126.00              | 5,246              | 9,792                   |

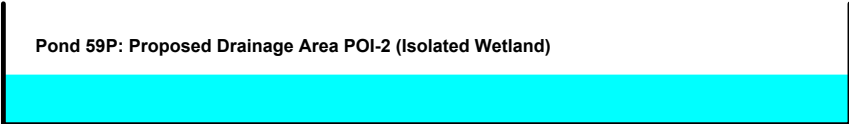
Summary for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

Inflow Area = 239,939 sf, 33.08% Impervious, Inflow Depth = 0.46" for 10-Year-2020 event  
Inflow = 1.71 cfs @ 12.09 hrs, Volume= 9,146 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

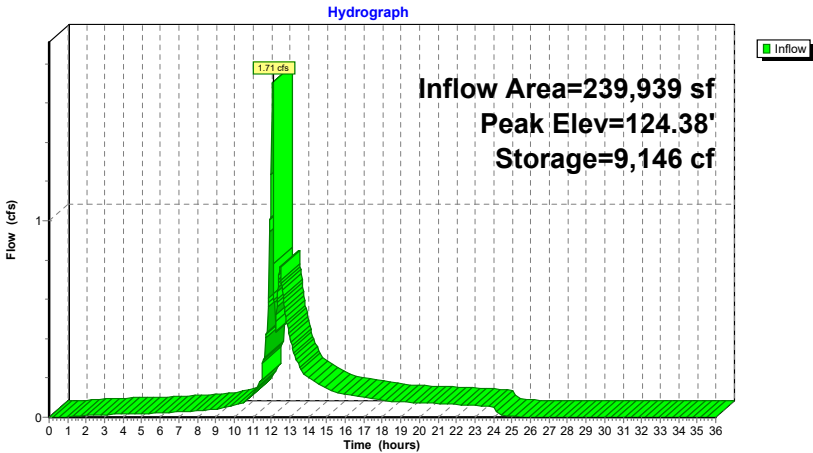
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 124.38' @ 36.00 hrs Surf.Area= 14,888 sf Storage= 9,146 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

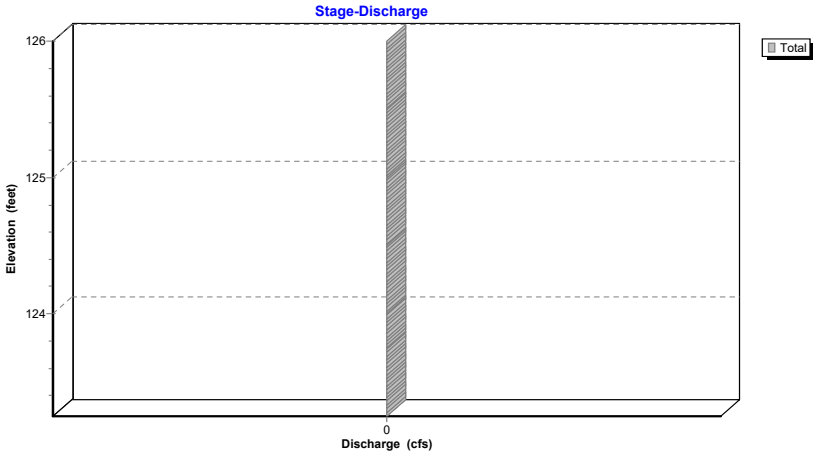
| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 123.25'           | 54,210 cf              | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 123.25           | 1,260             | 0                      | 0                                                   |
| 123.50           | 4,142             | 675                    | 675                                                 |
| 123.75           | 7,451             | 1,449                  | 2,124                                               |
| 124.00           | 10,505            | 2,245                  | 4,369                                               |
| 124.50           | 16,329            | 6,709                  | 11,077                                              |
| 125.00           | 23,865            | 10,049                 | 21,126                                              |
| 125.50           | 32,790            | 14,164                 | 35,290                                              |
| 126.00           | 42,891            | 18,920                 | 54,210                                              |



Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

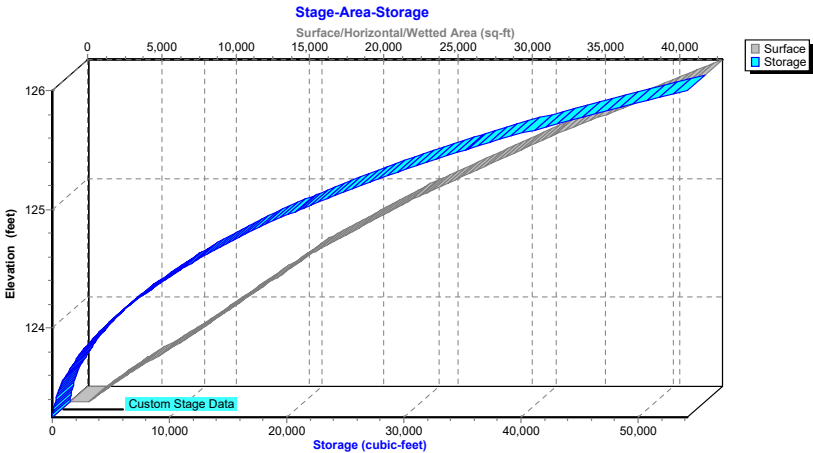


Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)





Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)



Hydrograph for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) |
|--------------|--------------|----------------------|------------------|--------------|--------------|----------------------|------------------|
| 0.00         | 0.00         | 0                    | 123.25           | 26.00        | 0.00         | 9,141                | 124.38           |
| 0.50         | 0.00         | 0                    | 123.25           | 26.50        | 0.00         | 9,142                | 124.38           |
| 1.00         | 0.00         | 1                    | 123.25           | 27.00        | 0.00         | 9,143                | 124.38           |
| 1.50         | 0.01         | 9                    | 123.26           | 27.50        | 0.00         | 9,144                | 124.38           |
| 2.00         | 0.01         | 22                   | 123.27           | 28.00        | 0.00         | 9,144                | 124.38           |
| 2.50         | 0.01         | 39                   | 123.28           | 28.50        | 0.00         | 9,145                | 124.38           |
| 3.00         | 0.01         | 61                   | 123.29           | 29.00        | 0.00         | 9,145                | 124.38           |
| 3.50         | 0.01         | 85                   | 123.30           | 29.50        | 0.00         | 9,145                | 124.38           |
| 4.00         | 0.02         | 113                  | 123.32           | 30.00        | 0.00         | 9,145                | 124.38           |
| 4.50         | 0.02         | 143                  | 123.33           | 30.50        | 0.00         | 9,145                | 124.38           |
| 5.00         | 0.02         | 175                  | 123.35           | 31.00        | 0.00         | 9,146                | 124.38           |
| 5.50         | 0.02         | 210                  | 123.36           | 31.50        | 0.00         | 9,146                | 124.38           |
| 6.00         | 0.02         | 246                  | 123.37           | 32.00        | 0.00         | 9,146                | 124.38           |
| 6.50         | 0.02         | 287                  | 123.39           | 32.50        | 0.00         | 9,146                | 124.38           |
| 7.00         | 0.03         | 333                  | 123.40           | 33.00        | 0.00         | 9,146                | 124.38           |
| 7.50         | 0.03         | 384                  | 123.42           | 33.50        | 0.00         | 9,146                | 124.38           |
| 8.00         | 0.03         | 441                  | 123.44           | 34.00        | 0.00         | 9,146                | 124.38           |
| 8.50         | 0.04         | 504                  | 123.46           | 34.50        | 0.00         | 9,146                | 124.38           |
| 9.00         | 0.04         | 572                  | 123.47           | 35.00        | 0.00         | 9,146                | 124.38           |
| 9.50         | 0.05         | 654                  | 123.49           | 35.50        | 0.00         | 9,146                | 124.38           |
| 10.00        | 0.06         | 756                  | 123.52           | 36.00        | 0.00         | 9,146                | 124.38           |
| 10.50        | 0.07         | 877                  | 123.55           |              |              |                      |                  |
| 11.00        | 0.11         | 1,050                | 123.58           |              |              |                      |                  |
| 11.50        | 0.19         | 1,335                | 123.63           |              |              |                      |                  |
| 12.00        | 1.02         | 2,243                | 123.77           |              |              |                      |                  |
| 12.50        | 0.78         | 3,774                | 123.94           |              |              |                      |                  |
| 13.00        | 0.41         | 4,758                | 124.04           |              |              |                      |                  |
| 13.50        | 0.27         | 5,346                | 124.09           |              |              |                      |                  |
| 14.00        | 0.21         | 5,756                | 124.12           |              |              |                      |                  |
| 14.50        | 0.18         | 6,097                | 124.15           |              |              |                      |                  |
| 15.00        | 0.15         | 6,384                | 124.17           |              |              |                      |                  |
| 15.50        | 0.13         | 6,626                | 124.19           |              |              |                      |                  |
| 16.00        | 0.12         | 6,846                | 124.21           |              |              |                      |                  |
| 16.50        | 0.11         | 7,053                | 124.23           |              |              |                      |                  |
| 17.00        | 0.10         | 7,244                | 124.24           |              |              |                      |                  |
| 17.50        | 0.09         | 7,421                | 124.25           |              |              |                      |                  |
| 18.00        | 0.09         | 7,582                | 124.27           |              |              |                      |                  |
| 18.50        | 0.08         | 7,729                | 124.28           |              |              |                      |                  |
| 19.00        | 0.08         | 7,870                | 124.29           |              |              |                      |                  |
| 19.50        | 0.08         | 8,008                | 124.30           |              |              |                      |                  |
| 20.00        | 0.07         | 8,142                | 124.31           |              |              |                      |                  |
| 20.50        | 0.07         | 8,273                | 124.32           |              |              |                      |                  |
| 21.00        | 0.07         | 8,399                | 124.33           |              |              |                      |                  |
| 21.50        | 0.07         | 8,522                | 124.33           |              |              |                      |                  |
| 22.00        | 0.07         | 8,641                | 124.34           |              |              |                      |                  |
| 22.50        | 0.06         | 8,756                | 124.35           |              |              |                      |                  |
| 23.00        | 0.06         | 8,867                | 124.36           |              |              |                      |                  |
| 23.50        | 0.06         | 8,974                | 124.36           |              |              |                      |                  |
| 24.00        | 0.06         | 9,078                | 124.37           |              |              |                      |                  |
| 24.50        | 0.01         | 9,123                | 124.37           |              |              |                      |                  |
| 25.00        | 0.00         | 9,134                | 124.38           |              |              |                      |                  |
| 25.50        | 0.00         | 9,139                | 124.38           |              |              |                      |                  |

Stage-Discharge for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 123.25              | 0.00               | 124.29              | 0.00               | 125.33              | 0.00               |
| 123.27              | 0.00               | 124.31              | 0.00               | 125.35              | 0.00               |
| 123.29              | 0.00               | 124.33              | 0.00               | 125.37              | 0.00               |
| 123.31              | 0.00               | 124.35              | 0.00               | 125.39              | 0.00               |
| 123.33              | 0.00               | 124.37              | 0.00               | 125.41              | 0.00               |
| 123.35              | 0.00               | 124.39              | 0.00               | 125.43              | 0.00               |
| 123.37              | 0.00               | 124.41              | 0.00               | 125.45              | 0.00               |
| 123.39              | 0.00               | 124.43              | 0.00               | 125.47              | 0.00               |
| 123.41              | 0.00               | 124.45              | 0.00               | 125.49              | 0.00               |
| 123.43              | 0.00               | 124.47              | 0.00               | 125.51              | 0.00               |
| 123.45              | 0.00               | 124.49              | 0.00               | 125.53              | 0.00               |
| 123.47              | 0.00               | 124.51              | 0.00               | 125.55              | 0.00               |
| 123.49              | 0.00               | 124.53              | 0.00               | 125.57              | 0.00               |
| 123.51              | 0.00               | 124.55              | 0.00               | 125.59              | 0.00               |
| 123.53              | 0.00               | 124.57              | 0.00               | 125.61              | 0.00               |
| 123.55              | 0.00               | 124.59              | 0.00               | 125.63              | 0.00               |
| 123.57              | 0.00               | 124.61              | 0.00               | 125.65              | 0.00               |
| 123.59              | 0.00               | 124.63              | 0.00               | 125.67              | 0.00               |
| 123.61              | 0.00               | 124.65              | 0.00               | 125.69              | 0.00               |
| 123.63              | 0.00               | 124.67              | 0.00               | 125.71              | 0.00               |
| 123.65              | 0.00               | 124.69              | 0.00               | 125.73              | 0.00               |
| 123.67              | 0.00               | 124.71              | 0.00               | 125.75              | 0.00               |
| 123.69              | 0.00               | 124.73              | 0.00               | 125.77              | 0.00               |
| 123.71              | 0.00               | 124.75              | 0.00               | 125.79              | 0.00               |
| 123.73              | 0.00               | 124.77              | 0.00               | 125.81              | 0.00               |
| 123.75              | 0.00               | 124.79              | 0.00               | 125.83              | 0.00               |
| 123.77              | 0.00               | 124.81              | 0.00               | 125.85              | 0.00               |
| 123.79              | 0.00               | 124.83              | 0.00               | 125.87              | 0.00               |
| 123.81              | 0.00               | 124.85              | 0.00               | 125.89              | 0.00               |
| 123.83              | 0.00               | 124.87              | 0.00               | 125.91              | 0.00               |
| 123.85              | 0.00               | 124.89              | 0.00               | 125.93              | 0.00               |
| 123.87              | 0.00               | 124.91              | 0.00               | 125.95              | 0.00               |
| 123.89              | 0.00               | 124.93              | 0.00               | 125.97              | 0.00               |
| 123.91              | 0.00               | 124.95              | 0.00               | 125.99              | 0.00               |
| 123.93              | 0.00               | 124.97              | 0.00               |                     |                    |
| 123.95              | 0.00               | 124.99              | 0.00               |                     |                    |
| 123.97              | 0.00               | 125.01              | 0.00               |                     |                    |
| 123.99              | 0.00               | 125.03              | 0.00               |                     |                    |
| 124.01              | 0.00               | 125.05              | 0.00               |                     |                    |
| 124.03              | 0.00               | 125.07              | 0.00               |                     |                    |
| 124.05              | 0.00               | 125.09              | 0.00               |                     |                    |
| 124.07              | 0.00               | 125.11              | 0.00               |                     |                    |
| 124.09              | 0.00               | 125.13              | 0.00               |                     |                    |
| 124.11              | 0.00               | 125.15              | 0.00               |                     |                    |
| 124.13              | 0.00               | 125.17              | 0.00               |                     |                    |
| 124.15              | 0.00               | 125.19              | 0.00               |                     |                    |
| 124.17              | 0.00               | 125.21              | 0.00               |                     |                    |
| 124.19              | 0.00               | 125.23              | 0.00               |                     |                    |
| 124.21              | 0.00               | 125.25              | 0.00               |                     |                    |
| 124.23              | 0.00               | 125.27              | 0.00               |                     |                    |
| 124.25              | 0.00               | 125.29              | 0.00               |                     |                    |
| 124.27              | 0.00               | 125.31              | 0.00               |                     |                    |

Stage-Area-Storage for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 123.25              | 1,260              | 0                       | 125.85              | 39,861             | 48,003                  |
| 123.30              | 1,836              | 77                      | 125.90              | 40,871             | 50,022                  |
| 123.35              | 2,413              | 184                     | 125.95              | 41,881             | 52,091                  |
| 123.40              | 2,989              | 319                     | 126.00              | 42,891             | 54,210                  |
| 123.45              | 3,566              | 483                     |                     |                    |                         |
| 123.50              | 4,142              | 675                     |                     |                    |                         |
| 123.55              | 4,804              | 899                     |                     |                    |                         |
| 123.60              | 5,466              | 1,156                   |                     |                    |                         |
| 123.65              | 6,127              | 1,445                   |                     |                    |                         |
| 123.70              | 6,789              | 1,768                   |                     |                    |                         |
| 123.75              | 7,451              | 2,124                   |                     |                    |                         |
| 123.80              | 8,062              | 2,512                   |                     |                    |                         |
| 123.85              | 8,673              | 2,931                   |                     |                    |                         |
| 123.90              | 9,283              | 3,379                   |                     |                    |                         |
| 123.95              | 9,894              | 3,859                   |                     |                    |                         |
| 124.00              | 10,505             | 4,369                   |                     |                    |                         |
| 124.05              | 11,087             | 4,909                   |                     |                    |                         |
| 124.10              | 11,670             | 5,478                   |                     |                    |                         |
| 124.15              | 12,252             | 6,076                   |                     |                    |                         |
| 124.20              | 12,835             | 6,703                   |                     |                    |                         |
| 124.25              | 13,417             | 7,359                   |                     |                    |                         |
| 124.30              | 13,999             | 8,045                   |                     |                    |                         |
| 124.35              | 14,582             | 8,759                   |                     |                    |                         |
| 124.40              | 15,164             | 9,503                   |                     |                    |                         |
| 124.45              | 15,747             | 10,275                  |                     |                    |                         |
| 124.50              | 16,329             | 11,077                  |                     |                    |                         |
| 124.55              | 17,083             | 11,913                  |                     |                    |                         |
| 124.60              | 17,836             | 12,786                  |                     |                    |                         |
| 124.65              | 18,590             | 13,696                  |                     |                    |                         |
| 124.70              | 19,343             | 14,645                  |                     |                    |                         |
| 124.75              | 20,097             | 15,631                  |                     |                    |                         |
| 124.80              | 20,851             | 16,654                  |                     |                    |                         |
| 124.85              | 21,604             | 17,716                  |                     |                    |                         |
| 124.90              | 22,358             | 18,815                  |                     |                    |                         |
| 124.95              | 23,111             | 19,951                  |                     |                    |                         |
| 125.00              | 23,865             | 21,126                  |                     |                    |                         |
| 125.05              | 24,757             | 22,341                  |                     |                    |                         |
| 125.10              | 25,650             | 23,602                  |                     |                    |                         |
| 125.15              | 26,543             | 24,906                  |                     |                    |                         |
| 125.20              | 27,435             | 26,256                  |                     |                    |                         |
| 125.25              | 28,328             | 27,650                  |                     |                    |                         |
| 125.30              | 29,220             | 29,089                  |                     |                    |                         |
| 125.35              | 30,112             | 30,572                  |                     |                    |                         |
| 125.40              | 31,005             | 32,100                  |                     |                    |                         |
| 125.45              | 31,898             | 33,672                  |                     |                    |                         |
| 125.50              | 32,790             | 35,290                  |                     |                    |                         |
| 125.55              | 33,800             | 36,954                  |                     |                    |                         |
| 125.60              | 34,810             | 38,670                  |                     |                    |                         |
| 125.65              | 35,820             | 40,435                  |                     |                    |                         |
| 125.70              | 36,830             | 42,252                  |                     |                    |                         |
| 125.75              | 37,841             | 44,118                  |                     |                    |                         |
| 125.80              | 38,851             | 46,036                  |                     |                    |                         |

Summary for Pond 60P: GI-12

Inflow Area = 102,485 sf, 46.65% Impervious, Inflow Depth = 2.66" for 10-Year-2020 event  
Inflow = 7.07 cfs @ 12.10 hrs, Volume= 22,679 cf  
Outflow = 0.17 cfs @ 16.58 hrs, Volume= 18,501 cf, Atten= 98%, Lag= 268.8 min  
Discarded = 0.17 cfs @ 16.58 hrs, Volume= 18,501 cf  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Routed to Pond 8P : GI-13

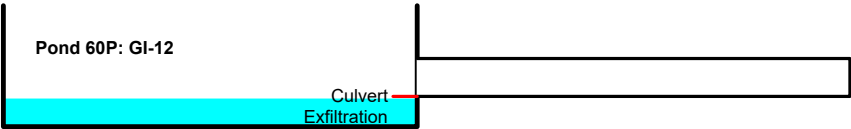
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 126.91' @ 16.58 hrs Surf.Area= 14,777 sf Storage= 12,814 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)  
Center-of-Mass det. time= 462.6 min ( 1,227.0 - 764.3 )

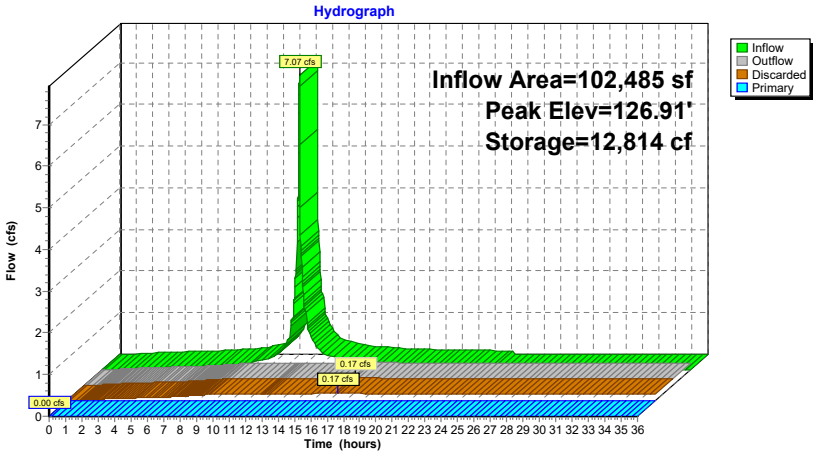
| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 126.00'           | 66,186 cf              | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 126.00           | 13,291            | 0                      | 0                                                   |
| 130.00           | 19,802            | 66,186                 | 66,186                                              |

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                                        |
|--------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary   | 127.00' | 15.0" Round Culvert<br>L= 83.0' CMP, mitered to conform to fill, Ke= 0.700<br>Inlet / Outlet Invert= 127.00' / 127.00' S= 0.0000 '/ Cc= 0.900<br>n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf |
| #2     | Discarded | 126.00' | 0.500 in/hr Exfiltration over Surface area<br>Conductivity to Groundwater Elevation = 1.00'                                                                                                           |

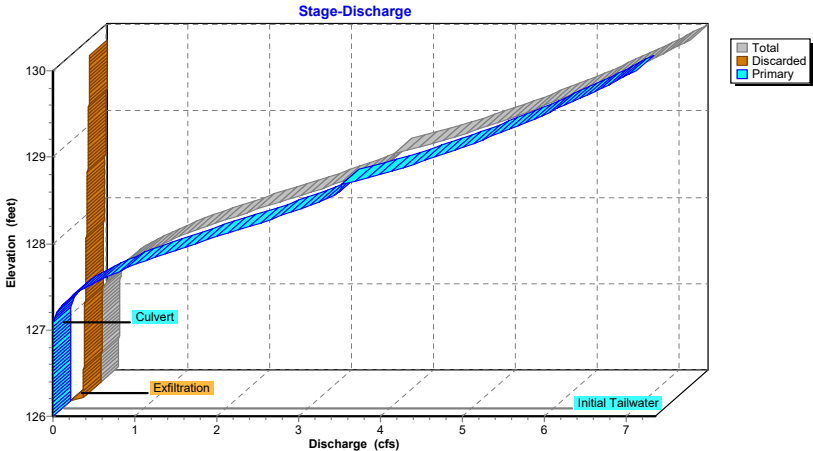
Discarded OutFlow Max=0.17 cfs @ 16.58 hrs HW=126.91' (Free Discharge)  
2=Exfiltration ( Controls 0.17 cfs)  
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=126.00' TW=126.00' (Dynamic Tailwater)  
1=Culvert ( Controls 0.00 cfs)

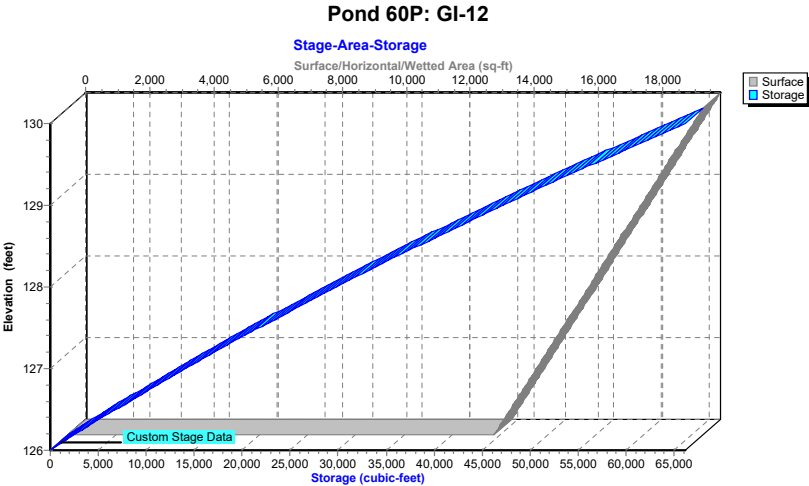


Pond 60P: GI-12



Pond 60P: GI-12





Hydrograph for Pond 60P: GI-12

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Outflow (cfs) | Discarded (cfs) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|-----------------|---------------|
| 0.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 1.00         | 0.01         | 0                    | 126.00           | 0.01          | 0.01            | 0.00          |
| 2.00         | 0.03         | 0                    | 126.00           | 0.03          | 0.03            | 0.00          |
| 3.00         | 0.05         | 0                    | 126.00           | 0.05          | 0.05            | 0.00          |
| 4.00         | 0.06         | 0                    | 126.00           | 0.06          | 0.06            | 0.00          |
| 5.00         | 0.07         | 0                    | 126.00           | 0.07          | 0.07            | 0.00          |
| 6.00         | 0.08         | 0                    | 126.00           | 0.08          | 0.08            | 0.00          |
| 7.00         | 0.11         | 0                    | 126.00           | 0.11          | 0.11            | 0.00          |
| 8.00         | 0.13         | 0                    | 126.00           | 0.13          | 0.13            | 0.00          |
| 9.00         | 0.16         | 2                    | 126.00           | 0.15          | 0.15            | 0.00          |
| 10.00        | 0.25         | 184                  | 126.01           | 0.15          | 0.15            | 0.00          |
| 11.00        | 0.46         | 807                  | 126.06           | 0.16          | 0.16            | 0.00          |
| 12.00        | 4.12         | 4,907                | 126.36           | 0.16          | 0.16            | 0.00          |
| 13.00        | 0.66         | 11,340               | 126.81           | 0.17          | 0.17            | 0.00          |
| 14.00        | 0.33         | 12,300               | 126.88           | 0.17          | 0.17            | 0.00          |
| 15.00        | 0.23         | 12,685               | 126.90           | 0.17          | 0.17            | 0.00          |
| 16.00        | 0.19         | 12,797               | 126.91           | 0.17          | 0.17            | 0.00          |
| 17.00        | 0.16         | 12,804               | 126.91           | 0.17          | 0.17            | 0.00          |
| 18.00        | 0.13         | 12,705               | 126.91           | 0.17          | 0.17            | 0.00          |
| 19.00        | 0.12         | 12,533               | 126.89           | 0.17          | 0.17            | 0.00          |
| 20.00        | 0.11         | 12,335               | 126.88           | 0.17          | 0.17            | 0.00          |
| 21.00        | 0.11         | 12,113               | 126.87           | 0.17          | 0.17            | 0.00          |
| 22.00        | 0.10         | 11,865               | 126.85           | 0.17          | 0.17            | 0.00          |
| 23.00        | 0.09         | 11,591               | 126.83           | 0.17          | 0.17            | 0.00          |
| 24.00        | 0.10         | 11,296               | 126.81           | 0.17          | 0.17            | 0.00          |
| 25.00        | 0.00         | 10,700               | 126.77           | 0.17          | 0.17            | 0.00          |
| 26.00        | 0.00         | 10,092               | 126.73           | 0.17          | 0.17            | 0.00          |
| 27.00        | 0.00         | 9,488                | 126.69           | 0.17          | 0.17            | 0.00          |
| 28.00        | 0.00         | 8,886                | 126.64           | 0.17          | 0.17            | 0.00          |
| 29.00        | 0.00         | 8,287                | 126.60           | 0.17          | 0.17            | 0.00          |
| 30.00        | 0.00         | 7,691                | 126.56           | 0.17          | 0.17            | 0.00          |
| 31.00        | 0.00         | 7,098                | 126.52           | 0.16          | 0.16            | 0.00          |
| 32.00        | 0.00         | 6,508                | 126.48           | 0.16          | 0.16            | 0.00          |
| 33.00        | 0.00         | 5,922                | 126.43           | 0.16          | 0.16            | 0.00          |
| 34.00        | 0.00         | 5,338                | 126.39           | 0.16          | 0.16            | 0.00          |
| 35.00        | 0.00         | 4,757                | 126.35           | 0.16          | 0.16            | 0.00          |
| 36.00        | 0.00         | 4,180                | 126.31           | 0.16          | 0.16            | 0.00          |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 60P: GI-12**

| Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) |
|---------------------|--------------------|--------------------|------------------|---------------------|--------------------|--------------------|------------------|
| 126.00              | 0.00               | 0.00               | 0.00             | 128.60              | 3.70               | 0.21               | 3.49             |
| 126.05              | 0.15               | 0.15               | 0.00             | 128.65              | 3.73               | 0.21               | 3.52             |
| 126.10              | 0.16               | 0.16               | 0.00             | 128.70              | 3.82               | 0.21               | 3.61             |
| 126.15              | 0.16               | 0.16               | 0.00             | 128.75              | 4.01               | 0.21               | 3.81             |
| 126.20              | 0.16               | 0.16               | 0.00             | 128.80              | 4.20               | 0.21               | 3.99             |
| 126.25              | 0.16               | 0.16               | 0.00             | 128.85              | 4.38               | 0.21               | 4.17             |
| 126.30              | 0.16               | 0.16               | 0.00             | 128.90              | 4.55               | 0.21               | 4.34             |
| 126.35              | 0.16               | 0.16               | 0.00             | 128.95              | 4.72               | 0.21               | 4.50             |
| 126.40              | 0.16               | 0.16               | 0.00             | 129.00              | 4.88               | 0.21               | 4.66             |
| 126.45              | 0.16               | 0.16               | 0.00             | 129.05              | 5.03               | 0.22               | 4.81             |
| 126.50              | 0.16               | 0.16               | 0.00             | 129.10              | 5.18               | 0.22               | 4.96             |
| 126.55              | 0.16               | 0.16               | 0.00             | 129.15              | 5.32               | 0.22               | 5.11             |
| 126.60              | 0.17               | 0.17               | 0.00             | 129.20              | 5.46               | 0.22               | 5.24             |
| 126.65              | 0.17               | 0.17               | 0.00             | 129.25              | 5.60               | 0.22               | 5.38             |
| 126.70              | 0.17               | 0.17               | 0.00             | 129.30              | 5.74               | 0.22               | 5.51             |
| 126.75              | 0.17               | 0.17               | 0.00             | 129.35              | 5.87               | 0.22               | 5.64             |
| 126.80              | 0.17               | 0.17               | 0.00             | 129.40              | 5.99               | 0.22               | 5.77             |
| 126.85              | 0.17               | 0.17               | 0.00             | 129.45              | 6.12               | 0.22               | 5.89             |
| 126.90              | 0.17               | 0.17               | 0.00             | 129.50              | 6.24               | 0.22               | 6.02             |
| 126.95              | 0.17               | 0.17               | 0.00             | 129.55              | 6.36               | 0.23               | 6.14             |
| 127.00              | 0.17               | 0.17               | 0.00             | 129.60              | 6.48               | 0.23               | 6.25             |
| 127.05              | 0.18               | 0.17               | 0.00             | 129.65              | 6.60               | 0.23               | 6.37             |
| 127.10              | 0.18               | 0.18               | 0.01             | 129.70              | 6.71               | 0.23               | 6.48             |
| 127.15              | 0.20               | 0.18               | 0.02             | 129.75              | 6.82               | 0.23               | 6.59             |
| 127.20              | 0.23               | 0.18               | 0.05             | 129.80              | 6.93               | 0.23               | 6.70             |
| 127.25              | 0.26               | 0.18               | 0.08             | 129.85              | 7.04               | 0.23               | 6.81             |
| 127.30              | 0.31               | 0.18               | 0.13             | 129.90              | 7.15               | 0.23               | 6.91             |
| 127.35              | 0.37               | 0.18               | 0.18             | 129.95              | 7.25               | 0.23               | 7.02             |
| 127.40              | 0.43               | 0.18               | 0.25             | 130.00              | <b>7.35</b>        | <b>0.24</b>        | <b>7.12</b>      |
| 127.45              | 0.51               | 0.18               | 0.33             |                     |                    |                    |                  |
| 127.50              | 0.60               | 0.18               | 0.42             |                     |                    |                    |                  |
| 127.55              | 0.70               | 0.19               | 0.51             |                     |                    |                    |                  |
| 127.60              | 0.81               | 0.19               | 0.62             |                     |                    |                    |                  |
| 127.65              | 0.92               | 0.19               | 0.74             |                     |                    |                    |                  |
| 127.70              | 1.05               | 0.19               | 0.86             |                     |                    |                    |                  |
| 127.75              | 1.18               | 0.19               | 0.99             |                     |                    |                    |                  |
| 127.80              | 1.32               | 0.19               | 1.13             |                     |                    |                    |                  |
| 127.85              | 1.47               | 0.19               | 1.28             |                     |                    |                    |                  |
| 127.90              | 1.62               | 0.19               | 1.43             |                     |                    |                    |                  |
| 127.95              | 1.78               | 0.19               | 1.58             |                     |                    |                    |                  |
| 128.00              | 1.94               | 0.19               | 1.74             |                     |                    |                    |                  |
| 128.05              | 2.10               | 0.20               | 1.90             |                     |                    |                    |                  |
| 128.10              | 2.27               | 0.20               | 2.07             |                     |                    |                    |                  |
| 128.15              | 2.43               | 0.20               | 2.23             |                     |                    |                    |                  |
| 128.20              | 2.60               | 0.20               | 2.40             |                     |                    |                    |                  |
| 128.25              | 2.76               | 0.20               | 2.56             |                     |                    |                    |                  |
| 128.30              | 2.93               | 0.20               | 2.72             |                     |                    |                    |                  |
| 128.35              | 3.08               | 0.20               | 2.88             |                     |                    |                    |                  |
| 128.40              | 3.23               | 0.20               | 3.03             |                     |                    |                    |                  |
| 128.45              | 3.37               | 0.20               | 3.17             |                     |                    |                    |                  |
| 128.50              | 3.50               | 0.20               | 3.30             |                     |                    |                    |                  |
| 128.55              | 3.61               | 0.21               | 3.41             |                     |                    |                    |                  |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 60P: GI-12**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 126.00              | 13,291             | 0                       | 128.60              | 17,523             | 40,058                  |
| 126.05              | 13,372             | 667                     | 128.65              | 17,605             | 40,937                  |
| 126.10              | 13,454             | 1,337                   | 128.70              | 17,686             | 41,819                  |
| 126.15              | 13,535             | 2,012                   | 128.75              | 17,767             | 42,705                  |
| 126.20              | 13,617             | 2,691                   | 128.80              | 17,849             | 43,596                  |
| 126.25              | 13,698             | 3,374                   | 128.85              | 17,930             | 44,490                  |
| 126.30              | 13,779             | 4,061                   | 128.90              | 18,011             | 45,389                  |
| 126.35              | 13,861             | 4,752                   | 128.95              | 18,093             | 46,291                  |
| 126.40              | 13,942             | 5,447                   | 129.00              | 18,174             | 47,198                  |
| 126.45              | 14,023             | 6,146                   | 129.05              | 18,256             | 48,109                  |
| 126.50              | 14,105             | 6,849                   | 129.10              | 18,337             | 49,023                  |
| 126.55              | 14,186             | 7,556                   | 129.15              | 18,418             | 49,942                  |
| 126.60              | 14,268             | 8,268                   | 129.20              | 18,500             | 50,865                  |
| 126.65              | 14,349             | 8,983                   | 129.25              | 18,581             | 51,792                  |
| 126.70              | 14,430             | 9,702                   | 129.30              | 18,663             | 52,723                  |
| 126.75              | 14,512             | 10,426                  | 129.35              | 18,744             | 53,659                  |
| 126.80              | 14,593             | 11,154                  | 129.40              | 18,825             | 54,598                  |
| 126.85              | 14,675             | 11,885                  | 129.45              | 18,907             | 55,541                  |
| 126.90              | 14,756             | 12,621                  | 129.50              | 18,988             | 56,488                  |
| 126.95              | 14,837             | 13,361                  | 129.55              | 19,070             | 57,440                  |
| 127.00              | 14,919             | 14,105                  | 129.60              | 19,151             | 58,395                  |
| 127.05              | 15,000             | 14,853                  | 129.65              | 19,232             | 59,355                  |
| 127.10              | 15,082             | 15,605                  | 129.70              | 19,314             | 60,319                  |
| 127.15              | 15,163             | 16,361                  | 129.75              | 19,395             | 61,286                  |
| 127.20              | 15,244             | 17,121                  | 129.80              | 19,476             | 62,258                  |
| 127.25              | 15,326             | 17,885                  | 129.85              | 19,558             | 63,234                  |
| 127.30              | 15,407             | 18,654                  | 129.90              | 19,639             | 64,214                  |
| 127.35              | 15,488             | 19,426                  | 129.95              | 19,721             | 65,198                  |
| 127.40              | 15,570             | 20,203                  | 130.00              | <b>19,802</b>      | <b>66,186</b>           |
| 127.45              | 15,651             | 20,983                  |                     |                    |                         |
| 127.50              | 15,733             | 21,768                  |                     |                    |                         |
| 127.55              | 15,814             | 22,556                  |                     |                    |                         |
| 127.60              | 15,895             | 23,349                  |                     |                    |                         |
| 127.65              | 15,977             | 24,146                  |                     |                    |                         |
| 127.70              | 16,058             | 24,947                  |                     |                    |                         |
| 127.75              | 16,140             | 25,752                  |                     |                    |                         |
| 127.80              | 16,221             | 26,561                  |                     |                    |                         |
| 127.85              | 16,302             | 27,374                  |                     |                    |                         |
| 127.90              | 16,384             | 28,191                  |                     |                    |                         |
| 127.95              | 16,465             | 29,012                  |                     |                    |                         |
| 128.00              | 16,547             | 29,838                  |                     |                    |                         |
| 128.05              | 16,628             | 30,667                  |                     |                    |                         |
| 128.10              | 16,709             | 31,500                  |                     |                    |                         |
| 128.15              | 16,791             | 32,338                  |                     |                    |                         |
| 128.20              | 16,872             | 33,179                  |                     |                    |                         |
| 128.25              | 16,953             | 34,025                  |                     |                    |                         |
| 128.30              | 17,035             | 34,875                  |                     |                    |                         |
| 128.35              | 17,116             | 35,728                  |                     |                    |                         |
| 128.40              | 17,198             | 36,586                  |                     |                    |                         |
| 128.45              | 17,279             | 37,448                  |                     |                    |                         |
| 128.50              | 17,360             | 38,314                  |                     |                    |                         |
| 128.55              | 17,442             | 39,184                  |                     |                    |                         |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

|                                                                                              |                                                                                                                                                     |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Subcatchment44S: GI-10 Pervious</b>                                                       | Runoff Area=13,028 sf 0.00% Impervious Runoff Depth=1.63"<br>Flow Length=91' Tc=11.2 min CN=39 Runoff=0.42 cfs 1,771 cf                             |
| <b>Subcatchment45S: GI-10 Impervious</b>                                                     | Runoff Area=19,702 sf 100.00% Impervious Runoff Depth=8.82"<br>Flow Length=660' Tc=4.5 min CN=98 Runoff=4.62 cfs 14,480 cf                          |
| <b>Subcatchment62S: GI-12 Impervious</b>                                                     | Runoff Area=47,814 sf 100.00% Impervious Runoff Depth=8.82"<br>Flow Length=147' Tc=1.6 min CN=98 Runoff=11.69 cfs 35,142 cf                         |
| <b>Subcatchment63S: GI-13 Pervious</b>                                                       | Runoff Area=17,103 sf 0.00% Impervious Runoff Depth=1.97"<br>Flow Length=90' Slope=0.0100 '/' Tc=10.2 min CN=42 Runoff=0.76 cfs 2,812 cf            |
| <b>Subcatchment64S: Wetland Pervious</b>                                                     | Runoff Area=75,754 sf 0.00% Impervious Runoff Depth=0.99"<br>Flow Length=161' Tc=10.8 min CN=33 Runoff=1.00 cfs 6,236 cf                            |
| <b>Subcatchment67S: Wetland Impervious</b>                                                   | Runoff Area=11,867 sf 100.00% Impervious Runoff Depth=8.82"<br>Flow Length=151' Tc=0.9 min CN=98 Runoff=2.90 cfs 8,722 cf                           |
| <b>Subcatchment68S: GI-12 Pervious</b>                                                       | Runoff Area=54,671 sf 0.00% Impervious Runoff Depth=2.21"<br>Flow Length=93' Tc=5.9 min CN=44 Runoff=3.42 cfs 10,048 cf                             |
| <b>Pond 8P: GI-13</b>                                                                        | Peak Elev=127.66' Storage=7,892 cf Inflow=0.86 cfs 10,522 cf<br>Discarded=0.06 cfs 5,372 cf Primary=0.00 cfs 0 cf Outflow=0.06 cfs 5,372 cf         |
| <b>Pond 46P: GI-10</b>                                                                       | Peak Elev=125.29' Storage=6,357 cf Inflow=4.87 cfs 16,251 cf<br>Outflow=4.14 cfs 10,445 cf                                                          |
| <b>Pond 59P: Proposed Drainage Area POI-2</b>                                                | Peak Elev=125.17' Storage=25,403 cf Inflow=6.47 cfs 25,403 cf<br>Outflow=0.00 cfs 0 cf                                                              |
| <b>Pond 60P: GI-12</b>                                                                       | Peak Elev=127.66' Storage=24,264 cf Inflow=14.57 cfs 45,190 cf<br>Discarded=0.19 cfs 21,346 cf Primary=0.73 cfs 7,710 cf Outflow=0.92 cfs 29,056 cf |
| <b>Total Runoff Area = 239,939 sf Runoff Volume = 79,211 cf Average Runoff Depth = 3.96"</b> |                                                                                                                                                     |
| <b>66.92% Pervious = 160,556 sf 33.08% Impervious = 79,383 sf</b>                            |                                                                                                                                                     |

### Summary for Subcatchment 44S: GI-10 Pervious

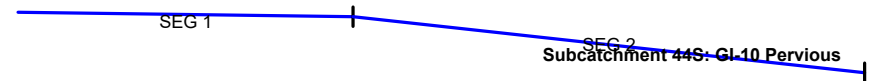
Runoff = 0.42 cfs @ 12.21 hrs, Volume= 1,771 cf, Depth= 1.63"  
 Routed to Pond 46P : GI-10

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

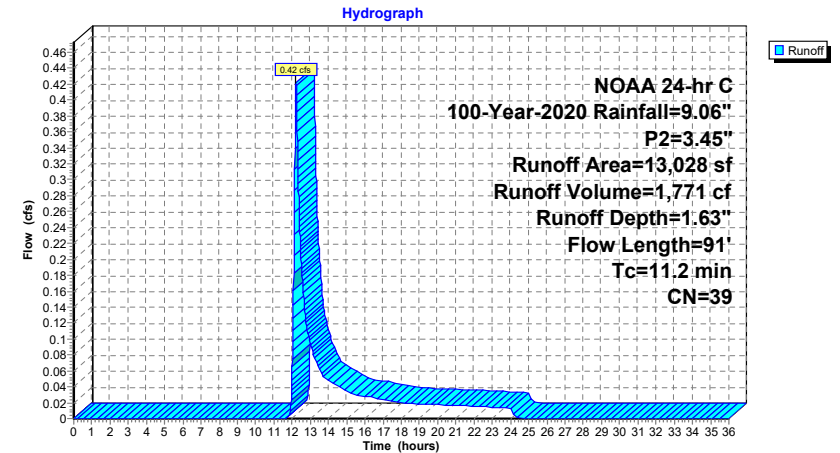
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 13,028    | 39 | >75% Grass cover, Good, HSG A |
| 13,028    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                     |
|----------|---------------|---------------|-------------------|----------------|---------------------------------|
| 7.0      | 36            | 0.0140        | 0.09              |                | <b>Sheet Flow, SEG 1</b>        |
| 4.2      | 55            | 0.1180        | 0.22              |                | <b>Sheet Flow, SEG 2</b>        |
| 11.2     | 91            | Total         |                   |                | Grass: Dense n= 0.240 P2= 3.45" |



### Subcatchment 44S: GI-10 Pervious



Hydrograph for Subcatchment 44S: GI-10 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 1.63               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 1.63               | 0.00            |
| 1.00            | 0.10                | 0.00               | 0.00            | 27.00           | 9.06                | 1.63               | 0.00            |
| 1.50            | 0.15                | 0.00               | 0.00            | 27.50           | 9.06                | 1.63               | 0.00            |
| 2.00            | 0.20                | 0.00               | 0.00            | 28.00           | 9.06                | 1.63               | 0.00            |
| 2.50            | 0.26                | 0.00               | 0.00            | 28.50           | 9.06                | 1.63               | 0.00            |
| 3.00            | 0.32                | 0.00               | 0.00            | 29.00           | 9.06                | 1.63               | 0.00            |
| 3.50            | 0.38                | 0.00               | 0.00            | 29.50           | 9.06                | 1.63               | 0.00            |
| 4.00            | 0.44                | 0.00               | 0.00            | 30.00           | 9.06                | 1.63               | 0.00            |
| 4.50            | 0.51                | 0.00               | 0.00            | 30.50           | 9.06                | 1.63               | 0.00            |
| 5.00            | 0.58                | 0.00               | 0.00            | 31.00           | 9.06                | 1.63               | 0.00            |
| 5.50            | 0.65                | 0.00               | 0.00            | 31.50           | 9.06                | 1.63               | 0.00            |
| 6.00            | 0.72                | 0.00               | 0.00            | 32.00           | 9.06                | 1.63               | 0.00            |
| 6.50            | 0.80                | 0.00               | 0.00            | 32.50           | 9.06                | 1.63               | 0.00            |
| 7.00            | 0.88                | 0.00               | 0.00            | 33.00           | 9.06                | 1.63               | 0.00            |
| 7.50            | 0.98                | 0.00               | 0.00            | 33.50           | 9.06                | 1.63               | 0.00            |
| 8.00            | 1.09                | 0.00               | 0.00            | 34.00           | 9.06                | 1.63               | 0.00            |
| 8.50            | 1.20                | 0.00               | 0.00            | 34.50           | 9.06                | 1.63               | 0.00            |
| 9.00            | 1.32                | 0.00               | 0.00            | 35.00           | 9.06                | 1.63               | 0.00            |
| 9.50            | 1.47                | 0.00               | 0.00            | 35.50           | 9.06                | 1.63               | 0.00            |
| 10.00           | 1.65                | 0.00               | 0.00            | 36.00           | 9.06                | 1.63               | 0.00            |
| 10.50           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.17                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 2.68                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 4.32                | 0.08               | 0.06            |                 |                     |                    |                 |
| 12.50           | 6.38                | 0.56               | 0.20            |                 |                     |                    |                 |
| 13.00           | 6.89                | 0.73               | 0.10            |                 |                     |                    |                 |
| 13.50           | 7.19                | 0.84               | 0.06            |                 |                     |                    |                 |
| 14.00           | 7.41                | 0.92               | 0.05            |                 |                     |                    |                 |
| 14.50           | 7.59                | 0.99               | 0.04            |                 |                     |                    |                 |
| 15.00           | 7.74                | 1.05               | 0.03            |                 |                     |                    |                 |
| 15.50           | 7.86                | 1.10               | 0.03            |                 |                     |                    |                 |
| 16.00           | 7.97                | 1.15               | 0.03            |                 |                     |                    |                 |
| 16.50           | 8.08                | 1.19               | 0.03            |                 |                     |                    |                 |
| 17.00           | 8.18                | 1.23               | 0.02            |                 |                     |                    |                 |
| 17.50           | 8.26                | 1.27               | 0.02            |                 |                     |                    |                 |
| 18.00           | 8.34                | 1.30               | 0.02            |                 |                     |                    |                 |
| 18.50           | 8.41                | 1.34               | 0.02            |                 |                     |                    |                 |
| 19.00           | 8.48                | 1.37               | 0.02            |                 |                     |                    |                 |
| 19.50           | 8.55                | 1.40               | 0.02            |                 |                     |                    |                 |
| 20.00           | 8.62                | 1.43               | 0.02            |                 |                     |                    |                 |
| 20.50           | 8.68                | 1.45               | 0.02            |                 |                     |                    |                 |
| 21.00           | 8.74                | 1.48               | 0.02            |                 |                     |                    |                 |
| 21.50           | 8.80                | 1.51               | 0.02            |                 |                     |                    |                 |
| 22.00           | 8.86                | 1.53               | 0.02            |                 |                     |                    |                 |
| 22.50           | 8.91                | 1.56               | 0.02            |                 |                     |                    |                 |
| 23.00           | 8.96                | 1.58               | 0.01            |                 |                     |                    |                 |
| 23.50           | 9.01                | 1.61               | 0.01            |                 |                     |                    |                 |
| 24.00           | 9.06                | 1.63               | 0.01            |                 |                     |                    |                 |
| 24.50           | 9.06                | 1.63               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 1.63               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 1.63               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 45S: GI-10 Impervious

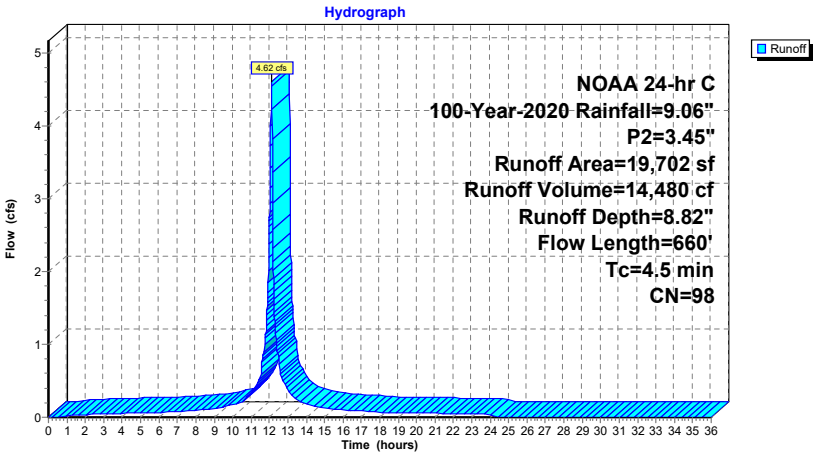
| Runoff = 4.62 cfs @ 12.12 hrs, Volume= 14,480 cf, Depth= 8.82"                                                                                  |               |                         |                   |                |                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------|-------------------|----------------|----------------------------------------------------------------------------|
| Routed to Pond 46P : GI-10                                                                                                                      |               |                         |                   |                |                                                                            |
| Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs<br>NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45" |               |                         |                   |                |                                                                            |
| Area (sf)                                                                                                                                       | CN            | Description             |                   |                |                                                                            |
| 19,702                                                                                                                                          | 98            | Paved parking, HSG A    |                   |                |                                                                            |
| 19,702                                                                                                                                          |               | 100.00% Impervious Area |                   |                |                                                                            |
| Tc (min)                                                                                                                                        | Length (feet) | Slope (ft/ft)           | Velocity (ft/sec) | Capacity (cfs) | Description                                                                |
| 1.3                                                                                                                                             | 100           | 0.0140                  | 1.24              |                | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.45"             |
| 2.0                                                                                                                                             | 295           | 0.0140                  | 2.40              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps              |
| 1.0                                                                                                                                             | 247           | 0.0200                  | 4.22              | 0.84           | <b>Channel Flow, SEG 3</b><br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2                                                                                                                                             | 18            | 0.0560                  | 1.66              |                | <b>Shallow Concentrated Flow, SEG 4</b><br>Short Grass Pasture Kv= 7.0 fps |
| 4.5                                                                                                                                             | 660           | Total                   |                   |                |                                                                            |

SEG 1 | SEG 2 | SEG 3 | SEG 4

Subcatchment 45S GI-10 Impervious

Pond 46P

Subcatchment 45S: GI-10 Impervious



Hydrograph for Subcatchment 45S: GI-10 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 8.82               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 8.82               | 0.00            |
| 1.00            | 0.10                | 0.01               | 0.02            | 27.00           | 9.06                | 8.82               | 0.00            |
| 1.50            | 0.15                | 0.04               | 0.03            | 27.50           | 9.06                | 8.82               | 0.00            |
| 2.00            | 0.20                | 0.07               | 0.03            | 28.00           | 9.06                | 8.82               | 0.00            |
| 2.50            | 0.26                | 0.11               | 0.04            | 28.50           | 9.06                | 8.82               | 0.00            |
| 3.00            | 0.32                | 0.16               | 0.04            | 29.00           | 9.06                | 8.82               | 0.00            |
| 3.50            | 0.38                | 0.21               | 0.05            | 29.50           | 9.06                | 8.82               | 0.00            |
| 4.00            | 0.44                | 0.27               | 0.05            | 30.00           | 9.06                | 8.82               | 0.00            |
| 4.50            | 0.51                | 0.33               | 0.05            | 30.50           | 9.06                | 8.82               | 0.00            |
| 5.00            | 0.58                | 0.39               | 0.06            | 31.00           | 9.06                | 8.82               | 0.00            |
| 5.50            | 0.65                | 0.45               | 0.06            | 31.50           | 9.06                | 8.82               | 0.00            |
| 6.00            | 0.72                | 0.52               | 0.06            | 32.00           | 9.06                | 8.82               | 0.00            |
| 6.50            | 0.80                | 0.59               | 0.07            | 32.50           | 9.06                | 8.82               | 0.00            |
| 7.00            | 0.88                | 0.68               | 0.08            | 33.00           | 9.06                | 8.82               | 0.00            |
| 7.50            | 0.98                | 0.77               | 0.09            | 33.50           | 9.06                | 8.82               | 0.00            |
| 8.00            | 1.09                | 0.87               | 0.10            | 34.00           | 9.06                | 8.82               | 0.00            |
| 8.50            | 1.20                | 0.99               | 0.11            | 34.50           | 9.06                | 8.82               | 0.00            |
| 9.00            | 1.32                | 1.11               | 0.11            | 35.00           | 9.06                | 8.82               | 0.00            |
| 9.50            | 1.47                | 1.25               | 0.14            | 35.50           | 9.06                | 8.82               | 0.00            |
| 10.00           | 1.65                | 1.43               | 0.17            | 36.00           | 9.06                | 8.82               | 0.00            |
| 10.50           | 1.87                | 1.64               | 0.21            |                 |                     |                    |                 |
| 11.00           | 2.17                | 1.95               | 0.32            |                 |                     |                    |                 |
| 11.50           | 2.68                | 2.45               | 0.53            |                 |                     |                    |                 |
| 12.00           | 4.32                | 4.08               | 2.69            |                 |                     |                    |                 |
| 12.50           | 6.38                | 6.14               | 0.84            |                 |                     |                    |                 |
| 13.00           | 6.89                | 6.65               | 0.38            |                 |                     |                    |                 |
| 13.50           | 7.19                | 6.95               | 0.24            |                 |                     |                    |                 |
| 14.00           | 7.41                | 7.17               | 0.18            |                 |                     |                    |                 |
| 14.50           | 7.59                | 7.35               | 0.15            |                 |                     |                    |                 |
| 15.00           | 7.74                | 7.50               | 0.12            |                 |                     |                    |                 |
| 15.50           | 7.86                | 7.62               | 0.11            |                 |                     |                    |                 |
| 16.00           | 7.97                | 7.73               | 0.10            |                 |                     |                    |                 |
| 16.50           | 8.08                | 7.84               | 0.09            |                 |                     |                    |                 |
| 17.00           | 8.18                | 7.94               | 0.08            |                 |                     |                    |                 |
| 17.50           | 8.26                | 8.02               | 0.08            |                 |                     |                    |                 |
| 18.00           | 8.34                | 8.10               | 0.07            |                 |                     |                    |                 |
| 18.50           | 8.41                | 8.17               | 0.06            |                 |                     |                    |                 |
| 19.00           | 8.48                | 8.24               | 0.06            |                 |                     |                    |                 |
| 19.50           | 8.55                | 8.31               | 0.06            |                 |                     |                    |                 |
| 20.00           | 8.62                | 8.38               | 0.06            |                 |                     |                    |                 |
| 20.50           | 8.68                | 8.44               | 0.06            |                 |                     |                    |                 |
| 21.00           | 8.74                | 8.50               | 0.05            |                 |                     |                    |                 |
| 21.50           | 8.80                | 8.56               | 0.05            |                 |                     |                    |                 |
| 22.00           | 8.86                | 8.61               | 0.05            |                 |                     |                    |                 |
| 22.50           | 8.91                | 8.67               | 0.05            |                 |                     |                    |                 |
| 23.00           | 8.96                | 8.72               | 0.05            |                 |                     |                    |                 |
| 23.50           | 9.01                | 8.77               | 0.04            |                 |                     |                    |                 |
| 24.00           | 9.06                | 8.82               | 0.05            |                 |                     |                    |                 |
| 24.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |



Summary for Subcatchment 62S: GI-12 Impervious

Runoff = 11.69 cfs @ 12.09 hrs, Volume= 35,142 cf, Depth= 8.82"  
Routed to Pond 60P : GI-12

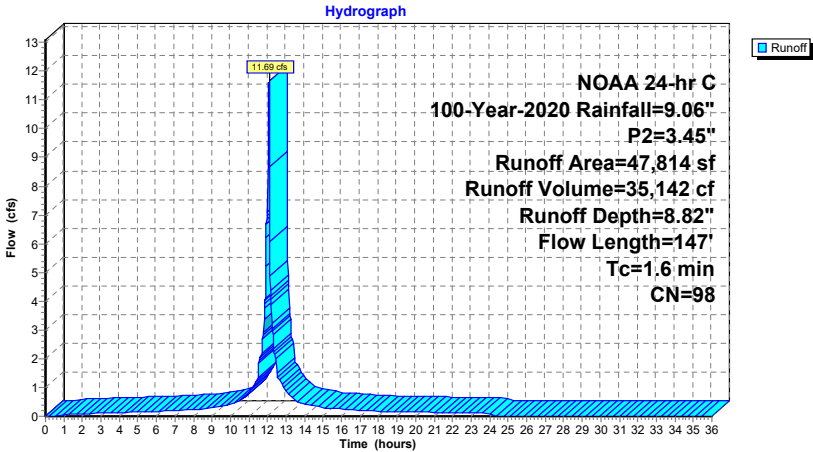
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 47,814    | 98 | Paved parking, HSG A    |
| 47,814    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 1.1      | 85            | 0.0160        | 1.26              |                | Sheet Flow, SEG 1R<br>Smooth surfaces n= 0.011 P2= 3.45"            |
| 0.2      | 30            | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2      | 21            | 0.0100        | 2.03              |                | Shallow Concentrated Flow, SEG 3<br>Paved Kv= 20.3 fps              |
| 0.1      | 11            | 0.1360        | 2.58              |                | Shallow Concentrated Flow, SEG 4<br>Short Grass Pasture Kv= 7.0 fps |
| 1.6      | 147           | Total         |                   |                |                                                                     |



Subcatchment 62S: GI-12 Impervious



**Hydrograph for Subcatchment 62S: GI-12 Impervious**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 8.82               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.01            | 26.50           | 9.06                | 8.82               | 0.00            |
| 1.00            | 0.10                | 0.01               | 0.04            | 27.00           | 9.06                | 8.82               | 0.00            |
| 1.50            | 0.15                | 0.04               | 0.07            | 27.50           | 9.06                | 8.82               | 0.00            |
| 2.00            | 0.20                | 0.07               | 0.08            | 28.00           | 9.06                | 8.82               | 0.00            |
| 2.50            | 0.26                | 0.11               | 0.10            | 28.50           | 9.06                | 8.82               | 0.00            |
| 3.00            | 0.32                | 0.16               | 0.11            | 29.00           | 9.06                | 8.82               | 0.00            |
| 3.50            | 0.38                | 0.21               | 0.12            | 29.50           | 9.06                | 8.82               | 0.00            |
| 4.00            | 0.44                | 0.27               | 0.13            | 30.00           | 9.06                | 8.82               | 0.00            |
| 4.50            | 0.51                | 0.33               | 0.13            | 30.50           | 9.06                | 8.82               | 0.00            |
| 5.00            | 0.58                | 0.39               | 0.14            | 31.00           | 9.06                | 8.82               | 0.00            |
| 5.50            | 0.65                | 0.45               | 0.15            | 31.50           | 9.06                | 8.82               | 0.00            |
| 6.00            | 0.72                | 0.52               | 0.15            | 32.00           | 9.06                | 8.82               | 0.00            |
| 6.50            | 0.80                | 0.59               | 0.17            | 32.50           | 9.06                | 8.82               | 0.00            |
| 7.00            | 0.88                | 0.68               | 0.19            | 33.00           | 9.06                | 8.82               | 0.00            |
| 7.50            | 0.98                | 0.77               | 0.21            | 33.50           | 9.06                | 8.82               | 0.00            |
| 8.00            | 1.09                | 0.87               | 0.24            | 34.00           | 9.06                | 8.82               | 0.00            |
| 8.50            | 1.20                | 0.99               | 0.26            | 34.50           | 9.06                | 8.82               | 0.00            |
| 9.00            | 1.32                | 1.11               | 0.28            | 35.00           | 9.06                | 8.82               | 0.00            |
| 9.50            | 1.47                | 1.25               | 0.35            | 35.50           | 9.06                | 8.82               | 0.00            |
| 10.00           | 1.65                | 1.43               | 0.43            | 36.00           | 9.06                | 8.82               | 0.00            |
| 10.50           | 1.87                | 1.64               | 0.50            |                 |                     |                    |                 |
| 11.00           | 2.17                | 1.95               | 0.79            |                 |                     |                    |                 |
| 11.50           | 2.68                | 2.45               | 1.30            |                 |                     |                    |                 |
| 12.00           | 4.32                | 4.08               | <b>7.00</b>     |                 |                     |                    |                 |
| 12.50           | 6.38                | 6.14               | <b>2.03</b>     |                 |                     |                    |                 |
| 13.00           | 6.89                | 6.65               | 0.90            |                 |                     |                    |                 |
| 13.50           | 7.19                | 6.95               | 0.56            |                 |                     |                    |                 |
| 14.00           | 7.41                | 7.17               | 0.45            |                 |                     |                    |                 |
| 14.50           | 7.59                | 7.35               | 0.37            |                 |                     |                    |                 |
| 15.00           | 7.74                | 7.50               | 0.30            |                 |                     |                    |                 |
| 15.50           | 7.86                | 7.62               | 0.26            |                 |                     |                    |                 |
| 16.00           | 7.97                | 7.73               | 0.24            |                 |                     |                    |                 |
| 16.50           | 8.08                | 7.84               | 0.22            |                 |                     |                    |                 |
| 17.00           | 8.18                | 7.94               | 0.21            |                 |                     |                    |                 |
| 17.50           | 8.26                | 8.02               | 0.19            |                 |                     |                    |                 |
| 18.00           | 8.34                | 8.10               | 0.17            |                 |                     |                    |                 |
| 18.50           | 8.41                | 8.17               | 0.16            |                 |                     |                    |                 |
| 19.00           | 8.48                | 8.24               | 0.15            |                 |                     |                    |                 |
| 19.50           | 8.55                | 8.31               | 0.15            |                 |                     |                    |                 |
| 20.00           | 8.62                | 8.38               | 0.14            |                 |                     |                    |                 |
| 20.50           | 8.68                | 8.44               | 0.14            |                 |                     |                    |                 |
| 21.00           | 8.74                | 8.50               | 0.13            |                 |                     |                    |                 |
| 21.50           | 8.80                | 8.56               | 0.13            |                 |                     |                    |                 |
| 22.00           | 8.86                | 8.61               | 0.12            |                 |                     |                    |                 |
| 22.50           | 8.91                | 8.67               | 0.12            |                 |                     |                    |                 |
| 23.00           | 8.96                | 8.72               | 0.11            |                 |                     |                    |                 |
| 23.50           | 9.01                | 8.77               | 0.11            |                 |                     |                    |                 |
| 24.00           | <b>9.06</b>         | <b>8.82</b>        | 0.13            |                 |                     |                    |                 |
| 24.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |

**Summary for Subcatchment 63S: GI-13 Pervious**

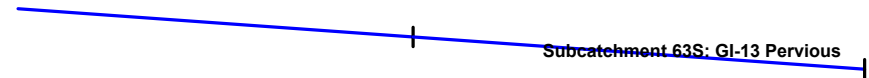
Runoff = 0.76 cfs @ 12.19 hrs, Volume= 2,812 cf, Depth= 1.97"  
 Routed to Pond 8P : GI-13

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

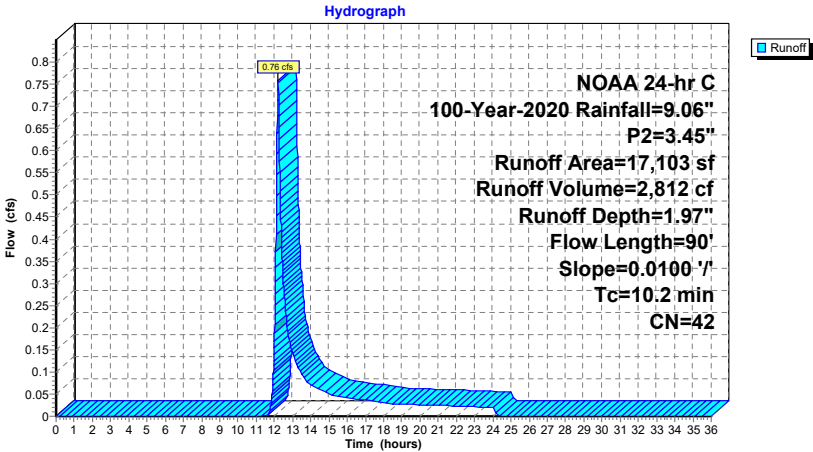
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 14,703    | 39 | >75% Grass cover, Good, HSG A |
| 2,400     | 61 | >75% Grass cover, Good, HSG B |
| 17,103    | 42 | Weighted Average              |
| 17,103    |    | 100.00% Pervious Area         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                              |
|-------------|------------------|------------------|----------------------|-------------------|------------------------------------------------------------------------------------------|
| 9.1         | 42               | 0.0100           | 0.08                 |                   | <b>Sheet Flow,</b><br>Grass: Dense n= 0.240 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 1.1         | 48               | 0.0100           | 0.70                 |                   | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                     |
| 10.2        | 90               |                  |                      |                   | Total                                                                                    |



Subcatchment 63S: GI-13 Pervious



Hydrograph for Subcatchment 63S: GI-13 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 1.97               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 1.97               | 0.00            |
| 1.00            | 0.10                | 0.00               | 0.00            | 27.00           | 9.06                | 1.97               | 0.00            |
| 1.50            | 0.15                | 0.00               | 0.00            | 27.50           | 9.06                | 1.97               | 0.00            |
| 2.00            | 0.20                | 0.00               | 0.00            | 28.00           | 9.06                | 1.97               | 0.00            |
| 2.50            | 0.26                | 0.00               | 0.00            | 28.50           | 9.06                | 1.97               | 0.00            |
| 3.00            | 0.32                | 0.00               | 0.00            | 29.00           | 9.06                | 1.97               | 0.00            |
| 3.50            | 0.38                | 0.00               | 0.00            | 29.50           | 9.06                | 1.97               | 0.00            |
| 4.00            | 0.44                | 0.00               | 0.00            | 30.00           | 9.06                | 1.97               | 0.00            |
| 4.50            | 0.51                | 0.00               | 0.00            | 30.50           | 9.06                | 1.97               | 0.00            |
| 5.00            | 0.58                | 0.00               | 0.00            | 31.00           | 9.06                | 1.97               | 0.00            |
| 5.50            | 0.65                | 0.00               | 0.00            | 31.50           | 9.06                | 1.97               | 0.00            |
| 6.00            | 0.72                | 0.00               | 0.00            | 32.00           | 9.06                | 1.97               | 0.00            |
| 6.50            | 0.80                | 0.00               | 0.00            | 32.50           | 9.06                | 1.97               | 0.00            |
| 7.00            | 0.88                | 0.00               | 0.00            | 33.00           | 9.06                | 1.97               | 0.00            |
| 7.50            | 0.98                | 0.00               | 0.00            | 33.50           | 9.06                | 1.97               | 0.00            |
| 8.00            | 1.09                | 0.00               | 0.00            | 34.00           | 9.06                | 1.97               | 0.00            |
| 8.50            | 1.20                | 0.00               | 0.00            | 34.50           | 9.06                | 1.97               | 0.00            |
| 9.00            | 1.32                | 0.00               | 0.00            | 35.00           | 9.06                | 1.97               | 0.00            |
| 9.50            | 1.47                | 0.00               | 0.00            | 35.50           | 9.06                | 1.97               | 0.00            |
| 10.00           | 1.65                | 0.00               | 0.00            | 36.00           | 9.06                | 1.97               | 0.00            |
| 10.50           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.17                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 2.68                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 4.32                | 0.16               | 0.17            |                 |                     |                    |                 |
| 12.50           | 6.38                | 0.75               | 0.30            |                 |                     |                    |                 |
| 13.00           | 6.89                | 0.95               | 0.14            |                 |                     |                    |                 |
| 13.50           | 7.19                | 1.08               | 0.09            |                 |                     |                    |                 |
| 14.00           | 7.41                | 1.17               | 0.07            |                 |                     |                    |                 |
| 14.50           | 7.59                | 1.25               | 0.06            |                 |                     |                    |                 |
| 15.00           | 7.74                | 1.32               | 0.05            |                 |                     |                    |                 |
| 15.50           | 7.86                | 1.37               | 0.04            |                 |                     |                    |                 |
| 16.00           | 7.97                | 1.43               | 0.04            |                 |                     |                    |                 |
| 16.50           | 8.08                | 1.48               | 0.04            |                 |                     |                    |                 |
| 17.00           | 8.18                | 1.52               | 0.04            |                 |                     |                    |                 |
| 17.50           | 8.26                | 1.57               | 0.03            |                 |                     |                    |                 |
| 18.00           | 8.34                | 1.61               | 0.03            |                 |                     |                    |                 |
| 18.50           | 8.41                | 1.64               | 0.03            |                 |                     |                    |                 |
| 19.00           | 8.48                | 1.68               | 0.03            |                 |                     |                    |                 |
| 19.50           | 8.55                | 1.71               | 0.03            |                 |                     |                    |                 |
| 20.00           | 8.62                | 1.74               | 0.03            |                 |                     |                    |                 |
| 20.50           | 8.68                | 1.78               | 0.03            |                 |                     |                    |                 |
| 21.00           | 8.74                | 1.81               | 0.02            |                 |                     |                    |                 |
| 21.50           | 8.80                | 1.84               | 0.02            |                 |                     |                    |                 |
| 22.00           | 8.86                | 1.87               | 0.02            |                 |                     |                    |                 |
| 22.50           | 8.91                | 1.89               | 0.02            |                 |                     |                    |                 |
| 23.00           | 8.96                | 1.92               | 0.02            |                 |                     |                    |                 |
| 23.50           | 9.01                | 1.95               | 0.02            |                 |                     |                    |                 |
| 24.00           | 9.06                | 1.97               | 0.02            |                 |                     |                    |                 |
| 24.50           | 9.06                | 1.97               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 1.97               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 1.97               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 64S: Wetland Pervious

Runoff = 1.00 cfs @ 12.23 hrs, Volume= 6,236 cf, Depth= 0.99"  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

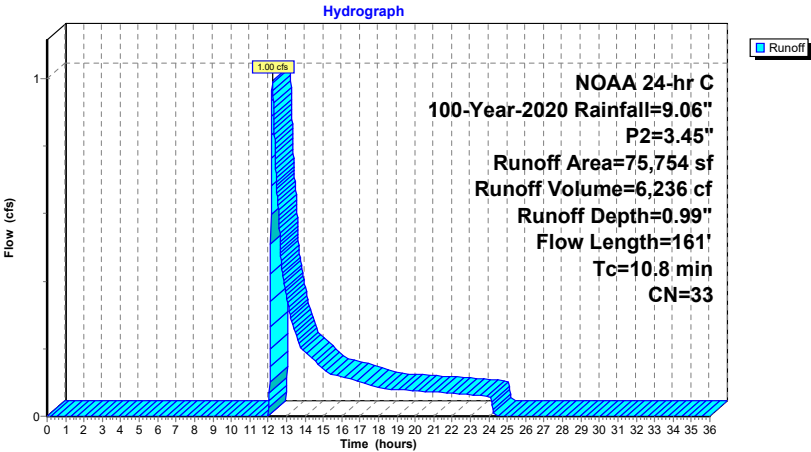
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 24,790    | 39 | >75% Grass cover, Good, HSG A |
| 50,964    | 30 | Woods, Good, HSG A            |
| 75,754    | 33 | Weighted Average              |
| 75,754    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                  |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------|
| 9.1      | 39            | 0.0240        | 0.07              |                | Sheet Flow,<br>Woods: Light underbrush n= 0.400 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 1.7      | 122           | 0.0570        | 1.19              |                | Shallow Concentrated Flow,<br>Woodland Kv= 5.0 fps                                           |
| 10.8     | 161           |               |                   |                | Total                                                                                        |



Subcatchment 64S: Wetland Pervious



**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Hydrograph for Subcatchment 64S: Wetland Pervious**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 0.99               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 0.99               | 0.00            |
| 1.00            | 0.10                | 0.00               | 0.00            | 27.00           | 9.06                | 0.99               | 0.00            |
| 1.50            | 0.15                | 0.00               | 0.00            | 27.50           | 9.06                | 0.99               | 0.00            |
| 2.00            | 0.20                | 0.00               | 0.00            | 28.00           | 9.06                | 0.99               | 0.00            |
| 2.50            | 0.26                | 0.00               | 0.00            | 28.50           | 9.06                | 0.99               | 0.00            |
| 3.00            | 0.32                | 0.00               | 0.00            | 29.00           | 9.06                | 0.99               | 0.00            |
| 3.50            | 0.38                | 0.00               | 0.00            | 29.50           | 9.06                | 0.99               | 0.00            |
| 4.00            | 0.44                | 0.00               | 0.00            | 30.00           | 9.06                | 0.99               | 0.00            |
| 4.50            | 0.51                | 0.00               | 0.00            | 30.50           | 9.06                | 0.99               | 0.00            |
| 5.00            | 0.58                | 0.00               | 0.00            | 31.00           | 9.06                | 0.99               | 0.00            |
| 5.50            | 0.65                | 0.00               | 0.00            | 31.50           | 9.06                | 0.99               | 0.00            |
| 6.00            | 0.72                | 0.00               | 0.00            | 32.00           | 9.06                | 0.99               | 0.00            |
| 6.50            | 0.80                | 0.00               | 0.00            | 32.50           | 9.06                | 0.99               | 0.00            |
| 7.00            | 0.88                | 0.00               | 0.00            | 33.00           | 9.06                | 0.99               | 0.00            |
| 7.50            | 0.98                | 0.00               | 0.00            | 33.50           | 9.06                | 0.99               | 0.00            |
| 8.00            | 1.09                | 0.00               | 0.00            | 34.00           | 9.06                | 0.99               | 0.00            |
| 8.50            | 1.20                | 0.00               | 0.00            | 34.50           | 9.06                | 0.99               | 0.00            |
| 9.00            | 1.32                | 0.00               | 0.00            | 35.00           | 9.06                | 0.99               | 0.00            |
| 9.50            | 1.47                | 0.00               | 0.00            | 35.50           | 9.06                | 0.99               | 0.00            |
| 10.00           | 1.65                | 0.00               | 0.00            | 36.00           | 9.06                | 0.99               | 0.00            |
| 10.50           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.17                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 2.68                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 4.32                | 0.00               | <b>0.00</b>     |                 |                     |                    |                 |
| 12.50           | 6.38                | 0.24               | <b>0.65</b>     |                 |                     |                    |                 |
| 13.00           | 6.89                | 0.35               | 0.36            |                 |                     |                    |                 |
| 13.50           | 7.19                | 0.42               | 0.24            |                 |                     |                    |                 |
| 14.00           | 7.41                | 0.47               | 0.19            |                 |                     |                    |                 |
| 14.50           | 7.59                | 0.52               | 0.17            |                 |                     |                    |                 |
| 15.00           | 7.74                | 0.56               | 0.14            |                 |                     |                    |                 |
| 15.50           | 7.86                | 0.60               | 0.12            |                 |                     |                    |                 |
| 16.00           | 7.97                | 0.63               | 0.12            |                 |                     |                    |                 |
| 16.50           | 8.08                | 0.66               | 0.11            |                 |                     |                    |                 |
| 17.00           | 8.18                | 0.69               | 0.10            |                 |                     |                    |                 |
| 17.50           | 8.26                | 0.72               | 0.09            |                 |                     |                    |                 |
| 18.00           | 8.34                | 0.75               | 0.09            |                 |                     |                    |                 |
| 18.50           | 8.41                | 0.77               | 0.08            |                 |                     |                    |                 |
| 19.00           | 8.48                | 0.79               | 0.08            |                 |                     |                    |                 |
| 19.50           | 8.55                | 0.81               | 0.08            |                 |                     |                    |                 |
| 20.00           | 8.62                | 0.83               | 0.08            |                 |                     |                    |                 |
| 20.50           | 8.68                | 0.86               | 0.07            |                 |                     |                    |                 |
| 21.00           | 8.74                | 0.88               | 0.07            |                 |                     |                    |                 |
| 21.50           | 8.80                | 0.90               | 0.07            |                 |                     |                    |                 |
| 22.00           | 8.86                | 0.92               | 0.07            |                 |                     |                    |                 |
| 22.50           | 8.91                | 0.93               | 0.07            |                 |                     |                    |                 |
| 23.00           | 8.96                | 0.95               | 0.06            |                 |                     |                    |                 |
| 23.50           | 9.01                | 0.97               | 0.06            |                 |                     |                    |                 |
| 24.00           | <b>9.06</b>         | <b>0.99</b>        | 0.06            |                 |                     |                    |                 |
| 24.50           | 9.06                | 0.99               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 0.99               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 0.99               | 0.00            |                 |                     |                    |                 |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Summary for Subcatchment 67S: Wetland Impervious**

Runoff = 2.90 cfs @ 12.09 hrs, Volume= 8,722 cf, Depth= 8.82"  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

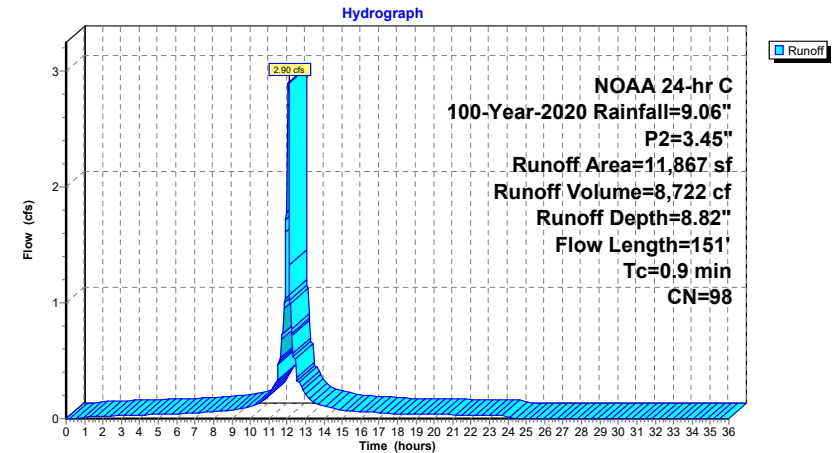
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 11,867    | 98 | Paved parking, HSG A    |
| 11,867    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                        |
|----------|---------------|---------------|-------------------|----------------|--------------------------------------------------------------------|
| 0.5      | 36            | 0.0200        | 1.16              |                | <b>Sheet Flow,</b><br>Smooth surfaces n= 0.011 P2= 3.45"           |
| 0.4      | 115           | 0.1250        | 5.30              |                | <b>Shallow Concentrated Flow,</b><br>Grassed Waterway Kv= 15.0 fps |
| 0.9      | 151           | Total         |                   |                |                                                                    |

Subcatchment 67S: Wetland Impervious

**Subcatchment 67S: Wetland Impervious**

**Hydrograph for Subcatchment 67S: Wetland Impervious**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 8.82               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 8.82               | 0.00            |
| 1.00            | 0.10                | 0.01               | 0.01            | 27.00           | 9.06                | 8.82               | 0.00            |
| 1.50            | 0.15                | 0.04               | 0.02            | 27.50           | 9.06                | 8.82               | 0.00            |
| 2.00            | 0.20                | 0.07               | 0.02            | 28.00           | 9.06                | 8.82               | 0.00            |
| 2.50            | 0.26                | 0.11               | 0.02            | 28.50           | 9.06                | 8.82               | 0.00            |
| 3.00            | 0.32                | 0.16               | 0.03            | 29.00           | 9.06                | 8.82               | 0.00            |
| 3.50            | 0.38                | 0.21               | 0.03            | 29.50           | 9.06                | 8.82               | 0.00            |
| 4.00            | 0.44                | 0.27               | 0.03            | 30.00           | 9.06                | 8.82               | 0.00            |
| 4.50            | 0.51                | 0.33               | 0.03            | 30.50           | 9.06                | 8.82               | 0.00            |
| 5.00            | 0.58                | 0.39               | 0.03            | 31.00           | 9.06                | 8.82               | 0.00            |
| 5.50            | 0.65                | 0.45               | 0.04            | 31.50           | 9.06                | 8.82               | 0.00            |
| 6.00            | 0.72                | 0.52               | 0.04            | 32.00           | 9.06                | 8.82               | 0.00            |
| 6.50            | 0.80                | 0.59               | 0.04            | 32.50           | 9.06                | 8.82               | 0.00            |
| 7.00            | 0.88                | 0.68               | 0.05            | 33.00           | 9.06                | 8.82               | 0.00            |
| 7.50            | 0.98                | 0.77               | 0.05            | 33.50           | 9.06                | 8.82               | 0.00            |
| 8.00            | 1.09                | 0.87               | 0.06            | 34.00           | 9.06                | 8.82               | 0.00            |
| 8.50            | 1.20                | 0.99               | 0.06            | 34.50           | 9.06                | 8.82               | 0.00            |
| 9.00            | 1.32                | 1.11               | 0.07            | 35.00           | 9.06                | 8.82               | 0.00            |
| 9.50            | 1.47                | 1.25               | 0.09            | 35.50           | 9.06                | 8.82               | 0.00            |
| 10.00           | 1.65                | 1.43               | 0.11            | 36.00           | 9.06                | 8.82               | 0.00            |
| 10.50           | 1.87                | 1.64               | 0.12            |                 |                     |                    |                 |
| 11.00           | 2.17                | 1.95               | 0.20            |                 |                     |                    |                 |
| 11.50           | 2.68                | 2.45               | 0.32            |                 |                     |                    |                 |
| 12.00           | 4.32                | 4.08               | <b>1.74</b>     |                 |                     |                    |                 |
| 12.50           | 6.38                | 6.14               | <b>0.50</b>     |                 |                     |                    |                 |
| 13.00           | 6.89                | 6.65               | 0.22            |                 |                     |                    |                 |
| 13.50           | 7.19                | 6.95               | 0.14            |                 |                     |                    |                 |
| 14.00           | 7.41                | 7.17               | 0.11            |                 |                     |                    |                 |
| 14.50           | 7.59                | 7.35               | 0.09            |                 |                     |                    |                 |
| 15.00           | 7.74                | 7.50               | 0.07            |                 |                     |                    |                 |
| 15.50           | 7.86                | 7.62               | 0.07            |                 |                     |                    |                 |
| 16.00           | 7.97                | 7.73               | 0.06            |                 |                     |                    |                 |
| 16.50           | 8.08                | 7.84               | 0.06            |                 |                     |                    |                 |
| 17.00           | 8.18                | 7.94               | 0.05            |                 |                     |                    |                 |
| 17.50           | 8.26                | 8.02               | 0.05            |                 |                     |                    |                 |
| 18.00           | 8.34                | 8.10               | 0.04            |                 |                     |                    |                 |
| 18.50           | 8.41                | 8.17               | 0.04            |                 |                     |                    |                 |
| 19.00           | 8.48                | 8.24               | 0.04            |                 |                     |                    |                 |
| 19.50           | 8.55                | 8.31               | 0.04            |                 |                     |                    |                 |
| 20.00           | 8.62                | 8.38               | 0.04            |                 |                     |                    |                 |
| 20.50           | 8.68                | 8.44               | 0.03            |                 |                     |                    |                 |
| 21.00           | 8.74                | 8.50               | 0.03            |                 |                     |                    |                 |
| 21.50           | 8.80                | 8.56               | 0.03            |                 |                     |                    |                 |
| 22.00           | 8.86                | 8.61               | 0.03            |                 |                     |                    |                 |
| 22.50           | 8.91                | 8.67               | 0.03            |                 |                     |                    |                 |
| 23.00           | 8.96                | 8.72               | 0.03            |                 |                     |                    |                 |
| 23.50           | 9.01                | 8.77               | 0.03            |                 |                     |                    |                 |
| 24.00           | <b>9.06</b>         | <b>8.82</b>        | 0.03            |                 |                     |                    |                 |
| 24.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |

**Summary for Subcatchment 68S: GI-12 Pervious**

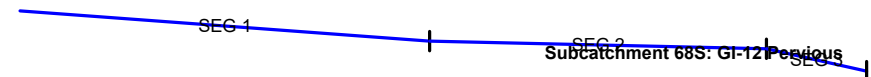
Runoff = 3.42 cfs @ 12.14 hrs, Volume= 10,048 cf, Depth= 2.21"  
 Routed to Pond 60P : GI-12

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

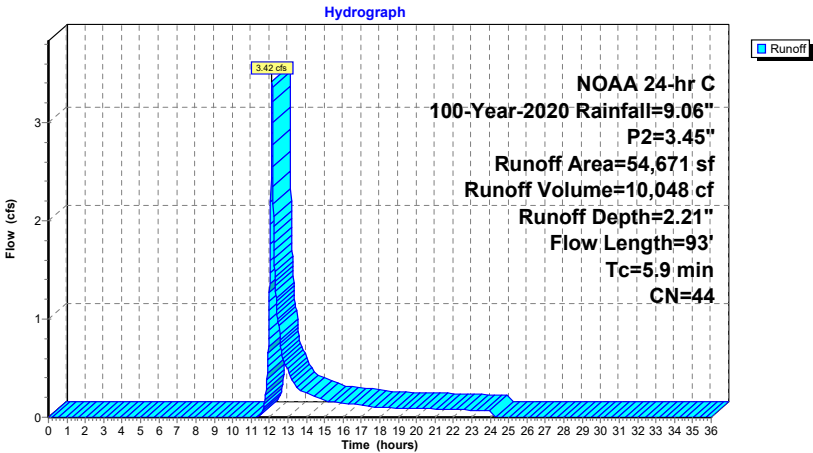
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 42,609    | 39 | >75% Grass cover, Good, HSG A |
| 12,062    | 61 | >75% Grass cover, Good, HSG B |
| 54,671    | 44 | Weighted Average              |
| 54,671    |    | 100.00% Pervious Area         |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                |
|-------------|------------------|------------------|----------------------|-------------------|----------------------------------------------------------------------------|
| 5.2         | 45               | 0.0450           | 0.14                 |                   | <b>Sheet Flow, SEG 1</b><br>Grass: Dense n= 0.240 P2= 3.45"                |
| 0.6         | 37               | 0.0140           | 1.02                 |                   | <b>Sheet Flow, SEG 2</b><br>Smooth surfaces n= 0.011 P2= 3.45"             |
| 0.1         | 11               | 0.1360           | 2.58                 |                   | <b>Shallow Concentrated Flow, SEG 3</b><br>Short Grass Pasture Kv= 7.0 fps |
| 5.9         | 93               | Total            |                      |                   |                                                                            |



Subcatchment 68S: GI-12 Pervious



Hydrograph for Subcatchment 68S: GI-12 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 2.21               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 2.21               | 0.00            |
| 1.00            | 0.10                | 0.00               | 0.00            | 27.00           | 9.06                | 2.21               | 0.00            |
| 1.50            | 0.15                | 0.00               | 0.00            | 27.50           | 9.06                | 2.21               | 0.00            |
| 2.00            | 0.20                | 0.00               | 0.00            | 28.00           | 9.06                | 2.21               | 0.00            |
| 2.50            | 0.26                | 0.00               | 0.00            | 28.50           | 9.06                | 2.21               | 0.00            |
| 3.00            | 0.32                | 0.00               | 0.00            | 29.00           | 9.06                | 2.21               | 0.00            |
| 3.50            | 0.38                | 0.00               | 0.00            | 29.50           | 9.06                | 2.21               | 0.00            |
| 4.00            | 0.44                | 0.00               | 0.00            | 30.00           | 9.06                | 2.21               | 0.00            |
| 4.50            | 0.51                | 0.00               | 0.00            | 30.50           | 9.06                | 2.21               | 0.00            |
| 5.00            | 0.58                | 0.00               | 0.00            | 31.00           | 9.06                | 2.21               | 0.00            |
| 5.50            | 0.65                | 0.00               | 0.00            | 31.50           | 9.06                | 2.21               | 0.00            |
| 6.00            | 0.72                | 0.00               | 0.00            | 32.00           | 9.06                | 2.21               | 0.00            |
| 6.50            | 0.80                | 0.00               | 0.00            | 32.50           | 9.06                | 2.21               | 0.00            |
| 7.00            | 0.88                | 0.00               | 0.00            | 33.00           | 9.06                | 2.21               | 0.00            |
| 7.50            | 0.98                | 0.00               | 0.00            | 33.50           | 9.06                | 2.21               | 0.00            |
| 8.00            | 1.09                | 0.00               | 0.00            | 34.00           | 9.06                | 2.21               | 0.00            |
| 8.50            | 1.20                | 0.00               | 0.00            | 34.50           | 9.06                | 2.21               | 0.00            |
| 9.00            | 1.32                | 0.00               | 0.00            | 35.00           | 9.06                | 2.21               | 0.00            |
| 9.50            | 1.47                | 0.00               | 0.00            | 35.50           | 9.06                | 2.21               | 0.00            |
| 10.00           | 1.65                | 0.00               | 0.00            | 36.00           | 9.06                | 2.21               | 0.00            |
| 10.50           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.17                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 2.68                | 0.00               | 0.01            |                 |                     |                    |                 |
| 12.00           | 4.32                | 0.22               | 1.18            |                 |                     |                    |                 |
| 12.50           | 6.38                | 0.89               | 0.95            |                 |                     |                    |                 |
| 13.00           | 6.89                | 1.10               | 0.47            |                 |                     |                    |                 |
| 13.50           | 7.19                | 1.24               | 0.31            |                 |                     |                    |                 |
| 14.00           | 7.41                | 1.34               | 0.25            |                 |                     |                    |                 |
| 14.50           | 7.59                | 1.43               | 0.21            |                 |                     |                    |                 |
| 15.00           | 7.74                | 1.50               | 0.17            |                 |                     |                    |                 |
| 15.50           | 7.86                | 1.57               | 0.15            |                 |                     |                    |                 |
| 16.00           | 7.97                | 1.62               | 0.14            |                 |                     |                    |                 |
| 16.50           | 8.08                | 1.68               | 0.13            |                 |                     |                    |                 |
| 17.00           | 8.18                | 1.73               | 0.12            |                 |                     |                    |                 |
| 17.50           | 8.26                | 1.77               | 0.11            |                 |                     |                    |                 |
| 18.00           | 8.34                | 1.81               | 0.10            |                 |                     |                    |                 |
| 18.50           | 8.41                | 1.85               | 0.10            |                 |                     |                    |                 |
| 19.00           | 8.48                | 1.89               | 0.09            |                 |                     |                    |                 |
| 19.50           | 8.55                | 1.93               | 0.09            |                 |                     |                    |                 |
| 20.00           | 8.62                | 1.96               | 0.09            |                 |                     |                    |                 |
| 20.50           | 8.68                | 1.99               | 0.09            |                 |                     |                    |                 |
| 21.00           | 8.74                | 2.03               | 0.08            |                 |                     |                    |                 |
| 21.50           | 8.80                | 2.06               | 0.08            |                 |                     |                    |                 |
| 22.00           | 8.86                | 2.09               | 0.08            |                 |                     |                    |                 |
| 22.50           | 8.91                | 2.12               | 0.07            |                 |                     |                    |                 |
| 23.00           | 8.96                | 2.15               | 0.07            |                 |                     |                    |                 |
| 23.50           | 9.01                | 2.18               | 0.07            |                 |                     |                    |                 |
| 24.00           | 9.06                | 2.21               | 0.08            |                 |                     |                    |                 |
| 24.50           | 9.06                | 2.21               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 2.21               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 2.21               | 0.00            |                 |                     |                    |                 |

Summary for Pond 8P: GI-13

Inflow Area = 119,588 sf, 39.98% Impervious, Inflow Depth = 1.06" for 100-Year-2020 event  
Inflow = 0.86 cfs @ 12.21 hrs, Volume= 10,522 cf  
Outflow = 0.06 cfs @ 20.29 hrs, Volume= 5,372 cf, Atten= 93%, Lag= 485.0 min  
Discarded = 0.06 cfs @ 20.29 hrs, Volume= 5,372 cf  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 127.66' @ 20.29 hrs Surf.Area= 5,498 sf Storage= 7,892 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)  
Center-of-Mass det. time= 552.9 min ( 1,436.4 - 883.5 )

| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 126.00'           | 23,208 cf              | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 126.00           | 4,028             | 0                      | 0                                                   |
| 130.00           | 7,576             | 23,208                 | 23,208                                              |

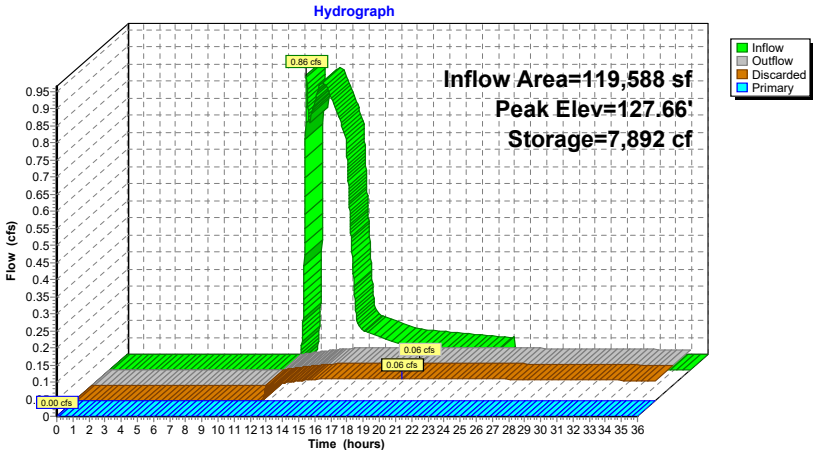
| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                                                                                                                          |
|--------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary   | 128.00' | 5.0' long + 3.0 ' SideZ x 6.0' breadth Broad-Crested Rectangular Weir<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00<br>2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65<br>2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83 |
| #2     | Discarded | 126.00' | 0.500 in/hr Exfiltration over Surface area<br>Conductivity to Groundwater Elevation = 1.00'                                                                                                                                                                                             |

Discarded OutFlow Max=0.06 cfs @ 20.29 hrs HW=127.66' (Free Discharge)  
2=Exfiltration ( Controls 0.06 cfs)

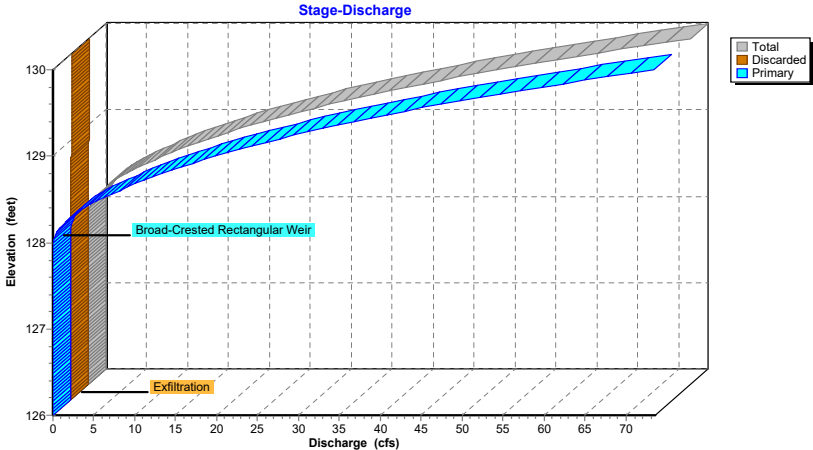
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=126.00' TW=123.25' (Dynamic Tailwater)  
1=Broad-Crested Rectangular Weir( Controls 0.00 cfs)



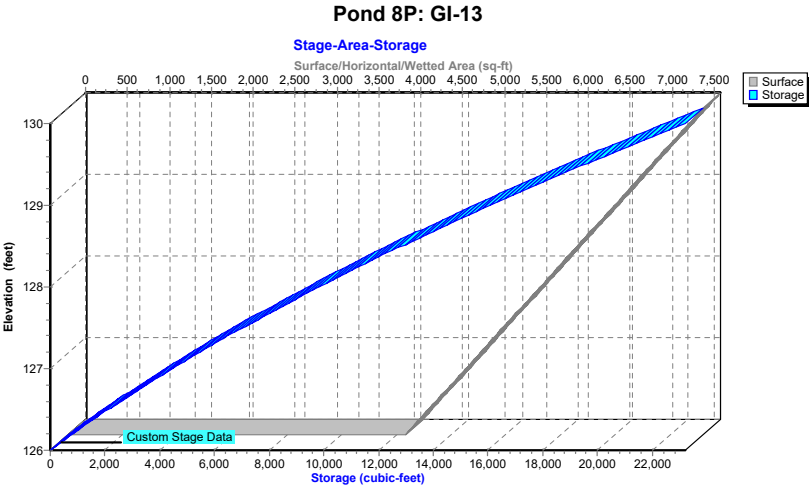
Pond 8P: GI-13



Pond 8P: GI-13







Hydrograph for Pond 8P: GI-13

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Outflow (cfs) | Discarded (cfs) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|-----------------|---------------|
| 0.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 1.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 2.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 3.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 4.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 5.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 6.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 7.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 8.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 9.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 10.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 11.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 12.00        | 0.17         | 24                   | 126.01           | 0.05          | 0.05            | 0.00          |
| 13.00        | 0.83         | 2,439                | 126.57           | 0.05          | 0.05            | 0.00          |
| 14.00        | 0.76         | 5,177                | 127.14           | 0.06          | 0.06            | 0.00          |
| 15.00        | 0.36         | 7,300                | 127.55           | 0.06          | 0.06            | 0.00          |
| 16.00        | 0.11         | 7,642                | 127.61           | 0.06          | 0.06            | 0.00          |
| 17.00        | 0.09         | 7,778                | 127.64           | 0.06          | 0.06            | 0.00          |
| 18.00        | 0.08         | 7,851                | 127.65           | 0.06          | 0.06            | 0.00          |
| 19.00        | 0.07         | 7,879                | 127.65           | 0.06          | 0.06            | 0.00          |
| 20.00        | 0.07         | 7,891                | 127.66           | 0.06          | 0.06            | 0.00          |
| 21.00        | 0.06         | 7,888                | 127.66           | 0.06          | 0.06            | 0.00          |
| 22.00        | 0.06         | 7,870                | 127.65           | 0.06          | 0.06            | 0.00          |
| 23.00        | 0.05         | 7,835                | 127.65           | 0.06          | 0.06            | 0.00          |
| 24.00        | 0.06         | 7,787                | 127.64           | 0.06          | 0.06            | 0.00          |
| 25.00        | 0.00         | 7,574                | 127.60           | 0.06          | 0.06            | 0.00          |
| 26.00        | 0.00         | 7,346                | 127.56           | 0.06          | 0.06            | 0.00          |
| 27.00        | 0.00         | 7,119                | 127.51           | 0.06          | 0.06            | 0.00          |
| 28.00        | 0.00         | 6,894                | 127.47           | 0.06          | 0.06            | 0.00          |
| 29.00        | 0.00         | 6,670                | 127.43           | 0.06          | 0.06            | 0.00          |
| 30.00        | 0.00         | 6,448                | 127.39           | 0.06          | 0.06            | 0.00          |
| 31.00        | 0.00         | 6,227                | 127.35           | 0.06          | 0.06            | 0.00          |
| 32.00        | 0.00         | 6,009                | 127.30           | 0.06          | 0.06            | 0.00          |
| 33.00        | 0.00         | 5,792                | 127.26           | 0.06          | 0.06            | 0.00          |
| 34.00        | 0.00         | 5,576                | 127.22           | 0.06          | 0.06            | 0.00          |
| 35.00        | 0.00         | 5,363                | 127.18           | 0.06          | 0.06            | 0.00          |
| 36.00        | 0.00         | 5,150                | 127.14           | 0.06          | 0.06            | 0.00          |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 8P: GI-13**

| Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) |
|---------------------|--------------------|--------------------|------------------|---------------------|--------------------|--------------------|------------------|
| 126.00              | 0.00               | 0.00               | 0.00             | 128.60              | 8.16               | 0.07               | 8.08             |
| 126.05              | 0.05               | 0.05               | 0.00             | 128.65              | 9.34               | 0.08               | 9.26             |
| 126.10              | 0.05               | 0.05               | 0.00             | 128.70              | 10.60              | 0.08               | 10.52            |
| 126.15              | 0.05               | 0.05               | 0.00             | 128.75              | 11.94              | 0.08               | 11.86            |
| 126.20              | 0.05               | 0.05               | 0.00             | 128.80              | 13.35              | 0.08               | 13.27            |
| 126.25              | 0.05               | 0.05               | 0.00             | 128.85              | 14.86              | 0.08               | 14.79            |
| 126.30              | 0.05               | 0.05               | 0.00             | 128.90              | 16.46              | 0.08               | 16.38            |
| 126.35              | 0.05               | 0.05               | 0.00             | 128.95              | 18.14              | 0.08               | 18.07            |
| 126.40              | 0.05               | 0.05               | 0.00             | 129.00              | 19.91              | 0.08               | 19.83            |
| 126.45              | 0.05               | 0.05               | 0.00             | 129.05              | 21.74              | 0.08               | 21.66            |
| 126.50              | 0.05               | 0.05               | 0.00             | 129.10              | 23.66              | 0.08               | 23.58            |
| 126.55              | 0.05               | 0.05               | 0.00             | 129.15              | 25.66              | 0.08               | 25.58            |
| 126.60              | 0.05               | 0.05               | 0.00             | 129.20              | 27.74              | 0.08               | 27.66            |
| 126.65              | 0.05               | 0.05               | 0.00             | 129.25              | 29.88              | 0.08               | 29.80            |
| 126.70              | 0.05               | 0.05               | 0.00             | 129.30              | 32.10              | 0.08               | 32.01            |
| 126.75              | 0.05               | 0.05               | 0.00             | 129.35              | 34.40              | 0.08               | 34.32            |
| 126.80              | 0.06               | 0.06               | 0.00             | 129.40              | 36.78              | 0.08               | 36.70            |
| 126.85              | 0.06               | 0.06               | 0.00             | 129.45              | 39.32              | 0.08               | 39.24            |
| 126.90              | 0.06               | 0.06               | 0.00             | 129.50              | 41.95              | 0.08               | 41.87            |
| 126.95              | 0.06               | 0.06               | 0.00             | 129.55              | 44.68              | 0.08               | 44.59            |
| 127.00              | 0.06               | 0.06               | 0.00             | 129.60              | 47.50              | 0.09               | 47.41            |
| 127.05              | 0.06               | 0.06               | 0.00             | 129.65              | 50.41              | 0.09               | 50.32            |
| 127.10              | 0.06               | 0.06               | 0.00             | 129.70              | 53.42              | 0.09               | 53.33            |
| 127.15              | 0.06               | 0.06               | 0.00             | 129.75              | 56.53              | 0.09               | 56.44            |
| 127.20              | 0.06               | 0.06               | 0.00             | 129.80              | 59.73              | 0.09               | 59.64            |
| 127.25              | 0.06               | 0.06               | 0.00             | 129.85              | 63.04              | 0.09               | 62.95            |
| 127.30              | 0.06               | 0.06               | 0.00             | 129.90              | 66.44              | 0.09               | 66.35            |
| 127.35              | 0.06               | 0.06               | 0.00             | 129.95              | 69.94              | 0.09               | 69.85            |
| 127.40              | 0.06               | 0.06               | 0.00             | 130.00              | <b>73.54</b>       | <b>0.09</b>        | <b>73.45</b>     |
| 127.45              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.50              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.55              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.60              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.65              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.70              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.75              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.80              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.85              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.90              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.95              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 128.00              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 128.05              | 0.20               | 0.07               | 0.14             |                     |                    |                    |                  |
| 128.10              | 0.46               | 0.07               | 0.39             |                     |                    |                    |                  |
| 128.15              | 0.81               | 0.07               | 0.74             |                     |                    |                    |                  |
| 128.20              | 1.23               | 0.07               | 1.16             |                     |                    |                    |                  |
| 128.25              | 1.75               | 0.07               | 1.68             |                     |                    |                    |                  |
| 128.30              | 2.36               | 0.07               | 2.29             |                     |                    |                    |                  |
| 128.35              | 3.06               | 0.07               | 2.99             |                     |                    |                    |                  |
| 128.40              | 3.86               | 0.07               | 3.78             |                     |                    |                    |                  |
| 128.45              | 4.77               | 0.07               | 4.69             |                     |                    |                    |                  |
| 128.50              | 5.78               | 0.07               | 5.71             |                     |                    |                    |                  |
| 128.55              | 6.91               | 0.07               | 6.84             |                     |                    |                    |                  |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 8P: GI-13**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 126.00              | 4,028              | 0                       | 128.60              | 6,334              | 13,471                  |
| 126.05              | 4,072              | 203                     | 128.65              | 6,379              | 13,789                  |
| 126.10              | 4,117              | 407                     | 128.70              | 6,423              | 14,109                  |
| 126.15              | 4,161              | 614                     | 128.75              | 6,467              | 14,431                  |
| 126.20              | 4,205              | 823                     | 128.80              | 6,512              | 14,755                  |
| 126.25              | 4,250              | 1,035                   | 128.85              | 6,556              | 15,082                  |
| 126.30              | 4,294              | 1,248                   | 128.90              | 6,600              | 15,411                  |
| 126.35              | 4,338              | 1,464                   | 128.95              | 6,645              | 15,742                  |
| 126.40              | 4,383              | 1,682                   | 129.00              | 6,689              | 16,076                  |
| 126.45              | 4,427              | 1,902                   | 129.05              | 6,733              | 16,411                  |
| 126.50              | 4,472              | 2,125                   | 129.10              | 6,778              | 16,749                  |
| 126.55              | 4,516              | 2,350                   | 129.15              | 6,822              | 17,089                  |
| 126.60              | 4,560              | 2,576                   | 129.20              | 6,866              | 17,431                  |
| 126.65              | 4,605              | 2,806                   | 129.25              | 6,911              | 17,775                  |
| 126.70              | 4,649              | 3,037                   | 129.30              | 6,955              | 18,122                  |
| 126.75              | 4,693              | 3,270                   | 129.35              | 6,999              | 18,471                  |
| 126.80              | 4,738              | 3,506                   | 129.40              | 7,044              | 18,822                  |
| 126.85              | 4,782              | 3,744                   | 129.45              | 7,088              | 19,175                  |
| 126.90              | 4,826              | 3,984                   | 129.50              | 7,133              | 19,531                  |
| 126.95              | 4,871              | 4,227                   | 129.55              | 7,177              | 19,889                  |
| 127.00              | 4,915              | 4,472                   | 129.60              | 7,221              | 20,249                  |
| 127.05              | 4,959              | 4,718                   | 129.65              | 7,266              | 20,611                  |
| 127.10              | 5,004              | 4,967                   | 129.70              | 7,310              | 20,975                  |
| 127.15              | 5,048              | 5,219                   | 129.75              | 7,354              | 21,342                  |
| 127.20              | 5,092              | 5,472                   | 129.80              | 7,399              | 21,711                  |
| 127.25              | 5,137              | 5,728                   | 129.85              | 7,443              | 22,082                  |
| 127.30              | 5,181              | 5,986                   | 129.90              | 7,487              | 22,455                  |
| 127.35              | 5,225              | 6,246                   | 129.95              | 7,532              | 22,830                  |
| 127.40              | 5,270              | 6,508                   | 130.00              | <b>7,576</b>       | <b>23,208</b>           |
| 127.45              | 5,314              | 6,773                   |                     |                    |                         |
| 127.50              | 5,359              | 7,040                   |                     |                    |                         |
| 127.55              | 5,403              | 7,309                   |                     |                    |                         |
| 127.60              | 5,447              | 7,580                   |                     |                    |                         |
| 127.65              | 5,492              | 7,854                   |                     |                    |                         |
| 127.70              | 5,536              | 8,129                   |                     |                    |                         |
| 127.75              | 5,580              | 8,407                   |                     |                    |                         |
| 127.80              | 5,625              | 8,687                   |                     |                    |                         |
| 127.85              | 5,669              | 8,970                   |                     |                    |                         |
| 127.90              | 5,713              | 9,254                   |                     |                    |                         |
| 127.95              | 5,758              | 9,541                   |                     |                    |                         |
| 128.00              | 5,802              | 9,830                   |                     |                    |                         |
| 128.05              | 5,846              | 10,121                  |                     |                    |                         |
| 128.10              | 5,891              | 10,415                  |                     |                    |                         |
| 128.15              | 5,935              | 10,710                  |                     |                    |                         |
| 128.20              | 5,979              | 11,008                  |                     |                    |                         |
| 128.25              | 6,024              | 11,308                  |                     |                    |                         |
| 128.30              | 6,068              | 11,611                  |                     |                    |                         |
| 128.35              | 6,112              | 11,915                  |                     |                    |                         |
| 128.40              | 6,157              | 12,222                  |                     |                    |                         |
| 128.45              | 6,201              | 12,531                  |                     |                    |                         |
| 128.50              | 6,246              | 12,842                  |                     |                    |                         |
| 128.55              | 6,290              | 13,155                  |                     |                    |                         |

Summary for Pond 46P: GI-10

Inflow Area = 32,730 sf, 60.20% Impervious, Inflow Depth = 5.96" for 100-Year-2020 event  
Inflow = 4.87 cfs @ 12.12 hrs, Volume= 16,251 cf  
Outflow = 4.14 cfs @ 12.15 hrs, Volume= 10,445 cf, Atten= 15%, Lag= 1.9 min  
Primary = 4.14 cfs @ 12.15 hrs, Volume= 10,445 cf  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

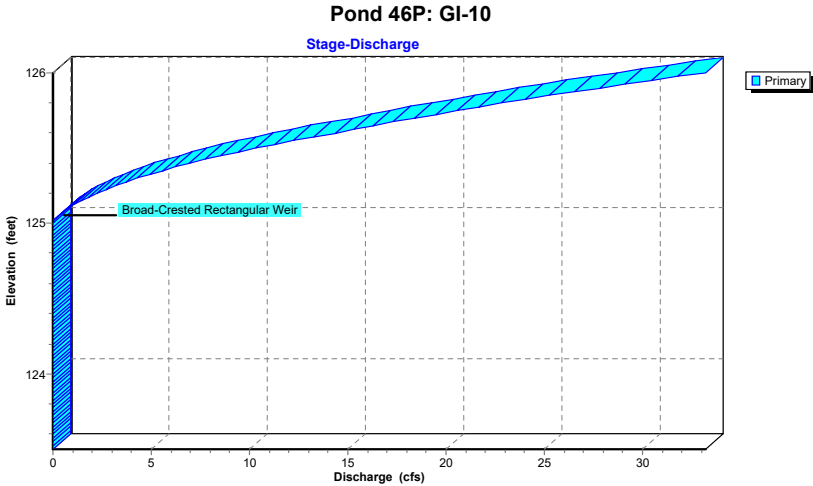
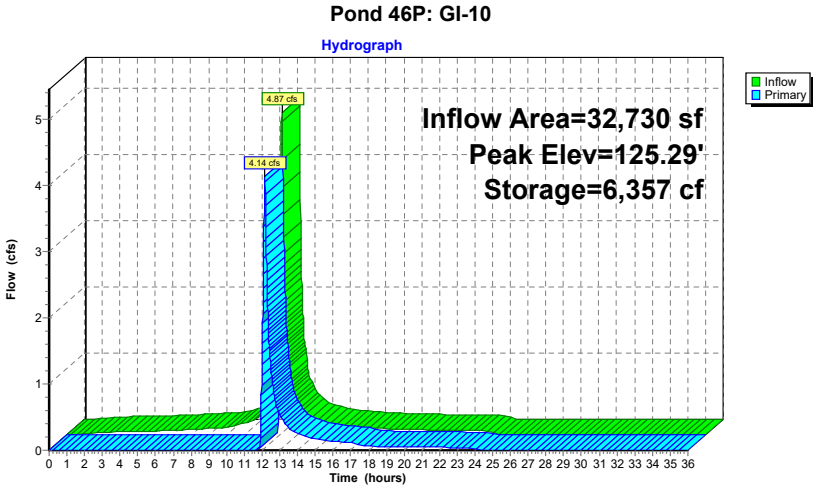
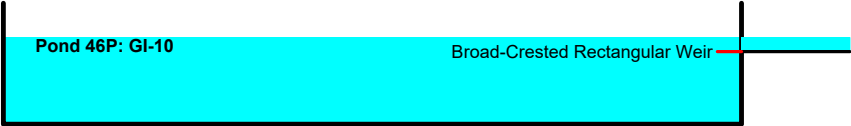
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 125.29' @ 12.15 hrs Surf.Area= 4,477 sf Storage= 6,357 cf

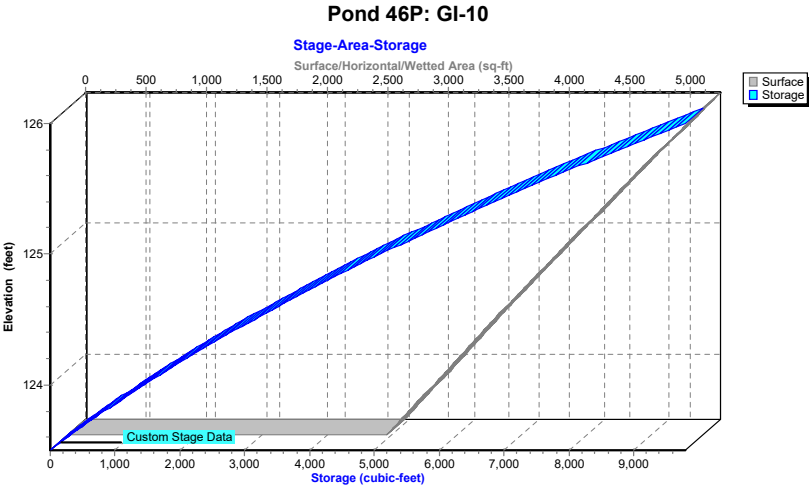
Plug-Flow detention time= 193.2 min calculated for 10,442 cf (64% of inflow)  
Center-of-Mass det. time= 78.4 min ( 835.6 - 757.2 )

| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 123.50'           | 9,792 cf               | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 123.50           | 2,638             | 0                      | 0                                                   |
| 124.50           | 3,639             | 3,139                  | 3,139                                               |
| 125.50           | 4,696             | 4,168                  | 7,306                                               |
| 126.00           | 5,246             | 2,486                  | 9,792                                               |

| Device | Routing | Invert  | Outlet Devices                                                           |
|--------|---------|---------|--------------------------------------------------------------------------|
| #1     | Primary | 125.00' | 10.0' long + 3.0 ' / SideZ x 6.0' breadth Broad-Crested Rectangular Weir |
|        |         |         | Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00            |
|        |         |         | 2.50 3.00 3.50 4.00 4.50 5.00 5.50                                       |
|        |         |         | Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65             |
|        |         |         | 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83                                  |

Primary OutFlow Max=4.14 cfs @ 12.15 hrs HW=125.29' TW=124.23' (Dynamic Tailwater)  
1=Broad-Crested Rectangular Weir (Weir Controls 4.14 cfs @ 1.30 fps)





Hydrograph for Pond 46P: GI-10

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 123.50           | 0.00          |
| 1.00         | 0.02         | 17                   | 123.51           | 0.00          |
| 2.00         | 0.03         | 111                  | 123.54           | 0.00          |
| 3.00         | 0.04         | 253                  | 123.59           | 0.00          |
| 4.00         | 0.05         | 426                  | 123.66           | 0.00          |
| 5.00         | 0.06         | 622                  | 123.73           | 0.00          |
| 6.00         | 0.06         | 839                  | 123.80           | 0.00          |
| 7.00         | 0.08         | 1,094                | 123.89           | 0.00          |
| 8.00         | 0.10         | 1,411                | 123.99           | 0.00          |
| 9.00         | 0.11         | 1,788                | 124.11           | 0.00          |
| 10.00        | 0.17         | 2,304                | 124.26           | 0.00          |
| 11.00        | 0.32         | 3,116                | 124.49           | 0.00          |
| 12.00        | 2.75         | 5,737                | 125.15           | 1.46          |
| 13.00        | 0.47         | 5,425                | 125.08           | 0.54          |
| 14.00        | 0.23         | 5,288                | 125.05           | 0.25          |
| 15.00        | 0.16         | 5,245                | 125.04           | 0.17          |
| 16.00        | 0.13         | 5,222                | 125.03           | 0.13          |
| 17.00        | 0.11         | 5,209                | 125.03           | 0.11          |
| 18.00        | 0.09         | 5,262                | 125.04           | 0.06          |
| 19.00        | 0.08         | 5,365                | 125.07           | 0.05          |
| 20.00        | 0.08         | 5,464                | 125.09           | 0.05          |
| 21.00        | 0.07         | 5,557                | 125.11           | 0.05          |
| 22.00        | 0.07         | 5,644                | 125.13           | 0.04          |
| 23.00        | 0.06         | 5,724                | 125.15           | 0.04          |
| 24.00        | 0.07         | 5,798                | 125.17           | 0.04          |
| 25.00        | 0.00         | 5,807                | 125.17           | 0.00          |
| 26.00        | 0.00         | 5,807                | 125.17           | 0.00          |
| 27.00        | 0.00         | 5,807                | 125.17           | 0.00          |
| 28.00        | 0.00         | 5,807                | 125.17           | 0.00          |
| 29.00        | 0.00         | 5,807                | 125.17           | 0.00          |
| 30.00        | 0.00         | 5,807                | 125.17           | 0.00          |
| 31.00        | 0.00         | 5,807                | 125.17           | 0.00          |
| 32.00        | 0.00         | 5,807                | 125.17           | 0.00          |
| 33.00        | 0.00         | 5,806                | 125.17           | 0.00          |
| 34.00        | 0.00         | 5,806                | 125.17           | 0.00          |
| 35.00        | 0.00         | 5,806                | 125.17           | 0.00          |
| 36.00        | 0.00         | 5,806                | 125.17           | 0.00          |

Stage-Discharge for Pond 46P: GI-10

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 123.50              | 0.00             | 124.54              | 0.00             | 125.58              | 13.49            |
| 123.52              | 0.00             | 124.56              | 0.00             | 125.60              | 14.36            |
| 123.54              | 0.00             | 124.58              | 0.00             | 125.62              | 15.13            |
| 123.56              | 0.00             | 124.60              | 0.00             | 125.64              | 15.92            |
| 123.58              | 0.00             | 124.62              | 0.00             | 125.66              | 16.73            |
| 123.60              | 0.00             | 124.64              | 0.00             | 125.68              | 17.56            |
| 123.62              | 0.00             | 124.66              | 0.00             | 125.70              | 18.40            |
| 123.64              | 0.00             | 124.68              | 0.00             | 125.72              | 19.26            |
| 123.66              | 0.00             | 124.70              | 0.00             | 125.74              | 20.13            |
| 123.68              | 0.00             | 124.72              | 0.00             | 125.76              | 21.03            |
| 123.70              | 0.00             | 124.74              | 0.00             | 125.78              | 21.93            |
| 123.72              | 0.00             | 124.76              | 0.00             | 125.80              | 22.86            |
| 123.74              | 0.00             | 124.78              | 0.00             | 125.82              | 23.82            |
| 123.76              | 0.00             | 124.80              | 0.00             | 125.84              | 24.79            |
| 123.78              | 0.00             | 124.82              | 0.00             | 125.86              | 25.79            |
| 123.80              | 0.00             | 124.84              | 0.00             | 125.88              | 26.80            |
| 123.82              | 0.00             | 124.86              | 0.00             | 125.90              | 27.82            |
| 123.84              | 0.00             | 124.88              | 0.00             | 125.92              | 28.87            |
| 123.86              | 0.00             | 124.90              | 0.00             | 125.94              | 29.93            |
| 123.88              | 0.00             | 124.92              | 0.00             | 125.96              | 31.02            |
| 123.90              | 0.00             | 124.94              | 0.00             | 125.98              | 32.12            |
| 123.92              | 0.00             | 124.96              | 0.00             | 126.00              | 33.23            |
| 123.94              | 0.00             | 124.98              | 0.00             |                     |                  |
| 123.96              | 0.00             | 125.00              | 0.00             |                     |                  |
| 123.98              | 0.00             | 125.02              | 0.07             |                     |                  |
| 124.00              | 0.00             | 125.04              | 0.19             |                     |                  |
| 124.02              | 0.00             | 125.06              | 0.35             |                     |                  |
| 124.04              | 0.00             | 125.08              | 0.55             |                     |                  |
| 124.06              | 0.00             | 125.10              | 0.77             |                     |                  |
| 124.08              | 0.00             | 125.12              | 1.01             |                     |                  |
| 124.10              | 0.00             | 125.14              | 1.28             |                     |                  |
| 124.12              | 0.00             | 125.16              | 1.58             |                     |                  |
| 124.14              | 0.00             | 125.18              | 1.89             |                     |                  |
| 124.16              | 0.00             | 125.20              | 2.22             |                     |                  |
| 124.18              | 0.00             | 125.22              | 2.59             |                     |                  |
| 124.20              | 0.00             | 125.24              | 2.98             |                     |                  |
| 124.22              | 0.00             | 125.26              | 3.40             |                     |                  |
| 124.24              | 0.00             | 125.28              | 3.84             |                     |                  |
| 124.26              | 0.00             | 125.30              | 4.30             |                     |                  |
| 124.28              | 0.00             | 125.32              | 4.78             |                     |                  |
| 124.30              | 0.00             | 125.34              | 5.29             |                     |                  |
| 124.32              | 0.00             | 125.36              | 5.82             |                     |                  |
| 124.34              | 0.00             | 125.38              | 6.38             |                     |                  |
| 124.36              | 0.00             | 125.40              | 6.96             |                     |                  |
| 124.38              | 0.00             | 125.42              | 7.58             |                     |                  |
| 124.40              | 0.00             | 125.44              | 8.22             |                     |                  |
| 124.42              | 0.00             | 125.46              | 8.89             |                     |                  |
| 124.44              | 0.00             | 125.48              | 9.59             |                     |                  |
| 124.46              | 0.00             | 125.50              | 10.32            |                     |                  |
| 124.48              | 0.00             | 125.52              | 11.07            |                     |                  |
| 124.50              | 0.00             | 125.54              | 11.85            |                     |                  |
| 124.52              | 0.00             | 125.56              | 12.65            |                     |                  |

Stage-Area-Storage for Pond 46P: GI-10

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|
| 123.50              | 2,638              | 0                       |
| 123.55              | 2,688              | 133                     |
| 123.60              | 2,738              | 269                     |
| 123.65              | 2,788              | 407                     |
| 123.70              | 2,838              | 548                     |
| 123.75              | 2,888              | 691                     |
| 123.80              | 2,938              | 836                     |
| 123.85              | 2,988              | 985                     |
| 123.90              | 3,038              | 1,135                   |
| 123.95              | 3,088              | 1,288                   |
| 124.00              | 3,139              | 1,444                   |
| 124.05              | 3,189              | 1,602                   |
| 124.10              | 3,239              | 1,763                   |
| 124.15              | 3,289              | 1,926                   |
| 124.20              | 3,339              | 2,092                   |
| 124.25              | 3,389              | 2,260                   |
| 124.30              | 3,439              | 2,431                   |
| 124.35              | 3,489              | 2,604                   |
| 124.40              | 3,539              | 2,780                   |
| 124.45              | 3,589              | 2,958                   |
| 124.50              | 3,639              | 3,139                   |
| 124.55              | 3,692              | 3,322                   |
| 124.60              | 3,745              | 3,508                   |
| 124.65              | 3,798              | 3,696                   |
| 124.70              | 3,850              | 3,887                   |
| 124.75              | 3,903              | 4,081                   |
| 124.80              | 3,956              | 4,278                   |
| 124.85              | 4,009              | 4,477                   |
| 124.90              | 4,062              | 4,679                   |
| 124.95              | 4,115              | 4,883                   |
| 125.00              | 4,168              | 5,090                   |
| 125.05              | 4,220              | 5,300                   |
| 125.10              | 4,273              | 5,512                   |
| 125.15              | 4,326              | 5,727                   |
| 125.20              | 4,379              | 5,945                   |
| 125.25              | 4,432              | 6,165                   |
| 125.30              | 4,485              | 6,388                   |
| 125.35              | 4,537              | 6,613                   |
| 125.40              | 4,590              | 6,842                   |
| 125.45              | 4,643              | 7,073                   |
| 125.50              | 4,696              | 7,306                   |
| 125.55              | 4,751              | 7,542                   |
| 125.60              | 4,806              | 7,781                   |
| 125.65              | 4,861              | 8,023                   |
| 125.70              | 4,916              | 8,267                   |
| 125.75              | 4,971              | 8,514                   |
| 125.80              | 5,026              | 8,764                   |
| 125.85              | 5,081              | 9,017                   |
| 125.90              | 5,136              | 9,272                   |
| 125.95              | 5,191              | 9,531                   |
| 126.00              | 5,246              | 9,792                   |

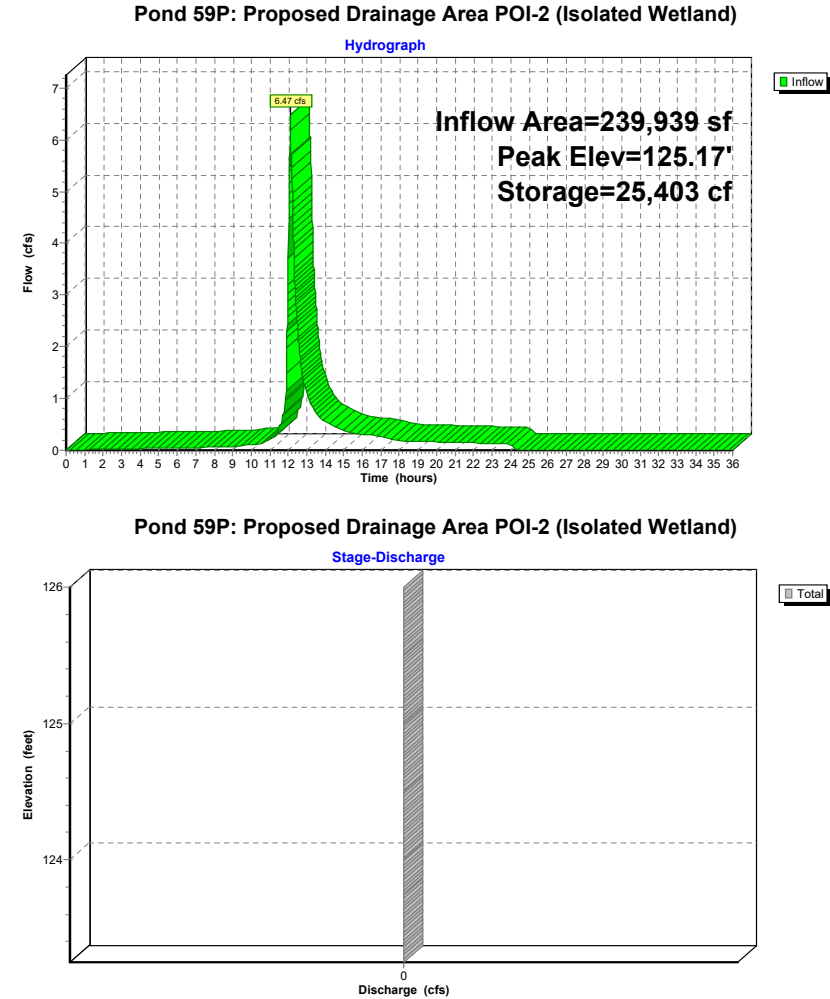
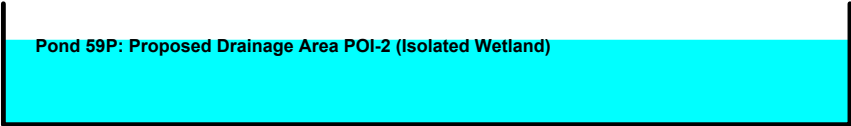
Summary for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

Inflow Area = 239,939 sf, 33.08% Impervious, Inflow Depth = 1.27" for 100-Year-2020 event  
Inflow = 6.47 cfs @ 12.10 hrs, Volume= 25,403 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

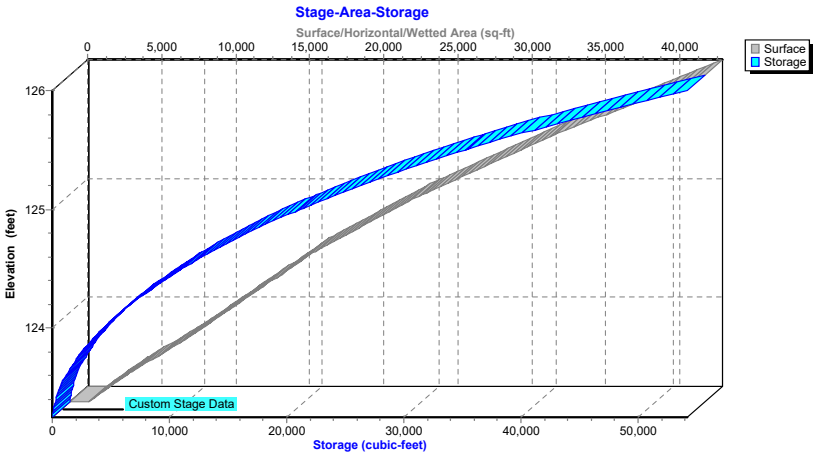
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 125.17' @ 36.00 hrs Surf.Area= 26,874 sf Storage= 25,403 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 123.25'           | 54,210 cf              | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 123.25           | 1,260             | 0                      | 0                                                   |
| 123.50           | 4,142             | 675                    | 675                                                 |
| 123.75           | 7,451             | 1,449                  | 2,124                                               |
| 124.00           | 10,505            | 2,245                  | 4,369                                               |
| 124.50           | 16,329            | 6,709                  | 11,077                                              |
| 125.00           | 23,865            | 10,049                 | 21,126                                              |
| 125.50           | 32,790            | 14,164                 | 35,290                                              |
| 126.00           | 42,891            | 18,920                 | 54,210                                              |



Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)



Hydrograph for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) |
|--------------|--------------|----------------------|------------------|--------------|--------------|----------------------|------------------|
| 0.00         | 0.00         | 0                    | 123.25           | 26.00        | 0.00         | 25,402               | 125.17           |
| 0.50         | 0.00         | 0                    | 123.25           | 26.50        | 0.00         | 25,402               | 125.17           |
| 1.00         | 0.01         | 12                   | 123.26           | 27.00        | 0.00         | 25,402               | 125.17           |
| 1.50         | 0.02         | 37                   | 123.28           | 27.50        | 0.00         | 25,402               | 125.17           |
| 2.00         | 0.02         | 71                   | 123.30           | 28.00        | 0.00         | 25,402               | 125.17           |
| 2.50         | 0.02         | 112                  | 123.32           | 28.50        | 0.00         | 25,402               | 125.17           |
| 3.00         | 0.03         | 158                  | 123.34           | 29.00        | 0.00         | 25,402               | 125.17           |
| 3.50         | 0.03         | 208                  | 123.36           | 29.50        | 0.00         | 25,402               | 125.17           |
| 4.00         | 0.03         | 263                  | 123.38           | 30.00        | 0.00         | 25,402               | 125.17           |
| 4.50         | 0.03         | 321                  | 123.40           | 30.50        | 0.00         | 25,402               | 125.17           |
| 5.00         | 0.03         | 382                  | 123.42           | 31.00        | 0.00         | 25,402               | 125.17           |
| 5.50         | 0.04         | 446                  | 123.44           | 31.50        | 0.00         | 25,402               | 125.17           |
| 6.00         | 0.04         | 513                  | 123.46           | 32.00        | 0.00         | 25,402               | 125.17           |
| 6.50         | 0.04         | 586                  | 123.48           | 32.50        | 0.00         | 25,402               | 125.17           |
| 7.00         | 0.05         | 669                  | 123.50           | 33.00        | 0.00         | 25,402               | 125.17           |
| 7.50         | 0.05         | 760                  | 123.52           | 33.50        | 0.00         | 25,403               | 125.17           |
| 8.00         | 0.06         | 861                  | 123.54           | 34.00        | 0.00         | 25,403               | 125.17           |
| 8.50         | 0.06         | 971                  | 123.56           | 34.50        | 0.00         | 25,403               | 125.17           |
| 9.00         | 0.07         | 1,091                | 123.59           | 35.00        | 0.00         | 25,403               | 125.17           |
| 9.50         | 0.09         | 1,233                | 123.61           | 35.50        | 0.00         | 25,403               | 125.17           |
| 10.00        | 0.11         | 1,409                | 123.64           | 36.00        | 0.00         | 25,403               | 125.17           |
| 10.50        | 0.12         | 1,618                | 123.68           |              |              |                      |                  |
| 11.00        | 0.20         | 1,916                | 123.72           |              |              |                      |                  |
| 11.50        | 0.32         | 2,404                | 123.79           |              |              |                      |                  |
| 12.00        | 3.20         | 4,226                | 123.99           |              |              |                      |                  |
| 12.50        | 2.38         | 11,885               | 124.55           |              |              |                      |                  |
| 13.00        | 1.12         | 14,663               | 124.70           |              |              |                      |                  |
| 13.50        | 0.72         | 16,268               | 124.78           |              |              |                      |                  |
| 14.00        | 0.55         | 17,366               | 124.83           |              |              |                      |                  |
| 14.50        | 0.47         | 18,276               | 124.88           |              |              |                      |                  |
| 15.00        | 0.38         | 19,038               | 124.91           |              |              |                      |                  |
| 15.50        | 0.33         | 19,670               | 124.94           |              |              |                      |                  |
| 16.00        | 0.31         | 20,249               | 124.96           |              |              |                      |                  |
| 16.50        | 0.29         | 20,788               | 124.99           |              |              |                      |                  |
| 17.00        | 0.26         | 21,286               | 125.01           |              |              |                      |                  |
| 17.50        | 0.22         | 21,725               | 125.02           |              |              |                      |                  |
| 18.00        | 0.19         | 22,093               | 125.04           |              |              |                      |                  |
| 18.50        | 0.17         | 22,414               | 125.05           |              |              |                      |                  |
| 19.00        | 0.17         | 22,724               | 125.07           |              |              |                      |                  |
| 19.50        | 0.17         | 23,025               | 125.08           |              |              |                      |                  |
| 20.00        | 0.16         | 23,318               | 125.09           |              |              |                      |                  |
| 20.50        | 0.16         | 23,603               | 125.10           |              |              |                      |                  |
| 21.00        | 0.15         | 23,879               | 125.11           |              |              |                      |                  |
| 21.50        | 0.15         | 24,146               | 125.12           |              |              |                      |                  |
| 22.00        | 0.14         | 24,404               | 125.13           |              |              |                      |                  |
| 22.50        | 0.14         | 24,653               | 125.14           |              |              |                      |                  |
| 23.00        | 0.13         | 24,893               | 125.15           |              |              |                      |                  |
| 23.50        | 0.13         | 25,123               | 125.16           |              |              |                      |                  |
| 24.00        | 0.14         | 25,347               | 125.17           |              |              |                      |                  |
| 24.50        | 0.00         | 25,401               | 125.17           |              |              |                      |                  |
| 25.00        | 0.00         | 25,401               | 125.17           |              |              |                      |                  |
| 25.50        | 0.00         | 25,401               | 125.17           |              |              |                      |                  |

Stage-Discharge for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 123.25              | 0.00               | 124.29              | 0.00               | 125.33              | 0.00               |
| 123.27              | 0.00               | 124.31              | 0.00               | 125.35              | 0.00               |
| 123.29              | 0.00               | 124.33              | 0.00               | 125.37              | 0.00               |
| 123.31              | 0.00               | 124.35              | 0.00               | 125.39              | 0.00               |
| 123.33              | 0.00               | 124.37              | 0.00               | 125.41              | 0.00               |
| 123.35              | 0.00               | 124.39              | 0.00               | 125.43              | 0.00               |
| 123.37              | 0.00               | 124.41              | 0.00               | 125.45              | 0.00               |
| 123.39              | 0.00               | 124.43              | 0.00               | 125.47              | 0.00               |
| 123.41              | 0.00               | 124.45              | 0.00               | 125.49              | 0.00               |
| 123.43              | 0.00               | 124.47              | 0.00               | 125.51              | 0.00               |
| 123.45              | 0.00               | 124.49              | 0.00               | 125.53              | 0.00               |
| 123.47              | 0.00               | 124.51              | 0.00               | 125.55              | 0.00               |
| 123.49              | 0.00               | 124.53              | 0.00               | 125.57              | 0.00               |
| 123.51              | 0.00               | 124.55              | 0.00               | 125.59              | 0.00               |
| 123.53              | 0.00               | 124.57              | 0.00               | 125.61              | 0.00               |
| 123.55              | 0.00               | 124.59              | 0.00               | 125.63              | 0.00               |
| 123.57              | 0.00               | 124.61              | 0.00               | 125.65              | 0.00               |
| 123.59              | 0.00               | 124.63              | 0.00               | 125.67              | 0.00               |
| 123.61              | 0.00               | 124.65              | 0.00               | 125.69              | 0.00               |
| 123.63              | 0.00               | 124.67              | 0.00               | 125.71              | 0.00               |
| 123.65              | 0.00               | 124.69              | 0.00               | 125.73              | 0.00               |
| 123.67              | 0.00               | 124.71              | 0.00               | 125.75              | 0.00               |
| 123.69              | 0.00               | 124.73              | 0.00               | 125.77              | 0.00               |
| 123.71              | 0.00               | 124.75              | 0.00               | 125.79              | 0.00               |
| 123.73              | 0.00               | 124.77              | 0.00               | 125.81              | 0.00               |
| 123.75              | 0.00               | 124.79              | 0.00               | 125.83              | 0.00               |
| 123.77              | 0.00               | 124.81              | 0.00               | 125.85              | 0.00               |
| 123.79              | 0.00               | 124.83              | 0.00               | 125.87              | 0.00               |
| 123.81              | 0.00               | 124.85              | 0.00               | 125.89              | 0.00               |
| 123.83              | 0.00               | 124.87              | 0.00               | 125.91              | 0.00               |
| 123.85              | 0.00               | 124.89              | 0.00               | 125.93              | 0.00               |
| 123.87              | 0.00               | 124.91              | 0.00               | 125.95              | 0.00               |
| 123.89              | 0.00               | 124.93              | 0.00               | 125.97              | 0.00               |
| 123.91              | 0.00               | 124.95              | 0.00               | 125.99              | 0.00               |
| 123.93              | 0.00               | 124.97              | 0.00               |                     |                    |
| 123.95              | 0.00               | 124.99              | 0.00               |                     |                    |
| 123.97              | 0.00               | 125.01              | 0.00               |                     |                    |
| 123.99              | 0.00               | 125.03              | 0.00               |                     |                    |
| 124.01              | 0.00               | 125.05              | 0.00               |                     |                    |
| 124.03              | 0.00               | 125.07              | 0.00               |                     |                    |
| 124.05              | 0.00               | 125.09              | 0.00               |                     |                    |
| 124.07              | 0.00               | 125.11              | 0.00               |                     |                    |
| 124.09              | 0.00               | 125.13              | 0.00               |                     |                    |
| 124.11              | 0.00               | 125.15              | 0.00               |                     |                    |
| 124.13              | 0.00               | 125.17              | 0.00               |                     |                    |
| 124.15              | 0.00               | 125.19              | 0.00               |                     |                    |
| 124.17              | 0.00               | 125.21              | 0.00               |                     |                    |
| 124.19              | 0.00               | 125.23              | 0.00               |                     |                    |
| 124.21              | 0.00               | 125.25              | 0.00               |                     |                    |
| 124.23              | 0.00               | 125.27              | 0.00               |                     |                    |
| 124.25              | 0.00               | 125.29              | 0.00               |                     |                    |
| 124.27              | 0.00               | 125.31              | 0.00               |                     |                    |

Stage-Area-Storage for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 123.25              | 1,260              | 0                       | 125.85              | 39,861             | 48,003                  |
| 123.30              | 1,836              | 77                      | 125.90              | 40,871             | 50,022                  |
| 123.35              | 2,413              | 184                     | 125.95              | 41,881             | 52,091                  |
| 123.40              | 2,989              | 319                     | 126.00              | 42,891             | 54,210                  |
| 123.45              | 3,566              | 483                     |                     |                    |                         |
| 123.50              | 4,142              | 675                     |                     |                    |                         |
| 123.55              | 4,804              | 899                     |                     |                    |                         |
| 123.60              | 5,466              | 1,156                   |                     |                    |                         |
| 123.65              | 6,127              | 1,445                   |                     |                    |                         |
| 123.70              | 6,789              | 1,768                   |                     |                    |                         |
| 123.75              | 7,451              | 2,124                   |                     |                    |                         |
| 123.80              | 8,062              | 2,512                   |                     |                    |                         |
| 123.85              | 8,673              | 2,931                   |                     |                    |                         |
| 123.90              | 9,283              | 3,379                   |                     |                    |                         |
| 123.95              | 9,894              | 3,859                   |                     |                    |                         |
| 124.00              | 10,505             | 4,369                   |                     |                    |                         |
| 124.05              | 11,087             | 4,909                   |                     |                    |                         |
| 124.10              | 11,670             | 5,478                   |                     |                    |                         |
| 124.15              | 12,252             | 6,076                   |                     |                    |                         |
| 124.20              | 12,835             | 6,703                   |                     |                    |                         |
| 124.25              | 13,417             | 7,359                   |                     |                    |                         |
| 124.30              | 13,999             | 8,045                   |                     |                    |                         |
| 124.35              | 14,582             | 8,759                   |                     |                    |                         |
| 124.40              | 15,164             | 9,503                   |                     |                    |                         |
| 124.45              | 15,747             | 10,275                  |                     |                    |                         |
| 124.50              | 16,329             | 11,077                  |                     |                    |                         |
| 124.55              | 17,083             | 11,913                  |                     |                    |                         |
| 124.60              | 17,836             | 12,786                  |                     |                    |                         |
| 124.65              | 18,590             | 13,696                  |                     |                    |                         |
| 124.70              | 19,343             | 14,645                  |                     |                    |                         |
| 124.75              | 20,097             | 15,631                  |                     |                    |                         |
| 124.80              | 20,851             | 16,654                  |                     |                    |                         |
| 124.85              | 21,604             | 17,716                  |                     |                    |                         |
| 124.90              | 22,358             | 18,815                  |                     |                    |                         |
| 124.95              | 23,111             | 19,951                  |                     |                    |                         |
| 125.00              | 23,865             | 21,126                  |                     |                    |                         |
| 125.05              | 24,757             | 22,341                  |                     |                    |                         |
| 125.10              | 25,650             | 23,602                  |                     |                    |                         |
| 125.15              | 26,543             | 24,906                  |                     |                    |                         |
| 125.20              | 27,435             | 26,256                  |                     |                    |                         |
| 125.25              | 28,328             | 27,650                  |                     |                    |                         |
| 125.30              | 29,220             | 29,089                  |                     |                    |                         |
| 125.35              | 30,112             | 30,572                  |                     |                    |                         |
| 125.40              | 31,005             | 32,100                  |                     |                    |                         |
| 125.45              | 31,898             | 33,672                  |                     |                    |                         |
| 125.50              | 32,790             | 35,290                  |                     |                    |                         |
| 125.55              | 33,800             | 36,954                  |                     |                    |                         |
| 125.60              | 34,810             | 38,670                  |                     |                    |                         |
| 125.65              | 35,820             | 40,435                  |                     |                    |                         |
| 125.70              | 36,830             | 42,252                  |                     |                    |                         |
| 125.75              | 37,841             | 44,118                  |                     |                    |                         |
| 125.80              | 38,851             | 46,036                  |                     |                    |                         |



Summary for Pond 60P: GI-12

Inflow Area = 102,485 sf, 46.65% Impervious, Inflow Depth = 5.29" for 100-Year-2020 event  
Inflow = 14.57 cfs @ 12.10 hrs, Volume= 45,190 cf  
Outflow = 0.92 cfs @ 13.42 hrs, Volume= 29,056 cf, Atten= 94%, Lag= 79.5 min  
Discarded = 0.19 cfs @ 20.29 hrs, Volume= 21,346 cf  
Primary = 0.73 cfs @ 13.42 hrs, Volume= 7,710 cf  
Routed to Pond 8P : GI-13

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 127.66' @ 20.29 hrs Surf.Area= 15,989 sf Storage= 24,264 cf

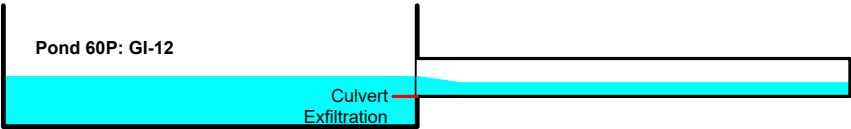
Plug-Flow detention time= (not calculated: outflow precedes inflow)  
Center-of-Mass det. time= 329.2 min ( 1,098.1 - 768.9 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 126.00' | 66,186 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

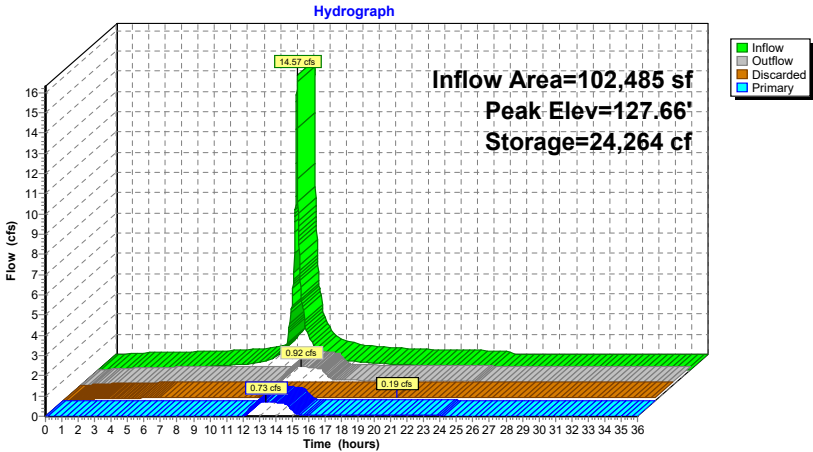
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 126.00           | 13,291            | 0                      | 0                      |
| 130.00           | 19,802            | 66,186                 | 66,186                 |

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                                        |
|--------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary   | 127.00' | 15.0" Round Culvert<br>L= 83.0' CMP, mitered to conform to fill, Ke= 0.700<br>Inlet / Outlet Invert= 127.00' / 127.00' S= 0.0000 '/ Cc= 0.900<br>n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf |
| #2     | Discarded | 126.00' | 0.500 in/hr Exfiltration over Surface area<br>Conductivity to Groundwater Elevation = 1.00'                                                                                                           |

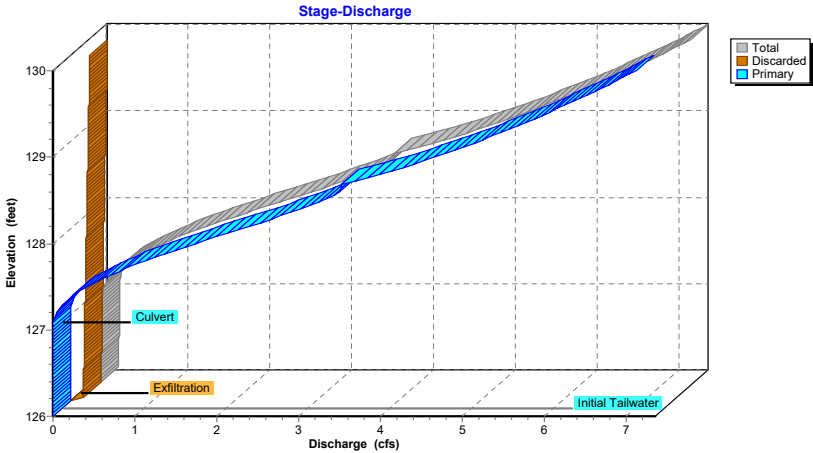
Discarded OutFlow Max=0.19 cfs @ 20.29 hrs HW=127.66' (Free Discharge)  
2=Exfiltration ( Controls 0.19 cfs)  
Primary OutFlow Max=0.73 cfs @ 13.42 hrs HW=127.65' TW=126.83' (Dynamic Tailwater)  
1=Culvert (Barrel Controls 0.73 cfs @ 1.66 fps)

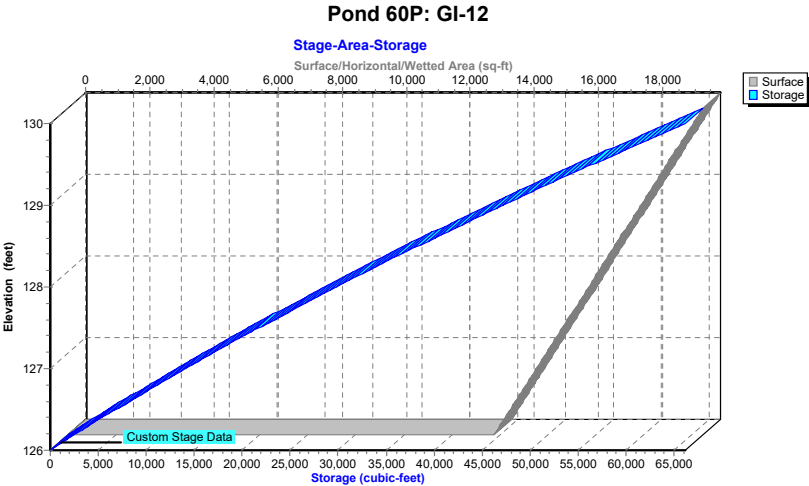


Pond 60P: GI-12



Pond 60P: GI-12





Hydrograph for Pond 60P: GI-12

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Outflow (cfs) | Discarded (cfs) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|-----------------|---------------|
| 0.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 1.00         | 0.04         | 0                    | 126.00           | 0.04          | 0.04            | 0.00          |
| 2.00         | 0.08         | 0                    | 126.00           | 0.08          | 0.08            | 0.00          |
| 3.00         | 0.11         | 0                    | 126.00           | 0.11          | 0.11            | 0.00          |
| 4.00         | 0.13         | 0                    | 126.00           | 0.13          | 0.13            | 0.00          |
| 5.00         | 0.14         | 0                    | 126.00           | 0.14          | 0.14            | 0.00          |
| 6.00         | 0.15         | 0                    | 126.00           | 0.15          | 0.15            | 0.00          |
| 7.00         | 0.19         | 73                   | 126.01           | 0.15          | 0.15            | 0.00          |
| 8.00         | 0.24         | 293                  | 126.02           | 0.15          | 0.15            | 0.00          |
| 9.00         | 0.28         | 659                  | 126.05           | 0.15          | 0.15            | 0.00          |
| 10.00        | 0.43         | 1,376                | 126.10           | 0.16          | 0.16            | 0.00          |
| 11.00        | 0.79         | 2,840                | 126.21           | 0.16          | 0.16            | 0.00          |
| 12.00        | 8.18         | 10,722               | 126.77           | 0.17          | 0.17            | 0.00          |
| 13.00        | 1.37         | 23,813               | 127.63           | 0.87          | 0.19            | 0.69          |
| 14.00        | 0.69         | 23,842               | 127.63           | 0.88          | 0.19            | 0.69          |
| 15.00        | 0.47         | 23,126               | 127.59           | 0.49          | 0.19            | 0.31          |
| 16.00        | 0.39         | 23,552               | 127.61           | 0.25          | 0.19            | 0.07          |
| 17.00        | 0.33         | 23,940               | 127.64           | 0.24          | 0.19            | 0.06          |
| 18.00        | 0.27         | 24,148               | 127.65           | 0.23          | 0.19            | 0.05          |
| 19.00        | 0.25         | 24,227               | 127.66           | 0.23          | 0.19            | 0.04          |
| 20.00        | 0.23         | 24,262               | 127.66           | 0.23          | 0.19            | 0.04          |
| 21.00        | 0.22         | 24,253               | 127.66           | 0.22          | 0.19            | 0.04          |
| 22.00        | 0.20         | 24,199               | 127.65           | 0.22          | 0.19            | 0.03          |
| 23.00        | 0.19         | 24,099               | 127.65           | 0.22          | 0.19            | 0.03          |
| 24.00        | 0.21         | 23,960               | 127.64           | 0.22          | 0.19            | 0.04          |
| 25.00        | 0.00         | 23,321               | 127.60           | 0.19          | 0.19            | 0.00          |
| 26.00        | 0.00         | 22,653               | 127.56           | 0.19          | 0.19            | 0.00          |
| 27.00        | 0.00         | 21,987               | 127.51           | 0.18          | 0.18            | 0.00          |
| 28.00        | 0.00         | 21,325               | 127.47           | 0.18          | 0.18            | 0.00          |
| 29.00        | 0.00         | 20,666               | 127.43           | 0.18          | 0.18            | 0.00          |
| 30.00        | 0.00         | 20,010               | 127.39           | 0.18          | 0.18            | 0.00          |
| 31.00        | 0.00         | 19,357               | 127.35           | 0.18          | 0.18            | 0.00          |
| 32.00        | 0.00         | 18,706               | 127.30           | 0.18          | 0.18            | 0.00          |
| 33.00        | 0.00         | 18,059               | 127.26           | 0.18          | 0.18            | 0.00          |
| 34.00        | 0.00         | 17,415               | 127.22           | 0.18          | 0.18            | 0.00          |
| 35.00        | 0.00         | 16,774               | 127.18           | 0.18          | 0.18            | 0.00          |
| 36.00        | 0.00         | 16,137               | 127.14           | 0.18          | 0.18            | 0.00          |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 60P: GI-12**

| Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) |
|---------------------|--------------------|--------------------|------------------|---------------------|--------------------|--------------------|------------------|
| 126.00              | 0.00               | 0.00               | 0.00             | 128.60              | 3.70               | 0.21               | 3.49             |
| 126.05              | 0.15               | 0.15               | 0.00             | 128.65              | 3.73               | 0.21               | 3.52             |
| 126.10              | 0.16               | 0.16               | 0.00             | 128.70              | 3.82               | 0.21               | 3.61             |
| 126.15              | 0.16               | 0.16               | 0.00             | 128.75              | 4.01               | 0.21               | 3.81             |
| 126.20              | 0.16               | 0.16               | 0.00             | 128.80              | 4.20               | 0.21               | 3.99             |
| 126.25              | 0.16               | 0.16               | 0.00             | 128.85              | 4.38               | 0.21               | 4.17             |
| 126.30              | 0.16               | 0.16               | 0.00             | 128.90              | 4.55               | 0.21               | 4.34             |
| 126.35              | 0.16               | 0.16               | 0.00             | 128.95              | 4.72               | 0.21               | 4.50             |
| 126.40              | 0.16               | 0.16               | 0.00             | 129.00              | 4.88               | 0.21               | 4.66             |
| 126.45              | 0.16               | 0.16               | 0.00             | 129.05              | 5.03               | 0.22               | 4.81             |
| 126.50              | 0.16               | 0.16               | 0.00             | 129.10              | 5.18               | 0.22               | 4.96             |
| 126.55              | 0.16               | 0.16               | 0.00             | 129.15              | 5.32               | 0.22               | 5.11             |
| 126.60              | 0.17               | 0.17               | 0.00             | 129.20              | 5.46               | 0.22               | 5.24             |
| 126.65              | 0.17               | 0.17               | 0.00             | 129.25              | 5.60               | 0.22               | 5.38             |
| 126.70              | 0.17               | 0.17               | 0.00             | 129.30              | 5.74               | 0.22               | 5.51             |
| 126.75              | 0.17               | 0.17               | 0.00             | 129.35              | 5.87               | 0.22               | 5.64             |
| 126.80              | 0.17               | 0.17               | 0.00             | 129.40              | 5.99               | 0.22               | 5.77             |
| 126.85              | 0.17               | 0.17               | 0.00             | 129.45              | 6.12               | 0.22               | 5.89             |
| 126.90              | 0.17               | 0.17               | 0.00             | 129.50              | 6.24               | 0.22               | 6.02             |
| 126.95              | 0.17               | 0.17               | 0.00             | 129.55              | 6.36               | 0.23               | 6.14             |
| 127.00              | 0.17               | 0.17               | 0.00             | 129.60              | 6.48               | 0.23               | 6.25             |
| 127.05              | 0.18               | 0.17               | 0.00             | 129.65              | 6.60               | 0.23               | 6.37             |
| 127.10              | 0.18               | 0.18               | 0.01             | 129.70              | 6.71               | 0.23               | 6.48             |
| 127.15              | 0.20               | 0.18               | 0.02             | 129.75              | 6.82               | 0.23               | 6.59             |
| 127.20              | 0.23               | 0.18               | 0.05             | 129.80              | 6.93               | 0.23               | 6.70             |
| 127.25              | 0.26               | 0.18               | 0.08             | 129.85              | 7.04               | 0.23               | 6.81             |
| 127.30              | 0.31               | 0.18               | 0.13             | 129.90              | 7.15               | 0.23               | 6.91             |
| 127.35              | 0.37               | 0.18               | 0.18             | 129.95              | 7.25               | 0.23               | 7.02             |
| 127.40              | 0.43               | 0.18               | 0.25             | 130.00              | <b>7.35</b>        | <b>0.24</b>        | <b>7.12</b>      |
| 127.45              | 0.51               | 0.18               | 0.33             |                     |                    |                    |                  |
| 127.50              | 0.60               | 0.18               | 0.42             |                     |                    |                    |                  |
| 127.55              | 0.70               | 0.19               | 0.51             |                     |                    |                    |                  |
| 127.60              | 0.81               | 0.19               | 0.62             |                     |                    |                    |                  |
| 127.65              | 0.92               | 0.19               | 0.74             |                     |                    |                    |                  |
| 127.70              | 1.05               | 0.19               | 0.86             |                     |                    |                    |                  |
| 127.75              | 1.18               | 0.19               | 0.99             |                     |                    |                    |                  |
| 127.80              | 1.32               | 0.19               | 1.13             |                     |                    |                    |                  |
| 127.85              | 1.47               | 0.19               | 1.28             |                     |                    |                    |                  |
| 127.90              | 1.62               | 0.19               | 1.43             |                     |                    |                    |                  |
| 127.95              | 1.78               | 0.19               | 1.58             |                     |                    |                    |                  |
| 128.00              | 1.94               | 0.19               | 1.74             |                     |                    |                    |                  |
| 128.05              | 2.10               | 0.20               | 1.90             |                     |                    |                    |                  |
| 128.10              | 2.27               | 0.20               | 2.07             |                     |                    |                    |                  |
| 128.15              | 2.43               | 0.20               | 2.23             |                     |                    |                    |                  |
| 128.20              | 2.60               | 0.20               | 2.40             |                     |                    |                    |                  |
| 128.25              | 2.76               | 0.20               | 2.56             |                     |                    |                    |                  |
| 128.30              | 2.93               | 0.20               | 2.72             |                     |                    |                    |                  |
| 128.35              | 3.08               | 0.20               | 2.88             |                     |                    |                    |                  |
| 128.40              | 3.23               | 0.20               | 3.03             |                     |                    |                    |                  |
| 128.45              | 3.37               | 0.20               | 3.17             |                     |                    |                    |                  |
| 128.50              | 3.50               | 0.20               | 3.30             |                     |                    |                    |                  |
| 128.55              | 3.61               | 0.21               | 3.41             |                     |                    |                    |                  |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 60P: GI-12**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 126.00              | 13,291             | 0                       | 128.60              | 17,523             | 40,058                  |
| 126.05              | 13,372             | 667                     | 128.65              | 17,605             | 40,937                  |
| 126.10              | 13,454             | 1,337                   | 128.70              | 17,686             | 41,819                  |
| 126.15              | 13,535             | 2,012                   | 128.75              | 17,767             | 42,705                  |
| 126.20              | 13,617             | 2,691                   | 128.80              | 17,849             | 43,596                  |
| 126.25              | 13,698             | 3,374                   | 128.85              | 17,930             | 44,490                  |
| 126.30              | 13,779             | 4,061                   | 128.90              | 18,011             | 45,389                  |
| 126.35              | 13,861             | 4,752                   | 128.95              | 18,093             | 46,291                  |
| 126.40              | 13,942             | 5,447                   | 129.00              | 18,174             | 47,198                  |
| 126.45              | 14,023             | 6,146                   | 129.05              | 18,256             | 48,109                  |
| 126.50              | 14,105             | 6,849                   | 129.10              | 18,337             | 49,023                  |
| 126.55              | 14,186             | 7,556                   | 129.15              | 18,418             | 49,942                  |
| 126.60              | 14,268             | 8,268                   | 129.20              | 18,500             | 50,865                  |
| 126.65              | 14,349             | 8,983                   | 129.25              | 18,581             | 51,792                  |
| 126.70              | 14,430             | 9,702                   | 129.30              | 18,663             | 52,723                  |
| 126.75              | 14,512             | 10,426                  | 129.35              | 18,744             | 53,659                  |
| 126.80              | 14,593             | 11,154                  | 129.40              | 18,825             | 54,598                  |
| 126.85              | 14,675             | 11,885                  | 129.45              | 18,907             | 55,541                  |
| 126.90              | 14,756             | 12,621                  | 129.50              | 18,988             | 56,488                  |
| 126.95              | 14,837             | 13,361                  | 129.55              | 19,070             | 57,440                  |
| 127.00              | 14,919             | 14,105                  | 129.60              | 19,151             | 58,395                  |
| 127.05              | 15,000             | 14,853                  | 129.65              | 19,232             | 59,355                  |
| 127.10              | 15,082             | 15,605                  | 129.70              | 19,314             | 60,319                  |
| 127.15              | 15,163             | 16,361                  | 129.75              | 19,395             | 61,286                  |
| 127.20              | 15,244             | 17,121                  | 129.80              | 19,476             | 62,258                  |
| 127.25              | 15,326             | 17,885                  | 129.85              | 19,558             | 63,234                  |
| 127.30              | 15,407             | 18,654                  | 129.90              | 19,639             | 64,214                  |
| 127.35              | 15,488             | 19,426                  | 129.95              | 19,721             | 65,198                  |
| 127.40              | 15,570             | 20,203                  | 130.00              | <b>19,802</b>      | <b>66,186</b>           |
| 127.45              | 15,651             | 20,983                  |                     |                    |                         |
| 127.50              | 15,733             | 21,768                  |                     |                    |                         |
| 127.55              | 15,814             | 22,556                  |                     |                    |                         |
| 127.60              | 15,895             | 23,349                  |                     |                    |                         |
| 127.65              | 15,977             | 24,146                  |                     |                    |                         |
| 127.70              | 16,058             | 24,947                  |                     |                    |                         |
| 127.75              | 16,140             | 25,752                  |                     |                    |                         |
| 127.80              | 16,221             | 26,561                  |                     |                    |                         |
| 127.85              | 16,302             | 27,374                  |                     |                    |                         |
| 127.90              | 16,384             | 28,191                  |                     |                    |                         |
| 127.95              | 16,465             | 29,012                  |                     |                    |                         |
| 128.00              | 16,547             | 29,838                  |                     |                    |                         |
| 128.05              | 16,628             | 30,667                  |                     |                    |                         |
| 128.10              | 16,709             | 31,500                  |                     |                    |                         |
| 128.15              | 16,791             | 32,338                  |                     |                    |                         |
| 128.20              | 16,872             | 33,179                  |                     |                    |                         |
| 128.25              | 16,953             | 34,025                  |                     |                    |                         |
| 128.30              | 17,035             | 34,875                  |                     |                    |                         |
| 128.35              | 17,116             | 35,728                  |                     |                    |                         |
| 128.40              | 17,198             | 36,586                  |                     |                    |                         |
| 128.45              | 17,279             | 37,448                  |                     |                    |                         |
| 128.50              | 17,360             | 38,314                  |                     |                    |                         |
| 128.55              | 17,442             | 39,184                  |                     |                    |                         |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

|                                                                                                                                                     |                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Subcatchment44S: GI-10 Pervious                                                                                                                     | Runoff Area=13,028 sf 0.00% Impervious Runoff Depth=0.04"<br>Flow Length=91' Tc=10.5 min CN=39 Runoff=0.00 cfs 41 cf                          |
| Subcatchment45S: GI-10 Impervious                                                                                                                   | Runoff Area=19,702 sf 100.00% Impervious Runoff Depth=3.69"<br>Flow Length=660' Tc=4.5 min CN=98 Runoff=1.98 cfs 6,051 cf                     |
| Subcatchment62S: GI-12 Impervious                                                                                                                   | Runoff Area=47,814 sf 100.00% Impervious Runoff Depth=3.69"<br>Flow Length=147' Tc=1.6 min CN=98 Runoff=5.02 cfs 14,684 cf                    |
| Subcatchment63S: GI-13 Pervious                                                                                                                     | Runoff Area=17,103 sf 0.00% Impervious Runoff Depth=0.09"<br>Flow Length=90' Slope=0.0100 '/' Tc=9.6 min CN=42 Runoff=0.00 cfs 128 cf         |
| Subcatchment64S: Wetland Pervious                                                                                                                   | Runoff Area=75,754 sf 0.00% Impervious Runoff Depth=0.00"<br>Flow Length=161' Tc=10.2 min CN=33 Runoff=0.00 cfs 0 cf                          |
| Subcatchment67S: Wetland Impervious                                                                                                                 | Runoff Area=11,867 sf 100.00% Impervious Runoff Depth=3.69"<br>Flow Length=151' Tc=0.9 min CN=98 Runoff=1.25 cfs 3,644 cf                     |
| Subcatchment68S: GI-12 Pervious                                                                                                                     | Runoff Area=54,671 sf 0.00% Impervious Runoff Depth=0.13"<br>Flow Length=93' Tc=5.6 min CN=44 Runoff=0.03 cfs 610 cf                          |
| Pond 8P: GI-13                                                                                                                                      | Peak Elev=126.00' Storage=0 cf Inflow=0.00 cfs 128 cf<br>Discarded=0.00 cfs 128 cf Primary=0.00 cfs 0 cf Outflow=0.00 cfs 128 cf              |
| Pond 46P: GI-10                                                                                                                                     | Peak Elev=125.02' Storage=5,154 cf Inflow=1.98 cfs 6,092 cf<br>Outflow=0.05 cfs 1,002 cf                                                      |
| Pond 59P: Proposed Drainage Area POI-2                                                                                                              | Peak Elev=124.03' Storage=4,646 cf Inflow=1.25 cfs 4,646 cf<br>Outflow=0.00 cfs 0 cf                                                          |
| Pond 60P: GI-12                                                                                                                                     | Peak Elev=126.56' Storage=7,705 cf Inflow=5.02 cfs 15,294 cf<br>Discarded=0.17 cfs 15,295 cf Primary=0.00 cfs 0 cf Outflow=0.17 cfs 15,295 cf |
| Total Runoff Area = 239,939 sf Runoff Volume = 25,159 cf Average Runoff Depth = 1.26"<br>66.92% Pervious = 160,556 sf 33.08% Impervious = 79,383 sf |                                                                                                                                               |

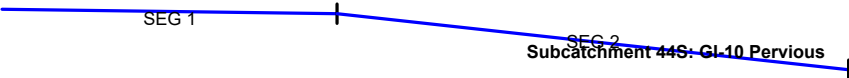
Summary for Subcatchment 44S: GI-10 Pervious

Runoff = 0.00 cfs @ 24.04 hrs, Volume= 41 cf, Depth= 0.04"  
Routed to Pond 46P : GI-10

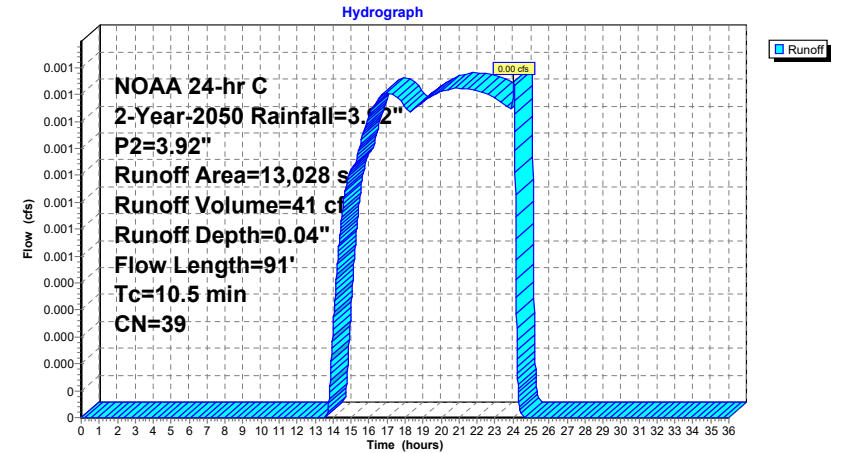
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 13,028    | 39 | >75% Grass cover, Good, HSG A |
| 13,028    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                          |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------|
| 6.6      | 36            | 0.0140        | 0.09              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92" |
| 3.9      | 55            | 0.1180        | 0.23              |                | Sheet Flow, SEG 2<br>Grass: Dense n= 0.240 P2= 3.92" |
| 10.5     | 91            | Total         |                   |                |                                                      |



Subcatchment 44S: GI-10 Pervious



Hydrograph for Subcatchment 44S: GI-10 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 0.04               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 0.04               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 0.04               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 0.04               | 0.00            |
| 2.00            | 0.09                | 0.00               | 0.00            | 28.00           | 3.92                | 0.04               | 0.00            |
| 2.50            | 0.11                | 0.00               | 0.00            | 28.50           | 3.92                | 0.04               | 0.00            |
| 3.00            | 0.14                | 0.00               | 0.00            | 29.00           | 3.92                | 0.04               | 0.00            |
| 3.50            | 0.16                | 0.00               | 0.00            | 29.50           | 3.92                | 0.04               | 0.00            |
| 4.00            | 0.19                | 0.00               | 0.00            | 30.00           | 3.92                | 0.04               | 0.00            |
| 4.50            | 0.22                | 0.00               | 0.00            | 30.50           | 3.92                | 0.04               | 0.00            |
| 5.00            | 0.25                | 0.00               | 0.00            | 31.00           | 3.92                | 0.04               | 0.00            |
| 5.50            | 0.28                | 0.00               | 0.00            | 31.50           | 3.92                | 0.04               | 0.00            |
| 6.00            | 0.31                | 0.00               | 0.00            | 32.00           | 3.92                | 0.04               | 0.00            |
| 6.50            | 0.34                | 0.00               | 0.00            | 32.50           | 3.92                | 0.04               | 0.00            |
| 7.00            | 0.38                | 0.00               | 0.00            | 33.00           | 3.92                | 0.04               | 0.00            |
| 7.50            | 0.42                | 0.00               | 0.00            | 33.50           | 3.92                | 0.04               | 0.00            |
| 8.00            | 0.47                | 0.00               | 0.00            | 34.00           | 3.92                | 0.04               | 0.00            |
| 8.50            | 0.52                | 0.00               | 0.00            | 34.50           | 3.92                | 0.04               | 0.00            |
| 9.00            | 0.57                | 0.00               | 0.00            | 35.00           | 3.92                | 0.04               | 0.00            |
| 9.50            | 0.64                | 0.00               | 0.00            | 35.50           | 3.92                | 0.04               | 0.00            |
| 10.00           | 0.71                | 0.00               | 0.00            | 36.00           | 3.92                | 0.04               | 0.00            |
| 10.50           | 0.81                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.76                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 2.98                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 3.11                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 3.21                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 3.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 3.35                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 3.40                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 3.45                | 0.01               | 0.00            |                 |                     |                    |                 |
| 16.50           | 3.50                | 0.01               | 0.00            |                 |                     |                    |                 |
| 17.00           | 3.54                | 0.01               | 0.00            |                 |                     |                    |                 |
| 17.50           | 3.58                | 0.01               | 0.00            |                 |                     |                    |                 |
| 18.00           | 3.61                | 0.01               | 0.00            |                 |                     |                    |                 |
| 18.50           | 3.64                | 0.02               | 0.00            |                 |                     |                    |                 |
| 19.00           | 3.67                | 0.02               | 0.00            |                 |                     |                    |                 |
| 19.50           | 3.70                | 0.02               | 0.00            |                 |                     |                    |                 |
| 20.00           | 3.73                | 0.02               | 0.00            |                 |                     |                    |                 |
| 20.50           | 3.76                | 0.02               | 0.00            |                 |                     |                    |                 |
| 21.00           | 3.78                | 0.03               | 0.00            |                 |                     |                    |                 |
| 21.50           | 3.81                | 0.03               | 0.00            |                 |                     |                    |                 |
| 22.00           | 3.83                | 0.03               | 0.00            |                 |                     |                    |                 |
| 22.50           | 3.85                | 0.03               | 0.00            |                 |                     |                    |                 |
| 23.00           | 3.88                | 0.03               | 0.00            |                 |                     |                    |                 |
| 23.50           | 3.90                | 0.04               | 0.00            |                 |                     |                    |                 |
| 24.00           | 3.92                | 0.04               | 0.00            |                 |                     |                    |                 |
| 24.50           | 3.92                | 0.04               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 0.04               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 0.04               | 0.00            |                 |                     |                    |                 |

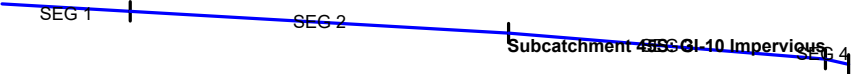
Summary for Subcatchment 45S: GI-10 Impervious

Runoff = 1.98 cfs @ 12.12 hrs, Volume= 6,051 cf, Depth= 3.69"  
Routed to Pond 46P : GI-10

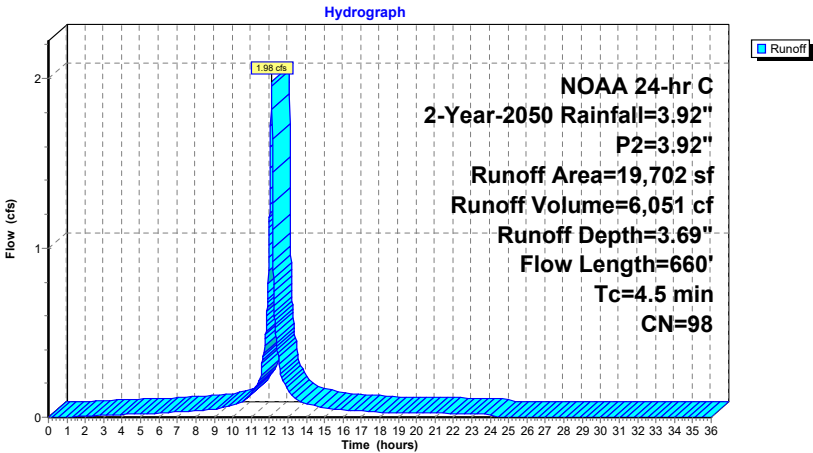
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 19,702    | 98 | Paved parking, HSG A    |
| 19,702    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------|
| 1.3      | 100           | 0.0140        | 1.32              |                | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.92"             |
| 2.0      | 295           | 0.0140        | 2.40              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps              |
| 1.0      | 247           | 0.0200        | 4.22              | 0.84           | <b>Channel Flow, SEG 3</b><br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2      | 18            | 0.0560        | 1.66              |                | <b>Shallow Concentrated Flow, SEG 4</b><br>Short Grass Pasture Kv= 7.0 fps |
| 4.5      | 660           | Total         |                   |                |                                                                            |



Subcatchment 45S: GI-10 Impervious



Hydrograph for Subcatchment 45S: GI-10 Impervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 3.92             | 3.69            | 0.00         |
| 0.50         | 0.02             | 0.00            | 0.00         | 26.50        | 3.92             | 3.69            | 0.00         |
| 1.00         | 0.04             | 0.00            | 0.00         | 27.00        | 3.92             | 3.69            | 0.00         |
| 1.50         | 0.07             | 0.00            | 0.00         | 27.50        | 3.92             | 3.69            | 0.00         |
| 2.00         | 0.09             | 0.01            | 0.01         | 28.00        | 3.92             | 3.69            | 0.00         |
| 2.50         | 0.11             | 0.02            | 0.01         | 28.50        | 3.92             | 3.69            | 0.00         |
| 3.00         | 0.14             | 0.03            | 0.01         | 29.00        | 3.92             | 3.69            | 0.00         |
| 3.50         | 0.16             | 0.05            | 0.01         | 29.50        | 3.92             | 3.69            | 0.00         |
| 4.00         | 0.19             | 0.06            | 0.02         | 30.00        | 3.92             | 3.69            | 0.00         |
| 4.50         | 0.22             | 0.08            | 0.02         | 30.50        | 3.92             | 3.69            | 0.00         |
| 5.00         | 0.25             | 0.11            | 0.02         | 31.00        | 3.92             | 3.69            | 0.00         |
| 5.50         | 0.28             | 0.13            | 0.02         | 31.50        | 3.92             | 3.69            | 0.00         |
| 6.00         | 0.31             | 0.15            | 0.02         | 32.00        | 3.92             | 3.69            | 0.00         |
| 6.50         | 0.34             | 0.18            | 0.03         | 32.50        | 3.92             | 3.69            | 0.00         |
| 7.00         | 0.38             | 0.21            | 0.03         | 33.00        | 3.92             | 3.69            | 0.00         |
| 7.50         | 0.42             | 0.25            | 0.03         | 33.50        | 3.92             | 3.69            | 0.00         |
| 8.00         | 0.47             | 0.29            | 0.04         | 34.00        | 3.92             | 3.69            | 0.00         |
| 8.50         | 0.52             | 0.34            | 0.04         | 34.50        | 3.92             | 3.69            | 0.00         |
| 9.00         | 0.57             | 0.38            | 0.05         | 35.00        | 3.92             | 3.69            | 0.00         |
| 9.50         | 0.64             | 0.44            | 0.06         | 35.50        | 3.92             | 3.69            | 0.00         |
| 10.00        | 0.71             | 0.52            | 0.07         | 36.00        | 3.92             | 3.69            | 0.00         |
| 10.50        | 0.81             | 0.61            | 0.09         |              |                  |                 |              |
| 11.00        | 0.94             | 0.73            | 0.14         |              |                  |                 |              |
| 11.50        | 1.16             | 0.94            | 0.23         |              |                  |                 |              |
| 12.00        | 1.87             | 1.64            | 1.15         |              |                  |                 |              |
| 12.50        | 2.76             | 2.53            | 0.36         |              |                  |                 |              |
| 13.00        | 2.98             | 2.75            | 0.16         |              |                  |                 |              |
| 13.50        | 3.11             | 2.88            | 0.10         |              |                  |                 |              |
| 14.00        | 3.21             | 2.97            | 0.08         |              |                  |                 |              |
| 14.50        | 3.28             | 3.05            | 0.07         |              |                  |                 |              |
| 15.00        | 3.35             | 3.11            | 0.05         |              |                  |                 |              |
| 15.50        | 3.40             | 3.17            | 0.05         |              |                  |                 |              |
| 16.00        | 3.45             | 3.22            | 0.04         |              |                  |                 |              |
| 16.50        | 3.50             | 3.26            | 0.04         |              |                  |                 |              |
| 17.00        | 3.54             | 3.30            | 0.04         |              |                  |                 |              |
| 17.50        | 3.58             | 3.34            | 0.03         |              |                  |                 |              |
| 18.00        | 3.61             | 3.38            | 0.03         |              |                  |                 |              |
| 18.50        | 3.64             | 3.41            | 0.03         |              |                  |                 |              |
| 19.00        | 3.67             | 3.44            | 0.03         |              |                  |                 |              |
| 19.50        | 3.70             | 3.47            | 0.03         |              |                  |                 |              |
| 20.00        | 3.73             | 3.49            | 0.03         |              |                  |                 |              |
| 20.50        | 3.76             | 3.52            | 0.02         |              |                  |                 |              |
| 21.00        | 3.78             | 3.55            | 0.02         |              |                  |                 |              |
| 21.50        | 3.81             | 3.57            | 0.02         |              |                  |                 |              |
| 22.00        | 3.83             | 3.60            | 0.02         |              |                  |                 |              |
| 22.50        | 3.85             | 3.62            | 0.02         |              |                  |                 |              |
| 23.00        | 3.88             | 3.64            | 0.02         |              |                  |                 |              |
| 23.50        | 3.90             | 3.66            | 0.02         |              |                  |                 |              |
| 24.00        | 3.92             | 3.69            | 0.02         |              |                  |                 |              |
| 24.50        | 3.92             | 3.69            | 0.00         |              |                  |                 |              |
| 25.00        | 3.92             | 3.69            | 0.00         |              |                  |                 |              |
| 25.50        | 3.92             | 3.69            | 0.00         |              |                  |                 |              |

Summary for Subcatchment 62S: GI-12 Impervious

Runoff = 5.02 cfs @ 12.10 hrs, Volume= 14,684 cf, Depth= 3.69"  
Routed to Pond 60P : GI-12

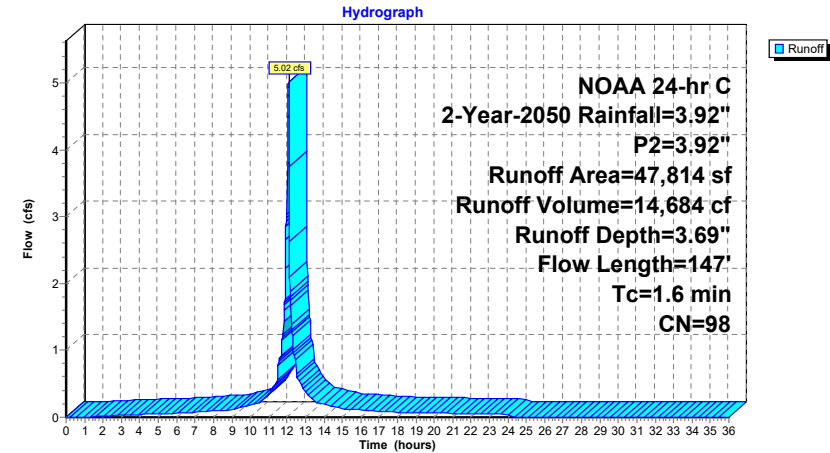
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 47,814    | 98 | Paved parking, HSG A    |
| 47,814    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 1.1      | 85            | 0.0160        | 1.35              |                | Sheet Flow, SEG 1R<br>Smooth surfaces n= 0.011 P2= 3.92"            |
| 0.2      | 30            | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2      | 21            | 0.0100        | 2.03              |                | Shallow Concentrated Flow, SEG 3<br>Paved Kv= 20.3 fps              |
| 0.1      | 11            | 0.1360        | 2.58              |                | Shallow Concentrated Flow, SEG 4<br>Short Grass Pasture Kv= 7.0 fps |
| 1.6      | 147           | Total         |                   |                |                                                                     |



Subcatchment 62S: GI-12 Impervious



Hydrograph for Subcatchment 62S: GI-12 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 3.69               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 3.69               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 3.69               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.01            | 27.50           | 3.92                | 3.69               | 0.00            |
| 2.00            | 0.09                | 0.01               | 0.02            | 28.00           | 3.92                | 3.69               | 0.00            |
| 2.50            | 0.11                | 0.02               | 0.02            | 28.50           | 3.92                | 3.69               | 0.00            |
| 3.00            | 0.14                | 0.03               | 0.03            | 29.00           | 3.92                | 3.69               | 0.00            |
| 3.50            | 0.16                | 0.05               | 0.04            | 29.50           | 3.92                | 3.69               | 0.00            |
| 4.00            | 0.19                | 0.06               | 0.04            | 30.00           | 3.92                | 3.69               | 0.00            |
| 4.50            | 0.22                | 0.08               | 0.05            | 30.50           | 3.92                | 3.69               | 0.00            |
| 5.00            | 0.25                | 0.11               | 0.05            | 31.00           | 3.92                | 3.69               | 0.00            |
| 5.50            | 0.28                | 0.13               | 0.05            | 31.50           | 3.92                | 3.69               | 0.00            |
| 6.00            | 0.31                | 0.15               | 0.06            | 32.00           | 3.92                | 3.69               | 0.00            |
| 6.50            | 0.34                | 0.18               | 0.07            | 32.50           | 3.92                | 3.69               | 0.00            |
| 7.00            | 0.38                | 0.21               | 0.07            | 33.00           | 3.92                | 3.69               | 0.00            |
| 7.50            | 0.42                | 0.25               | 0.08            | 33.50           | 3.92                | 3.69               | 0.00            |
| 8.00            | 0.47                | 0.29               | 0.09            | 34.00           | 3.92                | 3.69               | 0.00            |
| 8.50            | 0.52                | 0.34               | 0.10            | 34.50           | 3.92                | 3.69               | 0.00            |
| 9.00            | 0.57                | 0.38               | 0.11            | 35.00           | 3.92                | 3.69               | 0.00            |
| 9.50            | 0.64                | 0.44               | 0.14            | 35.50           | 3.92                | 3.69               | 0.00            |
| 10.00           | 0.71                | 0.52               | 0.18            | 36.00           | 3.92                | 3.69               | 0.00            |
| 10.50           | 0.81                | 0.61               | 0.21            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.73               | 0.33            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.94               | 0.55            |                 |                     |                    |                 |
| 12.00           | 1.87                | 1.64               | 3.00            |                 |                     |                    |                 |
| 12.50           | 2.76                | 2.53               | 0.87            |                 |                     |                    |                 |
| 13.00           | 2.98                | 2.75               | 0.39            |                 |                     |                    |                 |
| 13.50           | 3.11                | 2.88               | 0.24            |                 |                     |                    |                 |
| 14.00           | 3.21                | 2.97               | 0.19            |                 |                     |                    |                 |
| 14.50           | 3.28                | 3.05               | 0.16            |                 |                     |                    |                 |
| 15.00           | 3.35                | 3.11               | 0.13            |                 |                     |                    |                 |
| 15.50           | 3.40                | 3.17               | 0.11            |                 |                     |                    |                 |
| 16.00           | 3.45                | 3.22               | 0.11            |                 |                     |                    |                 |
| 16.50           | 3.50                | 3.26               | 0.10            |                 |                     |                    |                 |
| 17.00           | 3.54                | 3.30               | 0.09            |                 |                     |                    |                 |
| 17.50           | 3.58                | 3.34               | 0.08            |                 |                     |                    |                 |
| 18.00           | 3.61                | 3.38               | 0.07            |                 |                     |                    |                 |
| 18.50           | 3.64                | 3.41               | 0.07            |                 |                     |                    |                 |
| 19.00           | 3.67                | 3.44               | 0.07            |                 |                     |                    |                 |
| 19.50           | 3.70                | 3.47               | 0.06            |                 |                     |                    |                 |
| 20.00           | 3.73                | 3.49               | 0.06            |                 |                     |                    |                 |
| 20.50           | 3.76                | 3.52               | 0.06            |                 |                     |                    |                 |
| 21.00           | 3.78                | 3.55               | 0.06            |                 |                     |                    |                 |
| 21.50           | 3.81                | 3.57               | 0.05            |                 |                     |                    |                 |
| 22.00           | 3.83                | 3.60               | 0.05            |                 |                     |                    |                 |
| 22.50           | 3.85                | 3.62               | 0.05            |                 |                     |                    |                 |
| 23.00           | 3.88                | 3.64               | 0.05            |                 |                     |                    |                 |
| 23.50           | 3.90                | 3.66               | 0.05            |                 |                     |                    |                 |
| 24.00           | 3.92                | 3.69               | 0.06            |                 |                     |                    |                 |
| 24.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 63S: GI-13 Pervious

Runoff = 0.00 cfs @ 13.43 hrs, Volume= 128 cf, Depth= 0.09"

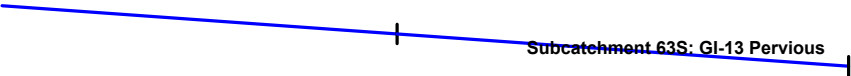
Routed to Pond 8P : GI-13

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

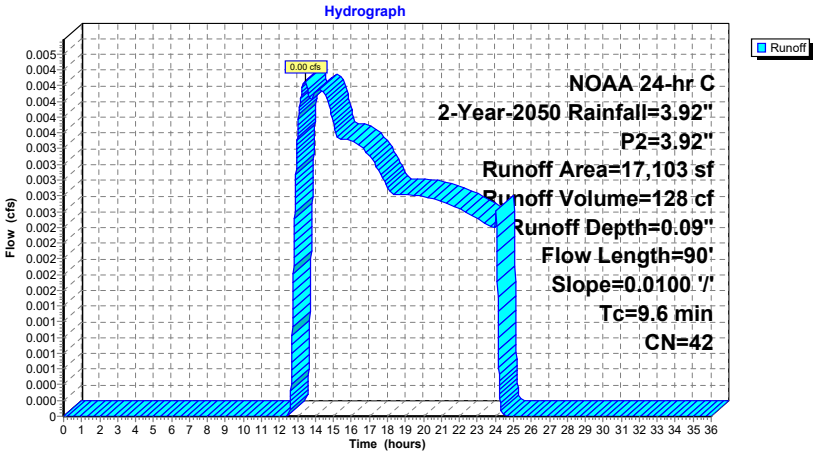
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 14,703    | 39 | >75% Grass cover, Good, HSG A |
| 2,400     | 61 | >75% Grass cover, Good, HSG B |
| 17,103    | 42 | Weighted Average              |
| 17,103    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                              |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------------------------------------------|
| 8.5      | 42            | 0.0100        | 0.08              |                | <b>Sheet Flow,</b><br>Grass: Dense n= 0.240 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 1.1      | 48            | 0.0100        | 0.70              |                | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                     |
| 9.6      | 90            | Total         |                   |                |                                                                                          |





Subcatchment 63S: GI-13 Pervious



Hydrograph for Subcatchment 63S: GI-13 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 0.09               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 0.09               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 0.09               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 0.09               | 0.00            |
| 2.00            | 0.09                | 0.00               | 0.00            | 28.00           | 3.92                | 0.09               | 0.00            |
| 2.50            | 0.11                | 0.00               | 0.00            | 28.50           | 3.92                | 0.09               | 0.00            |
| 3.00            | 0.14                | 0.00               | 0.00            | 29.00           | 3.92                | 0.09               | 0.00            |
| 3.50            | 0.16                | 0.00               | 0.00            | 29.50           | 3.92                | 0.09               | 0.00            |
| 4.00            | 0.19                | 0.00               | 0.00            | 30.00           | 3.92                | 0.09               | 0.00            |
| 4.50            | 0.22                | 0.00               | 0.00            | 30.50           | 3.92                | 0.09               | 0.00            |
| 5.00            | 0.25                | 0.00               | 0.00            | 31.00           | 3.92                | 0.09               | 0.00            |
| 5.50            | 0.28                | 0.00               | 0.00            | 31.50           | 3.92                | 0.09               | 0.00            |
| 6.00            | 0.31                | 0.00               | 0.00            | 32.00           | 3.92                | 0.09               | 0.00            |
| 6.50            | 0.34                | 0.00               | 0.00            | 32.50           | 3.92                | 0.09               | 0.00            |
| 7.00            | 0.38                | 0.00               | 0.00            | 33.00           | 3.92                | 0.09               | 0.00            |
| 7.50            | 0.42                | 0.00               | 0.00            | 33.50           | 3.92                | 0.09               | 0.00            |
| 8.00            | 0.47                | 0.00               | 0.00            | 34.00           | 3.92                | 0.09               | 0.00            |
| 8.50            | 0.52                | 0.00               | 0.00            | 34.50           | 3.92                | 0.09               | 0.00            |
| 9.00            | 0.57                | 0.00               | 0.00            | 35.00           | 3.92                | 0.09               | 0.00            |
| 9.50            | 0.64                | 0.00               | 0.00            | 35.50           | 3.92                | 0.09               | 0.00            |
| 10.00           | 0.71                | 0.00               | 0.00            | 36.00           | 3.92                | 0.09               | 0.00            |
| 10.50           | 0.81                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.76                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 2.98                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 3.11                | 0.01               | 0.00            |                 |                     |                    |                 |
| 14.00           | 3.21                | 0.01               | 0.00            |                 |                     |                    |                 |
| 14.50           | 3.28                | 0.02               | 0.00            |                 |                     |                    |                 |
| 15.00           | 3.35                | 0.02               | 0.00            |                 |                     |                    |                 |
| 15.50           | 3.40                | 0.03               | 0.00            |                 |                     |                    |                 |
| 16.00           | 3.45                | 0.03               | 0.00            |                 |                     |                    |                 |
| 16.50           | 3.50                | 0.04               | 0.00            |                 |                     |                    |                 |
| 17.00           | 3.54                | 0.04               | 0.00            |                 |                     |                    |                 |
| 17.50           | 3.58                | 0.05               | 0.00            |                 |                     |                    |                 |
| 18.00           | 3.61                | 0.05               | 0.00            |                 |                     |                    |                 |
| 18.50           | 3.64                | 0.05               | 0.00            |                 |                     |                    |                 |
| 19.00           | 3.67                | 0.06               | 0.00            |                 |                     |                    |                 |
| 19.50           | 3.70                | 0.06               | 0.00            |                 |                     |                    |                 |
| 20.00           | 3.73                | 0.06               | 0.00            |                 |                     |                    |                 |
| 20.50           | 3.76                | 0.07               | 0.00            |                 |                     |                    |                 |
| 21.00           | 3.78                | 0.07               | 0.00            |                 |                     |                    |                 |
| 21.50           | 3.81                | 0.07               | 0.00            |                 |                     |                    |                 |
| 22.00           | 3.83                | 0.08               | 0.00            |                 |                     |                    |                 |
| 22.50           | 3.85                | 0.08               | 0.00            |                 |                     |                    |                 |
| 23.00           | 3.88                | 0.08               | 0.00            |                 |                     |                    |                 |
| 23.50           | 3.90                | 0.09               | 0.00            |                 |                     |                    |                 |
| 24.00           | 3.92                | 0.09               | 0.00            |                 |                     |                    |                 |
| 24.50           | 3.92                | 0.09               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 0.09               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 0.09               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 64S: Wetland Pervious

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

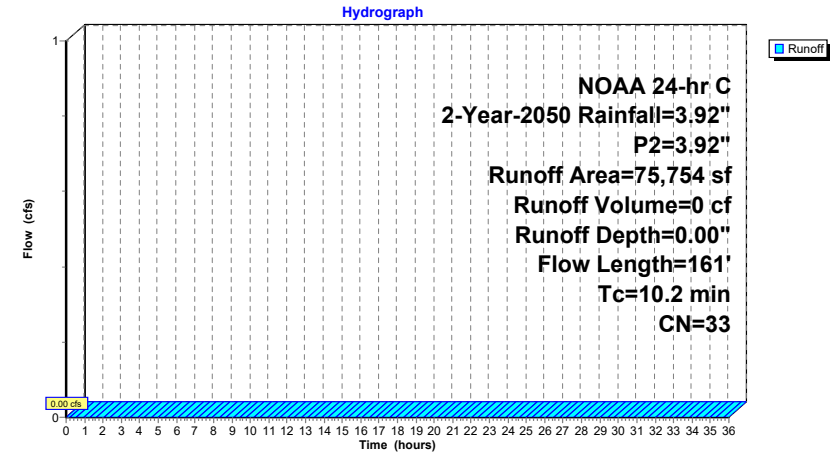
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 24,790    | 39 | >75% Grass cover, Good, HSG A |
| 50,964    | 30 | Woods, Good, HSG A            |
| 75,754    | 33 | Weighted Average              |
| 75,754    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                  |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------|
| 8.5      | 39            | 0.0240        | 0.08              |                | Sheet Flow,<br>Woods: Light underbrush n= 0.400 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 1.7      | 122           | 0.0570        | 1.19              |                | Shallow Concentrated Flow,<br>Woodland Kv= 5.0 fps                                           |
| 10.2     | 161           |               |                   |                | Total                                                                                        |



Subcatchment 64S: Wetland Pervious



Hydrograph for Subcatchment 64S: Wetland Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 0.00               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 0.00               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 0.00               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 0.00               | 0.00            |
| 2.00            | 0.09                | 0.00               | 0.00            | 28.00           | 3.92                | 0.00               | 0.00            |
| 2.50            | 0.11                | 0.00               | 0.00            | 28.50           | 3.92                | 0.00               | 0.00            |
| 3.00            | 0.14                | 0.00               | 0.00            | 29.00           | 3.92                | 0.00               | 0.00            |
| 3.50            | 0.16                | 0.00               | 0.00            | 29.50           | 3.92                | 0.00               | 0.00            |
| 4.00            | 0.19                | 0.00               | 0.00            | 30.00           | 3.92                | 0.00               | 0.00            |
| 4.50            | 0.22                | 0.00               | 0.00            | 30.50           | 3.92                | 0.00               | 0.00            |
| 5.00            | 0.25                | 0.00               | 0.00            | 31.00           | 3.92                | 0.00               | 0.00            |
| 5.50            | 0.28                | 0.00               | 0.00            | 31.50           | 3.92                | 0.00               | 0.00            |
| 6.00            | 0.31                | 0.00               | 0.00            | 32.00           | 3.92                | 0.00               | 0.00            |
| 6.50            | 0.34                | 0.00               | 0.00            | 32.50           | 3.92                | 0.00               | 0.00            |
| 7.00            | 0.38                | 0.00               | 0.00            | 33.00           | 3.92                | 0.00               | 0.00            |
| 7.50            | 0.42                | 0.00               | 0.00            | 33.50           | 3.92                | 0.00               | 0.00            |
| 8.00            | 0.47                | 0.00               | 0.00            | 34.00           | 3.92                | 0.00               | 0.00            |
| 8.50            | 0.52                | 0.00               | 0.00            | 34.50           | 3.92                | 0.00               | 0.00            |
| 9.00            | 0.57                | 0.00               | 0.00            | 35.00           | 3.92                | 0.00               | 0.00            |
| 9.50            | 0.64                | 0.00               | 0.00            | 35.50           | 3.92                | 0.00               | 0.00            |
| 10.00           | 0.71                | 0.00               | 0.00            | 36.00           | 3.92                | 0.00               | 0.00            |
| 10.50           | 0.81                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.76                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 2.98                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 3.11                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 3.21                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 3.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 3.35                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 3.40                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 3.45                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 3.50                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 3.54                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 3.58                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.00           | 3.61                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.50           | 3.64                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.00           | 3.67                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.50           | 3.70                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.00           | 3.73                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.50           | 3.76                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.00           | 3.78                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.50           | 3.81                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.00           | 3.83                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.50           | 3.85                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.00           | 3.88                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.50           | 3.90                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.00           | 3.92                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.50           | 3.92                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 0.00               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 67S: Wetland Impervious

Runoff = 1.25 cfs @ 12.09 hrs, Volume= 3,644 cf, Depth= 3.69"  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

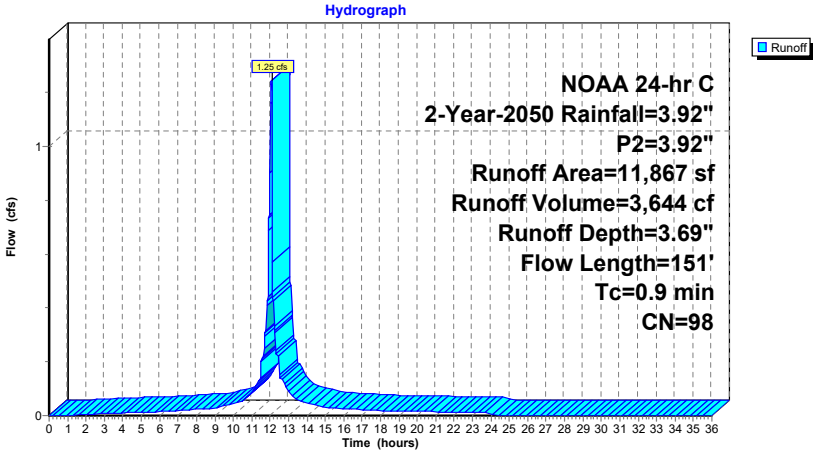
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 11,867    | 98 | Paved parking, HSG A    |
| 11,867    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                 |
|----------|---------------|---------------|-------------------|----------------|-------------------------------------------------------------|
| 0.5      | 36            | 0.0200        | 1.24              |                | Sheet Flow,<br>Smooth surfaces n= 0.011 P2= 3.92"           |
| 0.4      | 115           | 0.1250        | 5.30              |                | Shallow Concentrated Flow,<br>Grassed Waterway Kv= 15.0 fps |
| 0.9      | 151           | Total         |                   |                |                                                             |



Subcatchment 67S: Wetland Impervious



Hydrograph for Subcatchment 67S: Wetland Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 3.69               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 3.69               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 3.69               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 3.69               | 0.00            |
| 2.00            | 0.09                | 0.01               | 0.00            | 28.00           | 3.92                | 3.69               | 0.00            |
| 2.50            | 0.11                | 0.02               | 0.01            | 28.50           | 3.92                | 3.69               | 0.00            |
| 3.00            | 0.14                | 0.03               | 0.01            | 29.00           | 3.92                | 3.69               | 0.00            |
| 3.50            | 0.16                | 0.05               | 0.01            | 29.50           | 3.92                | 3.69               | 0.00            |
| 4.00            | 0.19                | 0.06               | 0.01            | 30.00           | 3.92                | 3.69               | 0.00            |
| 4.50            | 0.22                | 0.08               | 0.01            | 30.50           | 3.92                | 3.69               | 0.00            |
| 5.00            | 0.25                | 0.11               | 0.01            | 31.00           | 3.92                | 3.69               | 0.00            |
| 5.50            | 0.28                | 0.13               | 0.01            | 31.50           | 3.92                | 3.69               | 0.00            |
| 6.00            | 0.31                | 0.15               | 0.01            | 32.00           | 3.92                | 3.69               | 0.00            |
| 6.50            | 0.34                | 0.18               | 0.02            | 32.50           | 3.92                | 3.69               | 0.00            |
| 7.00            | 0.38                | 0.21               | 0.02            | 33.00           | 3.92                | 3.69               | 0.00            |
| 7.50            | 0.42                | 0.25               | 0.02            | 33.50           | 3.92                | 3.69               | 0.00            |
| 8.00            | 0.47                | 0.29               | 0.02            | 34.00           | 3.92                | 3.69               | 0.00            |
| 8.50            | 0.52                | 0.34               | 0.03            | 34.50           | 3.92                | 3.69               | 0.00            |
| 9.00            | 0.57                | 0.38               | 0.03            | 35.00           | 3.92                | 3.69               | 0.00            |
| 9.50            | 0.64                | 0.44               | 0.04            | 35.50           | 3.92                | 3.69               | 0.00            |
| 10.00           | 0.71                | 0.52               | 0.04            | 36.00           | 3.92                | 3.69               | 0.00            |
| 10.50           | 0.81                | 0.61               | 0.05            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.73               | 0.08            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.94               | 0.14            |                 |                     |                    |                 |
| 12.00           | 1.87                | 1.64               | 0.75            |                 |                     |                    |                 |
| 12.50           | 2.76                | 2.53               | 0.22            |                 |                     |                    |                 |
| 13.00           | 2.98                | 2.75               | 0.10            |                 |                     |                    |                 |
| 13.50           | 3.11                | 2.88               | 0.06            |                 |                     |                    |                 |
| 14.00           | 3.21                | 2.97               | 0.05            |                 |                     |                    |                 |
| 14.50           | 3.28                | 3.05               | 0.04            |                 |                     |                    |                 |
| 15.00           | 3.35                | 3.11               | 0.03            |                 |                     |                    |                 |
| 15.50           | 3.40                | 3.17               | 0.03            |                 |                     |                    |                 |
| 16.00           | 3.45                | 3.22               | 0.03            |                 |                     |                    |                 |
| 16.50           | 3.50                | 3.26               | 0.02            |                 |                     |                    |                 |
| 17.00           | 3.54                | 3.30               | 0.02            |                 |                     |                    |                 |
| 17.50           | 3.58                | 3.34               | 0.02            |                 |                     |                    |                 |
| 18.00           | 3.61                | 3.38               | 0.02            |                 |                     |                    |                 |
| 18.50           | 3.64                | 3.41               | 0.02            |                 |                     |                    |                 |
| 19.00           | 3.67                | 3.44               | 0.02            |                 |                     |                    |                 |
| 19.50           | 3.70                | 3.47               | 0.02            |                 |                     |                    |                 |
| 20.00           | 3.73                | 3.49               | 0.02            |                 |                     |                    |                 |
| 20.50           | 3.76                | 3.52               | 0.01            |                 |                     |                    |                 |
| 21.00           | 3.78                | 3.55               | 0.01            |                 |                     |                    |                 |
| 21.50           | 3.81                | 3.57               | 0.01            |                 |                     |                    |                 |
| 22.00           | 3.83                | 3.60               | 0.01            |                 |                     |                    |                 |
| 22.50           | 3.85                | 3.62               | 0.01            |                 |                     |                    |                 |
| 23.00           | 3.88                | 3.64               | 0.01            |                 |                     |                    |                 |
| 23.50           | 3.90                | 3.66               | 0.01            |                 |                     |                    |                 |
| 24.00           | 3.92                | 3.69               | 0.01            |                 |                     |                    |                 |
| 24.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |

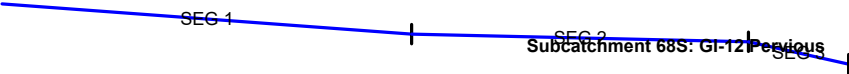
Summary for Subcatchment 68S: GI-12 Pervious

Runoff = 0.03 cfs @ 12.94 hrs, Volume= 610 cf, Depth= 0.13"

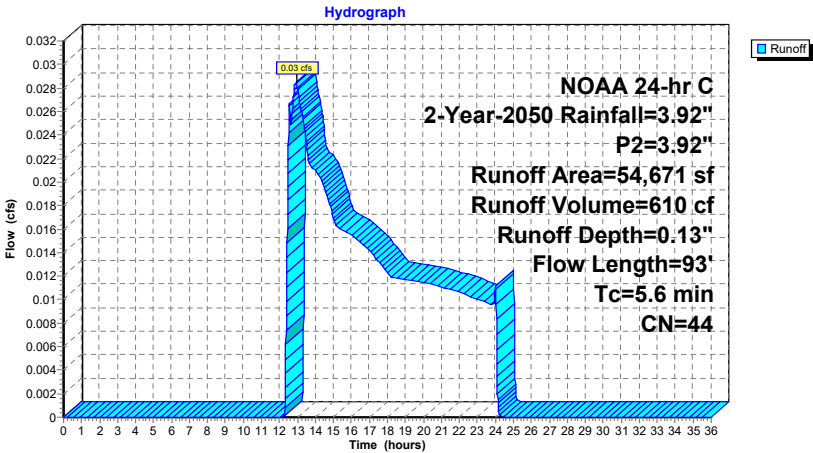
Routed to Pond 60P : GI-12

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN            | Description                   |                   |                |                                                                            |  |
|-----------|---------------|-------------------------------|-------------------|----------------|----------------------------------------------------------------------------|--|
| 42,609    | 39            | >75% Grass cover, Good, HSG A |                   |                |                                                                            |  |
| 12,062    | 61            | >75% Grass cover, Good, HSG B |                   |                |                                                                            |  |
| 54,671    | 44            | Weighted Average              |                   |                |                                                                            |  |
| 54,671    |               | 100.00% Pervious Area         |                   |                |                                                                            |  |
| Tc (min)  | Length (feet) | Slope (ft/ft)                 | Velocity (ft/sec) | Capacity (cfs) | Description                                                                |  |
| 4.9       | 45            | 0.0450                        | 0.15              |                | <b>Sheet Flow, SEG 1</b><br>Grass: Dense n= 0.240 P2= 3.92"                |  |
| 0.6       | 37            | 0.0140                        | 1.08              |                | <b>Sheet Flow, SEG 2</b><br>Smooth surfaces n= 0.011 P2= 3.92"             |  |
| 0.1       | 11            | 0.1360                        | 2.58              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Short Grass Pasture Kv= 7.0 fps |  |
| 5.6       | 93            | Total                         |                   |                |                                                                            |  |



Subcatchment 68S: GI-12 Pervious



Hydrograph for Subcatchment 68S: GI-12 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 0.13               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 0.13               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 0.13               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 0.13               | 0.00            |
| 2.00            | 0.09                | 0.00               | 0.00            | 28.00           | 3.92                | 0.13               | 0.00            |
| 2.50            | 0.11                | 0.00               | 0.00            | 28.50           | 3.92                | 0.13               | 0.00            |
| 3.00            | 0.14                | 0.00               | 0.00            | 29.00           | 3.92                | 0.13               | 0.00            |
| 3.50            | 0.16                | 0.00               | 0.00            | 29.50           | 3.92                | 0.13               | 0.00            |
| 4.00            | 0.19                | 0.00               | 0.00            | 30.00           | 3.92                | 0.13               | 0.00            |
| 4.50            | 0.22                | 0.00               | 0.00            | 30.50           | 3.92                | 0.13               | 0.00            |
| 5.00            | 0.25                | 0.00               | 0.00            | 31.00           | 3.92                | 0.13               | 0.00            |
| 5.50            | 0.28                | 0.00               | 0.00            | 31.50           | 3.92                | 0.13               | 0.00            |
| 6.00            | 0.31                | 0.00               | 0.00            | 32.00           | 3.92                | 0.13               | 0.00            |
| 6.50            | 0.34                | 0.00               | 0.00            | 32.50           | 3.92                | 0.13               | 0.00            |
| 7.00            | 0.38                | 0.00               | 0.00            | 33.00           | 3.92                | 0.13               | 0.00            |
| 7.50            | 0.42                | 0.00               | 0.00            | 33.50           | 3.92                | 0.13               | 0.00            |
| 8.00            | 0.47                | 0.00               | 0.00            | 34.00           | 3.92                | 0.13               | 0.00            |
| 8.50            | 0.52                | 0.00               | 0.00            | 34.50           | 3.92                | 0.13               | 0.00            |
| 9.00            | 0.57                | 0.00               | 0.00            | 35.00           | 3.92                | 0.13               | 0.00            |
| 9.50            | 0.64                | 0.00               | 0.00            | 35.50           | 3.92                | 0.13               | 0.00            |
| 10.00           | 0.71                | 0.00               | 0.00            | 36.00           | 3.92                | 0.13               | 0.00            |
| 10.50           | 0.81                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.76                | 0.00               | 0.02            |                 |                     |                    |                 |
| 13.00           | 2.98                | 0.01               | 0.03            |                 |                     |                    |                 |
| 13.50           | 3.11                | 0.02               | 0.02            |                 |                     |                    |                 |
| 14.00           | 3.21                | 0.03               | 0.02            |                 |                     |                    |                 |
| 14.50           | 3.28                | 0.04               | 0.02            |                 |                     |                    |                 |
| 15.00           | 3.35                | 0.05               | 0.02            |                 |                     |                    |                 |
| 15.50           | 3.40                | 0.05               | 0.02            |                 |                     |                    |                 |
| 16.00           | 3.45                | 0.06               | 0.02            |                 |                     |                    |                 |
| 16.50           | 3.50                | 0.07               | 0.01            |                 |                     |                    |                 |
| 17.00           | 3.54                | 0.07               | 0.01            |                 |                     |                    |                 |
| 17.50           | 3.58                | 0.08               | 0.01            |                 |                     |                    |                 |
| 18.00           | 3.61                | 0.08               | 0.01            |                 |                     |                    |                 |
| 18.50           | 3.64                | 0.09               | 0.01            |                 |                     |                    |                 |
| 19.00           | 3.67                | 0.09               | 0.01            |                 |                     |                    |                 |
| 19.50           | 3.70                | 0.10               | 0.01            |                 |                     |                    |                 |
| 20.00           | 3.73                | 0.10               | 0.01            |                 |                     |                    |                 |
| 20.50           | 3.76                | 0.11               | 0.01            |                 |                     |                    |                 |
| 21.00           | 3.78                | 0.11               | 0.01            |                 |                     |                    |                 |
| 21.50           | 3.81                | 0.11               | 0.01            |                 |                     |                    |                 |
| 22.00           | 3.83                | 0.12               | 0.01            |                 |                     |                    |                 |
| 22.50           | 3.85                | 0.12               | 0.01            |                 |                     |                    |                 |
| 23.00           | 3.88                | 0.13               | 0.01            |                 |                     |                    |                 |
| 23.50           | 3.90                | 0.13               | 0.01            |                 |                     |                    |                 |
| 24.00           | 3.92                | 0.13               | 0.01            |                 |                     |                    |                 |
| 24.50           | 3.92                | 0.13               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 0.13               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 0.13               | 0.00            |                 |                     |                    |                 |

Summary for Pond 8P: GI-13

Inflow Area = 119,588 sf, 39.98% Impervious, Inflow Depth = 0.01" for 2-Year-2050 event  
Inflow = 0.00 cfs @ 13.43 hrs, Volume= 128 cf  
Outflow = 0.00 cfs @ 13.43 hrs, Volume= 128 cf, Atten= 0%, Lag= 0.0 min  
Discarded = 0.00 cfs @ 13.43 hrs, Volume= 128 cf  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 126.00' @ 0.00 hrs Surf.Area= 4,028 sf Storage= 0 cf

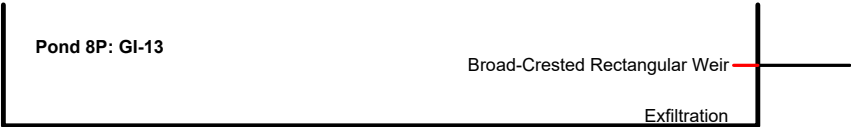
Plug-Flow detention time= (not calculated: outflow precedes inflow)  
Center-of-Mass det. time= 0.0 min ( 1,075.5 - 1,075.5 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 126.00' | 23,208 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

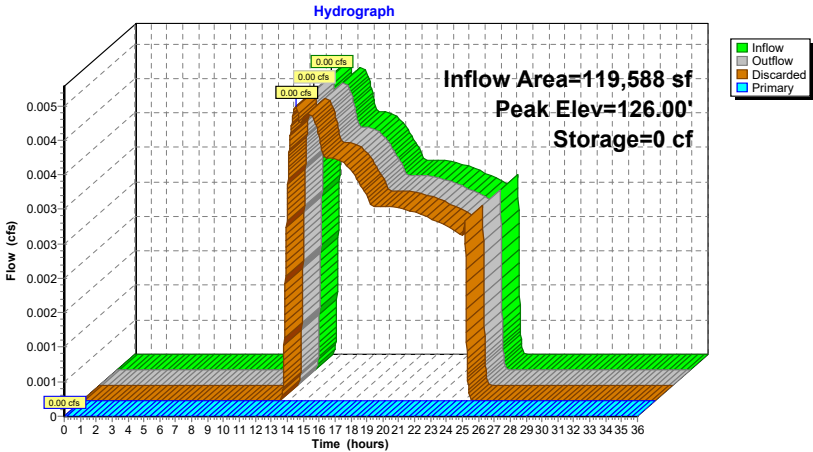
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 126.00           | 4,028             | 0                      | 0                      |
| 130.00           | 7,576             | 23,208                 | 23,208                 |

| Device | Routing | Invert  | Outlet Devices                                                                                                                                                                                                                                                                                                                                                                                              |
|--------|---------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary | 128.00' | 5.0' long + 3.0 ' SideZ x 6.0' breadth Broad-Crested Rectangular Weir<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00<br>2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65<br>2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83<br>#2 Discarded 126.00' 0.500 in/hr Exfiltration over Surface area<br>Conductivity to Groundwater Elevation = 1.00' |

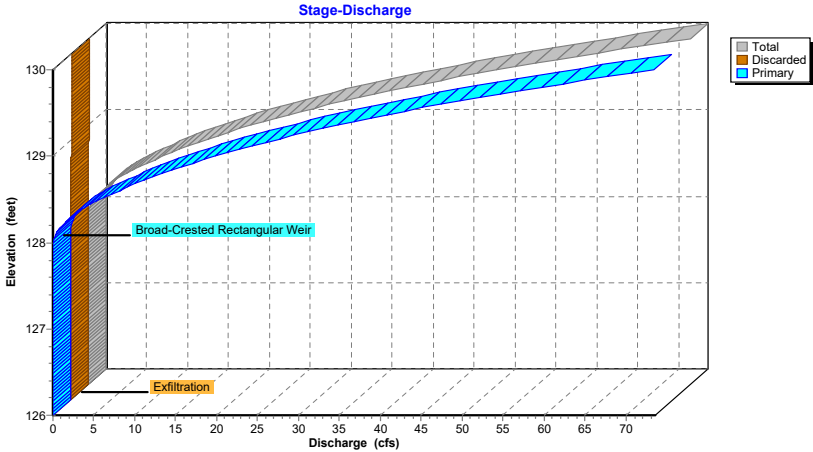
Discarded OutFlow Max=0.00 cfs @ 13.43 hrs HW=126.00' (Free Discharge)  
↳2=Exfiltration (Passes 0.00 cfs of 0.05 cfs potential flow)  
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=126.00' TW=123.25' (Dynamic Tailwater)  
↳1=Broad-Crested Rectangular Weir( Controls 0.00 cfs)

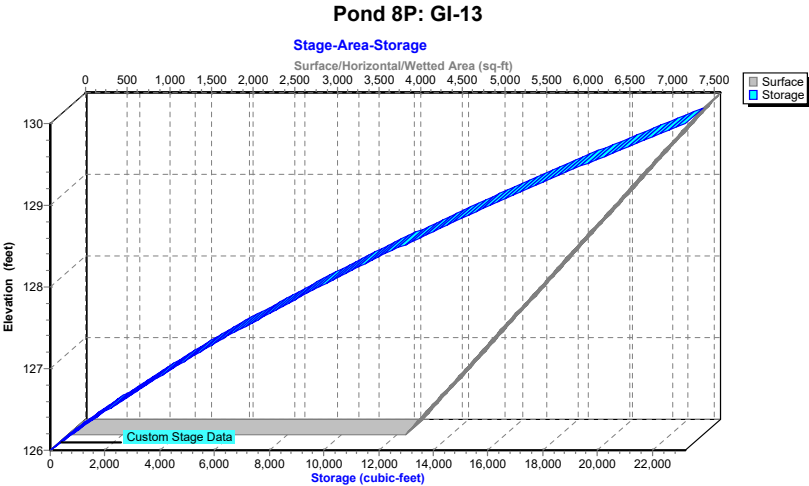


Pond 8P: GI-13



Pond 8P: GI-13





Hydrograph for Pond 8P: GI-13

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Outflow (cfs) | Discarded (cfs) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|-----------------|---------------|
| 0.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 1.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 2.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 3.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 4.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 5.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 6.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 7.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 8.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 9.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 10.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 11.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 12.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 13.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 14.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 15.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 16.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 17.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 18.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 19.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 20.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 21.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 22.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 23.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 24.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 25.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 26.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 27.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 28.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 29.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 30.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 31.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 32.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 33.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 34.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 35.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 36.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 8P: GI-13**

| Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) |
|---------------------|--------------------|--------------------|------------------|---------------------|--------------------|--------------------|------------------|
| 126.00              | 0.00               | 0.00               | 0.00             | 128.60              | 8.16               | 0.07               | 8.08             |
| 126.05              | 0.05               | 0.05               | 0.00             | 128.65              | 9.34               | 0.08               | 9.26             |
| 126.10              | 0.05               | 0.05               | 0.00             | 128.70              | 10.60              | 0.08               | 10.52            |
| 126.15              | 0.05               | 0.05               | 0.00             | 128.75              | 11.94              | 0.08               | 11.86            |
| 126.20              | 0.05               | 0.05               | 0.00             | 128.80              | 13.35              | 0.08               | 13.27            |
| 126.25              | 0.05               | 0.05               | 0.00             | 128.85              | 14.86              | 0.08               | 14.79            |
| 126.30              | 0.05               | 0.05               | 0.00             | 128.90              | 16.46              | 0.08               | 16.38            |
| 126.35              | 0.05               | 0.05               | 0.00             | 128.95              | 18.14              | 0.08               | 18.07            |
| 126.40              | 0.05               | 0.05               | 0.00             | 129.00              | 19.91              | 0.08               | 19.83            |
| 126.45              | 0.05               | 0.05               | 0.00             | 129.05              | 21.74              | 0.08               | 21.66            |
| 126.50              | 0.05               | 0.05               | 0.00             | 129.10              | 23.66              | 0.08               | 23.58            |
| 126.55              | 0.05               | 0.05               | 0.00             | 129.15              | 25.66              | 0.08               | 25.58            |
| 126.60              | 0.05               | 0.05               | 0.00             | 129.20              | 27.74              | 0.08               | 27.66            |
| 126.65              | 0.05               | 0.05               | 0.00             | 129.25              | 29.88              | 0.08               | 29.80            |
| 126.70              | 0.05               | 0.05               | 0.00             | 129.30              | 32.10              | 0.08               | 32.01            |
| 126.75              | 0.05               | 0.05               | 0.00             | 129.35              | 34.40              | 0.08               | 34.32            |
| 126.80              | 0.06               | 0.06               | 0.00             | 129.40              | 36.78              | 0.08               | 36.70            |
| 126.85              | 0.06               | 0.06               | 0.00             | 129.45              | 39.32              | 0.08               | 39.24            |
| 126.90              | 0.06               | 0.06               | 0.00             | 129.50              | 41.95              | 0.08               | 41.87            |
| 126.95              | 0.06               | 0.06               | 0.00             | 129.55              | 44.68              | 0.08               | 44.59            |
| 127.00              | 0.06               | 0.06               | 0.00             | 129.60              | 47.50              | 0.09               | 47.41            |
| 127.05              | 0.06               | 0.06               | 0.00             | 129.65              | 50.41              | 0.09               | 50.32            |
| 127.10              | 0.06               | 0.06               | 0.00             | 129.70              | 53.42              | 0.09               | 53.33            |
| 127.15              | 0.06               | 0.06               | 0.00             | 129.75              | 56.53              | 0.09               | 56.44            |
| 127.20              | 0.06               | 0.06               | 0.00             | 129.80              | 59.73              | 0.09               | 59.64            |
| 127.25              | 0.06               | 0.06               | 0.00             | 129.85              | 63.04              | 0.09               | 62.95            |
| 127.30              | 0.06               | 0.06               | 0.00             | 129.90              | 66.44              | 0.09               | 66.35            |
| 127.35              | 0.06               | 0.06               | 0.00             | 129.95              | 69.94              | 0.09               | 69.85            |
| 127.40              | 0.06               | 0.06               | 0.00             | 130.00              | <b>73.54</b>       | <b>0.09</b>        | <b>73.45</b>     |
| 127.45              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.50              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.55              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.60              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.65              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.70              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.75              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.80              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.85              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.90              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.95              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 128.00              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 128.05              | 0.20               | 0.07               | 0.14             |                     |                    |                    |                  |
| 128.10              | 0.46               | 0.07               | 0.39             |                     |                    |                    |                  |
| 128.15              | 0.81               | 0.07               | 0.74             |                     |                    |                    |                  |
| 128.20              | 1.23               | 0.07               | 1.16             |                     |                    |                    |                  |
| 128.25              | 1.75               | 0.07               | 1.68             |                     |                    |                    |                  |
| 128.30              | 2.36               | 0.07               | 2.29             |                     |                    |                    |                  |
| 128.35              | 3.06               | 0.07               | 2.99             |                     |                    |                    |                  |
| 128.40              | 3.86               | 0.07               | 3.78             |                     |                    |                    |                  |
| 128.45              | 4.77               | 0.07               | 4.69             |                     |                    |                    |                  |
| 128.50              | 5.78               | 0.07               | 5.71             |                     |                    |                    |                  |
| 128.55              | 6.91               | 0.07               | 6.84             |                     |                    |                    |                  |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 8P: GI-13**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 126.00              | 4,028              | 0                       | 128.60              | 6,334              | 13,471                  |
| 126.05              | 4,072              | 203                     | 128.65              | 6,379              | 13,789                  |
| 126.10              | 4,117              | 407                     | 128.70              | 6,423              | 14,109                  |
| 126.15              | 4,161              | 614                     | 128.75              | 6,467              | 14,431                  |
| 126.20              | 4,205              | 823                     | 128.80              | 6,512              | 14,755                  |
| 126.25              | 4,250              | 1,035                   | 128.85              | 6,556              | 15,082                  |
| 126.30              | 4,294              | 1,248                   | 128.90              | 6,600              | 15,411                  |
| 126.35              | 4,338              | 1,464                   | 128.95              | 6,645              | 15,742                  |
| 126.40              | 4,383              | 1,682                   | 129.00              | 6,689              | 16,076                  |
| 126.45              | 4,427              | 1,902                   | 129.05              | 6,733              | 16,411                  |
| 126.50              | 4,472              | 2,125                   | 129.10              | 6,778              | 16,749                  |
| 126.55              | 4,516              | 2,350                   | 129.15              | 6,822              | 17,089                  |
| 126.60              | 4,560              | 2,576                   | 129.20              | 6,866              | 17,431                  |
| 126.65              | 4,605              | 2,806                   | 129.25              | 6,911              | 17,775                  |
| 126.70              | 4,649              | 3,037                   | 129.30              | 6,955              | 18,122                  |
| 126.75              | 4,693              | 3,270                   | 129.35              | 6,999              | 18,471                  |
| 126.80              | 4,738              | 3,506                   | 129.40              | 7,044              | 18,822                  |
| 126.85              | 4,782              | 3,744                   | 129.45              | 7,088              | 19,175                  |
| 126.90              | 4,826              | 3,984                   | 129.50              | 7,133              | 19,531                  |
| 126.95              | 4,871              | 4,227                   | 129.55              | 7,177              | 19,889                  |
| 127.00              | 4,915              | 4,472                   | 129.60              | 7,221              | 20,249                  |
| 127.05              | 4,959              | 4,718                   | 129.65              | 7,266              | 20,611                  |
| 127.10              | 5,004              | 4,967                   | 129.70              | 7,310              | 20,975                  |
| 127.15              | 5,048              | 5,219                   | 129.75              | 7,354              | 21,342                  |
| 127.20              | 5,092              | 5,472                   | 129.80              | 7,399              | 21,711                  |
| 127.25              | 5,137              | 5,728                   | 129.85              | 7,443              | 22,082                  |
| 127.30              | 5,181              | 5,986                   | 129.90              | 7,487              | 22,455                  |
| 127.35              | 5,225              | 6,246                   | 129.95              | 7,532              | 22,830                  |
| 127.40              | 5,270              | 6,508                   | 130.00              | <b>7,576</b>       | <b>23,208</b>           |
| 127.45              | 5,314              | 6,773                   |                     |                    |                         |
| 127.50              | 5,359              | 7,040                   |                     |                    |                         |
| 127.55              | 5,403              | 7,309                   |                     |                    |                         |
| 127.60              | 5,447              | 7,580                   |                     |                    |                         |
| 127.65              | 5,492              | 7,854                   |                     |                    |                         |
| 127.70              | 5,536              | 8,129                   |                     |                    |                         |
| 127.75              | 5,580              | 8,407                   |                     |                    |                         |
| 127.80              | 5,625              | 8,687                   |                     |                    |                         |
| 127.85              | 5,669              | 8,970                   |                     |                    |                         |
| 127.90              | 5,713              | 9,254                   |                     |                    |                         |
| 127.95              | 5,758              | 9,541                   |                     |                    |                         |
| 128.00              | 5,802              | 9,830                   |                     |                    |                         |
| 128.05              | 5,846              | 10,121                  |                     |                    |                         |
| 128.10              | 5,891              | 10,415                  |                     |                    |                         |
| 128.15              | 5,935              | 10,710                  |                     |                    |                         |
| 128.20              | 5,979              | 11,008                  |                     |                    |                         |
| 128.25              | 6,024              | 11,308                  |                     |                    |                         |
| 128.30              | 6,068              | 11,611                  |                     |                    |                         |
| 128.35              | 6,112              | 11,915                  |                     |                    |                         |
| 128.40              | 6,157              | 12,222                  |                     |                    |                         |
| 128.45              | 6,201              | 12,531                  |                     |                    |                         |
| 128.50              | 6,246              | 12,842                  |                     |                    |                         |
| 128.55              | 6,290              | 13,155                  |                     |                    |                         |



Summary for Pond 46P: GI-10

Inflow Area = 32,730 sf, 60.20% Impervious, Inflow Depth = 2.23" for 2-Year-2050 event  
Inflow = 1.98 cfs @ 12.12 hrs, Volume= 6,092 cf  
Outflow = 0.05 cfs @ 15.96 hrs, Volume= 1,002 cf, Atten= 98%, Lag= 230.9 min  
Primary = 0.05 cfs @ 15.96 hrs, Volume= 1,002 cf  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 125.02' @ 15.96 hrs Surf.Area= 4,184 sf Storage= 5,154 cf

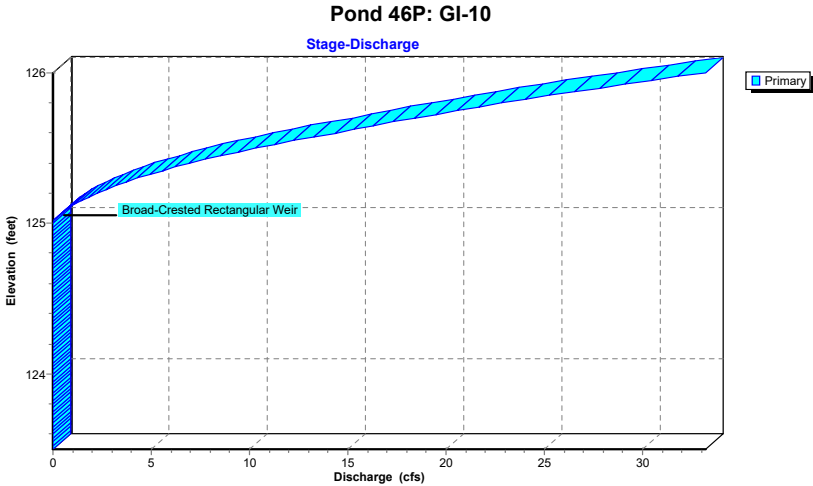
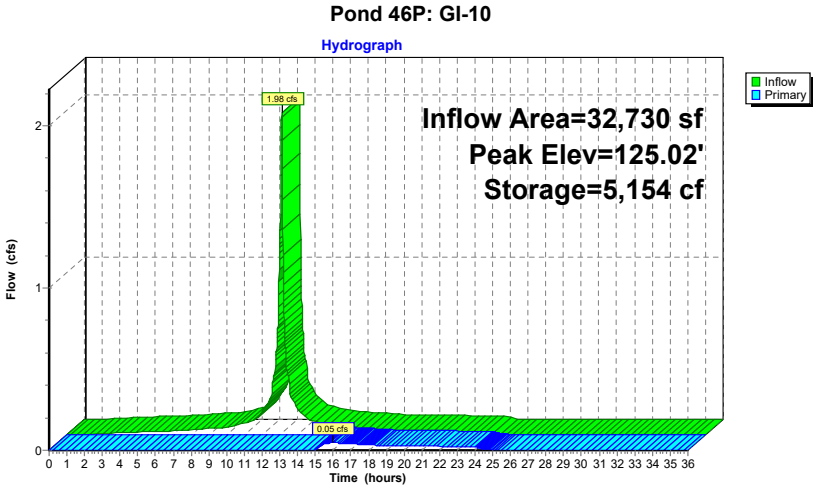
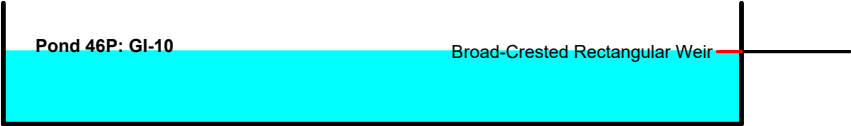
Plug-Flow detention time= 694.3 min calculated for 1,001 cf (16% of inflow)  
Center-of-Mass det. time= 399.2 min ( 1,153.9 - 754.7 )

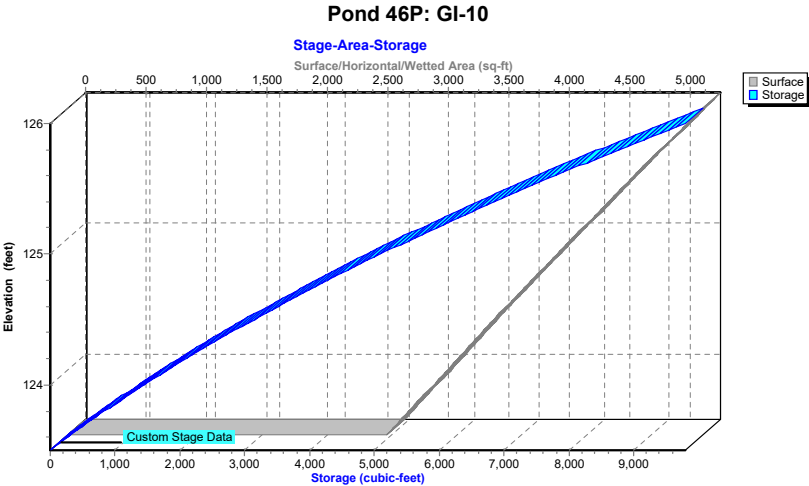
| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 123.50' | 9,792 cf      | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 123.50           | 2,638             | 0                      | 0                      |
| 124.50           | 3,639             | 3,139                  | 3,139                  |
| 125.50           | 4,696             | 4,168                  | 7,306                  |
| 126.00           | 5,246             | 2,486                  | 9,792                  |

| Device                                                        | Routing | Invert  | Outlet Devices                                                            |
|---------------------------------------------------------------|---------|---------|---------------------------------------------------------------------------|
| #1                                                            | Primary | 125.00' | 10.0' long + 3.0 ' /' SideZ x 6.0' breadth Broad-Crested Rectangular Weir |
| Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 |         |         |                                                                           |
| 2.50 3.00 3.50 4.00 4.50 5.00 5.50                            |         |         |                                                                           |
| Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65  |         |         |                                                                           |
| 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83                       |         |         |                                                                           |

Primary OutFlow Max=0.05 cfs @ 15.96 hrs HW=125.02' TW=123.89' (Dynamic Tailwater)  
1=Broad-Crested Rectangular Weir (Weir Controls 0.05 cfs @ 0.29 fps)





Hydrograph for Pond 46P: GI-10

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 123.50           | 0.00          |
| 1.00         | 0.00         | 0                    | 123.50           | 0.00          |
| 2.00         | 0.01         | 13                   | 123.50           | 0.00          |
| 3.00         | 0.01         | 49                   | 123.52           | 0.00          |
| 4.00         | 0.02         | 101                  | 123.54           | 0.00          |
| 5.00         | 0.02         | 168                  | 123.56           | 0.00          |
| 6.00         | 0.02         | 246                  | 123.59           | 0.00          |
| 7.00         | 0.03         | 343                  | 123.63           | 0.00          |
| 8.00         | 0.04         | 467                  | 123.67           | 0.00          |
| 9.00         | 0.05         | 619                  | 123.73           | 0.00          |
| 10.00        | 0.07         | 831                  | 123.80           | 0.00          |
| 11.00        | 0.14         | 1,170                | 123.91           | 0.00          |
| 12.00        | 1.15         | 2,398                | 124.29           | 0.00          |
| 13.00        | 0.16         | 4,471                | 124.85           | 0.00          |
| 14.00        | 0.08         | 4,861                | 124.94           | 0.00          |
| 15.00        | 0.05         | 5,103                | 125.00           | 0.00          |
| 16.00        | 0.04         | 5,154                | 125.02           | 0.05          |
| 17.00        | 0.04         | 5,149                | 125.01           | 0.04          |
| 18.00        | 0.03         | 5,142                | 125.01           | 0.03          |
| 19.00        | 0.03         | 5,138                | 125.01           | 0.03          |
| 20.00        | 0.03         | 5,136                | 125.01           | 0.03          |
| 21.00        | 0.02         | 5,134                | 125.01           | 0.03          |
| 22.00        | 0.02         | 5,132                | 125.01           | 0.02          |
| 23.00        | 0.02         | 5,130                | 125.01           | 0.02          |
| 24.00        | 0.02         | 5,128                | 125.01           | 0.02          |
| 25.00        | 0.00         | 5,101                | 125.00           | 0.00          |
| 26.00        | 0.00         | 5,095                | 125.00           | 0.00          |
| 27.00        | 0.00         | 5,093                | 125.00           | 0.00          |
| 28.00        | 0.00         | 5,092                | 125.00           | 0.00          |
| 29.00        | 0.00         | 5,091                | 125.00           | 0.00          |
| 30.00        | 0.00         | 5,091                | 125.00           | 0.00          |
| 31.00        | 0.00         | 5,091                | 125.00           | 0.00          |
| 32.00        | 0.00         | 5,091                | 125.00           | 0.00          |
| 33.00        | 0.00         | 5,090                | 125.00           | 0.00          |
| 34.00        | 0.00         | 5,090                | 125.00           | 0.00          |
| 35.00        | 0.00         | 5,090                | 125.00           | 0.00          |
| 36.00        | 0.00         | 5,090                | 125.00           | 0.00          |

Stage-Discharge for Pond 46P: GI-10

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 123.50              | 0.00             | 124.54              | 0.00             | 125.58              | 13.49            |
| 123.52              | 0.00             | 124.56              | 0.00             | 125.60              | 14.36            |
| 123.54              | 0.00             | 124.58              | 0.00             | 125.62              | 15.13            |
| 123.56              | 0.00             | 124.60              | 0.00             | 125.64              | 15.92            |
| 123.58              | 0.00             | 124.62              | 0.00             | 125.66              | 16.73            |
| 123.60              | 0.00             | 124.64              | 0.00             | 125.68              | 17.56            |
| 123.62              | 0.00             | 124.66              | 0.00             | 125.70              | 18.40            |
| 123.64              | 0.00             | 124.68              | 0.00             | 125.72              | 19.26            |
| 123.66              | 0.00             | 124.70              | 0.00             | 125.74              | 20.13            |
| 123.68              | 0.00             | 124.72              | 0.00             | 125.76              | 21.03            |
| 123.70              | 0.00             | 124.74              | 0.00             | 125.78              | 21.93            |
| 123.72              | 0.00             | 124.76              | 0.00             | 125.80              | 22.86            |
| 123.74              | 0.00             | 124.78              | 0.00             | 125.82              | 23.82            |
| 123.76              | 0.00             | 124.80              | 0.00             | 125.84              | 24.79            |
| 123.78              | 0.00             | 124.82              | 0.00             | 125.86              | 25.79            |
| 123.80              | 0.00             | 124.84              | 0.00             | 125.88              | 26.80            |
| 123.82              | 0.00             | 124.86              | 0.00             | 125.90              | 27.82            |
| 123.84              | 0.00             | 124.88              | 0.00             | 125.92              | 28.87            |
| 123.86              | 0.00             | 124.90              | 0.00             | 125.94              | 29.93            |
| 123.88              | 0.00             | 124.92              | 0.00             | 125.96              | 31.02            |
| 123.90              | 0.00             | 124.94              | 0.00             | 125.98              | 32.12            |
| 123.92              | 0.00             | 124.96              | 0.00             | 126.00              | 33.23            |
| 123.94              | 0.00             | 124.98              | 0.00             |                     |                  |
| 123.96              | 0.00             | 125.00              | 0.00             |                     |                  |
| 123.98              | 0.00             | 125.02              | 0.07             |                     |                  |
| 124.00              | 0.00             | 125.04              | 0.19             |                     |                  |
| 124.02              | 0.00             | 125.06              | 0.35             |                     |                  |
| 124.04              | 0.00             | 125.08              | 0.55             |                     |                  |
| 124.06              | 0.00             | 125.10              | 0.77             |                     |                  |
| 124.08              | 0.00             | 125.12              | 1.01             |                     |                  |
| 124.10              | 0.00             | 125.14              | 1.28             |                     |                  |
| 124.12              | 0.00             | 125.16              | 1.58             |                     |                  |
| 124.14              | 0.00             | 125.18              | 1.89             |                     |                  |
| 124.16              | 0.00             | 125.20              | 2.22             |                     |                  |
| 124.18              | 0.00             | 125.22              | 2.59             |                     |                  |
| 124.20              | 0.00             | 125.24              | 2.98             |                     |                  |
| 124.22              | 0.00             | 125.26              | 3.40             |                     |                  |
| 124.24              | 0.00             | 125.28              | 3.84             |                     |                  |
| 124.26              | 0.00             | 125.30              | 4.30             |                     |                  |
| 124.28              | 0.00             | 125.32              | 4.78             |                     |                  |
| 124.30              | 0.00             | 125.34              | 5.29             |                     |                  |
| 124.32              | 0.00             | 125.36              | 5.82             |                     |                  |
| 124.34              | 0.00             | 125.38              | 6.38             |                     |                  |
| 124.36              | 0.00             | 125.40              | 6.96             |                     |                  |
| 124.38              | 0.00             | 125.42              | 7.58             |                     |                  |
| 124.40              | 0.00             | 125.44              | 8.22             |                     |                  |
| 124.42              | 0.00             | 125.46              | 8.89             |                     |                  |
| 124.44              | 0.00             | 125.48              | 9.59             |                     |                  |
| 124.46              | 0.00             | 125.50              | 10.32            |                     |                  |
| 124.48              | 0.00             | 125.52              | 11.07            |                     |                  |
| 124.50              | 0.00             | 125.54              | 11.85            |                     |                  |
| 124.52              | 0.00             | 125.56              | 12.65            |                     |                  |

Stage-Area-Storage for Pond 46P: GI-10

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|
| 123.50              | 2,638              | 0                       |
| 123.55              | 2,688              | 133                     |
| 123.60              | 2,738              | 269                     |
| 123.65              | 2,788              | 407                     |
| 123.70              | 2,838              | 548                     |
| 123.75              | 2,888              | 691                     |
| 123.80              | 2,938              | 836                     |
| 123.85              | 2,988              | 985                     |
| 123.90              | 3,038              | 1,135                   |
| 123.95              | 3,088              | 1,288                   |
| 124.00              | 3,139              | 1,444                   |
| 124.05              | 3,189              | 1,602                   |
| 124.10              | 3,239              | 1,763                   |
| 124.15              | 3,289              | 1,926                   |
| 124.20              | 3,339              | 2,092                   |
| 124.25              | 3,389              | 2,260                   |
| 124.30              | 3,439              | 2,431                   |
| 124.35              | 3,489              | 2,604                   |
| 124.40              | 3,539              | 2,780                   |
| 124.45              | 3,589              | 2,958                   |
| 124.50              | 3,639              | 3,139                   |
| 124.55              | 3,692              | 3,322                   |
| 124.60              | 3,745              | 3,508                   |
| 124.65              | 3,798              | 3,696                   |
| 124.70              | 3,850              | 3,887                   |
| 124.75              | 3,903              | 4,081                   |
| 124.80              | 3,956              | 4,278                   |
| 124.85              | 4,009              | 4,477                   |
| 124.90              | 4,062              | 4,679                   |
| 124.95              | 4,115              | 4,883                   |
| 125.00              | 4,168              | 5,090                   |
| 125.05              | 4,220              | 5,300                   |
| 125.10              | 4,273              | 5,512                   |
| 125.15              | 4,326              | 5,727                   |
| 125.20              | 4,379              | 5,945                   |
| 125.25              | 4,432              | 6,165                   |
| 125.30              | 4,485              | 6,388                   |
| 125.35              | 4,537              | 6,613                   |
| 125.40              | 4,590              | 6,842                   |
| 125.45              | 4,643              | 7,073                   |
| 125.50              | 4,696              | 7,306                   |
| 125.55              | 4,751              | 7,542                   |
| 125.60              | 4,806              | 7,781                   |
| 125.65              | 4,861              | 8,023                   |
| 125.70              | 4,916              | 8,267                   |
| 125.75              | 4,971              | 8,514                   |
| 125.80              | 5,026              | 8,764                   |
| 125.85              | 5,081              | 9,017                   |
| 125.90              | 5,136              | 9,272                   |
| 125.95              | 5,191              | 9,531                   |
| 126.00              | 5,246              | 9,792                   |

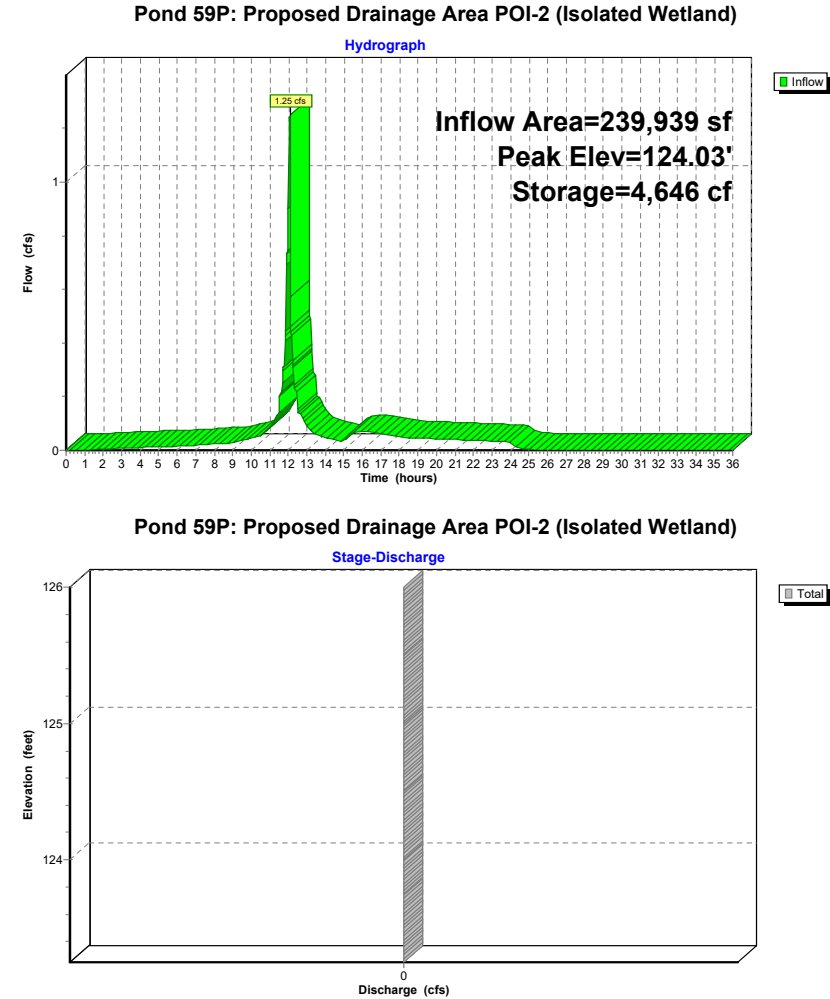
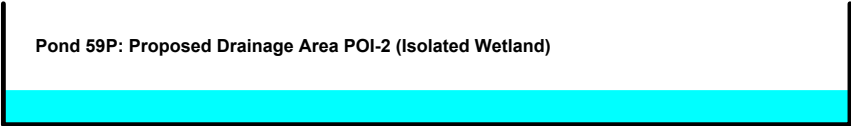
Summary for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

Inflow Area = 239,939 sf, 33.08% Impervious, Inflow Depth = 0.23" for 2-Year-2050 event  
Inflow = 1.25 cfs @ 12.09 hrs, Volume= 4,646 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

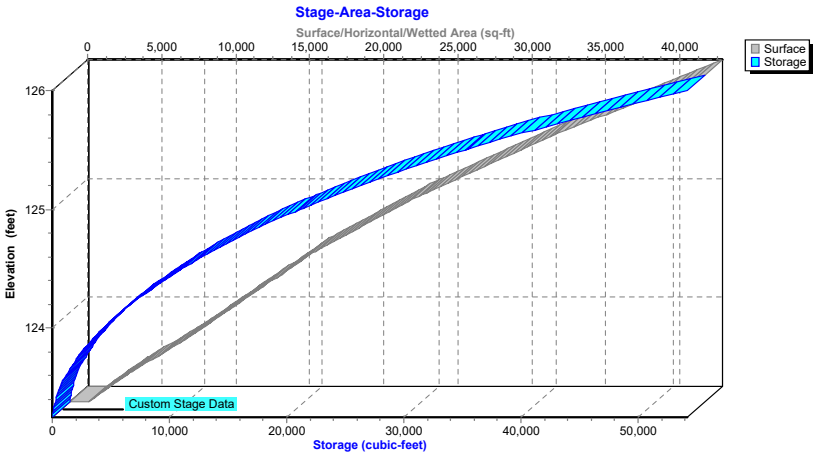
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 124.03' @ 36.00 hrs Surf.Area= 10,808 sf Storage= 4,646 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 123.25'           | 54,210 cf              | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 123.25           | 1,260             | 0                      | 0                                                   |
| 123.50           | 4,142             | 675                    | 675                                                 |
| 123.75           | 7,451             | 1,449                  | 2,124                                               |
| 124.00           | 10,505            | 2,245                  | 4,369                                               |
| 124.50           | 16,329            | 6,709                  | 11,077                                              |
| 125.00           | 23,865            | 10,049                 | 21,126                                              |
| 125.50           | 32,790            | 14,164                 | 35,290                                              |
| 126.00           | 42,891            | 18,920                 | 54,210                                              |



Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)



Hydrograph for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) |
|--------------|--------------|----------------------|------------------|--------------|--------------|----------------------|------------------|
| 0.00         | 0.00         | 0                    | 123.25           | 26.00        | 0.00         | 4,642                | 124.03           |
| 0.50         | 0.00         | 0                    | 123.25           | 26.50        | 0.00         | 4,643                | 124.03           |
| 1.00         | 0.00         | 0                    | 123.25           | 27.00        | 0.00         | 4,644                | 124.03           |
| 1.50         | 0.00         | 2                    | 123.25           | 27.50        | 0.00         | 4,644                | 124.03           |
| 2.00         | 0.00         | 9                    | 123.26           | 28.00        | 0.00         | 4,645                | 124.03           |
| 2.50         | 0.01         | 18                   | 123.26           | 28.50        | 0.00         | 4,645                | 124.03           |
| 3.00         | 0.01         | 31                   | 123.27           | 29.00        | 0.00         | 4,645                | 124.03           |
| 3.50         | 0.01         | 46                   | 123.28           | 29.50        | 0.00         | 4,646                | 124.03           |
| 4.00         | 0.01         | 63                   | 123.29           | 30.00        | 0.00         | 4,646                | 124.03           |
| 4.50         | 0.01         | 82                   | 123.30           | 30.50        | 0.00         | 4,646                | 124.03           |
| 5.00         | 0.01         | 104                  | 123.31           | 31.00        | 0.00         | 4,646                | 124.03           |
| 5.50         | 0.01         | 127                  | 123.32           | 31.50        | 0.00         | 4,646                | 124.03           |
| 6.00         | 0.01         | 151                  | 123.34           | 32.00        | 0.00         | 4,646                | 124.03           |
| 6.50         | 0.02         | 179                  | 123.35           | 32.50        | 0.00         | 4,646                | 124.03           |
| 7.00         | 0.02         | 210                  | 123.36           | 33.00        | 0.00         | 4,646                | 124.03           |
| 7.50         | 0.02         | 246                  | 123.37           | 33.50        | 0.00         | 4,646                | 124.03           |
| 8.00         | 0.02         | 286                  | 123.39           | 34.00        | 0.00         | 4,646                | 124.03           |
| 8.50         | 0.03         | 330                  | 123.40           | 34.50        | 0.00         | 4,646                | 124.03           |
| 9.00         | 0.03         | 379                  | 123.42           | 35.00        | 0.00         | 4,646                | 124.03           |
| 9.50         | 0.04         | 437                  | 123.44           | 35.50        | 0.00         | 4,646                | 124.03           |
| 10.00        | 0.04         | 509                  | 123.46           | 36.00        | 0.00         | 4,646                | 124.03           |
| 10.50        | 0.05         | 597                  | 123.48           |              |              |                      |                  |
| 11.00        | 0.08         | 721                  | 123.51           |              |              |                      |                  |
| 11.50        | 0.14         | 928                  | 123.56           |              |              |                      |                  |
| 12.00        | 0.75         | 1,588                | 123.67           |              |              |                      |                  |
| 12.50        | 0.22         | 2,492                | 123.80           |              |              |                      |                  |
| 13.00        | 0.10         | 2,712                | 123.82           |              |              |                      |                  |
| 13.50        | 0.06         | 2,845                | 123.84           |              |              |                      |                  |
| 14.00        | 0.05         | 2,937                | 123.85           |              |              |                      |                  |
| 14.50        | 0.04         | 3,015                | 123.86           |              |              |                      |                  |
| 15.00        | 0.04         | 3,079                | 123.87           |              |              |                      |                  |
| 15.50        | 0.07         | 3,176                | 123.88           |              |              |                      |                  |
| 16.00        | 0.07         | 3,303                | 123.89           |              |              |                      |                  |
| 16.50        | 0.07         | 3,428                | 123.91           |              |              |                      |                  |
| 17.00        | 0.06         | 3,543                | 123.92           |              |              |                      |                  |
| 17.50        | 0.06         | 3,649                | 123.93           |              |              |                      |                  |
| 18.00        | 0.05         | 3,745                | 123.94           |              |              |                      |                  |
| 18.50        | 0.05         | 3,832                | 123.95           |              |              |                      |                  |
| 19.00        | 0.05         | 3,915                | 123.96           |              |              |                      |                  |
| 19.50        | 0.04         | 3,995                | 123.96           |              |              |                      |                  |
| 20.00        | 0.04         | 4,072                | 123.97           |              |              |                      |                  |
| 20.50        | 0.04         | 4,147                | 123.98           |              |              |                      |                  |
| 21.00        | 0.04         | 4,220                | 123.99           |              |              |                      |                  |
| 21.50        | 0.04         | 4,290                | 123.99           |              |              |                      |                  |
| 22.00        | 0.04         | 4,357                | 124.00           |              |              |                      |                  |
| 22.50        | 0.04         | 4,422                | 124.01           |              |              |                      |                  |
| 23.00        | 0.03         | 4,484                | 124.01           |              |              |                      |                  |
| 23.50        | 0.03         | 4,544                | 124.02           |              |              |                      |                  |
| 24.00        | 0.03         | 4,602                | 124.02           |              |              |                      |                  |
| 24.50        | 0.01         | 4,627                | 124.02           |              |              |                      |                  |
| 25.00        | 0.00         | 4,636                | 124.03           |              |              |                      |                  |
| 25.50        | 0.00         | 4,640                | 124.03           |              |              |                      |                  |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

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**Stage-Discharge for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)**

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 123.25              | 0.00               | 124.29              | 0.00               | 125.33              | 0.00               |
| 123.27              | 0.00               | 124.31              | 0.00               | 125.35              | 0.00               |
| 123.29              | 0.00               | 124.33              | 0.00               | 125.37              | 0.00               |
| 123.31              | 0.00               | 124.35              | 0.00               | 125.39              | 0.00               |
| 123.33              | 0.00               | 124.37              | 0.00               | 125.41              | 0.00               |
| 123.35              | 0.00               | 124.39              | 0.00               | 125.43              | 0.00               |
| 123.37              | 0.00               | 124.41              | 0.00               | 125.45              | 0.00               |
| 123.39              | 0.00               | 124.43              | 0.00               | 125.47              | 0.00               |
| 123.41              | 0.00               | 124.45              | 0.00               | 125.49              | 0.00               |
| 123.43              | 0.00               | 124.47              | 0.00               | 125.51              | 0.00               |
| 123.45              | 0.00               | 124.49              | 0.00               | 125.53              | 0.00               |
| 123.47              | 0.00               | 124.51              | 0.00               | 125.55              | 0.00               |
| 123.49              | 0.00               | 124.53              | 0.00               | 125.57              | 0.00               |
| 123.51              | 0.00               | 124.55              | 0.00               | 125.59              | 0.00               |
| 123.53              | 0.00               | 124.57              | 0.00               | 125.61              | 0.00               |
| 123.55              | 0.00               | 124.59              | 0.00               | 125.63              | 0.00               |
| 123.57              | 0.00               | 124.61              | 0.00               | 125.65              | 0.00               |
| 123.59              | 0.00               | 124.63              | 0.00               | 125.67              | 0.00               |
| 123.61              | 0.00               | 124.65              | 0.00               | 125.69              | 0.00               |
| 123.63              | 0.00               | 124.67              | 0.00               | 125.71              | 0.00               |
| 123.65              | 0.00               | 124.69              | 0.00               | 125.73              | 0.00               |
| 123.67              | 0.00               | 124.71              | 0.00               | 125.75              | 0.00               |
| 123.69              | 0.00               | 124.73              | 0.00               | 125.77              | 0.00               |
| 123.71              | 0.00               | 124.75              | 0.00               | 125.79              | 0.00               |
| 123.73              | 0.00               | 124.77              | 0.00               | 125.81              | 0.00               |
| 123.75              | 0.00               | 124.79              | 0.00               | 125.83              | 0.00               |
| 123.77              | 0.00               | 124.81              | 0.00               | 125.85              | 0.00               |
| 123.79              | 0.00               | 124.83              | 0.00               | 125.87              | 0.00               |
| 123.81              | 0.00               | 124.85              | 0.00               | 125.89              | 0.00               |
| 123.83              | 0.00               | 124.87              | 0.00               | 125.91              | 0.00               |
| 123.85              | 0.00               | 124.89              | 0.00               | 125.93              | 0.00               |
| 123.87              | 0.00               | 124.91              | 0.00               | 125.95              | 0.00               |
| 123.89              | 0.00               | 124.93              | 0.00               | 125.97              | 0.00               |
| 123.91              | 0.00               | 124.95              | 0.00               | 125.99              | 0.00               |
| 123.93              | 0.00               | 124.97              | 0.00               |                     |                    |
| 123.95              | 0.00               | 124.99              | 0.00               |                     |                    |
| 123.97              | 0.00               | 125.01              | 0.00               |                     |                    |
| 123.99              | 0.00               | 125.03              | 0.00               |                     |                    |
| 124.01              | 0.00               | 125.05              | 0.00               |                     |                    |
| 124.03              | 0.00               | 125.07              | 0.00               |                     |                    |
| 124.05              | 0.00               | 125.09              | 0.00               |                     |                    |
| 124.07              | 0.00               | 125.11              | 0.00               |                     |                    |
| 124.09              | 0.00               | 125.13              | 0.00               |                     |                    |
| 124.11              | 0.00               | 125.15              | 0.00               |                     |                    |
| 124.13              | 0.00               | 125.17              | 0.00               |                     |                    |
| 124.15              | 0.00               | 125.19              | 0.00               |                     |                    |
| 124.17              | 0.00               | 125.21              | 0.00               |                     |                    |
| 124.19              | 0.00               | 125.23              | 0.00               |                     |                    |
| 124.21              | 0.00               | 125.25              | 0.00               |                     |                    |
| 124.23              | 0.00               | 125.27              | 0.00               |                     |                    |
| 124.25              | 0.00               | 125.29              | 0.00               |                     |                    |
| 124.27              | 0.00               | 125.31              | 0.00               |                     |                    |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

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**Stage-Area-Storage for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 123.25              | 1,260              | 0                       | 125.85              | 39,861             | 48,003                  |
| 123.30              | 1,836              | 77                      | 125.90              | 40,871             | 50,022                  |
| 123.35              | 2,413              | 184                     | 125.95              | 41,881             | 52,091                  |
| 123.40              | 2,989              | 319                     | 126.00              | <b>42,891</b>      | <b>54,210</b>           |
| 123.45              | 3,566              | 483                     |                     |                    |                         |
| 123.50              | 4,142              | 675                     |                     |                    |                         |
| 123.55              | 4,804              | 899                     |                     |                    |                         |
| 123.60              | 5,466              | 1,156                   |                     |                    |                         |
| 123.65              | 6,127              | 1,445                   |                     |                    |                         |
| 123.70              | 6,789              | 1,768                   |                     |                    |                         |
| 123.75              | 7,451              | 2,124                   |                     |                    |                         |
| 123.80              | 8,062              | 2,512                   |                     |                    |                         |
| 123.85              | 8,673              | 2,931                   |                     |                    |                         |
| 123.90              | 9,283              | 3,379                   |                     |                    |                         |
| 123.95              | 9,894              | 3,859                   |                     |                    |                         |
| 124.00              | 10,505             | 4,369                   |                     |                    |                         |
| 124.05              | 11,087             | 4,909                   |                     |                    |                         |
| 124.10              | 11,670             | 5,478                   |                     |                    |                         |
| 124.15              | 12,252             | 6,076                   |                     |                    |                         |
| 124.20              | 12,835             | 6,703                   |                     |                    |                         |
| 124.25              | 13,417             | 7,359                   |                     |                    |                         |
| 124.30              | 13,999             | 8,045                   |                     |                    |                         |
| 124.35              | 14,582             | 8,759                   |                     |                    |                         |
| 124.40              | 15,164             | 9,503                   |                     |                    |                         |
| 124.45              | 15,747             | 10,275                  |                     |                    |                         |
| 124.50              | 16,329             | 11,077                  |                     |                    |                         |
| 124.55              | 17,083             | 11,913                  |                     |                    |                         |
| 124.60              | 17,836             | 12,786                  |                     |                    |                         |
| 124.65              | 18,590             | 13,696                  |                     |                    |                         |
| 124.70              | 19,343             | 14,645                  |                     |                    |                         |
| 124.75              | 20,097             | 15,631                  |                     |                    |                         |
| 124.80              | 20,851             | 16,654                  |                     |                    |                         |
| 124.85              | 21,604             | 17,716                  |                     |                    |                         |
| 124.90              | 22,358             | 18,815                  |                     |                    |                         |
| 124.95              | 23,111             | 19,951                  |                     |                    |                         |
| 125.00              | 23,865             | 21,126                  |                     |                    |                         |
| 125.05              | 24,757             | 22,341                  |                     |                    |                         |
| 125.10              | 25,650             | 23,602                  |                     |                    |                         |
| 125.15              | 26,543             | 24,906                  |                     |                    |                         |
| 125.20              | 27,435             | 26,256                  |                     |                    |                         |
| 125.25              | 28,328             | 27,650                  |                     |                    |                         |
| 125.30              | 29,220             | 29,089                  |                     |                    |                         |
| 125.35              | 30,112             | 30,572                  |                     |                    |                         |
| 125.40              | 31,005             | 32,100                  |                     |                    |                         |
| 125.45              | 31,898             | 33,672                  |                     |                    |                         |
| 125.50              | 32,790             | 35,290                  |                     |                    |                         |
| 125.55              | 33,800             | 36,954                  |                     |                    |                         |
| 125.60              | 34,810             | 38,670                  |                     |                    |                         |
| 125.65              | 35,820             | 40,435                  |                     |                    |                         |
| 125.70              | 36,830             | 42,252                  |                     |                    |                         |
| 125.75              | 37,841             | 44,118                  |                     |                    |                         |
| 125.80              | 38,851             | 46,036                  |                     |                    |                         |

Summary for Pond 60P: GI-12

Inflow Area = 102,485 sf, 46.65% Impervious, Inflow Depth = 1.79" for 2-Year-2050 event  
Inflow = 5.02 cfs @ 12.10 hrs, Volume= 15,294 cf  
Outflow = 0.17 cfs @ 14.71 hrs, Volume= 15,295 cf, Atten= 97%, Lag= 156.4 min  
Discarded = 0.17 cfs @ 14.71 hrs, Volume= 15,295 cf  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Routed to Pond 8P : GI-13

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 126.56' @ 14.71 hrs Surf.Area= 14,203 sf Storage= 7,705 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)  
Center-of-Mass det. time= 409.6 min ( 1,170.2 - 760.6 )

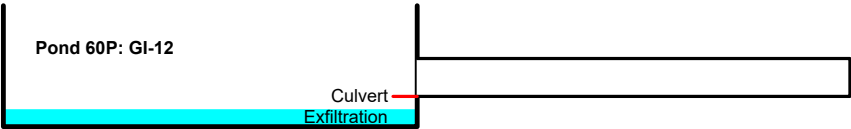
| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 126.00' | 66,186 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 126.00           | 13,291            | 0                      | 0                      |
| 130.00           | 19,802            | 66,186                 | 66,186                 |

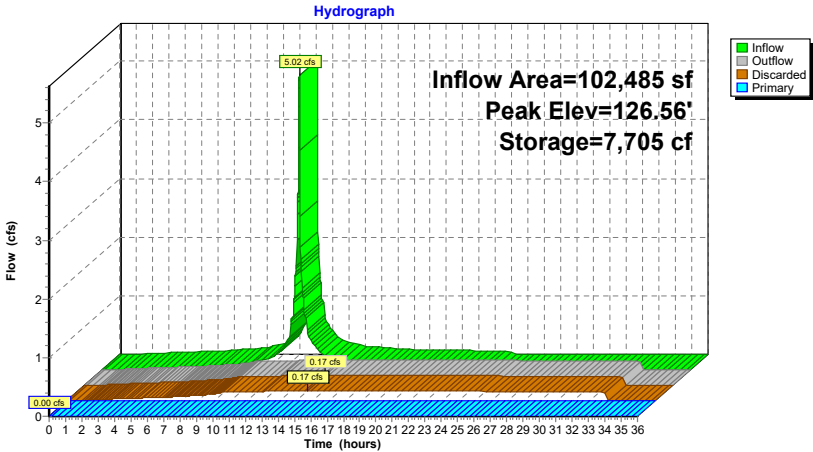
| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                                        |
|--------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary   | 127.00' | 15.0" Round Culvert<br>L= 83.0' CMP, mitered to conform to fill, Ke= 0.700<br>Inlet / Outlet Invert= 127.00' / 127.00' S= 0.0000 '/ Cc= 0.900<br>n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf |
| #2     | Discarded | 126.00' | 0.500 in/hr Exfiltration over Surface area<br>Conductivity to Groundwater Elevation = 1.00'                                                                                                           |

Discarded OutFlow Max=0.17 cfs @ 14.71 hrs HW=126.56' (Free Discharge)  
2=Exfiltration ( Controls 0.17 cfs)

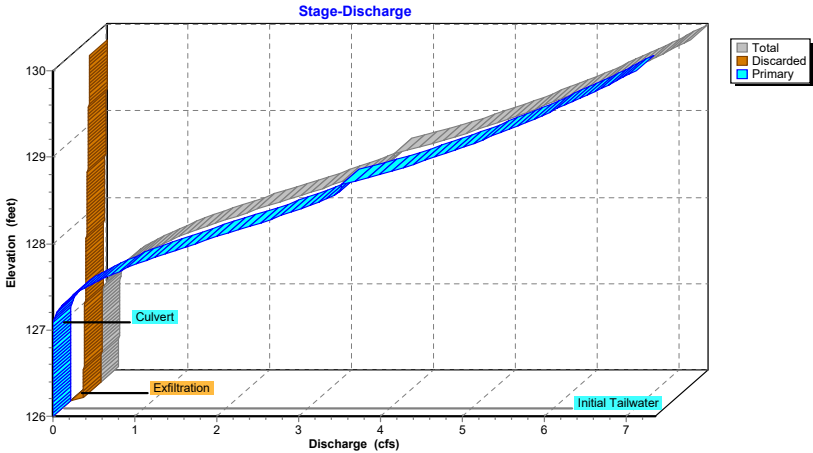
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=126.00' TW=126.00' (Dynamic Tailwater)  
1=Culvert ( Controls 0.00 cfs)

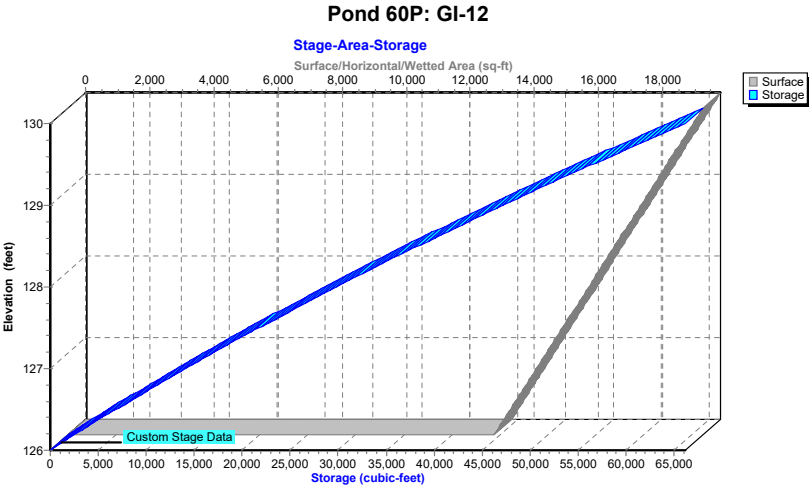


Pond 60P: GI-12



Pond 60P: GI-12





Hydrograph for Pond 60P: GI-12

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Outflow (cfs) | Discarded (cfs) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|-----------------|---------------|
| 0.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 1.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 2.00         | 0.02         | 0                    | 126.00           | 0.02          | 0.02            | 0.00          |
| 3.00         | 0.03         | 0                    | 126.00           | 0.03          | 0.03            | 0.00          |
| 4.00         | 0.04         | 0                    | 126.00           | 0.04          | 0.04            | 0.00          |
| 5.00         | 0.05         | 0                    | 126.00           | 0.05          | 0.05            | 0.00          |
| 6.00         | 0.06         | 0                    | 126.00           | 0.06          | 0.06            | 0.00          |
| 7.00         | 0.07         | 0                    | 126.00           | 0.07          | 0.07            | 0.00          |
| 8.00         | 0.09         | 0                    | 126.00           | 0.09          | 0.09            | 0.00          |
| 9.00         | 0.11         | 0                    | 126.00           | 0.11          | 0.11            | 0.00          |
| 10.00        | 0.18         | 17                   | 126.00           | 0.15          | 0.15            | 0.00          |
| 11.00        | 0.33         | 310                  | 126.02           | 0.15          | 0.15            | 0.00          |
| 12.00        | 3.00         | 3,140                | 126.23           | 0.16          | 0.16            | 0.00          |
| 13.00        | 0.42         | 7,240                | 126.53           | 0.16          | 0.16            | 0.00          |
| 14.00        | 0.21         | 7,646                | 126.56           | 0.17          | 0.17            | 0.00          |
| 15.00        | 0.14         | 7,692                | 126.56           | 0.17          | 0.17            | 0.00          |
| 16.00        | 0.12         | 7,566                | 126.55           | 0.16          | 0.16            | 0.00          |
| 17.00        | 0.10         | 7,375                | 126.54           | 0.16          | 0.16            | 0.00          |
| 18.00        | 0.08         | 7,117                | 126.52           | 0.16          | 0.16            | 0.00          |
| 19.00        | 0.08         | 6,813                | 126.50           | 0.16          | 0.16            | 0.00          |
| 20.00        | 0.07         | 6,495                | 126.47           | 0.16          | 0.16            | 0.00          |
| 21.00        | 0.07         | 6,161                | 126.45           | 0.16          | 0.16            | 0.00          |
| 22.00        | 0.06         | 5,812                | 126.43           | 0.16          | 0.16            | 0.00          |
| 23.00        | 0.06         | 5,448                | 126.40           | 0.16          | 0.16            | 0.00          |
| 24.00        | 0.07         | 5,072                | 126.37           | 0.16          | 0.16            | 0.00          |
| 25.00        | 0.00         | 4,501                | 126.33           | 0.16          | 0.16            | 0.00          |
| 26.00        | 0.00         | 3,924                | 126.29           | 0.16          | 0.16            | 0.00          |
| 27.00        | 0.00         | 3,351                | 126.25           | 0.16          | 0.16            | 0.00          |
| 28.00        | 0.00         | 2,781                | 126.21           | 0.16          | 0.16            | 0.00          |
| 29.00        | 0.00         | 2,214                | 126.16           | 0.16          | 0.16            | 0.00          |
| 30.00        | 0.00         | 1,649                | 126.12           | 0.16          | 0.16            | 0.00          |
| 31.00        | 0.00         | 1,088                | 126.08           | 0.16          | 0.16            | 0.00          |
| 32.00        | 0.00         | 530                  | 126.04           | 0.15          | 0.15            | 0.00          |
| 33.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 34.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 35.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 36.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |



**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 60P: GI-12**

| Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) |
|---------------------|--------------------|--------------------|------------------|---------------------|--------------------|--------------------|------------------|
| 126.00              | 0.00               | 0.00               | 0.00             | 128.60              | 3.70               | 0.21               | 3.49             |
| 126.05              | 0.15               | 0.15               | 0.00             | 128.65              | 3.73               | 0.21               | 3.52             |
| 126.10              | 0.16               | 0.16               | 0.00             | 128.70              | 3.82               | 0.21               | 3.61             |
| 126.15              | 0.16               | 0.16               | 0.00             | 128.75              | 4.01               | 0.21               | 3.81             |
| 126.20              | 0.16               | 0.16               | 0.00             | 128.80              | 4.20               | 0.21               | 3.99             |
| 126.25              | 0.16               | 0.16               | 0.00             | 128.85              | 4.38               | 0.21               | 4.17             |
| 126.30              | 0.16               | 0.16               | 0.00             | 128.90              | 4.55               | 0.21               | 4.34             |
| 126.35              | 0.16               | 0.16               | 0.00             | 128.95              | 4.72               | 0.21               | 4.50             |
| 126.40              | 0.16               | 0.16               | 0.00             | 129.00              | 4.88               | 0.21               | 4.66             |
| 126.45              | 0.16               | 0.16               | 0.00             | 129.05              | 5.03               | 0.22               | 4.81             |
| 126.50              | 0.16               | 0.16               | 0.00             | 129.10              | 5.18               | 0.22               | 4.96             |
| 126.55              | 0.16               | 0.16               | 0.00             | 129.15              | 5.32               | 0.22               | 5.11             |
| 126.60              | 0.17               | 0.17               | 0.00             | 129.20              | 5.46               | 0.22               | 5.24             |
| 126.65              | 0.17               | 0.17               | 0.00             | 129.25              | 5.60               | 0.22               | 5.38             |
| 126.70              | 0.17               | 0.17               | 0.00             | 129.30              | 5.74               | 0.22               | 5.51             |
| 126.75              | 0.17               | 0.17               | 0.00             | 129.35              | 5.87               | 0.22               | 5.64             |
| 126.80              | 0.17               | 0.17               | 0.00             | 129.40              | 5.99               | 0.22               | 5.77             |
| 126.85              | 0.17               | 0.17               | 0.00             | 129.45              | 6.12               | 0.22               | 5.89             |
| 126.90              | 0.17               | 0.17               | 0.00             | 129.50              | 6.24               | 0.22               | 6.02             |
| 126.95              | 0.17               | 0.17               | 0.00             | 129.55              | 6.36               | 0.23               | 6.14             |
| 127.00              | 0.17               | 0.17               | 0.00             | 129.60              | 6.48               | 0.23               | 6.25             |
| 127.05              | 0.18               | 0.17               | 0.00             | 129.65              | 6.60               | 0.23               | 6.37             |
| 127.10              | 0.18               | 0.18               | 0.01             | 129.70              | 6.71               | 0.23               | 6.48             |
| 127.15              | 0.20               | 0.18               | 0.02             | 129.75              | 6.82               | 0.23               | 6.59             |
| 127.20              | 0.23               | 0.18               | 0.05             | 129.80              | 6.93               | 0.23               | 6.70             |
| 127.25              | 0.26               | 0.18               | 0.08             | 129.85              | 7.04               | 0.23               | 6.81             |
| 127.30              | 0.31               | 0.18               | 0.13             | 129.90              | 7.15               | 0.23               | 6.91             |
| 127.35              | 0.37               | 0.18               | 0.18             | 129.95              | 7.25               | 0.23               | 7.02             |
| 127.40              | 0.43               | 0.18               | 0.25             | 130.00              | <b>7.35</b>        | <b>0.24</b>        | <b>7.12</b>      |
| 127.45              | 0.51               | 0.18               | 0.33             |                     |                    |                    |                  |
| 127.50              | 0.60               | 0.18               | 0.42             |                     |                    |                    |                  |
| 127.55              | 0.70               | 0.19               | 0.51             |                     |                    |                    |                  |
| 127.60              | 0.81               | 0.19               | 0.62             |                     |                    |                    |                  |
| 127.65              | 0.92               | 0.19               | 0.74             |                     |                    |                    |                  |
| 127.70              | 1.05               | 0.19               | 0.86             |                     |                    |                    |                  |
| 127.75              | 1.18               | 0.19               | 0.99             |                     |                    |                    |                  |
| 127.80              | 1.32               | 0.19               | 1.13             |                     |                    |                    |                  |
| 127.85              | 1.47               | 0.19               | 1.28             |                     |                    |                    |                  |
| 127.90              | 1.62               | 0.19               | 1.43             |                     |                    |                    |                  |
| 127.95              | 1.78               | 0.19               | 1.58             |                     |                    |                    |                  |
| 128.00              | 1.94               | 0.19               | 1.74             |                     |                    |                    |                  |
| 128.05              | 2.10               | 0.20               | 1.90             |                     |                    |                    |                  |
| 128.10              | 2.27               | 0.20               | 2.07             |                     |                    |                    |                  |
| 128.15              | 2.43               | 0.20               | 2.23             |                     |                    |                    |                  |
| 128.20              | 2.60               | 0.20               | 2.40             |                     |                    |                    |                  |
| 128.25              | 2.76               | 0.20               | 2.56             |                     |                    |                    |                  |
| 128.30              | 2.93               | 0.20               | 2.72             |                     |                    |                    |                  |
| 128.35              | 3.08               | 0.20               | 2.88             |                     |                    |                    |                  |
| 128.40              | 3.23               | 0.20               | 3.03             |                     |                    |                    |                  |
| 128.45              | 3.37               | 0.20               | 3.17             |                     |                    |                    |                  |
| 128.50              | 3.50               | 0.20               | 3.30             |                     |                    |                    |                  |
| 128.55              | 3.61               | 0.21               | 3.41             |                     |                    |                    |                  |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

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**Stage-Area-Storage for Pond 60P: GI-12**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 126.00              | 13,291             | 0                       | 128.60              | 17,523             | 40,058                  |
| 126.05              | 13,372             | 667                     | 128.65              | 17,605             | 40,937                  |
| 126.10              | 13,454             | 1,337                   | 128.70              | 17,686             | 41,819                  |
| 126.15              | 13,535             | 2,012                   | 128.75              | 17,767             | 42,705                  |
| 126.20              | 13,617             | 2,691                   | 128.80              | 17,849             | 43,596                  |
| 126.25              | 13,698             | 3,374                   | 128.85              | 17,930             | 44,490                  |
| 126.30              | 13,779             | 4,061                   | 128.90              | 18,011             | 45,389                  |
| 126.35              | 13,861             | 4,752                   | 128.95              | 18,093             | 46,291                  |
| 126.40              | 13,942             | 5,447                   | 129.00              | 18,174             | 47,198                  |
| 126.45              | 14,023             | 6,146                   | 129.05              | 18,256             | 48,109                  |
| 126.50              | 14,105             | 6,849                   | 129.10              | 18,337             | 49,023                  |
| 126.55              | 14,186             | 7,556                   | 129.15              | 18,418             | 49,942                  |
| 126.60              | 14,268             | 8,268                   | 129.20              | 18,500             | 50,865                  |
| 126.65              | 14,349             | 8,983                   | 129.25              | 18,581             | 51,792                  |
| 126.70              | 14,430             | 9,702                   | 129.30              | 18,663             | 52,723                  |
| 126.75              | 14,512             | 10,426                  | 129.35              | 18,744             | 53,659                  |
| 126.80              | 14,593             | 11,154                  | 129.40              | 18,825             | 54,598                  |
| 126.85              | 14,675             | 11,885                  | 129.45              | 18,907             | 55,541                  |
| 126.90              | 14,756             | 12,621                  | 129.50              | 18,988             | 56,488                  |
| 126.95              | 14,837             | 13,361                  | 129.55              | 19,070             | 57,440                  |
| 127.00              | 14,919             | 14,105                  | 129.60              | 19,151             | 58,395                  |
| 127.05              | 15,000             | 14,853                  | 129.65              | 19,232             | 59,355                  |
| 127.10              | 15,082             | 15,605                  | 129.70              | 19,314             | 60,319                  |
| 127.15              | 15,163             | 16,361                  | 129.75              | 19,395             | 61,286                  |
| 127.20              | 15,244             | 17,121                  | 129.80              | 19,476             | 62,258                  |
| 127.25              | 15,326             | 17,885                  | 129.85              | 19,558             | 63,234                  |
| 127.30              | 15,407             | 18,654                  | 129.90              | 19,639             | 64,214                  |
| 127.35              | 15,488             | 19,426                  | 129.95              | 19,721             | 65,198                  |
| 127.40              | 15,570             | 20,203                  | 130.00              | <b>19,802</b>      | <b>66,186</b>           |
| 127.45              | 15,651             | 20,983                  |                     |                    |                         |
| 127.50              | 15,733             | 21,768                  |                     |                    |                         |
| 127.55              | 15,814             | 22,556                  |                     |                    |                         |
| 127.60              | 15,895             | 23,349                  |                     |                    |                         |
| 127.65              | 15,977             | 24,146                  |                     |                    |                         |
| 127.70              | 16,058             | 24,947                  |                     |                    |                         |
| 127.75              | 16,140             | 25,752                  |                     |                    |                         |
| 127.80              | 16,221             | 26,561                  |                     |                    |                         |
| 127.85              | 16,302             | 27,374                  |                     |                    |                         |
| 127.90              | 16,384             | 28,191                  |                     |                    |                         |
| 127.95              | 16,465             | 29,012                  |                     |                    |                         |
| 128.00              | 16,547             | 29,838                  |                     |                    |                         |
| 128.05              | 16,628             | 30,667                  |                     |                    |                         |
| 128.10              | 16,709             | 31,500                  |                     |                    |                         |
| 128.15              | 16,791             | 32,338                  |                     |                    |                         |
| 128.20              | 16,872             | 33,179                  |                     |                    |                         |
| 128.25              | 16,953             | 34,025                  |                     |                    |                         |
| 128.30              | 17,035             | 34,875                  |                     |                    |                         |
| 128.35              | 17,116             | 35,728                  |                     |                    |                         |
| 128.40              | 17,198             | 36,586                  |                     |                    |                         |
| 128.45              | 17,279             | 37,448                  |                     |                    |                         |
| 128.50              | 17,360             | 38,314                  |                     |                    |                         |
| 128.55              | 17,442             | 39,184                  |                     |                    |                         |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

|                                                                                                                                                     |                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Subcatchment44S: GI-10 Pervious                                                                                                                     | Runoff Area=13,028 sf 0.00% Impervious Runoff Depth=0.51"<br>Flow Length=91' Tc=10.5 min CN=39 Runoff=0.06 cfs 551 cf                            |
| Subcatchment45S: GI-10 Impervious                                                                                                                   | Runoff Area=19,702 sf 100.00% Impervious Runoff Depth=5.97"<br>Flow Length=660' Tc=4.5 min CN=98 Runoff=3.16 cfs 9,804 cf                        |
| Subcatchment62S: GI-12 Impervious                                                                                                                   | Runoff Area=47,814 sf 100.00% Impervious Runoff Depth=5.97"<br>Flow Length=147' Tc=1.6 min CN=98 Runoff=8.00 cfs 23,794 cf                       |
| Subcatchment63S: GI-13 Pervious                                                                                                                     | Runoff Area=17,103 sf 0.00% Impervious Runoff Depth=0.69"<br>Flow Length=90' Slope=0.0100 '/' Tc=9.6 min CN=42 Runoff=0.17 cfs 982 cf            |
| Subcatchment64S: Wetland Pervious                                                                                                                   | Runoff Area=75,754 sf 0.00% Impervious Runoff Depth=0.21"<br>Flow Length=161' Tc=10.2 min CN=33 Runoff=0.06 cfs 1,299 cf                         |
| Subcatchment67S: Wetland Impervious                                                                                                                 | Runoff Area=11,867 sf 100.00% Impervious Runoff Depth=5.97"<br>Flow Length=151' Tc=0.9 min CN=98 Runoff=1.98 cfs 5,905 cf                        |
| Subcatchment68S: GI-12 Pervious                                                                                                                     | Runoff Area=54,671 sf 0.00% Impervious Runoff Depth=0.82"<br>Flow Length=93' Tc=5.6 min CN=44 Runoff=0.96 cfs 3,732 cf                           |
| Pond 8P: GI-13                                                                                                                                      | Peak Elev=126.04' Storage=164 cf Inflow=0.17 cfs 1,484 cf<br>Discarded=0.05 cfs 1,484 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 1,484 cf         |
| Pond 46P: GI-10                                                                                                                                     | Peak Elev=125.13' Storage=5,642 cf Inflow=3.17 cfs 10,355 cf<br>Outflow=1.15 cfs 5,265 cf                                                        |
| Pond 59P: Proposed Drainage Area POI-2                                                                                                              | Peak Elev=124.58' Storage=12,469 cf Inflow=1.98 cfs 12,469 cf<br>Outflow=0.00 cfs 0 cf                                                           |
| Pond 60P: GI-12                                                                                                                                     | Peak Elev=127.15' Storage=16,313 cf Inflow=8.69 cfs 27,526 cf<br>Discarded=0.18 cfs 19,339 cf Primary=0.02 cfs 502 cf Outflow=0.20 cfs 19,840 cf |
| Total Runoff Area = 239,939 sf Runoff Volume = 46,068 cf Average Runoff Depth = 2.30"<br>66.92% Pervious = 160,556 sf 33.08% Impervious = 79,383 sf |                                                                                                                                                  |

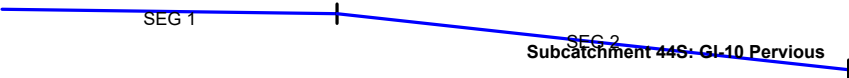
Summary for Subcatchment 44S: GI-10 Pervious

Runoff = 0.06 cfs @ 12.29 hrs, Volume= 551 cf, Depth= 0.51"  
Routed to Pond 46P : GI-10

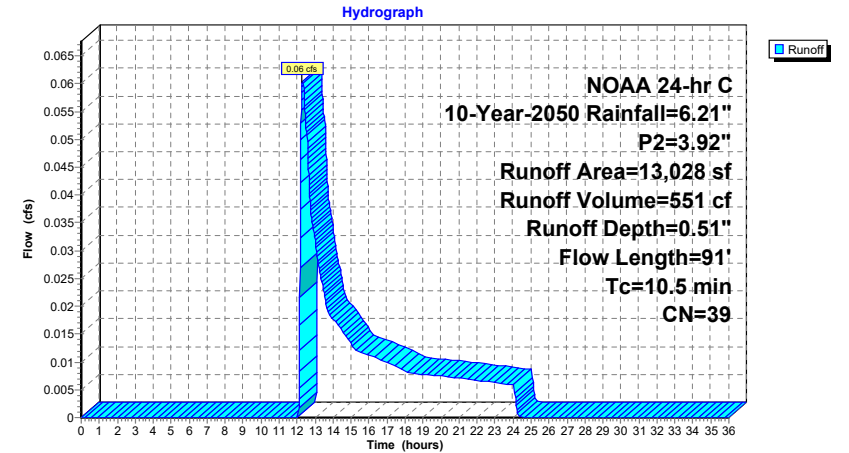
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 13,028    | 39 | >75% Grass cover, Good, HSG A |
| 13,028    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                          |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------|
| 6.6      | 36            | 0.0140        | 0.09              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92" |
| 3.9      | 55            | 0.1180        | 0.23              |                | Sheet Flow, SEG 2<br>Grass: Dense n= 0.240 P2= 3.92" |
| 10.5     | 91            | Total         |                   |                |                                                      |



Subcatchment 44S: GI-10 Pervious

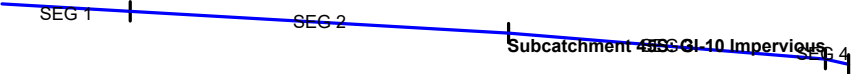


Hydrograph for Subcatchment 44S: GI-10 Pervious

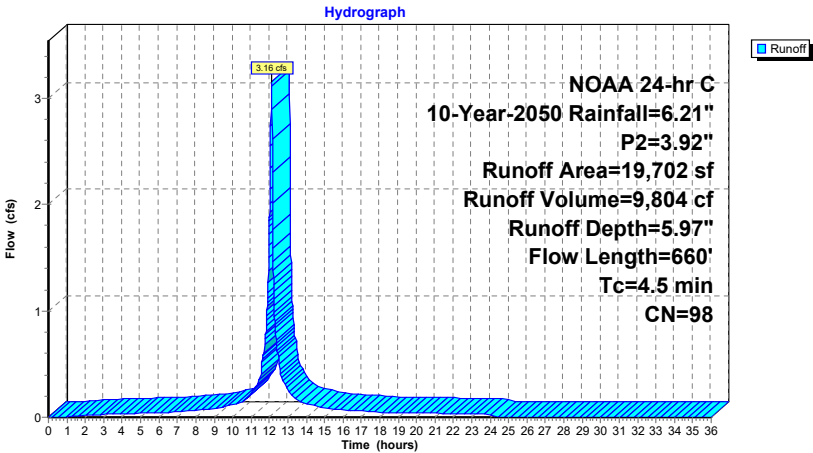
| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 0.51               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 0.51               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 0.51               | 0.00            |
| 1.50            | 0.10                | 0.00               | 0.00            | 27.50           | 6.21                | 0.51               | 0.00            |
| 2.00            | 0.14                | 0.00               | 0.00            | 28.00           | 6.21                | 0.51               | 0.00            |
| 2.50            | 0.18                | 0.00               | 0.00            | 28.50           | 6.21                | 0.51               | 0.00            |
| 3.00            | 0.22                | 0.00               | 0.00            | 29.00           | 6.21                | 0.51               | 0.00            |
| 3.50            | 0.26                | 0.00               | 0.00            | 29.50           | 6.21                | 0.51               | 0.00            |
| 4.00            | 0.30                | 0.00               | 0.00            | 30.00           | 6.21                | 0.51               | 0.00            |
| 4.50            | 0.35                | 0.00               | 0.00            | 30.50           | 6.21                | 0.51               | 0.00            |
| 5.00            | 0.39                | 0.00               | 0.00            | 31.00           | 6.21                | 0.51               | 0.00            |
| 5.50            | 0.44                | 0.00               | 0.00            | 31.50           | 6.21                | 0.51               | 0.00            |
| 6.00            | 0.49                | 0.00               | 0.00            | 32.00           | 6.21                | 0.51               | 0.00            |
| 6.50            | 0.55                | 0.00               | 0.00            | 32.50           | 6.21                | 0.51               | 0.00            |
| 7.00            | 0.61                | 0.00               | 0.00            | 33.00           | 6.21                | 0.51               | 0.00            |
| 7.50            | 0.67                | 0.00               | 0.00            | 33.50           | 6.21                | 0.51               | 0.00            |
| 8.00            | 0.74                | 0.00               | 0.00            | 34.00           | 6.21                | 0.51               | 0.00            |
| 8.50            | 0.82                | 0.00               | 0.00            | 34.50           | 6.21                | 0.51               | 0.00            |
| 9.00            | 0.91                | 0.00               | 0.00            | 35.00           | 6.21                | 0.51               | 0.00            |
| 9.50            | 1.01                | 0.00               | 0.00            | 35.50           | 6.21                | 0.51               | 0.00            |
| 10.00           | 1.13                | 0.00               | 0.00            | 36.00           | 6.21                | 0.51               | 0.00            |
| 10.50           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.84                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.96                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 4.37                | 0.09               | 0.05            |                 |                     |                    |                 |
| 13.00           | 4.72                | 0.15               | 0.03            |                 |                     |                    |                 |
| 13.50           | 4.93                | 0.19               | 0.02            |                 |                     |                    |                 |
| 14.00           | 5.08                | 0.22               | 0.02            |                 |                     |                    |                 |
| 14.50           | 5.20                | 0.24               | 0.02            |                 |                     |                    |                 |
| 15.00           | 5.30                | 0.27               | 0.01            |                 |                     |                    |                 |
| 15.50           | 5.39                | 0.29               | 0.01            |                 |                     |                    |                 |
| 16.00           | 5.47                | 0.30               | 0.01            |                 |                     |                    |                 |
| 16.50           | 5.54                | 0.32               | 0.01            |                 |                     |                    |                 |
| 17.00           | 5.60                | 0.34               | 0.01            |                 |                     |                    |                 |
| 17.50           | 5.66                | 0.35               | 0.01            |                 |                     |                    |                 |
| 18.00           | 5.72                | 0.37               | 0.01            |                 |                     |                    |                 |
| 18.50           | 5.77                | 0.38               | 0.01            |                 |                     |                    |                 |
| 19.00           | 5.82                | 0.39               | 0.01            |                 |                     |                    |                 |
| 19.50           | 5.86                | 0.41               | 0.01            |                 |                     |                    |                 |
| 20.00           | 5.91                | 0.42               | 0.01            |                 |                     |                    |                 |
| 20.50           | 5.95                | 0.43               | 0.01            |                 |                     |                    |                 |
| 21.00           | 5.99                | 0.44               | 0.01            |                 |                     |                    |                 |
| 21.50           | 6.03                | 0.45               | 0.01            |                 |                     |                    |                 |
| 22.00           | 6.07                | 0.47               | 0.01            |                 |                     |                    |                 |
| 22.50           | 6.11                | 0.48               | 0.01            |                 |                     |                    |                 |
| 23.00           | 6.14                | 0.49               | 0.01            |                 |                     |                    |                 |
| 23.50           | 6.18                | 0.50               | 0.01            |                 |                     |                    |                 |
| 24.00           | 6.21                | 0.51               | 0.01            |                 |                     |                    |                 |
| 24.50           | 6.21                | 0.51               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 0.51               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 0.51               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 45S: GI-10 Impervious

| Runoff = 3.16 cfs @ 12.12 hrs, Volume= 9,804 cf, Depth= 5.97"                                                                                  |               |                         |                   |                |                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------|-------------------|----------------|----------------------------------------------------------------------------|
| Routed to Pond 46P : GI-10                                                                                                                     |               |                         |                   |                |                                                                            |
| Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs<br>NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92" |               |                         |                   |                |                                                                            |
| Area (sf)                                                                                                                                      | CN            | Description             |                   |                |                                                                            |
| 19,702                                                                                                                                         | 98            | Paved parking, HSG A    |                   |                |                                                                            |
| 19,702                                                                                                                                         |               | 100.00% Impervious Area |                   |                |                                                                            |
| Tc (min)                                                                                                                                       | Length (feet) | Slope (ft/ft)           | Velocity (ft/sec) | Capacity (cfs) | Description                                                                |
| 1.3                                                                                                                                            | 100           | 0.0140                  | 1.32              |                | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.92"             |
| 2.0                                                                                                                                            | 295           | 0.0140                  | 2.40              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps              |
| 1.0                                                                                                                                            | 247           | 0.0200                  | 4.22              | 0.84           | <b>Channel Flow, SEG 3</b><br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2                                                                                                                                            | 18            | 0.0560                  | 1.66              |                | <b>Shallow Concentrated Flow, SEG 4</b><br>Short Grass Pasture Kv= 7.0 fps |
| 4.5                                                                                                                                            | 660           | Total                   |                   |                |                                                                            |



Subcatchment 45S: GI-10 Impervious



Hydrograph for Subcatchment 45S: GI-10 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 5.97               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 5.97               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.01            | 27.00           | 6.21                | 5.97               | 0.00            |
| 1.50            | 0.10                | 0.01               | 0.01            | 27.50           | 6.21                | 5.97               | 0.00            |
| 2.00            | 0.14                | 0.03               | 0.02            | 28.00           | 6.21                | 5.97               | 0.00            |
| 2.50            | 0.18                | 0.06               | 0.02            | 28.50           | 6.21                | 5.97               | 0.00            |
| 3.00            | 0.22                | 0.08               | 0.03            | 29.00           | 6.21                | 5.97               | 0.00            |
| 3.50            | 0.26                | 0.11               | 0.03            | 29.50           | 6.21                | 5.97               | 0.00            |
| 4.00            | 0.30                | 0.15               | 0.03            | 30.00           | 6.21                | 5.97               | 0.00            |
| 4.50            | 0.35                | 0.19               | 0.03            | 30.50           | 6.21                | 5.97               | 0.00            |
| 5.00            | 0.39                | 0.22               | 0.04            | 31.00           | 6.21                | 5.97               | 0.00            |
| 5.50            | 0.44                | 0.27               | 0.04            | 31.50           | 6.21                | 5.97               | 0.00            |
| 6.00            | 0.49                | 0.31               | 0.04            | 32.00           | 6.21                | 5.97               | 0.00            |
| 6.50            | 0.55                | 0.36               | 0.05            | 32.50           | 6.21                | 5.97               | 0.00            |
| 7.00            | 0.61                | 0.41               | 0.05            | 33.00           | 6.21                | 5.97               | 0.00            |
| 7.50            | 0.67                | 0.48               | 0.06            | 33.50           | 6.21                | 5.97               | 0.00            |
| 8.00            | 0.74                | 0.55               | 0.06            | 34.00           | 6.21                | 5.97               | 0.00            |
| 8.50            | 0.82                | 0.62               | 0.07            | 34.50           | 6.21                | 5.97               | 0.00            |
| 9.00            | 0.91                | 0.70               | 0.08            | 35.00           | 6.21                | 5.97               | 0.00            |
| 9.50            | 1.01                | 0.80               | 0.10            | 35.50           | 6.21                | 5.97               | 0.00            |
| 10.00           | 1.13                | 0.92               | 0.12            | 36.00           | 6.21                | 5.97               | 0.00            |
| 10.50           | 1.28                | 1.06               | 0.14            |                 |                     |                    |                 |
| 11.00           | 1.49                | 1.27               | 0.22            |                 |                     |                    |                 |
| 11.50           | 1.84                | 1.61               | 0.36            |                 |                     |                    |                 |
| 12.00           | 2.96                | 2.73               | 1.84            |                 |                     |                    |                 |
| 12.50           | 4.37                | 4.14               | 0.58            |                 |                     |                    |                 |
| 13.00           | 4.72                | 4.48               | 0.26            |                 |                     |                    |                 |
| 13.50           | 4.93                | 4.69               | 0.16            |                 |                     |                    |                 |
| 14.00           | 5.08                | 4.84               | 0.13            |                 |                     |                    |                 |
| 14.50           | 5.20                | 4.96               | 0.11            |                 |                     |                    |                 |
| 15.00           | 5.30                | 5.07               | 0.08            |                 |                     |                    |                 |
| 15.50           | 5.39                | 5.15               | 0.07            |                 |                     |                    |                 |
| 16.00           | 5.47                | 5.23               | 0.07            |                 |                     |                    |                 |
| 16.50           | 5.54                | 5.30               | 0.06            |                 |                     |                    |                 |
| 17.00           | 5.60                | 5.37               | 0.06            |                 |                     |                    |                 |
| 17.50           | 5.66                | 5.43               | 0.05            |                 |                     |                    |                 |
| 18.00           | 5.72                | 5.48               | 0.05            |                 |                     |                    |                 |
| 18.50           | 5.77                | 5.53               | 0.04            |                 |                     |                    |                 |
| 19.00           | 5.82                | 5.58               | 0.04            |                 |                     |                    |                 |
| 19.50           | 5.86                | 5.62               | 0.04            |                 |                     |                    |                 |
| 20.00           | 5.91                | 5.67               | 0.04            |                 |                     |                    |                 |
| 20.50           | 5.95                | 5.71               | 0.04            |                 |                     |                    |                 |
| 21.00           | 5.99                | 5.75               | 0.04            |                 |                     |                    |                 |
| 21.50           | 6.03                | 5.79               | 0.04            |                 |                     |                    |                 |
| 22.00           | 6.07                | 5.83               | 0.03            |                 |                     |                    |                 |
| 22.50           | 6.11                | 5.87               | 0.03            |                 |                     |                    |                 |
| 23.00           | 6.14                | 5.90               | 0.03            |                 |                     |                    |                 |
| 23.50           | 6.18                | 5.94               | 0.03            |                 |                     |                    |                 |
| 24.00           | 6.21                | 5.97               | 0.04            |                 |                     |                    |                 |
| 24.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 62S: GI-12 Impervious

Runoff = 8.00 cfs @ 12.09 hrs, Volume= 23,794 cf, Depth= 5.97"  
Routed to Pond 60P : GI-12

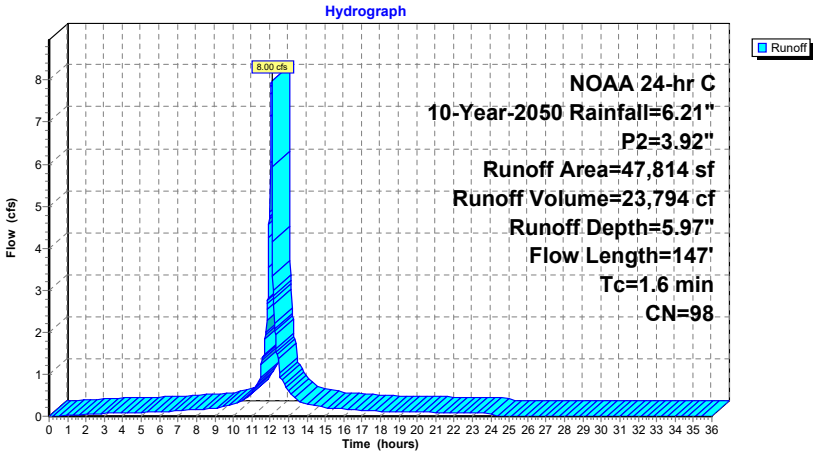
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 47,814    | 98 | Paved parking, HSG A    |
| 47,814    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 1.1      | 85            | 0.0160        | 1.35              |                | Sheet Flow, SEG 1R<br>Smooth surfaces n= 0.011 P2= 3.92"            |
| 0.2      | 30            | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2      | 21            | 0.0100        | 2.03              |                | Shallow Concentrated Flow, SEG 3<br>Paved Kv= 20.3 fps              |
| 0.1      | 11            | 0.1360        | 2.58              |                | Shallow Concentrated Flow, SEG 4<br>Short Grass Pasture Kv= 7.0 fps |
| 1.6      | 147           | Total         |                   |                |                                                                     |



Subcatchment 62S: GI-12 Impervious

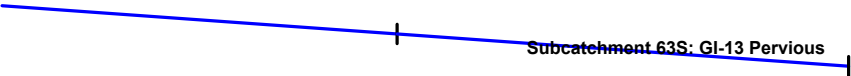


Hydrograph for Subcatchment 62S: GI-12 Impervious

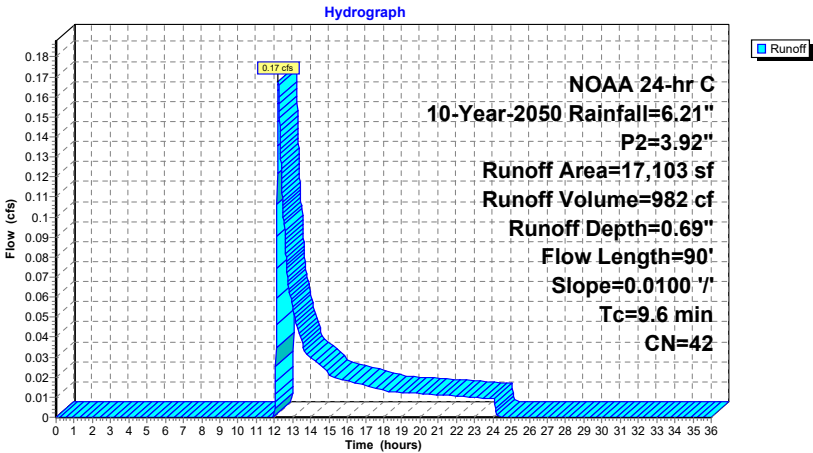
| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 5.97               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 5.97               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.02            | 27.00           | 6.21                | 5.97               | 0.00            |
| 1.50            | 0.10                | 0.01               | 0.03            | 27.50           | 6.21                | 5.97               | 0.00            |
| 2.00            | 0.14                | 0.03               | 0.05            | 28.00           | 6.21                | 5.97               | 0.00            |
| 2.50            | 0.18                | 0.06               | 0.06            | 28.50           | 6.21                | 5.97               | 0.00            |
| 3.00            | 0.22                | 0.08               | 0.06            | 29.00           | 6.21                | 5.97               | 0.00            |
| 3.50            | 0.26                | 0.11               | 0.07            | 29.50           | 6.21                | 5.97               | 0.00            |
| 4.00            | 0.30                | 0.15               | 0.08            | 30.00           | 6.21                | 5.97               | 0.00            |
| 4.50            | 0.35                | 0.19               | 0.08            | 30.50           | 6.21                | 5.97               | 0.00            |
| 5.00            | 0.39                | 0.22               | 0.09            | 31.00           | 6.21                | 5.97               | 0.00            |
| 5.50            | 0.44                | 0.27               | 0.09            | 31.50           | 6.21                | 5.97               | 0.00            |
| 6.00            | 0.49                | 0.31               | 0.10            | 32.00           | 6.21                | 5.97               | 0.00            |
| 6.50            | 0.55                | 0.36               | 0.11            | 32.50           | 6.21                | 5.97               | 0.00            |
| 7.00            | 0.61                | 0.41               | 0.13            | 33.00           | 6.21                | 5.97               | 0.00            |
| 7.50            | 0.67                | 0.48               | 0.14            | 33.50           | 6.21                | 5.97               | 0.00            |
| 8.00            | 0.74                | 0.55               | 0.16            | 34.00           | 6.21                | 5.97               | 0.00            |
| 8.50            | 0.82                | 0.62               | 0.17            | 34.50           | 6.21                | 5.97               | 0.00            |
| 9.00            | 0.91                | 0.70               | 0.19            | 35.00           | 6.21                | 5.97               | 0.00            |
| 9.50            | 1.01                | 0.80               | 0.24            | 35.50           | 6.21                | 5.97               | 0.00            |
| 10.00           | 1.13                | 0.92               | 0.29            | 36.00           | 6.21                | 5.97               | 0.00            |
| 10.50           | 1.28                | 1.06               | 0.34            |                 |                     |                    |                 |
| 11.00           | 1.49                | 1.27               | 0.54            |                 |                     |                    |                 |
| 11.50           | 1.84                | 1.61               | 0.89            |                 |                     |                    |                 |
| 12.00           | 2.96                | 2.73               | 4.78            |                 |                     |                    |                 |
| 12.50           | 4.37                | 4.14               | 1.39            |                 |                     |                    |                 |
| 13.00           | 4.72                | 4.48               | 0.62            |                 |                     |                    |                 |
| 13.50           | 4.93                | 4.69               | 0.39            |                 |                     |                    |                 |
| 14.00           | 5.08                | 4.84               | 0.31            |                 |                     |                    |                 |
| 14.50           | 5.20                | 4.96               | 0.25            |                 |                     |                    |                 |
| 15.00           | 5.30                | 5.07               | 0.20            |                 |                     |                    |                 |
| 15.50           | 5.39                | 5.15               | 0.18            |                 |                     |                    |                 |
| 16.00           | 5.47                | 5.23               | 0.17            |                 |                     |                    |                 |
| 16.50           | 5.54                | 5.30               | 0.15            |                 |                     |                    |                 |
| 17.00           | 5.60                | 5.37               | 0.14            |                 |                     |                    |                 |
| 17.50           | 5.66                | 5.43               | 0.13            |                 |                     |                    |                 |
| 18.00           | 5.72                | 5.48               | 0.11            |                 |                     |                    |                 |
| 18.50           | 5.77                | 5.53               | 0.11            |                 |                     |                    |                 |
| 19.00           | 5.82                | 5.58               | 0.10            |                 |                     |                    |                 |
| 19.50           | 5.86                | 5.62               | 0.10            |                 |                     |                    |                 |
| 20.00           | 5.91                | 5.67               | 0.10            |                 |                     |                    |                 |
| 20.50           | 5.95                | 5.71               | 0.09            |                 |                     |                    |                 |
| 21.00           | 5.99                | 5.75               | 0.09            |                 |                     |                    |                 |
| 21.50           | 6.03                | 5.79               | 0.09            |                 |                     |                    |                 |
| 22.00           | 6.07                | 5.83               | 0.08            |                 |                     |                    |                 |
| 22.50           | 6.11                | 5.87               | 0.08            |                 |                     |                    |                 |
| 23.00           | 6.14                | 5.90               | 0.08            |                 |                     |                    |                 |
| 23.50           | 6.18                | 5.94               | 0.07            |                 |                     |                    |                 |
| 24.00           | 6.21                | 5.97               | 0.09            |                 |                     |                    |                 |
| 24.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 63S: GI-13 Pervious

| Runoff = 0.17 cfs @ 12.21 hrs, Volume= 982 cf, Depth= 0.69"                                                                                    |                  |                               |                      |                   |                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------|----------------------|-------------------|---------------------------------------------------------------|
| Routed to Pond 8P : GI-13                                                                                                                      |                  |                               |                      |                   |                                                               |
| Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs<br>NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92" |                  |                               |                      |                   |                                                               |
| Area (sf)                                                                                                                                      | CN               | Description                   |                      |                   |                                                               |
| 14,703                                                                                                                                         | 39               | >75% Grass cover, Good, HSG A |                      |                   |                                                               |
| 2,400                                                                                                                                          | 61               | >75% Grass cover, Good, HSG B |                      |                   |                                                               |
| 17,103                                                                                                                                         | 42               | Weighted Average              |                      |                   |                                                               |
| 17,103                                                                                                                                         |                  | 100.00% Pervious Area         |                      |                   |                                                               |
| Tc<br>(min)                                                                                                                                    | Length<br>(feet) | Slope<br>(ft/ft)              | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                   |
| 8.5                                                                                                                                            | 42               | 0.0100                        | 0.08                 |                   | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.92"                |
|                                                                                                                                                |                  |                               |                      |                   | Using McCuen-Spiess flow length                               |
| 1.1                                                                                                                                            | 48               | 0.0100                        | 0.70                 |                   | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 9.6                                                                                                                                            | 90               | Total                         |                      |                   |                                                               |



Subcatchment 63S: GI-13 Pervious



Hydrograph for Subcatchment 63S: GI-13 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 0.69               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 0.69               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 0.69               | 0.00            |
| 1.50            | 0.10                | 0.00               | 0.00            | 27.50           | 6.21                | 0.69               | 0.00            |
| 2.00            | 0.14                | 0.00               | 0.00            | 28.00           | 6.21                | 0.69               | 0.00            |
| 2.50            | 0.18                | 0.00               | 0.00            | 28.50           | 6.21                | 0.69               | 0.00            |
| 3.00            | 0.22                | 0.00               | 0.00            | 29.00           | 6.21                | 0.69               | 0.00            |
| 3.50            | 0.26                | 0.00               | 0.00            | 29.50           | 6.21                | 0.69               | 0.00            |
| 4.00            | 0.30                | 0.00               | 0.00            | 30.00           | 6.21                | 0.69               | 0.00            |
| 4.50            | 0.35                | 0.00               | 0.00            | 30.50           | 6.21                | 0.69               | 0.00            |
| 5.00            | 0.39                | 0.00               | 0.00            | 31.00           | 6.21                | 0.69               | 0.00            |
| 5.50            | 0.44                | 0.00               | 0.00            | 31.50           | 6.21                | 0.69               | 0.00            |
| 6.00            | 0.49                | 0.00               | 0.00            | 32.00           | 6.21                | 0.69               | 0.00            |
| 6.50            | 0.55                | 0.00               | 0.00            | 32.50           | 6.21                | 0.69               | 0.00            |
| 7.00            | 0.61                | 0.00               | 0.00            | 33.00           | 6.21                | 0.69               | 0.00            |
| 7.50            | 0.67                | 0.00               | 0.00            | 33.50           | 6.21                | 0.69               | 0.00            |
| 8.00            | 0.74                | 0.00               | 0.00            | 34.00           | 6.21                | 0.69               | 0.00            |
| 8.50            | 0.82                | 0.00               | 0.00            | 34.50           | 6.21                | 0.69               | 0.00            |
| 9.00            | 0.91                | 0.00               | 0.00            | 35.00           | 6.21                | 0.69               | 0.00            |
| 9.50            | 1.01                | 0.00               | 0.00            | 35.50           | 6.21                | 0.69               | 0.00            |
| 10.00           | 1.13                | 0.00               | 0.00            | 36.00           | 6.21                | 0.69               | 0.00            |
| 10.50           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.84                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.96                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 4.37                | 0.17               | 0.10            |                 |                     |                    |                 |
| 13.00           | 4.72                | 0.24               | 0.06            |                 |                     |                    |                 |
| 13.50           | 4.93                | 0.29               | 0.04            |                 |                     |                    |                 |
| 14.00           | 5.08                | 0.33               | 0.03            |                 |                     |                    |                 |
| 14.50           | 5.20                | 0.37               | 0.03            |                 |                     |                    |                 |
| 15.00           | 5.30                | 0.39               | 0.02            |                 |                     |                    |                 |
| 15.50           | 5.39                | 0.42               | 0.02            |                 |                     |                    |                 |
| 16.00           | 5.47                | 0.44               | 0.02            |                 |                     |                    |                 |
| 16.50           | 5.54                | 0.46               | 0.02            |                 |                     |                    |                 |
| 17.00           | 5.60                | 0.49               | 0.02            |                 |                     |                    |                 |
| 17.50           | 5.66                | 0.50               | 0.01            |                 |                     |                    |                 |
| 18.00           | 5.72                | 0.52               | 0.01            |                 |                     |                    |                 |
| 18.50           | 5.77                | 0.54               | 0.01            |                 |                     |                    |                 |
| 19.00           | 5.82                | 0.55               | 0.01            |                 |                     |                    |                 |
| 19.50           | 5.86                | 0.57               | 0.01            |                 |                     |                    |                 |
| 20.00           | 5.91                | 0.58               | 0.01            |                 |                     |                    |                 |
| 20.50           | 5.95                | 0.60               | 0.01            |                 |                     |                    |                 |
| 21.00           | 5.99                | 0.61               | 0.01            |                 |                     |                    |                 |
| 21.50           | 6.03                | 0.63               | 0.01            |                 |                     |                    |                 |
| 22.00           | 6.07                | 0.64               | 0.01            |                 |                     |                    |                 |
| 22.50           | 6.11                | 0.65               | 0.01            |                 |                     |                    |                 |
| 23.00           | 6.14                | 0.66               | 0.01            |                 |                     |                    |                 |
| 23.50           | 6.18                | 0.68               | 0.01            |                 |                     |                    |                 |
| 24.00           | 6.21                | 0.69               | 0.01            |                 |                     |                    |                 |
| 24.50           | 6.21                | 0.69               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 0.69               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 0.69               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 64S: Wetland Pervious

Runoff = 0.06 cfs @ 13.00 hrs, Volume= 1,299 cf, Depth= 0.21"  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

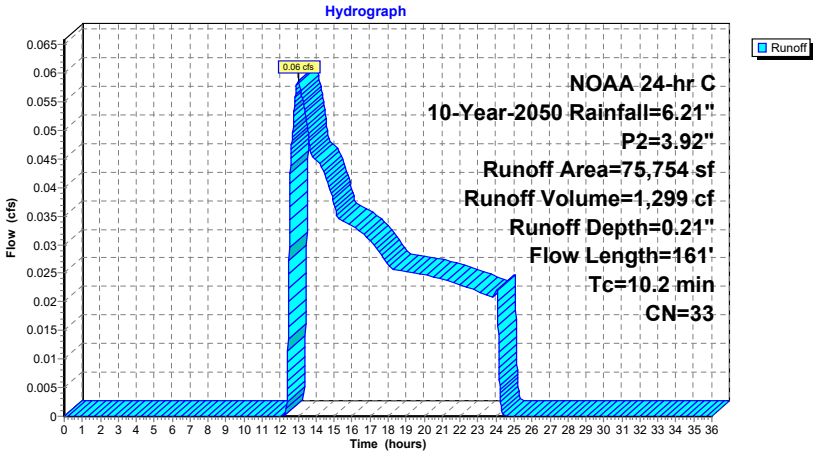
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 24,790    | 39 | >75% Grass cover, Good, HSG A |
| 50,964    | 30 | Woods, Good, HSG A            |
| 75,754    | 33 | Weighted Average              |
| 75,754    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                  |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------|
| 8.5      | 39            | 0.0240        | 0.08              |                | Sheet Flow,<br>Woods: Light underbrush n= 0.400 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 1.7      | 122           | 0.0570        | 1.19              |                | Shallow Concentrated Flow,<br>Woodland Kv= 5.0 fps                                           |
| 10.2     | 161           |               |                   |                | Total                                                                                        |



Subcatchment 64S: Wetland Pervious





Hydrograph for Subcatchment 64S: Wetland Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 0.21               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 0.21               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 0.21               | 0.00            |
| 1.50            | 0.10                | 0.00               | 0.00            | 27.50           | 6.21                | 0.21               | 0.00            |
| 2.00            | 0.14                | 0.00               | 0.00            | 28.00           | 6.21                | 0.21               | 0.00            |
| 2.50            | 0.18                | 0.00               | 0.00            | 28.50           | 6.21                | 0.21               | 0.00            |
| 3.00            | 0.22                | 0.00               | 0.00            | 29.00           | 6.21                | 0.21               | 0.00            |
| 3.50            | 0.26                | 0.00               | 0.00            | 29.50           | 6.21                | 0.21               | 0.00            |
| 4.00            | 0.30                | 0.00               | 0.00            | 30.00           | 6.21                | 0.21               | 0.00            |
| 4.50            | 0.35                | 0.00               | 0.00            | 30.50           | 6.21                | 0.21               | 0.00            |
| 5.00            | 0.39                | 0.00               | 0.00            | 31.00           | 6.21                | 0.21               | 0.00            |
| 5.50            | 0.44                | 0.00               | 0.00            | 31.50           | 6.21                | 0.21               | 0.00            |
| 6.00            | 0.49                | 0.00               | 0.00            | 32.00           | 6.21                | 0.21               | 0.00            |
| 6.50            | 0.55                | 0.00               | 0.00            | 32.50           | 6.21                | 0.21               | 0.00            |
| 7.00            | 0.61                | 0.00               | 0.00            | 33.00           | 6.21                | 0.21               | 0.00            |
| 7.50            | 0.67                | 0.00               | 0.00            | 33.50           | 6.21                | 0.21               | 0.00            |
| 8.00            | 0.74                | 0.00               | 0.00            | 34.00           | 6.21                | 0.21               | 0.00            |
| 8.50            | 0.82                | 0.00               | 0.00            | 34.50           | 6.21                | 0.21               | 0.00            |
| 9.00            | 0.91                | 0.00               | 0.00            | 35.00           | 6.21                | 0.21               | 0.00            |
| 9.50            | 1.01                | 0.00               | 0.00            | 35.50           | 6.21                | 0.21               | 0.00            |
| 10.00           | 1.13                | 0.00               | 0.00            | 36.00           | 6.21                | 0.21               | 0.00            |
| 10.50           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.84                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.96                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 4.37                | 0.00               | 0.03            |                 |                     |                    |                 |
| 13.00           | 4.72                | 0.02               | 0.06            |                 |                     |                    |                 |
| 13.50           | 4.93                | 0.04               | 0.05            |                 |                     |                    |                 |
| 14.00           | 5.08                | 0.05               | 0.04            |                 |                     |                    |                 |
| 14.50           | 5.20                | 0.06               | 0.04            |                 |                     |                    |                 |
| 15.00           | 5.30                | 0.07               | 0.04            |                 |                     |                    |                 |
| 15.50           | 5.39                | 0.08               | 0.03            |                 |                     |                    |                 |
| 16.00           | 5.47                | 0.09               | 0.03            |                 |                     |                    |                 |
| 16.50           | 5.54                | 0.10               | 0.03            |                 |                     |                    |                 |
| 17.00           | 5.60                | 0.11               | 0.03            |                 |                     |                    |                 |
| 17.50           | 5.66                | 0.12               | 0.03            |                 |                     |                    |                 |
| 18.00           | 5.72                | 0.13               | 0.03            |                 |                     |                    |                 |
| 18.50           | 5.77                | 0.13               | 0.03            |                 |                     |                    |                 |
| 19.00           | 5.82                | 0.14               | 0.03            |                 |                     |                    |                 |
| 19.50           | 5.86                | 0.15               | 0.03            |                 |                     |                    |                 |
| 20.00           | 5.91                | 0.15               | 0.02            |                 |                     |                    |                 |
| 20.50           | 5.95                | 0.16               | 0.02            |                 |                     |                    |                 |
| 21.00           | 5.99                | 0.17               | 0.02            |                 |                     |                    |                 |
| 21.50           | 6.03                | 0.17               | 0.02            |                 |                     |                    |                 |
| 22.00           | 6.07                | 0.18               | 0.02            |                 |                     |                    |                 |
| 22.50           | 6.11                | 0.19               | 0.02            |                 |                     |                    |                 |
| 23.00           | 6.14                | 0.19               | 0.02            |                 |                     |                    |                 |
| 23.50           | 6.18                | 0.20               | 0.02            |                 |                     |                    |                 |
| 24.00           | 6.21                | 0.21               | 0.02            |                 |                     |                    |                 |
| 24.50           | 6.21                | 0.21               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 0.21               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 0.21               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 67S: Wetland Impervious

Runoff = 1.98 cfs @ 12.09 hrs, Volume= 5,905 cf, Depth= 5.97"  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

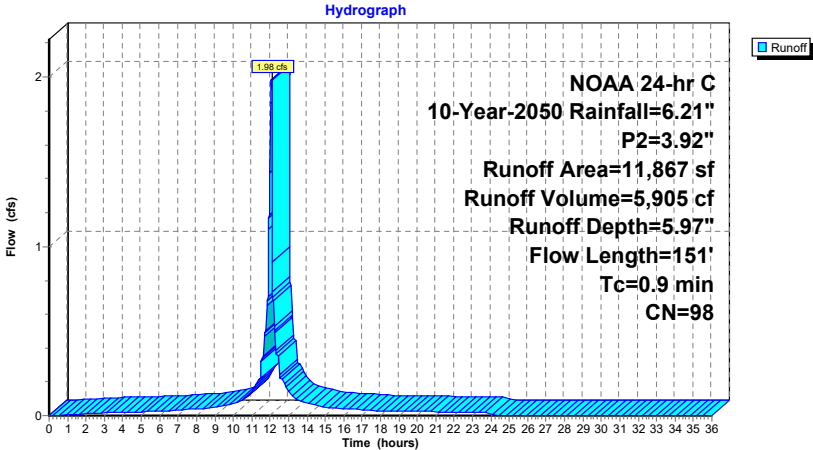
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 11,867    | 98 | Paved parking, HSG A    |
| 11,867    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                 |
|----------|---------------|---------------|-------------------|----------------|-------------------------------------------------------------|
| 0.5      | 36            | 0.0200        | 1.24              |                | Sheet Flow,<br>Smooth surfaces n= 0.011 P2= 3.92"           |
| 0.4      | 115           | 0.1250        | 5.30              |                | Shallow Concentrated Flow,<br>Grassed Waterway Kv= 15.0 fps |
| 0.9      | 151           | Total         |                   |                |                                                             |



Subcatchment 67S: Wetland Impervious



Hydrograph for Subcatchment 67S: Wetland Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 5.97               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 5.97               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 5.97               | 0.00            |
| 1.50            | 0.10                | 0.01               | 0.01            | 27.50           | 6.21                | 5.97               | 0.00            |
| 2.00            | 0.14                | 0.03               | 0.01            | 28.00           | 6.21                | 5.97               | 0.00            |
| 2.50            | 0.18                | 0.06               | 0.01            | 28.50           | 6.21                | 5.97               | 0.00            |
| 3.00            | 0.22                | 0.08               | 0.02            | 29.00           | 6.21                | 5.97               | 0.00            |
| 3.50            | 0.26                | 0.11               | 0.02            | 29.50           | 6.21                | 5.97               | 0.00            |
| 4.00            | 0.30                | 0.15               | 0.02            | 30.00           | 6.21                | 5.97               | 0.00            |
| 4.50            | 0.35                | 0.19               | 0.02            | 30.50           | 6.21                | 5.97               | 0.00            |
| 5.00            | 0.39                | 0.22               | 0.02            | 31.00           | 6.21                | 5.97               | 0.00            |
| 5.50            | 0.44                | 0.27               | 0.02            | 31.50           | 6.21                | 5.97               | 0.00            |
| 6.00            | 0.49                | 0.31               | 0.02            | 32.00           | 6.21                | 5.97               | 0.00            |
| 6.50            | 0.55                | 0.36               | 0.03            | 32.50           | 6.21                | 5.97               | 0.00            |
| 7.00            | 0.61                | 0.41               | 0.03            | 33.00           | 6.21                | 5.97               | 0.00            |
| 7.50            | 0.67                | 0.48               | 0.04            | 33.50           | 6.21                | 5.97               | 0.00            |
| 8.00            | 0.74                | 0.55               | 0.04            | 34.00           | 6.21                | 5.97               | 0.00            |
| 8.50            | 0.82                | 0.62               | 0.04            | 34.50           | 6.21                | 5.97               | 0.00            |
| 9.00            | 0.91                | 0.70               | 0.05            | 35.00           | 6.21                | 5.97               | 0.00            |
| 9.50            | 1.01                | 0.80               | 0.06            | 35.50           | 6.21                | 5.97               | 0.00            |
| 10.00           | 1.13                | 0.92               | 0.07            | 36.00           | 6.21                | 5.97               | 0.00            |
| 10.50           | 1.28                | 1.06               | 0.08            |                 |                     |                    |                 |
| 11.00           | 1.49                | 1.27               | 0.13            |                 |                     |                    |                 |
| 11.50           | 1.84                | 1.61               | 0.22            |                 |                     |                    |                 |
| 12.00           | 2.96                | 2.73               | 1.19            |                 |                     |                    |                 |
| 12.50           | 4.37                | 4.14               | 0.34            |                 |                     |                    |                 |
| 13.00           | 4.72                | 4.48               | 0.15            |                 |                     |                    |                 |
| 13.50           | 4.93                | 4.69               | 0.10            |                 |                     |                    |                 |
| 14.00           | 5.08                | 4.84               | 0.08            |                 |                     |                    |                 |
| 14.50           | 5.20                | 4.96               | 0.06            |                 |                     |                    |                 |
| 15.00           | 5.30                | 5.07               | 0.05            |                 |                     |                    |                 |
| 15.50           | 5.39                | 5.15               | 0.04            |                 |                     |                    |                 |
| 16.00           | 5.47                | 5.23               | 0.04            |                 |                     |                    |                 |
| 16.50           | 5.54                | 5.30               | 0.04            |                 |                     |                    |                 |
| 17.00           | 5.60                | 5.37               | 0.03            |                 |                     |                    |                 |
| 17.50           | 5.66                | 5.43               | 0.03            |                 |                     |                    |                 |
| 18.00           | 5.72                | 5.48               | 0.03            |                 |                     |                    |                 |
| 18.50           | 5.77                | 5.53               | 0.03            |                 |                     |                    |                 |
| 19.00           | 5.82                | 5.58               | 0.03            |                 |                     |                    |                 |
| 19.50           | 5.86                | 5.62               | 0.03            |                 |                     |                    |                 |
| 20.00           | 5.91                | 5.67               | 0.02            |                 |                     |                    |                 |
| 20.50           | 5.95                | 5.71               | 0.02            |                 |                     |                    |                 |
| 21.00           | 5.99                | 5.75               | 0.02            |                 |                     |                    |                 |
| 21.50           | 6.03                | 5.79               | 0.02            |                 |                     |                    |                 |
| 22.00           | 6.07                | 5.83               | 0.02            |                 |                     |                    |                 |
| 22.50           | 6.11                | 5.87               | 0.02            |                 |                     |                    |                 |
| 23.00           | 6.14                | 5.90               | 0.02            |                 |                     |                    |                 |
| 23.50           | 6.18                | 5.94               | 0.02            |                 |                     |                    |                 |
| 24.00           | 6.21                | 5.97               | 0.02            |                 |                     |                    |                 |
| 24.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |

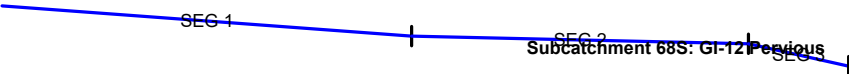
Summary for Subcatchment 68S: GI-12 Pervious

Runoff = 0.96 cfs @ 12.14 hrs, Volume= 3,732 cf, Depth= 0.82"  
Routed to Pond 60P : GI-12

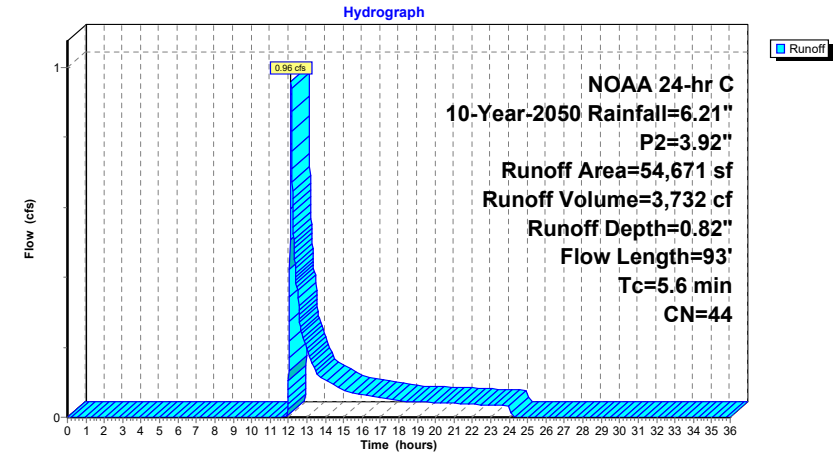
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 42,609    | 39 | >75% Grass cover, Good, HSG A |
| 12,062    | 61 | >75% Grass cover, Good, HSG B |
| 54,671    | 44 | Weighted Average              |
| 54,671    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 4.9      | 45            | 0.0450        | 0.15              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92"                |
| 0.6      | 37            | 0.0140        | 1.08              |                | Sheet Flow, SEG 2<br>Smooth surfaces n= 0.011 P2= 3.92"             |
| 0.1      | 11            | 0.1360        | 2.58              |                | Shallow Concentrated Flow, SEG 3<br>Short Grass Pasture Kv= 7.0 fps |
| 5.6      | 93            | Total         |                   |                |                                                                     |



Subcatchment 68S: GI-12 Pervious



Hydrograph for Subcatchment 68S: GI-12 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 6.21             | 0.82            | 0.00         |
| 0.50         | 0.03             | 0.00            | 0.00         | 26.50        | 6.21             | 0.82            | 0.00         |
| 1.00         | 0.07             | 0.00            | 0.00         | 27.00        | 6.21             | 0.82            | 0.00         |
| 1.50         | 0.10             | 0.00            | 0.00         | 27.50        | 6.21             | 0.82            | 0.00         |
| 2.00         | 0.14             | 0.00            | 0.00         | 28.00        | 6.21             | 0.82            | 0.00         |
| 2.50         | 0.18             | 0.00            | 0.00         | 28.50        | 6.21             | 0.82            | 0.00         |
| 3.00         | 0.22             | 0.00            | 0.00         | 29.00        | 6.21             | 0.82            | 0.00         |
| 3.50         | 0.26             | 0.00            | 0.00         | 29.50        | 6.21             | 0.82            | 0.00         |
| 4.00         | 0.30             | 0.00            | 0.00         | 30.00        | 6.21             | 0.82            | 0.00         |
| 4.50         | 0.35             | 0.00            | 0.00         | 30.50        | 6.21             | 0.82            | 0.00         |
| 5.00         | 0.39             | 0.00            | 0.00         | 31.00        | 6.21             | 0.82            | 0.00         |
| 5.50         | 0.44             | 0.00            | 0.00         | 31.50        | 6.21             | 0.82            | 0.00         |
| 6.00         | 0.49             | 0.00            | 0.00         | 32.00        | 6.21             | 0.82            | 0.00         |
| 6.50         | 0.55             | 0.00            | 0.00         | 32.50        | 6.21             | 0.82            | 0.00         |
| 7.00         | 0.61             | 0.00            | 0.00         | 33.00        | 6.21             | 0.82            | 0.00         |
| 7.50         | 0.67             | 0.00            | 0.00         | 33.50        | 6.21             | 0.82            | 0.00         |
| 8.00         | 0.74             | 0.00            | 0.00         | 34.00        | 6.21             | 0.82            | 0.00         |
| 8.50         | 0.82             | 0.00            | 0.00         | 34.50        | 6.21             | 0.82            | 0.00         |
| 9.00         | 0.91             | 0.00            | 0.00         | 35.00        | 6.21             | 0.82            | 0.00         |
| 9.50         | 1.01             | 0.00            | 0.00         | 35.50        | 6.21             | 0.82            | 0.00         |
| 10.00        | 1.13             | 0.00            | 0.00         | 36.00        | 6.21             | 0.82            | 0.00         |
| 10.50        | 1.28             | 0.00            | 0.00         |              |                  |                 |              |
| 11.00        | 1.49             | 0.00            | 0.00         |              |                  |                 |              |
| 11.50        | 1.84             | 0.00            | 0.00         |              |                  |                 |              |
| 12.00        | 2.96             | 0.01            | 0.08         |              |                  |                 |              |
| 12.50        | 4.37             | 0.23            | 0.36         |              |                  |                 |              |
| 13.00        | 4.72             | 0.32            | 0.19         |              |                  |                 |              |
| 13.50        | 4.93             | 0.38            | 0.13         |              |                  |                 |              |
| 14.00        | 5.08             | 0.42            | 0.11         |              |                  |                 |              |
| 14.50        | 5.20             | 0.46            | 0.09         |              |                  |                 |              |
| 15.00        | 5.30             | 0.49            | 0.08         |              |                  |                 |              |
| 15.50        | 5.39             | 0.52            | 0.07         |              |                  |                 |              |
| 16.00        | 5.47             | 0.55            | 0.07         |              |                  |                 |              |
| 16.50        | 5.54             | 0.57            | 0.06         |              |                  |                 |              |
| 17.00        | 5.60             | 0.59            | 0.06         |              |                  |                 |              |
| 17.50        | 5.66             | 0.61            | 0.05         |              |                  |                 |              |
| 18.00        | 5.72             | 0.63            | 0.05         |              |                  |                 |              |
| 18.50        | 5.77             | 0.65            | 0.04         |              |                  |                 |              |
| 19.00        | 5.82             | 0.67            | 0.04         |              |                  |                 |              |
| 19.50        | 5.86             | 0.69            | 0.04         |              |                  |                 |              |
| 20.00        | 5.91             | 0.70            | 0.04         |              |                  |                 |              |
| 20.50        | 5.95             | 0.72            | 0.04         |              |                  |                 |              |
| 21.00        | 5.99             | 0.73            | 0.04         |              |                  |                 |              |
| 21.50        | 6.03             | 0.75            | 0.04         |              |                  |                 |              |
| 22.00        | 6.07             | 0.76            | 0.04         |              |                  |                 |              |
| 22.50        | 6.11             | 0.78            | 0.04         |              |                  |                 |              |
| 23.00        | 6.14             | 0.79            | 0.03         |              |                  |                 |              |
| 23.50        | 6.18             | 0.81            | 0.03         |              |                  |                 |              |
| 24.00        | 6.21             | 0.82            | 0.04         |              |                  |                 |              |
| 24.50        | 6.21             | 0.82            | 0.00         |              |                  |                 |              |
| 25.00        | 6.21             | 0.82            | 0.00         |              |                  |                 |              |
| 25.50        | 6.21             | 0.82            | 0.00         |              |                  |                 |              |

Summary for Pond 8P: GI-13

Inflow Area = 119,588 sf, 39.98% Impervious, Inflow Depth = 0.15" for 10-Year-2050 event  
Inflow = 0.17 cfs @ 12.21 hrs, Volume= 1,484 cf  
Outflow = 0.05 cfs @ 13.19 hrs, Volume= 1,484 cf, Atten= 72%, Lag= 58.8 min  
Discarded = 0.05 cfs @ 13.19 hrs, Volume= 1,484 cf  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 126.04' @ 13.19 hrs Surf.Area= 4,064 sf Storage= 164 cf

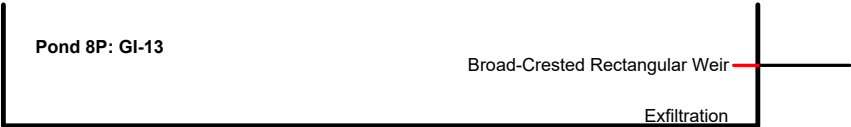
Plug-Flow detention time= (not calculated: outflow precedes inflow)  
Center-of-Mass det. time= 22.8 min ( 1,009.2 - 986.3 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 126.00' | 23,208 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

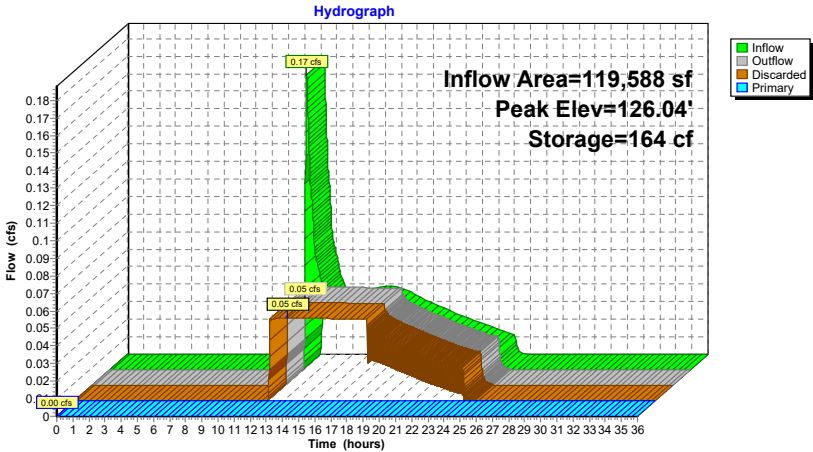
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 126.00           | 4,028             | 0                      | 0                      |
| 130.00           | 7,576             | 23,208                 | 23,208                 |

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                                                                                                                          |
|--------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary   | 128.00' | 5.0' long + 3.0 ' SideZ x 6.0' breadth Broad-Crested Rectangular Weir<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00<br>2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65<br>2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83 |
| #2     | Discarded | 126.00' | 0.500 in/hr Exfiltration over Surface area<br>Conductivity to Groundwater Elevation = 1.00'                                                                                                                                                                                             |

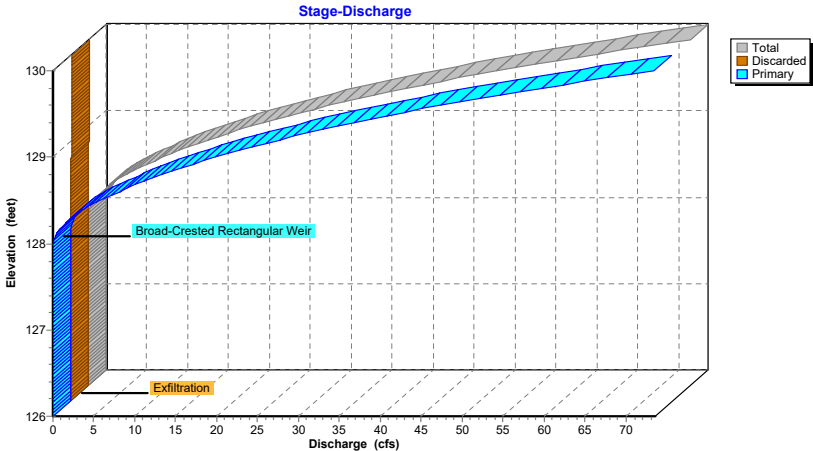
Discarded OutFlow Max=0.05 cfs @ 13.19 hrs HW=126.04' (Free Discharge)  
2=Exfiltration ( Controls 0.05 cfs)  
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=126.00' TW=123.25' (Dynamic Tailwater)  
1=Broad-Crested Rectangular Weir( Controls 0.00 cfs)

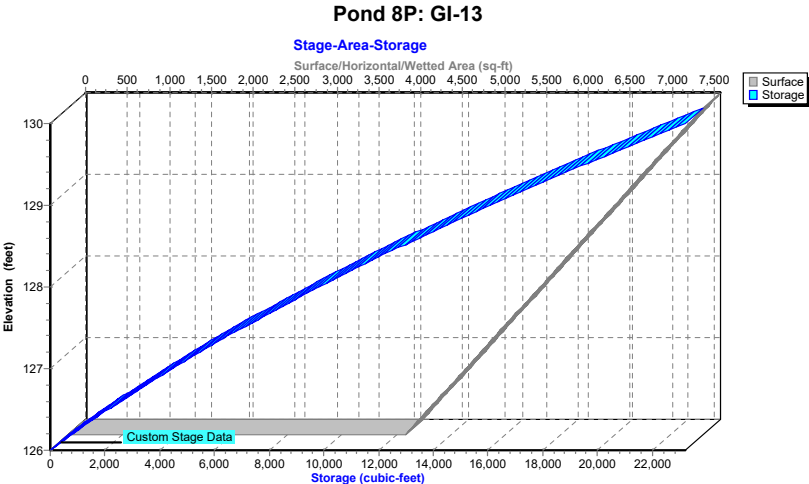


Pond 8P: GI-13



Pond 8P: GI-13





Hydrograph for Pond 8P: GI-13

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Outflow (cfs) | Discarded (cfs) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|-----------------|---------------|
| 0.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 1.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 2.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 3.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 4.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 5.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 6.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 7.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 8.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 9.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 10.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 11.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 12.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 13.00        | 0.06         | 162                  | 126.04           | 0.05          | 0.05            | 0.00          |
| 14.00        | 0.04         | 142                  | 126.04           | 0.05          | 0.05            | 0.00          |
| 15.00        | 0.04         | 109                  | 126.03           | 0.05          | 0.05            | 0.00          |
| 16.00        | 0.04         | 77                   | 126.02           | 0.05          | 0.05            | 0.00          |
| 17.00        | 0.04         | 47                   | 126.01           | 0.05          | 0.05            | 0.00          |
| 18.00        | 0.03         | 9                    | 126.00           | 0.05          | 0.05            | 0.00          |
| 19.00        | 0.03         | 0                    | 126.00           | 0.04          | 0.04            | 0.00          |
| 20.00        | 0.03         | 0                    | 126.00           | 0.03          | 0.03            | 0.00          |
| 21.00        | 0.02         | 0                    | 126.00           | 0.03          | 0.03            | 0.00          |
| 22.00        | 0.02         | 0                    | 126.00           | 0.02          | 0.02            | 0.00          |
| 23.00        | 0.01         | 0                    | 126.00           | 0.02          | 0.02            | 0.00          |
| 24.00        | 0.01         | 0                    | 126.00           | 0.02          | 0.02            | 0.00          |
| 25.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 26.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 27.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 28.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 29.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 30.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 31.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 32.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 33.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 34.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 35.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 36.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 8P: GI-13**

| Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) |
|---------------------|--------------------|--------------------|------------------|---------------------|--------------------|--------------------|------------------|
| 126.00              | 0.00               | 0.00               | 0.00             | 128.60              | 8.16               | 0.07               | 8.08             |
| 126.05              | 0.05               | 0.05               | 0.00             | 128.65              | 9.34               | 0.08               | 9.26             |
| 126.10              | 0.05               | 0.05               | 0.00             | 128.70              | 10.60              | 0.08               | 10.52            |
| 126.15              | 0.05               | 0.05               | 0.00             | 128.75              | 11.94              | 0.08               | 11.86            |
| 126.20              | 0.05               | 0.05               | 0.00             | 128.80              | 13.35              | 0.08               | 13.27            |
| 126.25              | 0.05               | 0.05               | 0.00             | 128.85              | 14.86              | 0.08               | 14.79            |
| 126.30              | 0.05               | 0.05               | 0.00             | 128.90              | 16.46              | 0.08               | 16.38            |
| 126.35              | 0.05               | 0.05               | 0.00             | 128.95              | 18.14              | 0.08               | 18.07            |
| 126.40              | 0.05               | 0.05               | 0.00             | 129.00              | 19.91              | 0.08               | 19.83            |
| 126.45              | 0.05               | 0.05               | 0.00             | 129.05              | 21.74              | 0.08               | 21.66            |
| 126.50              | 0.05               | 0.05               | 0.00             | 129.10              | 23.66              | 0.08               | 23.58            |
| 126.55              | 0.05               | 0.05               | 0.00             | 129.15              | 25.66              | 0.08               | 25.58            |
| 126.60              | 0.05               | 0.05               | 0.00             | 129.20              | 27.74              | 0.08               | 27.66            |
| 126.65              | 0.05               | 0.05               | 0.00             | 129.25              | 29.88              | 0.08               | 29.80            |
| 126.70              | 0.05               | 0.05               | 0.00             | 129.30              | 32.10              | 0.08               | 32.01            |
| 126.75              | 0.05               | 0.05               | 0.00             | 129.35              | 34.40              | 0.08               | 34.32            |
| 126.80              | 0.06               | 0.06               | 0.00             | 129.40              | 36.78              | 0.08               | 36.70            |
| 126.85              | 0.06               | 0.06               | 0.00             | 129.45              | 39.32              | 0.08               | 39.24            |
| 126.90              | 0.06               | 0.06               | 0.00             | 129.50              | 41.95              | 0.08               | 41.87            |
| 126.95              | 0.06               | 0.06               | 0.00             | 129.55              | 44.68              | 0.08               | 44.59            |
| 127.00              | 0.06               | 0.06               | 0.00             | 129.60              | 47.50              | 0.09               | 47.41            |
| 127.05              | 0.06               | 0.06               | 0.00             | 129.65              | 50.41              | 0.09               | 50.32            |
| 127.10              | 0.06               | 0.06               | 0.00             | 129.70              | 53.42              | 0.09               | 53.33            |
| 127.15              | 0.06               | 0.06               | 0.00             | 129.75              | 56.53              | 0.09               | 56.44            |
| 127.20              | 0.06               | 0.06               | 0.00             | 129.80              | 59.73              | 0.09               | 59.64            |
| 127.25              | 0.06               | 0.06               | 0.00             | 129.85              | 63.04              | 0.09               | 62.95            |
| 127.30              | 0.06               | 0.06               | 0.00             | 129.90              | 66.44              | 0.09               | 66.35            |
| 127.35              | 0.06               | 0.06               | 0.00             | 129.95              | 69.94              | 0.09               | 69.85            |
| 127.40              | 0.06               | 0.06               | 0.00             | 130.00              | <b>73.54</b>       | <b>0.09</b>        | <b>73.45</b>     |
| 127.45              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.50              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.55              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.60              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.65              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.70              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.75              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.80              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.85              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.90              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.95              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 128.00              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 128.05              | 0.20               | 0.07               | 0.14             |                     |                    |                    |                  |
| 128.10              | 0.46               | 0.07               | 0.39             |                     |                    |                    |                  |
| 128.15              | 0.81               | 0.07               | 0.74             |                     |                    |                    |                  |
| 128.20              | 1.23               | 0.07               | 1.16             |                     |                    |                    |                  |
| 128.25              | 1.75               | 0.07               | 1.68             |                     |                    |                    |                  |
| 128.30              | 2.36               | 0.07               | 2.29             |                     |                    |                    |                  |
| 128.35              | 3.06               | 0.07               | 2.99             |                     |                    |                    |                  |
| 128.40              | 3.86               | 0.07               | 3.78             |                     |                    |                    |                  |
| 128.45              | 4.77               | 0.07               | 4.69             |                     |                    |                    |                  |
| 128.50              | 5.78               | 0.07               | 5.71             |                     |                    |                    |                  |
| 128.55              | 6.91               | 0.07               | 6.84             |                     |                    |                    |                  |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 8P: GI-13**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 126.00              | 4,028              | 0                       | 128.60              | 6,334              | 13,471                  |
| 126.05              | 4,072              | 203                     | 128.65              | 6,379              | 13,789                  |
| 126.10              | 4,117              | 407                     | 128.70              | 6,423              | 14,109                  |
| 126.15              | 4,161              | 614                     | 128.75              | 6,467              | 14,431                  |
| 126.20              | 4,205              | 823                     | 128.80              | 6,512              | 14,755                  |
| 126.25              | 4,250              | 1,035                   | 128.85              | 6,556              | 15,082                  |
| 126.30              | 4,294              | 1,248                   | 128.90              | 6,600              | 15,411                  |
| 126.35              | 4,338              | 1,464                   | 128.95              | 6,645              | 15,742                  |
| 126.40              | 4,383              | 1,682                   | 129.00              | 6,689              | 16,076                  |
| 126.45              | 4,427              | 1,902                   | 129.05              | 6,733              | 16,411                  |
| 126.50              | 4,472              | 2,125                   | 129.10              | 6,778              | 16,749                  |
| 126.55              | 4,516              | 2,350                   | 129.15              | 6,822              | 17,089                  |
| 126.60              | 4,560              | 2,576                   | 129.20              | 6,866              | 17,431                  |
| 126.65              | 4,605              | 2,806                   | 129.25              | 6,911              | 17,775                  |
| 126.70              | 4,649              | 3,037                   | 129.30              | 6,955              | 18,122                  |
| 126.75              | 4,693              | 3,270                   | 129.35              | 6,999              | 18,471                  |
| 126.80              | 4,738              | 3,506                   | 129.40              | 7,044              | 18,822                  |
| 126.85              | 4,782              | 3,744                   | 129.45              | 7,088              | 19,175                  |
| 126.90              | 4,826              | 3,984                   | 129.50              | 7,133              | 19,531                  |
| 126.95              | 4,871              | 4,227                   | 129.55              | 7,177              | 19,889                  |
| 127.00              | 4,915              | 4,472                   | 129.60              | 7,221              | 20,249                  |
| 127.05              | 4,959              | 4,718                   | 129.65              | 7,266              | 20,611                  |
| 127.10              | 5,004              | 4,967                   | 129.70              | 7,310              | 20,975                  |
| 127.15              | 5,048              | 5,219                   | 129.75              | 7,354              | 21,342                  |
| 127.20              | 5,092              | 5,472                   | 129.80              | 7,399              | 21,711                  |
| 127.25              | 5,137              | 5,728                   | 129.85              | 7,443              | 22,082                  |
| 127.30              | 5,181              | 5,986                   | 129.90              | 7,487              | 22,455                  |
| 127.35              | 5,225              | 6,246                   | 129.95              | 7,532              | 22,830                  |
| 127.40              | 5,270              | 6,508                   | 130.00              | <b>7,576</b>       | <b>23,208</b>           |
| 127.45              | 5,314              | 6,773                   |                     |                    |                         |
| 127.50              | 5,359              | 7,040                   |                     |                    |                         |
| 127.55              | 5,403              | 7,309                   |                     |                    |                         |
| 127.60              | 5,447              | 7,580                   |                     |                    |                         |
| 127.65              | 5,492              | 7,854                   |                     |                    |                         |
| 127.70              | 5,536              | 8,129                   |                     |                    |                         |
| 127.75              | 5,580              | 8,407                   |                     |                    |                         |
| 127.80              | 5,625              | 8,687                   |                     |                    |                         |
| 127.85              | 5,669              | 8,970                   |                     |                    |                         |
| 127.90              | 5,713              | 9,254                   |                     |                    |                         |
| 127.95              | 5,758              | 9,541                   |                     |                    |                         |
| 128.00              | 5,802              | 9,830                   |                     |                    |                         |
| 128.05              | 5,846              | 10,121                  |                     |                    |                         |
| 128.10              | 5,891              | 10,415                  |                     |                    |                         |
| 128.15              | 5,935              | 10,710                  |                     |                    |                         |
| 128.20              | 5,979              | 11,008                  |                     |                    |                         |
| 128.25              | 6,024              | 11,308                  |                     |                    |                         |
| 128.30              | 6,068              | 11,611                  |                     |                    |                         |
| 128.35              | 6,112              | 11,915                  |                     |                    |                         |
| 128.40              | 6,157              | 12,222                  |                     |                    |                         |
| 128.45              | 6,201              | 12,531                  |                     |                    |                         |
| 128.50              | 6,246              | 12,842                  |                     |                    |                         |
| 128.55              | 6,290              | 13,155                  |                     |                    |                         |

Summary for Pond 46P: GI-10

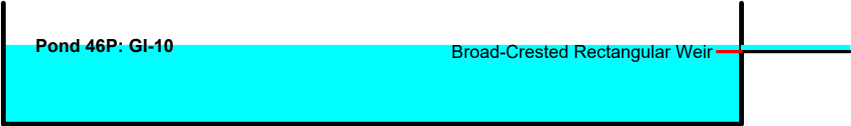
Inflow Area = 32,730 sf, 60.20% Impervious, Inflow Depth = 3.80" for 10-Year-2050 event  
Inflow = 3.17 cfs @ 12.12 hrs, Volume= 10,355 cf  
Outflow = 1.15 cfs @ 12.25 hrs, Volume= 5,265 cf, Atten= 64%, Lag= 8.2 min  
Primary = 1.15 cfs @ 12.25 hrs, Volume= 5,265 cf  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 125.13' @ 12.25 hrs Surf.Area= 4,305 sf Storage= 5,642 cf  
Plug-Flow detention time= 289.9 min calculated for 5,263 cf (51% of inflow)  
Center-of-Mass det. time= 152.3 min ( 907.9 - 755.6 )

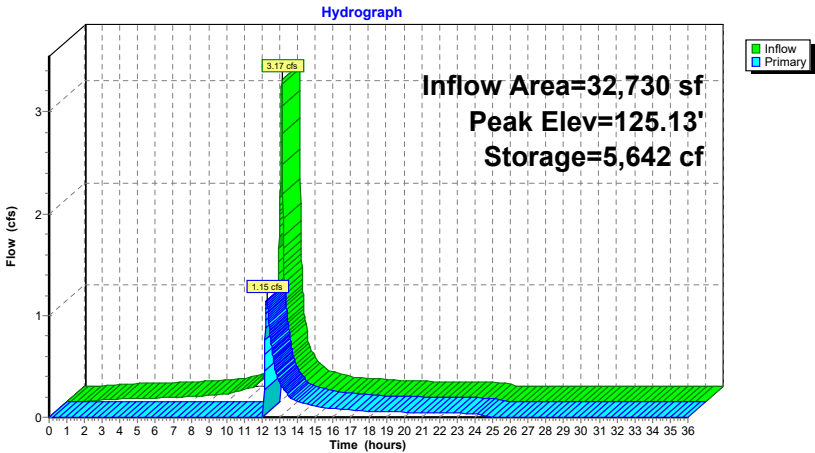
| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 123.50'           | 9,792 cf               | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 123.50           | 2,638             | 0                      | 0                                                   |
| 124.50           | 3,639             | 3,139                  | 3,139                                               |
| 125.50           | 4,696             | 4,168                  | 7,306                                               |
| 126.00           | 5,246             | 2,486                  | 9,792                                               |

| Device | Routing | Invert  | Outlet Devices                                                           |
|--------|---------|---------|--------------------------------------------------------------------------|
| #1     | Primary | 125.00' | 10.0' long + 3.0 ' / SideZ x 6.0' breadth Broad-Crested Rectangular Weir |
|        |         |         | Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00            |
|        |         |         | 2.50 3.00 3.50 4.00 4.50 5.00 5.50                                       |
|        |         |         | Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65             |
|        |         |         | 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83                                  |

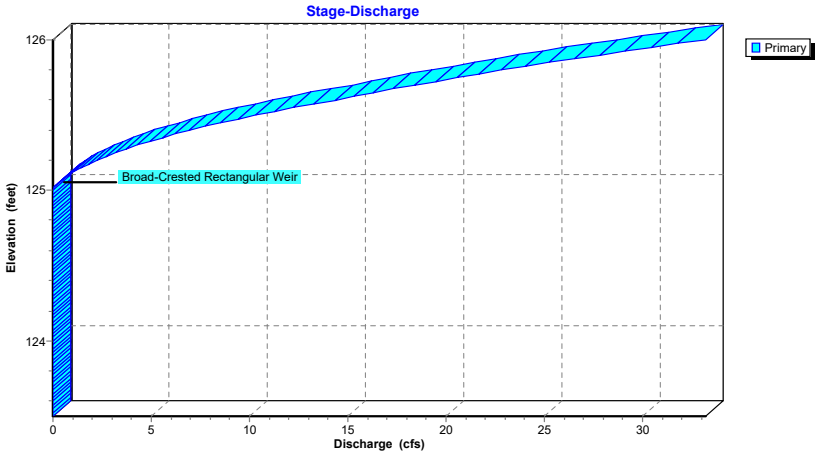
Primary OutFlow Max=1.15 cfs @ 12.25 hrs HW=125.13' TW=123.97' (Dynamic Tailwater)  
1=Broad-Crested Rectangular Weir(Weir Controls 1.15 cfs @ 0.85 fps)

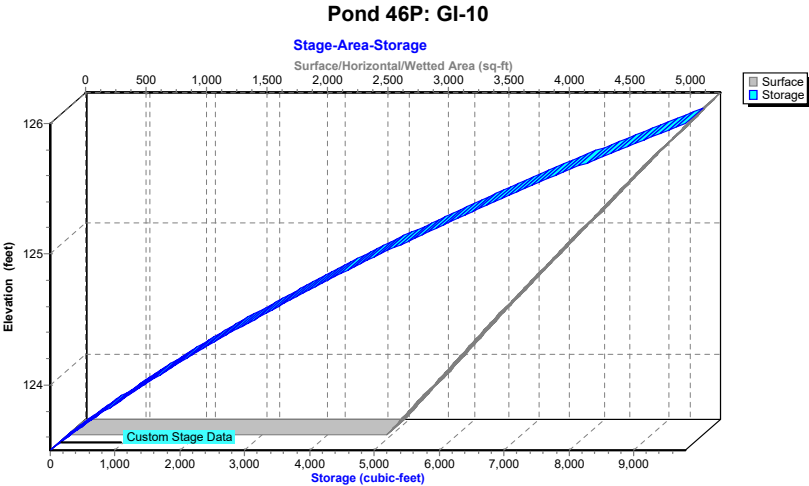


Pond 46P: GI-10



Pond 46P: GI-10





Hydrograph for Pond 46P: GI-10

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 123.50           | 0.00          |
| 1.00         | 0.01         | 4                    | 123.50           | 0.00          |
| 2.00         | 0.02         | 49                   | 123.52           | 0.00          |
| 3.00         | 0.03         | 130                  | 123.55           | 0.00          |
| 4.00         | 0.03         | 235                  | 123.59           | 0.00          |
| 5.00         | 0.04         | 360                  | 123.63           | 0.00          |
| 6.00         | 0.04         | 500                  | 123.68           | 0.00          |
| 7.00         | 0.05         | 668                  | 123.74           | 0.00          |
| 8.00         | 0.06         | 879                  | 123.81           | 0.00          |
| 9.00         | 0.08         | 1,132                | 123.90           | 0.00          |
| 10.00        | 0.12         | 1,480                | 124.01           | 0.00          |
| 11.00        | 0.22         | 2,031                | 124.18           | 0.00          |
| 12.00        | 1.84         | 3,999                | 124.73           | 0.00          |
| 13.00        | 0.29         | 5,336                | 125.06           | 0.34          |
| 14.00        | 0.14         | 5,236                | 125.03           | 0.15          |
| 15.00        | 0.10         | 5,204                | 125.03           | 0.11          |
| 16.00        | 0.08         | 5,186                | 125.02           | 0.08          |
| 17.00        | 0.07         | 5,177                | 125.02           | 0.07          |
| 18.00        | 0.06         | 5,166                | 125.02           | 0.06          |
| 19.00        | 0.05         | 5,160                | 125.02           | 0.05          |
| 20.00        | 0.05         | 5,157                | 125.02           | 0.05          |
| 21.00        | 0.04         | 5,154                | 125.02           | 0.05          |
| 22.00        | 0.04         | 5,151                | 125.01           | 0.04          |
| 23.00        | 0.04         | 5,148                | 125.01           | 0.04          |
| 24.00        | 0.04         | 5,146                | 125.01           | 0.04          |
| 25.00        | 0.00         | 5,103                | 125.00           | 0.00          |
| 26.00        | 0.00         | 5,095                | 125.00           | 0.00          |
| 27.00        | 0.00         | 5,093                | 125.00           | 0.00          |
| 28.00        | 0.00         | 5,092                | 125.00           | 0.00          |
| 29.00        | 0.00         | 5,091                | 125.00           | 0.00          |
| 30.00        | 0.00         | 5,091                | 125.00           | 0.00          |
| 31.00        | 0.00         | 5,091                | 125.00           | 0.00          |
| 32.00        | 0.00         | 5,091                | 125.00           | 0.00          |
| 33.00        | 0.00         | 5,090                | 125.00           | 0.00          |
| 34.00        | 0.00         | 5,090                | 125.00           | 0.00          |
| 35.00        | 0.00         | 5,090                | 125.00           | 0.00          |
| 36.00        | 0.00         | 5,090                | 125.00           | 0.00          |



Stage-Discharge for Pond 46P: GI-10

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 123.50              | 0.00             | 124.54              | 0.00             | 125.58              | 13.49            |
| 123.52              | 0.00             | 124.56              | 0.00             | 125.60              | 14.36            |
| 123.54              | 0.00             | 124.58              | 0.00             | 125.62              | 15.13            |
| 123.56              | 0.00             | 124.60              | 0.00             | 125.64              | 15.92            |
| 123.58              | 0.00             | 124.62              | 0.00             | 125.66              | 16.73            |
| 123.60              | 0.00             | 124.64              | 0.00             | 125.68              | 17.56            |
| 123.62              | 0.00             | 124.66              | 0.00             | 125.70              | 18.40            |
| 123.64              | 0.00             | 124.68              | 0.00             | 125.72              | 19.26            |
| 123.66              | 0.00             | 124.70              | 0.00             | 125.74              | 20.13            |
| 123.68              | 0.00             | 124.72              | 0.00             | 125.76              | 21.03            |
| 123.70              | 0.00             | 124.74              | 0.00             | 125.78              | 21.93            |
| 123.72              | 0.00             | 124.76              | 0.00             | 125.80              | 22.86            |
| 123.74              | 0.00             | 124.78              | 0.00             | 125.82              | 23.82            |
| 123.76              | 0.00             | 124.80              | 0.00             | 125.84              | 24.79            |
| 123.78              | 0.00             | 124.82              | 0.00             | 125.86              | 25.79            |
| 123.80              | 0.00             | 124.84              | 0.00             | 125.88              | 26.80            |
| 123.82              | 0.00             | 124.86              | 0.00             | 125.90              | 27.82            |
| 123.84              | 0.00             | 124.88              | 0.00             | 125.92              | 28.87            |
| 123.86              | 0.00             | 124.90              | 0.00             | 125.94              | 29.93            |
| 123.88              | 0.00             | 124.92              | 0.00             | 125.96              | 31.02            |
| 123.90              | 0.00             | 124.94              | 0.00             | 125.98              | 32.12            |
| 123.92              | 0.00             | 124.96              | 0.00             | 126.00              | 33.23            |
| 123.94              | 0.00             | 124.98              | 0.00             |                     |                  |
| 123.96              | 0.00             | 125.00              | 0.00             |                     |                  |
| 123.98              | 0.00             | 125.02              | 0.07             |                     |                  |
| 124.00              | 0.00             | 125.04              | 0.19             |                     |                  |
| 124.02              | 0.00             | 125.06              | 0.35             |                     |                  |
| 124.04              | 0.00             | 125.08              | 0.55             |                     |                  |
| 124.06              | 0.00             | 125.10              | 0.77             |                     |                  |
| 124.08              | 0.00             | 125.12              | 1.01             |                     |                  |
| 124.10              | 0.00             | 125.14              | 1.28             |                     |                  |
| 124.12              | 0.00             | 125.16              | 1.58             |                     |                  |
| 124.14              | 0.00             | 125.18              | 1.89             |                     |                  |
| 124.16              | 0.00             | 125.20              | 2.22             |                     |                  |
| 124.18              | 0.00             | 125.22              | 2.59             |                     |                  |
| 124.20              | 0.00             | 125.24              | 2.98             |                     |                  |
| 124.22              | 0.00             | 125.26              | 3.40             |                     |                  |
| 124.24              | 0.00             | 125.28              | 3.84             |                     |                  |
| 124.26              | 0.00             | 125.30              | 4.30             |                     |                  |
| 124.28              | 0.00             | 125.32              | 4.78             |                     |                  |
| 124.30              | 0.00             | 125.34              | 5.29             |                     |                  |
| 124.32              | 0.00             | 125.36              | 5.82             |                     |                  |
| 124.34              | 0.00             | 125.38              | 6.38             |                     |                  |
| 124.36              | 0.00             | 125.40              | 6.96             |                     |                  |
| 124.38              | 0.00             | 125.42              | 7.58             |                     |                  |
| 124.40              | 0.00             | 125.44              | 8.22             |                     |                  |
| 124.42              | 0.00             | 125.46              | 8.89             |                     |                  |
| 124.44              | 0.00             | 125.48              | 9.59             |                     |                  |
| 124.46              | 0.00             | 125.50              | 10.32            |                     |                  |
| 124.48              | 0.00             | 125.52              | 11.07            |                     |                  |
| 124.50              | 0.00             | 125.54              | 11.85            |                     |                  |
| 124.52              | 0.00             | 125.56              | 12.65            |                     |                  |

Stage-Area-Storage for Pond 46P: GI-10

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|
| 123.50              | 2,638              | 0                       |
| 123.55              | 2,688              | 133                     |
| 123.60              | 2,738              | 269                     |
| 123.65              | 2,788              | 407                     |
| 123.70              | 2,838              | 548                     |
| 123.75              | 2,888              | 691                     |
| 123.80              | 2,938              | 836                     |
| 123.85              | 2,988              | 985                     |
| 123.90              | 3,038              | 1,135                   |
| 123.95              | 3,088              | 1,288                   |
| 124.00              | 3,139              | 1,444                   |
| 124.05              | 3,189              | 1,602                   |
| 124.10              | 3,239              | 1,763                   |
| 124.15              | 3,289              | 1,926                   |
| 124.20              | 3,339              | 2,092                   |
| 124.25              | 3,389              | 2,260                   |
| 124.30              | 3,439              | 2,431                   |
| 124.35              | 3,489              | 2,604                   |
| 124.40              | 3,539              | 2,780                   |
| 124.45              | 3,589              | 2,958                   |
| 124.50              | 3,639              | 3,139                   |
| 124.55              | 3,692              | 3,322                   |
| 124.60              | 3,745              | 3,508                   |
| 124.65              | 3,798              | 3,696                   |
| 124.70              | 3,850              | 3,887                   |
| 124.75              | 3,903              | 4,081                   |
| 124.80              | 3,956              | 4,278                   |
| 124.85              | 4,009              | 4,477                   |
| 124.90              | 4,062              | 4,679                   |
| 124.95              | 4,115              | 4,883                   |
| 125.00              | 4,168              | 5,090                   |
| 125.05              | 4,220              | 5,300                   |
| 125.10              | 4,273              | 5,512                   |
| 125.15              | 4,326              | 5,727                   |
| 125.20              | 4,379              | 5,945                   |
| 125.25              | 4,432              | 6,165                   |
| 125.30              | 4,485              | 6,388                   |
| 125.35              | 4,537              | 6,613                   |
| 125.40              | 4,590              | 6,842                   |
| 125.45              | 4,643              | 7,073                   |
| 125.50              | 4,696              | 7,306                   |
| 125.55              | 4,751              | 7,542                   |
| 125.60              | 4,806              | 7,781                   |
| 125.65              | 4,861              | 8,023                   |
| 125.70              | 4,916              | 8,267                   |
| 125.75              | 4,971              | 8,514                   |
| 125.80              | 5,026              | 8,764                   |
| 125.85              | 5,081              | 9,017                   |
| 125.90              | 5,136              | 9,272                   |
| 125.95              | 5,191              | 9,531                   |
| 126.00              | 5,246              | 9,792                   |

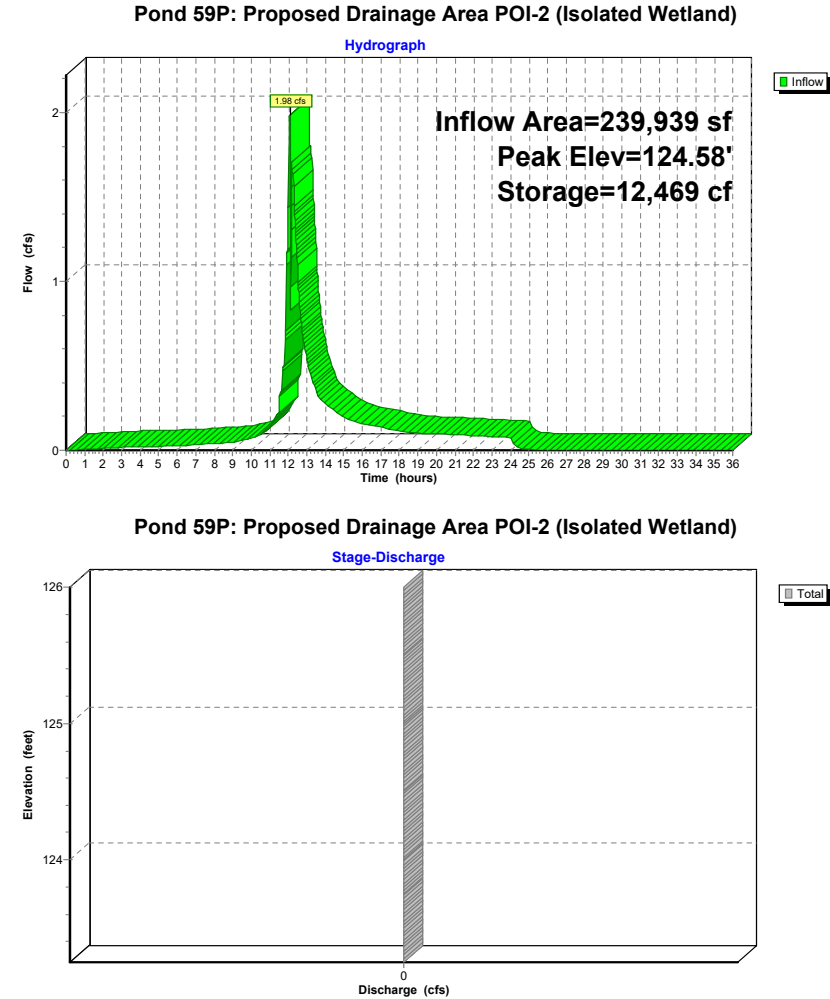
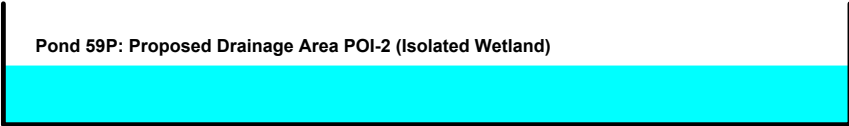
Summary for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

Inflow Area = 239,939 sf, 33.08% Impervious, Inflow Depth = 0.62" for 10-Year-2050 event  
Inflow = 1.98 cfs @ 12.09 hrs, Volume= 12,469 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

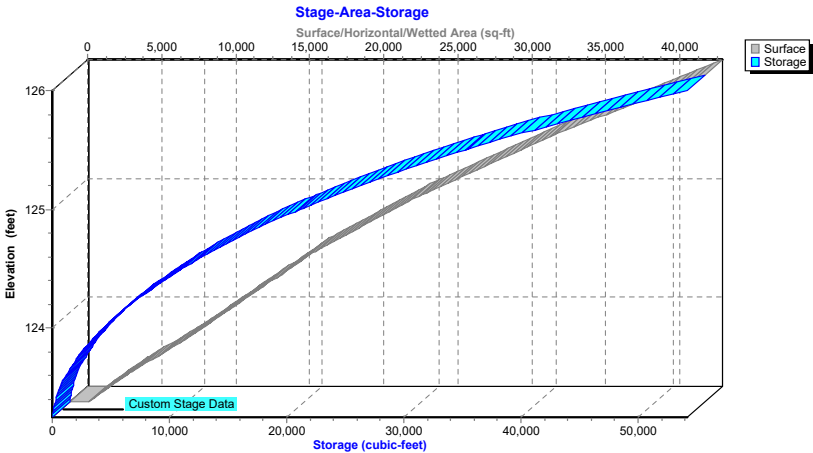
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 124.58' @ 36.00 hrs Surf.Area= 17,567 sf Storage= 12,469 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 123.25'           | 54,210 cf              | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 123.25           | 1,260             | 0                      | 0                                                   |
| 123.50           | 4,142             | 675                    | 675                                                 |
| 123.75           | 7,451             | 1,449                  | 2,124                                               |
| 124.00           | 10,505            | 2,245                  | 4,369                                               |
| 124.50           | 16,329            | 6,709                  | 11,077                                              |
| 125.00           | 23,865            | 10,049                 | 21,126                                              |
| 125.50           | 32,790            | 14,164                 | 35,290                                              |
| 126.00           | 42,891            | 18,920                 | 54,210                                              |



Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)



Hydrograph for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) |
|--------------|--------------|----------------------|------------------|--------------|--------------|----------------------|------------------|
| 0.00         | 0.00         | 0                    | 123.25           | 26.00        | 0.00         | 12,464               | 124.58           |
| 0.50         | 0.00         | 0                    | 123.25           | 26.50        | 0.00         | 12,466               | 124.58           |
| 1.00         | 0.00         | 3                    | 123.25           | 27.00        | 0.00         | 12,467               | 124.58           |
| 1.50         | 0.01         | 14                   | 123.26           | 27.50        | 0.00         | 12,467               | 124.58           |
| 2.00         | 0.01         | 32                   | 123.27           | 28.00        | 0.00         | 12,468               | 124.58           |
| 2.50         | 0.01         | 54                   | 123.29           | 28.50        | 0.00         | 12,468               | 124.58           |
| 3.00         | 0.02         | 81                   | 123.30           | 29.00        | 0.00         | 12,468               | 124.58           |
| 3.50         | 0.02         | 112                  | 123.32           | 29.50        | 0.00         | 12,469               | 124.58           |
| 4.00         | 0.02         | 146                  | 123.33           | 30.00        | 0.00         | 12,469               | 124.58           |
| 4.50         | 0.02         | 182                  | 123.35           | 30.50        | 0.00         | 12,469               | 124.58           |
| 5.00         | 0.02         | 221                  | 123.36           | 31.00        | 0.00         | 12,469               | 124.58           |
| 5.50         | 0.02         | 262                  | 123.38           | 31.50        | 0.00         | 12,469               | 124.58           |
| 6.00         | 0.02         | 306                  | 123.40           | 32.00        | 0.00         | 12,469               | 124.58           |
| 6.50         | 0.03         | 354                  | 123.41           | 32.50        | 0.00         | 12,469               | 124.58           |
| 7.00         | 0.03         | 409                  | 123.43           | 33.00        | 0.00         | 12,469               | 124.58           |
| 7.50         | 0.04         | 470                  | 123.45           | 33.50        | 0.00         | 12,469               | 124.58           |
| 8.00         | 0.04         | 537                  | 123.46           | 34.00        | 0.00         | 12,469               | 124.58           |
| 8.50         | 0.04         | 611                  | 123.48           | 34.50        | 0.00         | 12,469               | 124.58           |
| 9.00         | 0.05         | 691                  | 123.50           | 35.00        | 0.00         | 12,469               | 124.58           |
| 9.50         | 0.06         | 787                  | 123.53           | 35.50        | 0.00         | 12,469               | 124.58           |
| 10.00        | 0.07         | 906                  | 123.55           | 36.00        | 0.00         | 12,469               | 124.58           |
| 10.50        | 0.08         | 1,048                | 123.58           |              |              |                      |                  |
| 11.00        | 0.13         | 1,250                | 123.62           |              |              |                      |                  |
| 11.50        | 0.22         | 1,582                | 123.67           |              |              |                      |                  |
| 12.00        | 1.19         | 2,638                | 123.82           |              |              |                      |                  |
| 12.50        | 1.11         | 5,302                | 124.08           |              |              |                      |                  |
| 13.00        | 0.55         | 6,626                | 124.19           |              |              |                      |                  |
| 13.50        | 0.36         | 7,419                | 124.25           |              |              |                      |                  |
| 14.00        | 0.28         | 7,969                | 124.29           |              |              |                      |                  |
| 14.50        | 0.24         | 8,427                | 124.33           |              |              |                      |                  |
| 15.00        | 0.19         | 8,812                | 124.35           |              |              |                      |                  |
| 15.50        | 0.17         | 9,133                | 124.38           |              |              |                      |                  |
| 16.00        | 0.16         | 9,428                | 124.40           |              |              |                      |                  |
| 16.50        | 0.15         | 9,703                | 124.41           |              |              |                      |                  |
| 17.00        | 0.14         | 9,958                | 124.43           |              |              |                      |                  |
| 17.50        | 0.12         | 10,193               | 124.44           |              |              |                      |                  |
| 18.00        | 0.11         | 10,407               | 124.46           |              |              |                      |                  |
| 18.50        | 0.11         | 10,602               | 124.47           |              |              |                      |                  |
| 19.00        | 0.10         | 10,790               | 124.48           |              |              |                      |                  |
| 19.50        | 0.10         | 10,972               | 124.49           |              |              |                      |                  |
| 20.00        | 0.10         | 11,150               | 124.50           |              |              |                      |                  |
| 20.50        | 0.09         | 11,323               | 124.51           |              |              |                      |                  |
| 21.00        | 0.09         | 11,490               | 124.53           |              |              |                      |                  |
| 21.50        | 0.09         | 11,653               | 124.53           |              |              |                      |                  |
| 22.00        | 0.09         | 11,810               | 124.54           |              |              |                      |                  |
| 22.50        | 0.08         | 11,962               | 124.55           |              |              |                      |                  |
| 23.00        | 0.08         | 12,109               | 124.56           |              |              |                      |                  |
| 23.50        | 0.08         | 12,250               | 124.57           |              |              |                      |                  |
| 24.00        | 0.08         | 12,387               | 124.58           |              |              |                      |                  |
| 24.50        | 0.01         | 12,444               | 124.58           |              |              |                      |                  |
| 25.00        | 0.00         | 12,456               | 124.58           |              |              |                      |                  |
| 25.50        | 0.00         | 12,462               | 124.58           |              |              |                      |                  |

Stage-Discharge for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 123.25              | 0.00               | 124.29              | 0.00               | 125.33              | 0.00               |
| 123.27              | 0.00               | 124.31              | 0.00               | 125.35              | 0.00               |
| 123.29              | 0.00               | 124.33              | 0.00               | 125.37              | 0.00               |
| 123.31              | 0.00               | 124.35              | 0.00               | 125.39              | 0.00               |
| 123.33              | 0.00               | 124.37              | 0.00               | 125.41              | 0.00               |
| 123.35              | 0.00               | 124.39              | 0.00               | 125.43              | 0.00               |
| 123.37              | 0.00               | 124.41              | 0.00               | 125.45              | 0.00               |
| 123.39              | 0.00               | 124.43              | 0.00               | 125.47              | 0.00               |
| 123.41              | 0.00               | 124.45              | 0.00               | 125.49              | 0.00               |
| 123.43              | 0.00               | 124.47              | 0.00               | 125.51              | 0.00               |
| 123.45              | 0.00               | 124.49              | 0.00               | 125.53              | 0.00               |
| 123.47              | 0.00               | 124.51              | 0.00               | 125.55              | 0.00               |
| 123.49              | 0.00               | 124.53              | 0.00               | 125.57              | 0.00               |
| 123.51              | 0.00               | 124.55              | 0.00               | 125.59              | 0.00               |
| 123.53              | 0.00               | 124.57              | 0.00               | 125.61              | 0.00               |
| 123.55              | 0.00               | 124.59              | 0.00               | 125.63              | 0.00               |
| 123.57              | 0.00               | 124.61              | 0.00               | 125.65              | 0.00               |
| 123.59              | 0.00               | 124.63              | 0.00               | 125.67              | 0.00               |
| 123.61              | 0.00               | 124.65              | 0.00               | 125.69              | 0.00               |
| 123.63              | 0.00               | 124.67              | 0.00               | 125.71              | 0.00               |
| 123.65              | 0.00               | 124.69              | 0.00               | 125.73              | 0.00               |
| 123.67              | 0.00               | 124.71              | 0.00               | 125.75              | 0.00               |
| 123.69              | 0.00               | 124.73              | 0.00               | 125.77              | 0.00               |
| 123.71              | 0.00               | 124.75              | 0.00               | 125.79              | 0.00               |
| 123.73              | 0.00               | 124.77              | 0.00               | 125.81              | 0.00               |
| 123.75              | 0.00               | 124.79              | 0.00               | 125.83              | 0.00               |
| 123.77              | 0.00               | 124.81              | 0.00               | 125.85              | 0.00               |
| 123.79              | 0.00               | 124.83              | 0.00               | 125.87              | 0.00               |
| 123.81              | 0.00               | 124.85              | 0.00               | 125.89              | 0.00               |
| 123.83              | 0.00               | 124.87              | 0.00               | 125.91              | 0.00               |
| 123.85              | 0.00               | 124.89              | 0.00               | 125.93              | 0.00               |
| 123.87              | 0.00               | 124.91              | 0.00               | 125.95              | 0.00               |
| 123.89              | 0.00               | 124.93              | 0.00               | 125.97              | 0.00               |
| 123.91              | 0.00               | 124.95              | 0.00               | 125.99              | 0.00               |
| 123.93              | 0.00               | 124.97              | 0.00               |                     |                    |
| 123.95              | 0.00               | 124.99              | 0.00               |                     |                    |
| 123.97              | 0.00               | 125.01              | 0.00               |                     |                    |
| 123.99              | 0.00               | 125.03              | 0.00               |                     |                    |
| 124.01              | 0.00               | 125.05              | 0.00               |                     |                    |
| 124.03              | 0.00               | 125.07              | 0.00               |                     |                    |
| 124.05              | 0.00               | 125.09              | 0.00               |                     |                    |
| 124.07              | 0.00               | 125.11              | 0.00               |                     |                    |
| 124.09              | 0.00               | 125.13              | 0.00               |                     |                    |
| 124.11              | 0.00               | 125.15              | 0.00               |                     |                    |
| 124.13              | 0.00               | 125.17              | 0.00               |                     |                    |
| 124.15              | 0.00               | 125.19              | 0.00               |                     |                    |
| 124.17              | 0.00               | 125.21              | 0.00               |                     |                    |
| 124.19              | 0.00               | 125.23              | 0.00               |                     |                    |
| 124.21              | 0.00               | 125.25              | 0.00               |                     |                    |
| 124.23              | 0.00               | 125.27              | 0.00               |                     |                    |
| 124.25              | 0.00               | 125.29              | 0.00               |                     |                    |
| 124.27              | 0.00               | 125.31              | 0.00               |                     |                    |

Stage-Area-Storage for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 123.25              | 1,260              | 0                       | 125.85              | 39,861             | 48,003                  |
| 123.30              | 1,836              | 77                      | 125.90              | 40,871             | 50,022                  |
| 123.35              | 2,413              | 184                     | 125.95              | 41,881             | 52,091                  |
| 123.40              | 2,989              | 319                     | 126.00              | 42,891             | 54,210                  |
| 123.45              | 3,566              | 483                     |                     |                    |                         |
| 123.50              | 4,142              | 675                     |                     |                    |                         |
| 123.55              | 4,804              | 899                     |                     |                    |                         |
| 123.60              | 5,466              | 1,156                   |                     |                    |                         |
| 123.65              | 6,127              | 1,445                   |                     |                    |                         |
| 123.70              | 6,789              | 1,768                   |                     |                    |                         |
| 123.75              | 7,451              | 2,124                   |                     |                    |                         |
| 123.80              | 8,062              | 2,512                   |                     |                    |                         |
| 123.85              | 8,673              | 2,931                   |                     |                    |                         |
| 123.90              | 9,283              | 3,379                   |                     |                    |                         |
| 123.95              | 9,894              | 3,859                   |                     |                    |                         |
| 124.00              | 10,505             | 4,369                   |                     |                    |                         |
| 124.05              | 11,087             | 4,909                   |                     |                    |                         |
| 124.10              | 11,670             | 5,478                   |                     |                    |                         |
| 124.15              | 12,252             | 6,076                   |                     |                    |                         |
| 124.20              | 12,835             | 6,703                   |                     |                    |                         |
| 124.25              | 13,417             | 7,359                   |                     |                    |                         |
| 124.30              | 13,999             | 8,045                   |                     |                    |                         |
| 124.35              | 14,582             | 8,759                   |                     |                    |                         |
| 124.40              | 15,164             | 9,503                   |                     |                    |                         |
| 124.45              | 15,747             | 10,275                  |                     |                    |                         |
| 124.50              | 16,329             | 11,077                  |                     |                    |                         |
| 124.55              | 17,083             | 11,913                  |                     |                    |                         |
| 124.60              | 17,836             | 12,786                  |                     |                    |                         |
| 124.65              | 18,590             | 13,696                  |                     |                    |                         |
| 124.70              | 19,343             | 14,645                  |                     |                    |                         |
| 124.75              | 20,097             | 15,631                  |                     |                    |                         |
| 124.80              | 20,851             | 16,654                  |                     |                    |                         |
| 124.85              | 21,604             | 17,716                  |                     |                    |                         |
| 124.90              | 22,358             | 18,815                  |                     |                    |                         |
| 124.95              | 23,111             | 19,951                  |                     |                    |                         |
| 125.00              | 23,865             | 21,126                  |                     |                    |                         |
| 125.05              | 24,757             | 22,341                  |                     |                    |                         |
| 125.10              | 25,650             | 23,602                  |                     |                    |                         |
| 125.15              | 26,543             | 24,906                  |                     |                    |                         |
| 125.20              | 27,435             | 26,256                  |                     |                    |                         |
| 125.25              | 28,328             | 27,650                  |                     |                    |                         |
| 125.30              | 29,220             | 29,089                  |                     |                    |                         |
| 125.35              | 30,112             | 30,572                  |                     |                    |                         |
| 125.40              | 31,005             | 32,100                  |                     |                    |                         |
| 125.45              | 31,898             | 33,672                  |                     |                    |                         |
| 125.50              | 32,790             | 35,290                  |                     |                    |                         |
| 125.55              | 33,800             | 36,954                  |                     |                    |                         |
| 125.60              | 34,810             | 38,670                  |                     |                    |                         |
| 125.65              | 35,820             | 40,435                  |                     |                    |                         |
| 125.70              | 36,830             | 42,252                  |                     |                    |                         |
| 125.75              | 37,841             | 44,118                  |                     |                    |                         |
| 125.80              | 38,851             | 46,036                  |                     |                    |                         |

Summary for Pond 60P: GI-12

Inflow Area = 102,485 sf, 46.65% Impervious, Inflow Depth = 3.22" for 10-Year-2050 event  
Inflow = 8.69 cfs @ 12.10 hrs, Volume= 27,526 cf  
Outflow = 0.20 cfs @ 16.93 hrs, Volume= 19,840 cf, Atten= 98%, Lag= 289.9 min  
Discarded = 0.18 cfs @ 16.93 hrs, Volume= 19,339 cf  
Primary = 0.02 cfs @ 16.93 hrs, Volume= 502 cf  
Routed to Pond 8P : GI-13

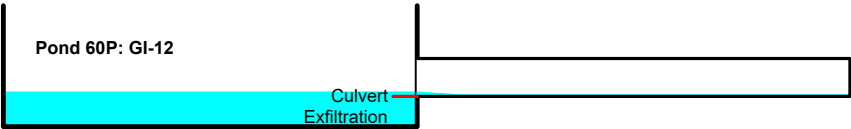
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 127.15' @ 16.93 hrs Surf.Area= 15,158 sf Storage= 16,313 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)  
Center-of-Mass det. time= 443.1 min ( 1,209.0 - 765.9 )

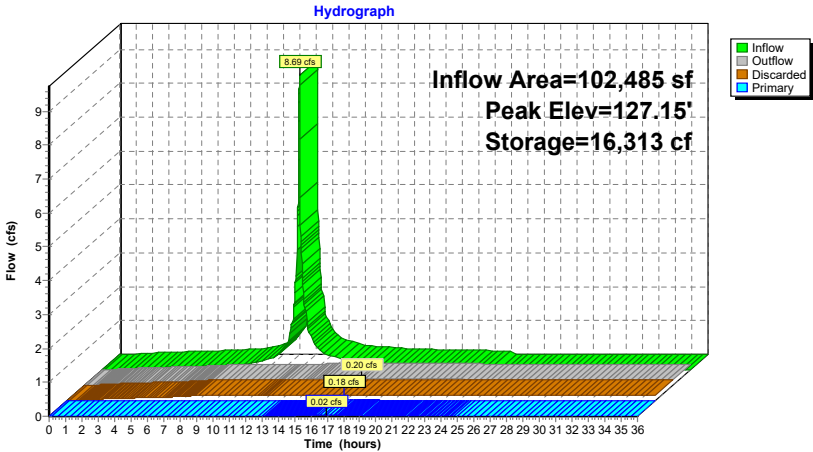
| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 126.00'           | 66,186 cf              | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 126.00           | 13,291            | 0                      | 0                                                   |
| 130.00           | 19,802            | 66,186                 | 66,186                                              |

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                                                    |
|--------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary   | 127.00' | 15.0" Round Culvert<br>L= 83.0' CMP, mitered to conform to fill, Ke= 0.700<br>Inlet / Outlet Invert= 127.00' / 127.00' S= 0.0000 '/ S= 0.0000 ' Cc= 0.900<br>n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf |
| #2     | Discarded | 126.00' | 0.500 in/hr Exfiltration over Surface area<br>Conductivity to Groundwater Elevation = 1.00'                                                                                                                       |

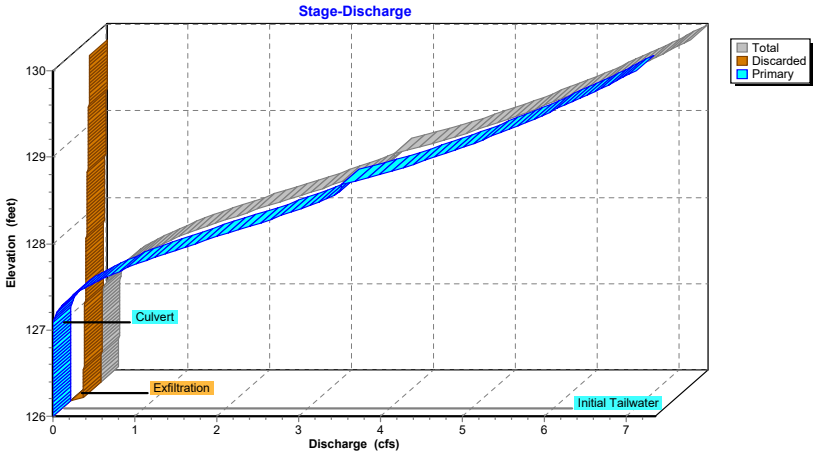
Discarded OutFlow Max=0.18 cfs @ 16.93 hrs HW=127.15' (Free Discharge)  
2=Exfiltration ( Controls 0.18 cfs)  
Primary OutFlow Max=0.02 cfs @ 16.93 hrs HW=127.15' TW=126.01' (Dynamic Tailwater)  
1=Culvert (Barrel Controls 0.02 cfs @ 0.41 fps)

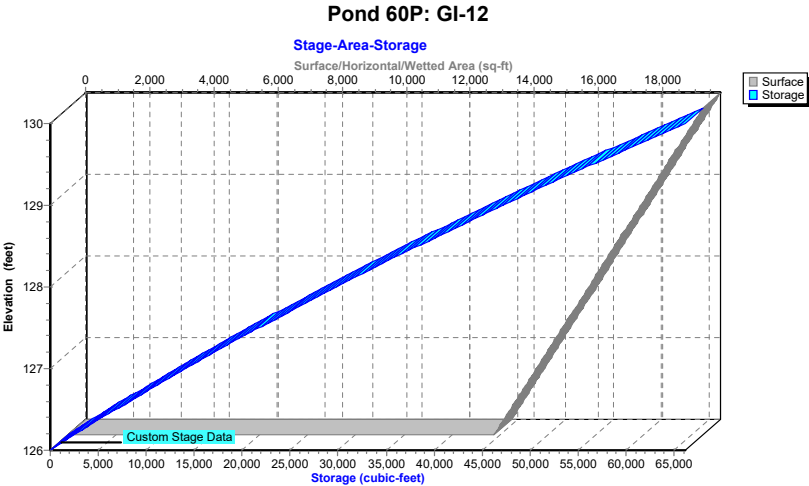


Pond 60P: GI-12



Pond 60P: GI-12





Hydrograph for Pond 60P: GI-12

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Outflow (cfs) | Discarded (cfs) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|-----------------|---------------|
| 0.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 1.00         | 0.02         | 0                    | 126.00           | 0.02          | 0.02            | 0.00          |
| 2.00         | 0.05         | 0                    | 126.00           | 0.05          | 0.05            | 0.00          |
| 3.00         | 0.06         | 0                    | 126.00           | 0.06          | 0.06            | 0.00          |
| 4.00         | 0.08         | 0                    | 126.00           | 0.08          | 0.08            | 0.00          |
| 5.00         | 0.09         | 0                    | 126.00           | 0.09          | 0.09            | 0.00          |
| 6.00         | 0.10         | 0                    | 126.00           | 0.10          | 0.10            | 0.00          |
| 7.00         | 0.13         | 0                    | 126.00           | 0.13          | 0.13            | 0.00          |
| 8.00         | 0.16         | 1                    | 126.00           | 0.15          | 0.15            | 0.00          |
| 9.00         | 0.19         | 66                   | 126.00           | 0.15          | 0.15            | 0.00          |
| 10.00        | 0.29         | 373                  | 126.03           | 0.15          | 0.15            | 0.00          |
| 11.00        | 0.54         | 1,192                | 126.09           | 0.16          | 0.16            | 0.00          |
| 12.00        | 4.86         | 6,060                | 126.44           | 0.16          | 0.16            | 0.00          |
| 13.00        | 0.81         | 14,188               | 127.01           | 0.17          | 0.17            | 0.00          |
| 14.00        | 0.41         | 15,496               | 127.09           | 0.18          | 0.18            | 0.01          |
| 15.00        | 0.28         | 16,057               | 127.13           | 0.19          | 0.18            | 0.02          |
| 16.00        | 0.23         | 16,255               | 127.14           | 0.20          | 0.18            | 0.02          |
| 17.00        | 0.20         | 16,313               | 127.15           | 0.20          | 0.18            | 0.02          |
| 18.00        | 0.16         | 16,240               | 127.14           | 0.20          | 0.18            | 0.02          |
| 19.00        | 0.15         | 16,086               | 127.13           | 0.19          | 0.18            | 0.02          |
| 20.00        | 0.14         | 15,914               | 127.12           | 0.19          | 0.18            | 0.01          |
| 21.00        | 0.13         | 15,722               | 127.11           | 0.19          | 0.18            | 0.01          |
| 22.00        | 0.12         | 15,510               | 127.09           | 0.18          | 0.18            | 0.01          |
| 23.00        | 0.11         | 15,276               | 127.08           | 0.18          | 0.18            | 0.00          |
| 24.00        | 0.13         | 15,023               | 127.06           | 0.18          | 0.18            | 0.00          |
| 25.00        | 0.00         | 14,410               | 127.02           | 0.17          | 0.17            | 0.00          |
| 26.00        | 0.00         | 13,784               | 126.98           | 0.17          | 0.17            | 0.00          |
| 27.00        | 0.00         | 13,161               | 126.94           | 0.17          | 0.17            | 0.00          |
| 28.00        | 0.00         | 12,540               | 126.89           | 0.17          | 0.17            | 0.00          |
| 29.00        | 0.00         | 11,923               | 126.85           | 0.17          | 0.17            | 0.00          |
| 30.00        | 0.00         | 11,309               | 126.81           | 0.17          | 0.17            | 0.00          |
| 31.00        | 0.00         | 10,698               | 126.77           | 0.17          | 0.17            | 0.00          |
| 32.00        | 0.00         | 10,090               | 126.73           | 0.17          | 0.17            | 0.00          |
| 33.00        | 0.00         | 9,485                | 126.68           | 0.17          | 0.17            | 0.00          |
| 34.00        | 0.00         | 8,883                | 126.64           | 0.17          | 0.17            | 0.00          |
| 35.00        | 0.00         | 8,285                | 126.60           | 0.17          | 0.17            | 0.00          |
| 36.00        | 0.00         | 7,689                | 126.56           | 0.17          | 0.17            | 0.00          |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 60P: GI-12**

| Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) |
|---------------------|--------------------|--------------------|------------------|---------------------|--------------------|--------------------|------------------|
| 126.00              | 0.00               | 0.00               | 0.00             | 128.60              | 3.70               | 0.21               | 3.49             |
| 126.05              | 0.15               | 0.15               | 0.00             | 128.65              | 3.73               | 0.21               | 3.52             |
| 126.10              | 0.16               | 0.16               | 0.00             | 128.70              | 3.82               | 0.21               | 3.61             |
| 126.15              | 0.16               | 0.16               | 0.00             | 128.75              | 4.01               | 0.21               | 3.81             |
| 126.20              | 0.16               | 0.16               | 0.00             | 128.80              | 4.20               | 0.21               | 3.99             |
| 126.25              | 0.16               | 0.16               | 0.00             | 128.85              | 4.38               | 0.21               | 4.17             |
| 126.30              | 0.16               | 0.16               | 0.00             | 128.90              | 4.55               | 0.21               | 4.34             |
| 126.35              | 0.16               | 0.16               | 0.00             | 128.95              | 4.72               | 0.21               | 4.50             |
| 126.40              | 0.16               | 0.16               | 0.00             | 129.00              | 4.88               | 0.21               | 4.66             |
| 126.45              | 0.16               | 0.16               | 0.00             | 129.05              | 5.03               | 0.22               | 4.81             |
| 126.50              | 0.16               | 0.16               | 0.00             | 129.10              | 5.18               | 0.22               | 4.96             |
| 126.55              | 0.16               | 0.16               | 0.00             | 129.15              | 5.32               | 0.22               | 5.11             |
| 126.60              | 0.17               | 0.17               | 0.00             | 129.20              | 5.46               | 0.22               | 5.24             |
| 126.65              | 0.17               | 0.17               | 0.00             | 129.25              | 5.60               | 0.22               | 5.38             |
| 126.70              | 0.17               | 0.17               | 0.00             | 129.30              | 5.74               | 0.22               | 5.51             |
| 126.75              | 0.17               | 0.17               | 0.00             | 129.35              | 5.87               | 0.22               | 5.64             |
| 126.80              | 0.17               | 0.17               | 0.00             | 129.40              | 5.99               | 0.22               | 5.77             |
| 126.85              | 0.17               | 0.17               | 0.00             | 129.45              | 6.12               | 0.22               | 5.89             |
| 126.90              | 0.17               | 0.17               | 0.00             | 129.50              | 6.24               | 0.22               | 6.02             |
| 126.95              | 0.17               | 0.17               | 0.00             | 129.55              | 6.36               | 0.23               | 6.14             |
| 127.00              | 0.17               | 0.17               | 0.00             | 129.60              | 6.48               | 0.23               | 6.25             |
| 127.05              | 0.18               | 0.17               | 0.00             | 129.65              | 6.60               | 0.23               | 6.37             |
| 127.10              | 0.18               | 0.18               | 0.01             | 129.70              | 6.71               | 0.23               | 6.48             |
| 127.15              | 0.20               | 0.18               | 0.02             | 129.75              | 6.82               | 0.23               | 6.59             |
| 127.20              | 0.23               | 0.18               | 0.05             | 129.80              | 6.93               | 0.23               | 6.70             |
| 127.25              | 0.26               | 0.18               | 0.08             | 129.85              | 7.04               | 0.23               | 6.81             |
| 127.30              | 0.31               | 0.18               | 0.13             | 129.90              | 7.15               | 0.23               | 6.91             |
| 127.35              | 0.37               | 0.18               | 0.18             | 129.95              | 7.25               | 0.23               | 7.02             |
| 127.40              | 0.43               | 0.18               | 0.25             | 130.00              | <b>7.35</b>        | <b>0.24</b>        | <b>7.12</b>      |
| 127.45              | 0.51               | 0.18               | 0.33             |                     |                    |                    |                  |
| 127.50              | 0.60               | 0.18               | 0.42             |                     |                    |                    |                  |
| 127.55              | 0.70               | 0.19               | 0.51             |                     |                    |                    |                  |
| 127.60              | 0.81               | 0.19               | 0.62             |                     |                    |                    |                  |
| 127.65              | 0.92               | 0.19               | 0.74             |                     |                    |                    |                  |
| 127.70              | 1.05               | 0.19               | 0.86             |                     |                    |                    |                  |
| 127.75              | 1.18               | 0.19               | 0.99             |                     |                    |                    |                  |
| 127.80              | 1.32               | 0.19               | 1.13             |                     |                    |                    |                  |
| 127.85              | 1.47               | 0.19               | 1.28             |                     |                    |                    |                  |
| 127.90              | 1.62               | 0.19               | 1.43             |                     |                    |                    |                  |
| 127.95              | 1.78               | 0.19               | 1.58             |                     |                    |                    |                  |
| 128.00              | 1.94               | 0.19               | 1.74             |                     |                    |                    |                  |
| 128.05              | 2.10               | 0.20               | 1.90             |                     |                    |                    |                  |
| 128.10              | 2.27               | 0.20               | 2.07             |                     |                    |                    |                  |
| 128.15              | 2.43               | 0.20               | 2.23             |                     |                    |                    |                  |
| 128.20              | 2.60               | 0.20               | 2.40             |                     |                    |                    |                  |
| 128.25              | 2.76               | 0.20               | 2.56             |                     |                    |                    |                  |
| 128.30              | 2.93               | 0.20               | 2.72             |                     |                    |                    |                  |
| 128.35              | 3.08               | 0.20               | 2.88             |                     |                    |                    |                  |
| 128.40              | 3.23               | 0.20               | 3.03             |                     |                    |                    |                  |
| 128.45              | 3.37               | 0.20               | 3.17             |                     |                    |                    |                  |
| 128.50              | 3.50               | 0.20               | 3.30             |                     |                    |                    |                  |
| 128.55              | 3.61               | 0.21               | 3.41             |                     |                    |                    |                  |

**2101ELK-STM Analysis POI-2**

NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 60P: GI-12**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 126.00              | 13,291             | 0                       | 128.60              | 17,523             | 40,058                  |
| 126.05              | 13,372             | 667                     | 128.65              | 17,605             | 40,937                  |
| 126.10              | 13,454             | 1,337                   | 128.70              | 17,686             | 41,819                  |
| 126.15              | 13,535             | 2,012                   | 128.75              | 17,767             | 42,705                  |
| 126.20              | 13,617             | 2,691                   | 128.80              | 17,849             | 43,596                  |
| 126.25              | 13,698             | 3,374                   | 128.85              | 17,930             | 44,490                  |
| 126.30              | 13,779             | 4,061                   | 128.90              | 18,011             | 45,389                  |
| 126.35              | 13,861             | 4,752                   | 128.95              | 18,093             | 46,291                  |
| 126.40              | 13,942             | 5,447                   | 129.00              | 18,174             | 47,198                  |
| 126.45              | 14,023             | 6,146                   | 129.05              | 18,256             | 48,109                  |
| 126.50              | 14,105             | 6,849                   | 129.10              | 18,337             | 49,023                  |
| 126.55              | 14,186             | 7,556                   | 129.15              | 18,418             | 49,942                  |
| 126.60              | 14,268             | 8,268                   | 129.20              | 18,500             | 50,865                  |
| 126.65              | 14,349             | 8,983                   | 129.25              | 18,581             | 51,792                  |
| 126.70              | 14,430             | 9,702                   | 129.30              | 18,663             | 52,723                  |
| 126.75              | 14,512             | 10,426                  | 129.35              | 18,744             | 53,659                  |
| 126.80              | 14,593             | 11,154                  | 129.40              | 18,825             | 54,598                  |
| 126.85              | 14,675             | 11,885                  | 129.45              | 18,907             | 55,541                  |
| 126.90              | 14,756             | 12,621                  | 129.50              | 18,988             | 56,488                  |
| 126.95              | 14,837             | 13,361                  | 129.55              | 19,070             | 57,440                  |
| 127.00              | 14,919             | 14,105                  | 129.60              | 19,151             | 58,395                  |
| 127.05              | 15,000             | 14,853                  | 129.65              | 19,232             | 59,355                  |
| 127.10              | 15,082             | 15,605                  | 129.70              | 19,314             | 60,319                  |
| 127.15              | 15,163             | 16,361                  | 129.75              | 19,395             | 61,286                  |
| 127.20              | 15,244             | 17,121                  | 129.80              | 19,476             | 62,258                  |
| 127.25              | 15,326             | 17,885                  | 129.85              | 19,558             | 63,234                  |
| 127.30              | 15,407             | 18,654                  | 129.90              | 19,639             | 64,214                  |
| 127.35              | 15,488             | 19,426                  | 129.95              | 19,721             | 65,198                  |
| 127.40              | 15,570             | 20,203                  | 130.00              | <b>19,802</b>      | <b>66,186</b>           |
| 127.45              | 15,651             | 20,983                  |                     |                    |                         |
| 127.50              | 15,733             | 21,768                  |                     |                    |                         |
| 127.55              | 15,814             | 22,556                  |                     |                    |                         |
| 127.60              | 15,895             | 23,349                  |                     |                    |                         |
| 127.65              | 15,977             | 24,146                  |                     |                    |                         |
| 127.70              | 16,058             | 24,947                  |                     |                    |                         |
| 127.75              | 16,140             | 25,752                  |                     |                    |                         |
| 127.80              | 16,221             | 26,561                  |                     |                    |                         |
| 127.85              | 16,302             | 27,374                  |                     |                    |                         |
| 127.90              | 16,384             | 28,191                  |                     |                    |                         |
| 127.95              | 16,465             | 29,012                  |                     |                    |                         |
| 128.00              | 16,547             | 29,838                  |                     |                    |                         |
| 128.05              | 16,628             | 30,667                  |                     |                    |                         |
| 128.10              | 16,709             | 31,500                  |                     |                    |                         |
| 128.15              | 16,791             | 32,338                  |                     |                    |                         |
| 128.20              | 16,872             | 33,179                  |                     |                    |                         |
| 128.25              | 16,953             | 34,025                  |                     |                    |                         |
| 128.30              | 17,035             | 34,875                  |                     |                    |                         |
| 128.35              | 17,116             | 35,728                  |                     |                    |                         |
| 128.40              | 17,198             | 36,586                  |                     |                    |                         |
| 128.45              | 17,279             | 37,448                  |                     |                    |                         |
| 128.50              | 17,360             | 38,314                  |                     |                    |                         |
| 128.55              | 17,442             | 39,184                  |                     |                    |                         |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

|                                                                                                                                                      |                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Subcatchment44S: GI-10 Pervious                                                                                                                      | Runoff Area=13,028 sf 0.00% Impervious Runoff Depth=3.25"<br>Flow Length=91' Tc=10.5 min CN=39 Runoff=1.00 cfs 3,525 cf                              |
| Subcatchment45S: GI-10 Impervious                                                                                                                    | Runoff Area=19,702 sf 100.00% Impervious Runoff Depth=11.82"<br>Flow Length=660' Tc=4.5 min CN=98 Runoff=6.15 cfs 19,404 cf                          |
| Subcatchment62S: GI-12 Impervious                                                                                                                    | Runoff Area=47,814 sf 100.00% Impervious Runoff Depth=11.82"<br>Flow Length=147' Tc=1.6 min CN=98 Runoff=15.56 cfs 47,091 cf                         |
| Subcatchment63S: GI-13 Pervious                                                                                                                      | Runoff Area=17,103 sf 0.00% Impervious Runoff Depth=3.74"<br>Flow Length=90' Slope=0.0100 '/' Tc=9.6 min CN=42 Runoff=1.62 cfs 5,332 cf              |
| Subcatchment64S: Wetland Pervious                                                                                                                    | Runoff Area=75,754 sf 0.00% Impervious Runoff Depth=2.26"<br>Flow Length=161' Tc=10.2 min CN=33 Runoff=3.62 cfs 14,273 cf                            |
| Subcatchment67S: Wetland Impervious                                                                                                                  | Runoff Area=11,867 sf 100.00% Impervious Runoff Depth=11.82"<br>Flow Length=151' Tc=0.9 min CN=98 Runoff=3.86 cfs 11,688 cf                          |
| Subcatchment68S: GI-12 Pervious                                                                                                                      | Runoff Area=54,671 sf 0.00% Impervious Runoff Depth=4.07"<br>Flow Length=93' Tc=5.6 min CN=44 Runoff=6.76 cfs 18,543 cf                              |
| Pond 8P: GI-13                                                                                                                                       | Peak Elev=128.16' Storage=10,753 cf Inflow=2.94 cfs 26,103 cf<br>Discarded=0.07 cfs 5,890 cf Primary=0.79 cfs 13,046 cf Outflow=0.86 cfs 18,936 cf   |
| Pond 46P: GI-10                                                                                                                                      | Peak Elev=125.96' Storage=9,562 cf Inflow=6.88 cfs 22,929 cf<br>Outflow=6.12 cfs 13,368 cf                                                           |
| Pond 59P: Proposed Drainage Area                                                                                                                     | Peak Elev=125.96' Storage=52,375 cf Inflow=11.03 cfs 52,375 cf<br>Outflow=0.00 cfs 0 cf                                                              |
| Pond 60P: GI-12                                                                                                                                      | Peak Elev=128.19' Storage=32,961 cf Inflow=21.60 cfs 65,634 cf<br>Discarded=0.20 cfs 22,733 cf Primary=2.26 cfs 20,771 cf Outflow=2.45 cfs 43,504 cf |
| Total Runoff Area = 239,939 sf Runoff Volume = 119,856 cf Average Runoff Depth = 5.99"<br>66.92% Pervious = 160,556 sf 33.08% Impervious = 79,383 sf |                                                                                                                                                      |

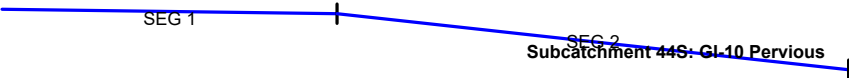
Summary for Subcatchment 44S: GI-10 Pervious

Runoff = 1.00 cfs @ 12.19 hrs, Volume= 3,525 cf, Depth= 3.25"  
Routed to Pond 46P : GI-10

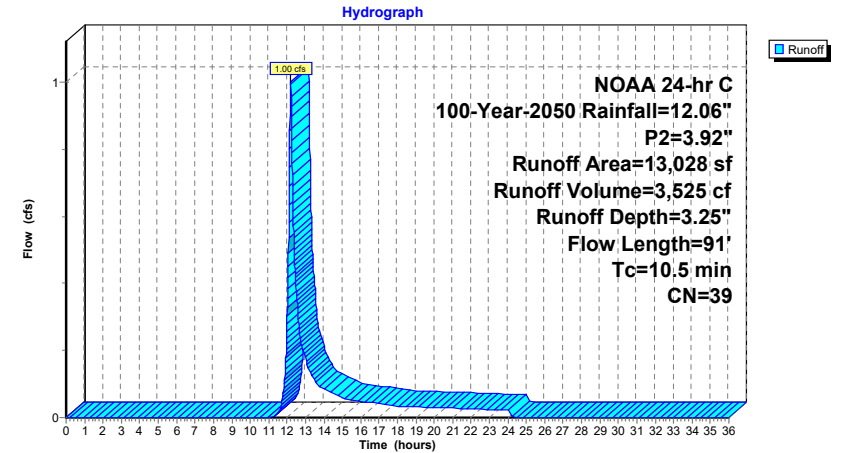
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 13,028    | 39 | >75% Grass cover, Good, HSG A |
| 13,028    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                          |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------|
| 6.6      | 36            | 0.0140        | 0.09              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92" |
| 3.9      | 55            | 0.1180        | 0.23              |                | Sheet Flow, SEG 2<br>Grass: Dense n= 0.240 P2= 3.92" |
| 10.5     | 91            | Total         |                   |                |                                                      |



Subcatchment 44S: GI-10 Pervious





Hydrograph for Subcatchment 44S: GI-10 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 3.25               | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.00            | 26.50           | 12.06               | 3.25               | 0.00            |
| 1.00            | 0.13                | 0.00               | 0.00            | 27.00           | 12.06               | 3.25               | 0.00            |
| 1.50            | 0.20                | 0.00               | 0.00            | 27.50           | 12.06               | 3.25               | 0.00            |
| 2.00            | 0.27                | 0.00               | 0.00            | 28.00           | 12.06               | 3.25               | 0.00            |
| 2.50            | 0.35                | 0.00               | 0.00            | 28.50           | 12.06               | 3.25               | 0.00            |
| 3.00            | 0.43                | 0.00               | 0.00            | 29.00           | 12.06               | 3.25               | 0.00            |
| 3.50            | 0.51                | 0.00               | 0.00            | 29.50           | 12.06               | 3.25               | 0.00            |
| 4.00            | 0.59                | 0.00               | 0.00            | 30.00           | 12.06               | 3.25               | 0.00            |
| 4.50            | 0.68                | 0.00               | 0.00            | 30.50           | 12.06               | 3.25               | 0.00            |
| 5.00            | 0.77                | 0.00               | 0.00            | 31.00           | 12.06               | 3.25               | 0.00            |
| 5.50            | 0.86                | 0.00               | 0.00            | 31.50           | 12.06               | 3.25               | 0.00            |
| 6.00            | 0.96                | 0.00               | 0.00            | 32.00           | 12.06               | 3.25               | 0.00            |
| 6.50            | 1.06                | 0.00               | 0.00            | 32.50           | 12.06               | 3.25               | 0.00            |
| 7.00            | 1.18                | 0.00               | 0.00            | 33.00           | 12.06               | 3.25               | 0.00            |
| 7.50            | 1.30                | 0.00               | 0.00            | 33.50           | 12.06               | 3.25               | 0.00            |
| 8.00            | 1.44                | 0.00               | 0.00            | 34.00           | 12.06               | 3.25               | 0.00            |
| 8.50            | 1.60                | 0.00               | 0.00            | 34.50           | 12.06               | 3.25               | 0.00            |
| 9.00            | 1.76                | 0.00               | 0.00            | 35.00           | 12.06               | 3.25               | 0.00            |
| 9.50            | 1.96                | 0.00               | 0.00            | 35.50           | 12.06               | 3.25               | 0.00            |
| 10.00           | 2.20                | 0.00               | 0.00            | 36.00           | 12.06               | 3.25               | 0.00            |
| 10.50           | 2.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.89                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 3.56                | 0.01               | 0.01            |                 |                     |                    |                 |
| 12.00           | 5.75                | 0.38               | 0.28            |                 |                     |                    |                 |
| 12.50           | 8.50                | 1.37               | 0.37            |                 |                     |                    |                 |
| 13.00           | 9.17                | 1.68               | 0.17            |                 |                     |                    |                 |
| 13.50           | 9.57                | 1.88               | 0.11            |                 |                     |                    |                 |
| 14.00           | 9.86                | 2.03               | 0.09            |                 |                     |                    |                 |
| 14.50           | 10.10               | 2.15               | 0.07            |                 |                     |                    |                 |
| 15.00           | 10.30               | 2.25               | 0.06            |                 |                     |                    |                 |
| 15.50           | 10.46               | 2.34               | 0.05            |                 |                     |                    |                 |
| 16.00           | 10.62               | 2.42               | 0.05            |                 |                     |                    |                 |
| 16.50           | 10.76               | 2.50               | 0.05            |                 |                     |                    |                 |
| 17.00           | 10.88               | 2.57               | 0.04            |                 |                     |                    |                 |
| 17.50           | 11.00               | 2.64               | 0.04            |                 |                     |                    |                 |
| 18.00           | 11.10               | 2.69               | 0.03            |                 |                     |                    |                 |
| 18.50           | 11.20               | 2.75               | 0.03            |                 |                     |                    |                 |
| 19.00           | 11.29               | 2.80               | 0.03            |                 |                     |                    |                 |
| 19.50           | 11.38               | 2.85               | 0.03            |                 |                     |                    |                 |
| 20.00           | 11.47               | 2.90               | 0.03            |                 |                     |                    |                 |
| 20.50           | 11.55               | 2.95               | 0.03            |                 |                     |                    |                 |
| 21.00           | 11.63               | 3.00               | 0.03            |                 |                     |                    |                 |
| 21.50           | 11.71               | 3.04               | 0.03            |                 |                     |                    |                 |
| 22.00           | 11.79               | 3.09               | 0.03            |                 |                     |                    |                 |
| 22.50           | 11.86               | 3.13               | 0.03            |                 |                     |                    |                 |
| 23.00           | 11.93               | 3.17               | 0.02            |                 |                     |                    |                 |
| 23.50           | 11.99               | 3.21               | 0.02            |                 |                     |                    |                 |
| 24.00           | 12.06               | 3.25               | 0.02            |                 |                     |                    |                 |
| 24.50           | 12.06               | 3.25               | 0.00            |                 |                     |                    |                 |
| 25.00           | 12.06               | 3.25               | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 3.25               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 45S: GI-10 Impervious

Runoff = 6.15 cfs @ 12.12 hrs, Volume= 19,404 cf, Depth=11.82"  
Routed to Pond 46P : GI-10

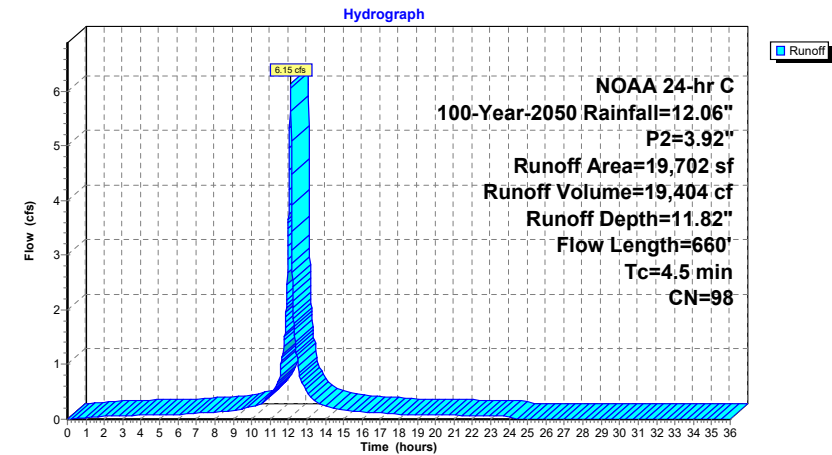
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 19,702    | 98 | Paved parking, HSG A    |
| 19,702    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------|
| 1.3      | 100           | 0.0140        | 1.32              |                | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.92"             |
| 2.0      | 295           | 0.0140        | 2.40              |                | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps              |
| 1.0      | 247           | 0.0200        | 4.22              | 0.84           | <b>Channel Flow, SEG 3</b><br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2      | 18            | 0.0560        | 1.66              |                | <b>Shallow Concentrated Flow, SEG 4</b><br>Short Grass Pasture Kv= 7.0 fps |
| 4.5      | 660           | Total         |                   |                |                                                                            |



Subcatchment 45S: GI-10 Impervious



Hydrograph for Subcatchment 45S: GI-10 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 11.82              | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.01            | 26.50           | 12.06               | 11.82              | 0.00            |
| 1.00            | 0.13                | 0.03               | 0.03            | 27.00           | 12.06               | 11.82              | 0.00            |
| 1.50            | 0.20                | 0.07               | 0.04            | 27.50           | 12.06               | 11.82              | 0.00            |
| 2.00            | 0.27                | 0.12               | 0.05            | 28.00           | 12.06               | 11.82              | 0.00            |
| 2.50            | 0.35                | 0.18               | 0.06            | 28.50           | 12.06               | 11.82              | 0.00            |
| 3.00            | 0.43                | 0.25               | 0.06            | 29.00           | 12.06               | 11.82              | 0.00            |
| 3.50            | 0.51                | 0.32               | 0.07            | 29.50           | 12.06               | 11.82              | 0.00            |
| 4.00            | 0.59                | 0.40               | 0.07            | 30.00           | 12.06               | 11.82              | 0.00            |
| 4.50            | 0.68                | 0.48               | 0.08            | 30.50           | 12.06               | 11.82              | 0.00            |
| 5.00            | 0.77                | 0.57               | 0.08            | 31.00           | 12.06               | 11.82              | 0.00            |
| 5.50            | 0.86                | 0.66               | 0.08            | 31.50           | 12.06               | 11.82              | 0.00            |
| 6.00            | 0.96                | 0.75               | 0.09            | 32.00           | 12.06               | 11.82              | 0.00            |
| 6.50            | 1.06                | 0.85               | 0.10            | 32.50           | 12.06               | 11.82              | 0.00            |
| 7.00            | 1.18                | 0.96               | 0.11            | 33.00           | 12.06               | 11.82              | 0.00            |
| 7.50            | 1.30                | 1.09               | 0.12            | 33.50           | 12.06               | 11.82              | 0.00            |
| 8.00            | 1.44                | 1.23               | 0.13            | 34.00           | 12.06               | 11.82              | 0.00            |
| 8.50            | 1.60                | 1.38               | 0.14            | 34.50           | 12.06               | 11.82              | 0.00            |
| 9.00            | 1.76                | 1.54               | 0.15            | 35.00           | 12.06               | 11.82              | 0.00            |
| 9.50            | 1.96                | 1.73               | 0.19            | 35.50           | 12.06               | 11.82              | 0.00            |
| 10.00           | 2.20                | 1.97               | 0.23            | 36.00           | 12.06               | 11.82              | 0.00            |
| 10.50           | 2.49                | 2.26               | 0.28            |                 |                     |                    |                 |
| 11.00           | 2.89                | 2.66               | 0.43            |                 |                     |                    |                 |
| 11.50           | 3.56                | 3.33               | 0.71            |                 |                     |                    |                 |
| 12.00           | 5.75                | 5.51               | 3.59            |                 |                     |                    |                 |
| 12.50           | 8.50                | 8.26               | 1.12            |                 |                     |                    |                 |
| 13.00           | 9.17                | 8.93               | 0.50            |                 |                     |                    |                 |
| 13.50           | 9.57                | 9.33               | 0.31            |                 |                     |                    |                 |
| 14.00           | 9.86                | 9.62               | 0.25            |                 |                     |                    |                 |
| 14.50           | 10.10               | 9.86               | 0.21            |                 |                     |                    |                 |
| 15.00           | 10.30               | 10.06              | 0.16            |                 |                     |                    |                 |
| 15.50           | 10.46               | 10.22              | 0.15            |                 |                     |                    |                 |
| 16.00           | 10.62               | 10.37              | 0.13            |                 |                     |                    |                 |
| 16.50           | 10.76               | 10.51              | 0.12            |                 |                     |                    |                 |
| 17.00           | 10.88               | 10.64              | 0.11            |                 |                     |                    |                 |
| 17.50           | 11.00               | 10.76              | 0.10            |                 |                     |                    |                 |
| 18.00           | 11.10               | 10.86              | 0.09            |                 |                     |                    |                 |
| 18.50           | 11.20               | 10.96              | 0.09            |                 |                     |                    |                 |
| 19.00           | 11.29               | 11.05              | 0.08            |                 |                     |                    |                 |
| 19.50           | 11.38               | 11.14              | 0.08            |                 |                     |                    |                 |
| 20.00           | 11.47               | 11.23              | 0.08            |                 |                     |                    |                 |
| 20.50           | 11.55               | 11.31              | 0.08            |                 |                     |                    |                 |
| 21.00           | 11.63               | 11.39              | 0.07            |                 |                     |                    |                 |
| 21.50           | 11.71               | 11.47              | 0.07            |                 |                     |                    |                 |
| 22.00           | 11.79               | 11.55              | 0.07            |                 |                     |                    |                 |
| 22.50           | 11.86               | 11.62              | 0.06            |                 |                     |                    |                 |
| 23.00           | 11.93               | 11.69              | 0.06            |                 |                     |                    |                 |
| 23.50           | 11.99               | 11.75              | 0.06            |                 |                     |                    |                 |
| 24.00           | 12.06               | 11.82              | 0.07            |                 |                     |                    |                 |
| 24.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.00           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 62S: GI-12 Impervious

Runoff = 15.56 cfs @ 12.09 hrs, Volume= 47,091 cf, Depth=11.82"  
Routed to Pond 60P : GI-12

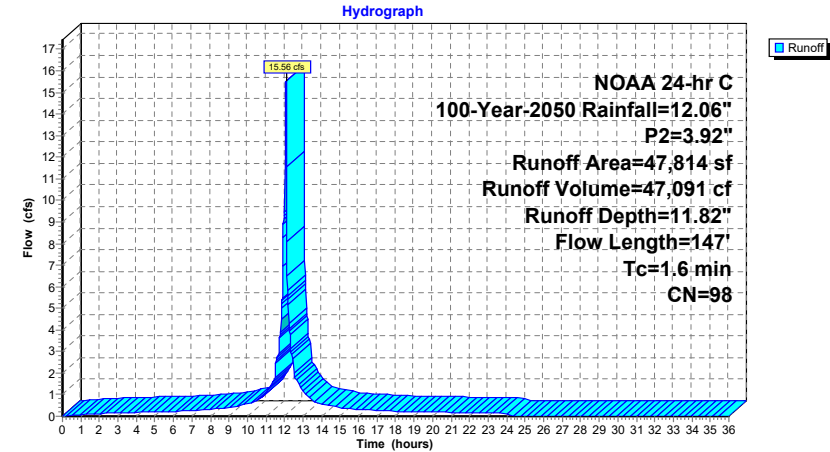
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 47,814    | 98 | Paved parking, HSG A    |
| 47,814    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 1.1      | 85            | 0.0160        | 1.35              |                | Sheet Flow, SEG 1R<br>Smooth surfaces n= 0.011 P2= 3.92"            |
| 0.2      | 30            | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2      | 21            | 0.0100        | 2.03              |                | Shallow Concentrated Flow, SEG 3<br>Paved Kv= 20.3 fps              |
| 0.1      | 11            | 0.1360        | 2.58              |                | Shallow Concentrated Flow, SEG 4<br>Short Grass Pasture Kv= 7.0 fps |
| 1.6      | 147           | Total         |                   |                |                                                                     |



Subcatchment 62S: GI-12 Impervious

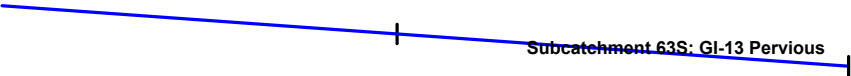


Hydrograph for Subcatchment 62S: GI-12 Impervious

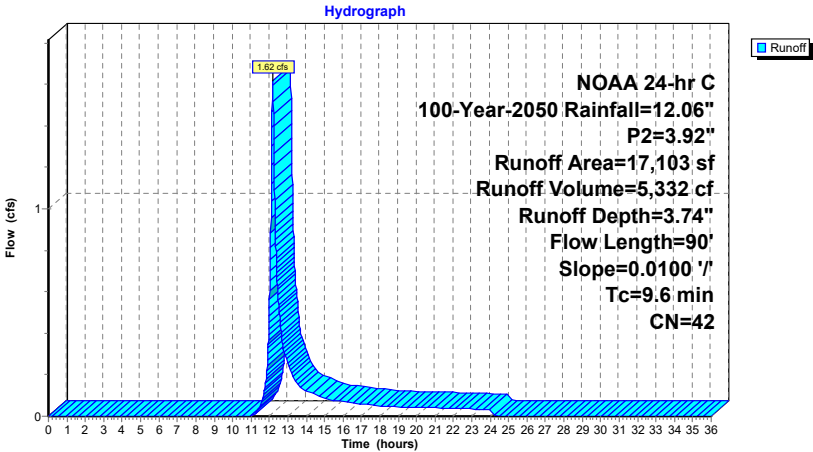
| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 11.82              | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.03            | 26.50           | 12.06               | 11.82              | 0.00            |
| 1.00            | 0.13                | 0.03               | 0.08            | 27.00           | 12.06               | 11.82              | 0.00            |
| 1.50            | 0.20                | 0.07               | 0.11            | 27.50           | 12.06               | 11.82              | 0.00            |
| 2.00            | 0.27                | 0.12               | 0.13            | 28.00           | 12.06               | 11.82              | 0.00            |
| 2.50            | 0.35                | 0.18               | 0.14            | 28.50           | 12.06               | 11.82              | 0.00            |
| 3.00            | 0.43                | 0.25               | 0.15            | 29.00           | 12.06               | 11.82              | 0.00            |
| 3.50            | 0.51                | 0.32               | 0.17            | 29.50           | 12.06               | 11.82              | 0.00            |
| 4.00            | 0.59                | 0.40               | 0.17            | 30.00           | 12.06               | 11.82              | 0.00            |
| 4.50            | 0.68                | 0.48               | 0.18            | 30.50           | 12.06               | 11.82              | 0.00            |
| 5.00            | 0.77                | 0.57               | 0.19            | 31.00           | 12.06               | 11.82              | 0.00            |
| 5.50            | 0.86                | 0.66               | 0.20            | 31.50           | 12.06               | 11.82              | 0.00            |
| 6.00            | 0.96                | 0.75               | 0.21            | 32.00           | 12.06               | 11.82              | 0.00            |
| 6.50            | 1.06                | 0.85               | 0.23            | 32.50           | 12.06               | 11.82              | 0.00            |
| 7.00            | 1.18                | 0.96               | 0.26            | 33.00           | 12.06               | 11.82              | 0.00            |
| 7.50            | 1.30                | 1.09               | 0.29            | 33.50           | 12.06               | 11.82              | 0.00            |
| 8.00            | 1.44                | 1.23               | 0.32            | 34.00           | 12.06               | 11.82              | 0.00            |
| 8.50            | 1.60                | 1.38               | 0.34            | 34.50           | 12.06               | 11.82              | 0.00            |
| 9.00            | 1.76                | 1.54               | 0.37            | 35.00           | 12.06               | 11.82              | 0.00            |
| 9.50            | 1.96                | 1.73               | 0.47            | 35.50           | 12.06               | 11.82              | 0.00            |
| 10.00           | 2.20                | 1.97               | 0.57            | 36.00           | 12.06               | 11.82              | 0.00            |
| 10.50           | 2.49                | 2.26               | 0.67            |                 |                     |                    |                 |
| 11.00           | 2.89                | 2.66               | 1.05            |                 |                     |                    |                 |
| 11.50           | 3.56                | 3.33               | 1.74            |                 |                     |                    |                 |
| 12.00           | 5.75                | 5.51               | 9.32            |                 |                     |                    |                 |
| 12.50           | 8.50                | 8.26               | 2.70            |                 |                     |                    |                 |
| 13.00           | 9.17                | 8.93               | 1.20            |                 |                     |                    |                 |
| 13.50           | 9.57                | 9.33               | 0.75            |                 |                     |                    |                 |
| 14.00           | 9.86                | 9.62               | 0.59            |                 |                     |                    |                 |
| 14.50           | 10.10               | 9.86               | 0.49            |                 |                     |                    |                 |
| 15.00           | 10.30               | 10.06              | 0.39            |                 |                     |                    |                 |
| 15.50           | 10.46               | 10.22              | 0.35            |                 |                     |                    |                 |
| 16.00           | 10.62               | 10.37              | 0.33            |                 |                     |                    |                 |
| 16.50           | 10.76               | 10.51              | 0.30            |                 |                     |                    |                 |
| 17.00           | 10.88               | 10.64              | 0.27            |                 |                     |                    |                 |
| 17.50           | 11.00               | 10.76              | 0.25            |                 |                     |                    |                 |
| 18.00           | 11.10               | 10.86              | 0.22            |                 |                     |                    |                 |
| 18.50           | 11.20               | 10.96              | 0.21            |                 |                     |                    |                 |
| 19.00           | 11.29               | 11.05              | 0.20            |                 |                     |                    |                 |
| 19.50           | 11.38               | 11.14              | 0.20            |                 |                     |                    |                 |
| 20.00           | 11.47               | 11.23              | 0.19            |                 |                     |                    |                 |
| 20.50           | 11.55               | 11.31              | 0.18            |                 |                     |                    |                 |
| 21.00           | 11.63               | 11.39              | 0.18            |                 |                     |                    |                 |
| 21.50           | 11.71               | 11.47              | 0.17            |                 |                     |                    |                 |
| 22.00           | 11.79               | 11.55              | 0.16            |                 |                     |                    |                 |
| 22.50           | 11.86               | 11.62              | 0.16            |                 |                     |                    |                 |
| 23.00           | 11.93               | 11.69              | 0.15            |                 |                     |                    |                 |
| 23.50           | 11.99               | 11.75              | 0.14            |                 |                     |                    |                 |
| 24.00           | 12.06               | 11.82              | 0.17            |                 |                     |                    |                 |
| 24.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.00           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 63S: GI-13 Pervious

| Runoff = 1.62 cfs @ 12.18 hrs, Volume= 5,332 cf, Depth= 3.74"                            |               |                               |                   |                |                                                               |
|------------------------------------------------------------------------------------------|---------------|-------------------------------|-------------------|----------------|---------------------------------------------------------------|
| Routed to Pond 8P : GI-13                                                                |               |                               |                   |                |                                                               |
| Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs |               |                               |                   |                |                                                               |
| NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"                                     |               |                               |                   |                |                                                               |
| Area (sf)                                                                                | CN            | Description                   |                   |                |                                                               |
| 14,703                                                                                   | 39            | >75% Grass cover, Good, HSG A |                   |                |                                                               |
| 2,400                                                                                    | 61            | >75% Grass cover, Good, HSG B |                   |                |                                                               |
| 17,103                                                                                   | 42            | Weighted Average              |                   |                |                                                               |
| 17,103                                                                                   |               | 100.00% Pervious Area         |                   |                |                                                               |
| Tc (min)                                                                                 | Length (feet) | Slope (ft/ft)                 | Velocity (ft/sec) | Capacity (cfs) | Description                                                   |
| 8.5                                                                                      | 42            | 0.0100                        | 0.08              |                | Sheet Flow,<br>Grass: Dense n= 0.240 P2= 3.92"                |
|                                                                                          |               |                               |                   |                | Using McCuen-Spiess flow length                               |
| 1.1                                                                                      | 48            | 0.0100                        | 0.70              |                | Shallow Concentrated Flow,<br>Short Grass Pasture Kv= 7.0 fps |
| 9.6                                                                                      | 90            | Total                         |                   |                |                                                               |



Subcatchment 63S: GI-13 Pervious



Hydrograph for Subcatchment 63S: GI-13 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 12.06            | 3.74            | 0.00         |
| 0.50         | 0.07             | 0.00            | 0.00         | 26.50        | 12.06            | 3.74            | 0.00         |
| 1.00         | 0.13             | 0.00            | 0.00         | 27.00        | 12.06            | 3.74            | 0.00         |
| 1.50         | 0.20             | 0.00            | 0.00         | 27.50        | 12.06            | 3.74            | 0.00         |
| 2.00         | 0.27             | 0.00            | 0.00         | 28.00        | 12.06            | 3.74            | 0.00         |
| 2.50         | 0.35             | 0.00            | 0.00         | 28.50        | 12.06            | 3.74            | 0.00         |
| 3.00         | 0.43             | 0.00            | 0.00         | 29.00        | 12.06            | 3.74            | 0.00         |
| 3.50         | 0.51             | 0.00            | 0.00         | 29.50        | 12.06            | 3.74            | 0.00         |
| 4.00         | 0.59             | 0.00            | 0.00         | 30.00        | 12.06            | 3.74            | 0.00         |
| 4.50         | 0.68             | 0.00            | 0.00         | 30.50        | 12.06            | 3.74            | 0.00         |
| 5.00         | 0.77             | 0.00            | 0.00         | 31.00        | 12.06            | 3.74            | 0.00         |
| 5.50         | 0.86             | 0.00            | 0.00         | 31.50        | 12.06            | 3.74            | 0.00         |
| 6.00         | 0.96             | 0.00            | 0.00         | 32.00        | 12.06            | 3.74            | 0.00         |
| 6.50         | 1.06             | 0.00            | 0.00         | 32.50        | 12.06            | 3.74            | 0.00         |
| 7.00         | 1.18             | 0.00            | 0.00         | 33.00        | 12.06            | 3.74            | 0.00         |
| 7.50         | 1.30             | 0.00            | 0.00         | 33.50        | 12.06            | 3.74            | 0.00         |
| 8.00         | 1.44             | 0.00            | 0.00         | 34.00        | 12.06            | 3.74            | 0.00         |
| 8.50         | 1.60             | 0.00            | 0.00         | 34.50        | 12.06            | 3.74            | 0.00         |
| 9.00         | 1.76             | 0.00            | 0.00         | 35.00        | 12.06            | 3.74            | 0.00         |
| 9.50         | 1.96             | 0.00            | 0.00         | 35.50        | 12.06            | 3.74            | 0.00         |
| 10.00        | 2.20             | 0.00            | 0.00         | 36.00        | 12.06            | 3.74            | 0.00         |
| 10.50        | 2.49             | 0.00            | 0.00         |              |                  |                 |              |
| 11.00        | 2.89             | 0.00            | 0.00         |              |                  |                 |              |
| 11.50        | 3.56             | 0.04            | 0.05         |              |                  |                 |              |
| 12.00        | 5.75             | 0.53            | 0.52         |              |                  |                 |              |
| 12.50        | 8.50             | 1.68            | 0.53         |              |                  |                 |              |
| 13.00        | 9.17             | 2.03            | 0.25         |              |                  |                 |              |
| 13.50        | 9.57             | 2.25            | 0.16         |              |                  |                 |              |
| 14.00        | 9.86             | 2.41            | 0.12         |              |                  |                 |              |
| 14.50        | 10.10            | 2.55            | 0.10         |              |                  |                 |              |
| 15.00        | 10.30            | 2.66            | 0.09         |              |                  |                 |              |
| 15.50        | 10.46            | 2.76            | 0.08         |              |                  |                 |              |
| 16.00        | 10.62            | 2.85            | 0.07         |              |                  |                 |              |
| 16.50        | 10.76            | 2.93            | 0.07         |              |                  |                 |              |
| 17.00        | 10.88            | 3.01            | 0.06         |              |                  |                 |              |
| 17.50        | 11.00            | 3.08            | 0.05         |              |                  |                 |              |
| 18.00        | 11.10            | 3.14            | 0.05         |              |                  |                 |              |
| 18.50        | 11.20            | 3.20            | 0.05         |              |                  |                 |              |
| 19.00        | 11.29            | 3.26            | 0.05         |              |                  |                 |              |
| 19.50        | 11.38            | 3.31            | 0.04         |              |                  |                 |              |
| 20.00        | 11.47            | 3.37            | 0.04         |              |                  |                 |              |
| 20.50        | 11.55            | 3.42            | 0.04         |              |                  |                 |              |
| 21.00        | 11.63            | 3.47            | 0.04         |              |                  |                 |              |
| 21.50        | 11.71            | 3.52            | 0.04         |              |                  |                 |              |
| 22.00        | 11.79            | 3.57            | 0.04         |              |                  |                 |              |
| 22.50        | 11.86            | 3.61            | 0.04         |              |                  |                 |              |
| 23.00        | 11.93            | 3.66            | 0.03         |              |                  |                 |              |
| 23.50        | 11.99            | 3.70            | 0.03         |              |                  |                 |              |
| 24.00        | 12.06            | 3.74            | 0.03         |              |                  |                 |              |
| 24.50        | 12.06            | 3.74            | 0.00         |              |                  |                 |              |
| 25.00        | 12.06            | 3.74            | 0.00         |              |                  |                 |              |
| 25.50        | 12.06            | 3.74            | 0.00         |              |                  |                 |              |

Summary for Subcatchment 64S: Wetland Pervious

Runoff = 3.62 cfs @ 12.19 hrs, Volume= 14,273 cf, Depth= 2.26"  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

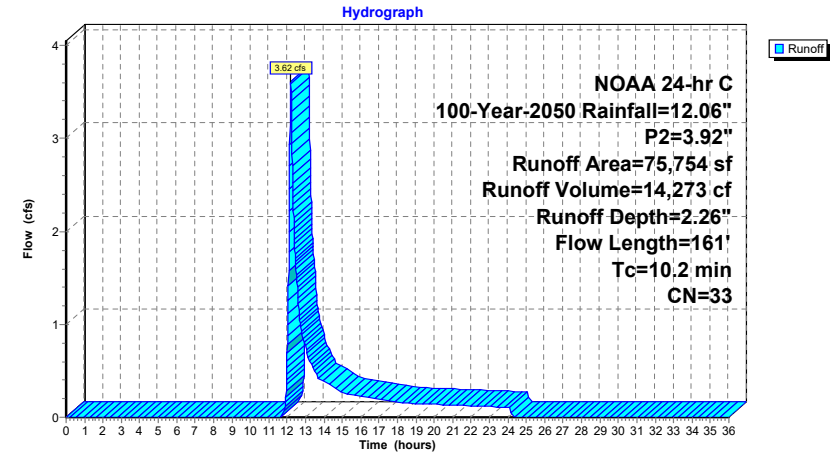
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 24,790    | 39 | >75% Grass cover, Good, HSG A |
| 50,964    | 30 | Woods, Good, HSG A            |
| 75,754    | 33 | Weighted Average              |
| 75,754    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                  |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------|
| 8.5      | 39            | 0.0240        | 0.08              |                | Sheet Flow,<br>Woods: Light underbrush n= 0.400 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 1.7      | 122           | 0.0570        | 1.19              |                | Shallow Concentrated Flow,<br>Woodland Kv= 5.0 fps                                           |
| 10.2     | 161           |               |                   |                | Total                                                                                        |



Subcatchment 64S: Wetland Pervious



Hydrograph for Subcatchment 64S: Wetland Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 2.26               | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.00            | 26.50           | 12.06               | 2.26               | 0.00            |
| 1.00            | 0.13                | 0.00               | 0.00            | 27.00           | 12.06               | 2.26               | 0.00            |
| 1.50            | 0.20                | 0.00               | 0.00            | 27.50           | 12.06               | 2.26               | 0.00            |
| 2.00            | 0.27                | 0.00               | 0.00            | 28.00           | 12.06               | 2.26               | 0.00            |
| 2.50            | 0.35                | 0.00               | 0.00            | 28.50           | 12.06               | 2.26               | 0.00            |
| 3.00            | 0.43                | 0.00               | 0.00            | 29.00           | 12.06               | 2.26               | 0.00            |
| 3.50            | 0.51                | 0.00               | 0.00            | 29.50           | 12.06               | 2.26               | 0.00            |
| 4.00            | 0.59                | 0.00               | 0.00            | 30.00           | 12.06               | 2.26               | 0.00            |
| 4.50            | 0.68                | 0.00               | 0.00            | 30.50           | 12.06               | 2.26               | 0.00            |
| 5.00            | 0.77                | 0.00               | 0.00            | 31.00           | 12.06               | 2.26               | 0.00            |
| 5.50            | 0.86                | 0.00               | 0.00            | 31.50           | 12.06               | 2.26               | 0.00            |
| 6.00            | 0.96                | 0.00               | 0.00            | 32.00           | 12.06               | 2.26               | 0.00            |
| 6.50            | 1.06                | 0.00               | 0.00            | 32.50           | 12.06               | 2.26               | 0.00            |
| 7.00            | 1.18                | 0.00               | 0.00            | 33.00           | 12.06               | 2.26               | 0.00            |
| 7.50            | 1.30                | 0.00               | 0.00            | 33.50           | 12.06               | 2.26               | 0.00            |
| 8.00            | 1.44                | 0.00               | 0.00            | 34.00           | 12.06               | 2.26               | 0.00            |
| 8.50            | 1.60                | 0.00               | 0.00            | 34.50           | 12.06               | 2.26               | 0.00            |
| 9.00            | 1.76                | 0.00               | 0.00            | 35.00           | 12.06               | 2.26               | 0.00            |
| 9.50            | 1.96                | 0.00               | 0.00            | 35.50           | 12.06               | 2.26               | 0.00            |
| 10.00           | 2.20                | 0.00               | 0.00            | 36.00           | 12.06               | 2.26               | 0.00            |
| 10.50           | 2.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.89                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 3.56                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 5.75                | 0.13               | 0.61            |                 |                     |                    |                 |
| 12.50           | 8.50                | 0.80               | 1.52            |                 |                     |                    |                 |
| 13.00           | 9.17                | 1.03               | 0.76            |                 |                     |                    |                 |
| 13.50           | 9.57                | 1.18               | 0.50            |                 |                     |                    |                 |
| 14.00           | 9.86                | 1.29               | 0.38            |                 |                     |                    |                 |
| 14.50           | 10.10               | 1.39               | 0.33            |                 |                     |                    |                 |
| 15.00           | 10.30               | 1.47               | 0.27            |                 |                     |                    |                 |
| 15.50           | 10.46               | 1.53               | 0.24            |                 |                     |                    |                 |
| 16.00           | 10.62               | 1.60               | 0.22            |                 |                     |                    |                 |
| 16.50           | 10.76               | 1.66               | 0.21            |                 |                     |                    |                 |
| 17.00           | 10.88               | 1.72               | 0.19            |                 |                     |                    |                 |
| 17.50           | 11.00               | 1.77               | 0.18            |                 |                     |                    |                 |
| 18.00           | 11.10               | 1.81               | 0.16            |                 |                     |                    |                 |
| 18.50           | 11.20               | 1.86               | 0.15            |                 |                     |                    |                 |
| 19.00           | 11.29               | 1.90               | 0.15            |                 |                     |                    |                 |
| 19.50           | 11.38               | 1.94               | 0.14            |                 |                     |                    |                 |
| 20.00           | 11.47               | 1.98               | 0.14            |                 |                     |                    |                 |
| 20.50           | 11.55               | 2.02               | 0.14            |                 |                     |                    |                 |
| 21.00           | 11.63               | 2.06               | 0.13            |                 |                     |                    |                 |
| 21.50           | 11.71               | 2.09               | 0.13            |                 |                     |                    |                 |
| 22.00           | 11.79               | 2.13               | 0.12            |                 |                     |                    |                 |
| 22.50           | 11.86               | 2.16               | 0.12            |                 |                     |                    |                 |
| 23.00           | 11.93               | 2.20               | 0.11            |                 |                     |                    |                 |
| 23.50           | 11.99               | 2.23               | 0.11            |                 |                     |                    |                 |
| 24.00           | 12.06               | 2.26               | 0.11            |                 |                     |                    |                 |
| 24.50           | 12.06               | 2.26               | 0.00            |                 |                     |                    |                 |
| 25.00           | 12.06               | 2.26               | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 2.26               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 67S: Wetland Impervious

Runoff = 3.86 cfs @ 12.09 hrs, Volume= 11,688 cf, Depth=11.82"  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

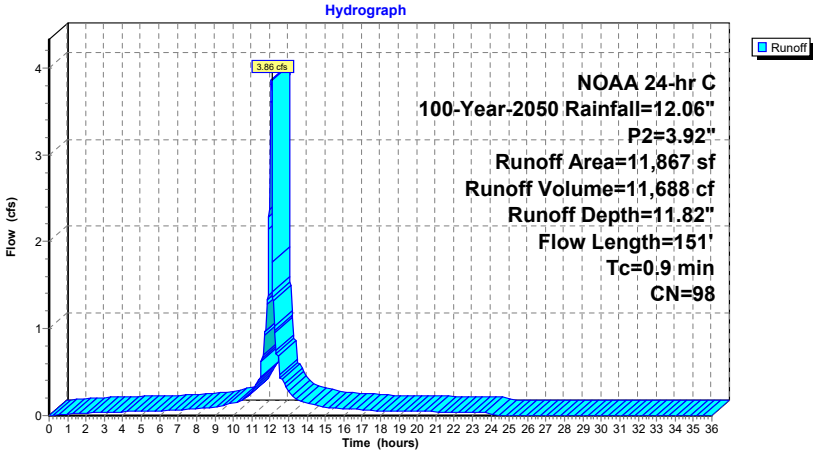
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 11,867    | 98 | Paved parking, HSG A    |
| 11,867    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                 |
|----------|---------------|---------------|-------------------|----------------|-------------------------------------------------------------|
| 0.5      | 36            | 0.0200        | 1.24              |                | Sheet Flow,<br>Smooth surfaces n= 0.011 P2= 3.92"           |
| 0.4      | 115           | 0.1250        | 5.30              |                | Shallow Concentrated Flow,<br>Grassed Waterway Kv= 15.0 fps |
| 0.9      | 151           | Total         |                   |                |                                                             |



Subcatchment 67S: Wetland Impervious



Hydrograph for Subcatchment 67S: Wetland Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 11.82              | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.01            | 26.50           | 12.06               | 11.82              | 0.00            |
| 1.00            | 0.13                | 0.03               | 0.02            | 27.00           | 12.06               | 11.82              | 0.00            |
| 1.50            | 0.20                | 0.07               | 0.03            | 27.50           | 12.06               | 11.82              | 0.00            |
| 2.00            | 0.27                | 0.12               | 0.03            | 28.00           | 12.06               | 11.82              | 0.00            |
| 2.50            | 0.35                | 0.18               | 0.04            | 28.50           | 12.06               | 11.82              | 0.00            |
| 3.00            | 0.43                | 0.25               | 0.04            | 29.00           | 12.06               | 11.82              | 0.00            |
| 3.50            | 0.51                | 0.32               | 0.04            | 29.50           | 12.06               | 11.82              | 0.00            |
| 4.00            | 0.59                | 0.40               | 0.04            | 30.00           | 12.06               | 11.82              | 0.00            |
| 4.50            | 0.68                | 0.48               | 0.05            | 30.50           | 12.06               | 11.82              | 0.00            |
| 5.00            | 0.77                | 0.57               | 0.05            | 31.00           | 12.06               | 11.82              | 0.00            |
| 5.50            | 0.86                | 0.66               | 0.05            | 31.50           | 12.06               | 11.82              | 0.00            |
| 6.00            | 0.96                | 0.75               | 0.05            | 32.00           | 12.06               | 11.82              | 0.00            |
| 6.50            | 1.06                | 0.85               | 0.06            | 32.50           | 12.06               | 11.82              | 0.00            |
| 7.00            | 1.18                | 0.96               | 0.07            | 33.00           | 12.06               | 11.82              | 0.00            |
| 7.50            | 1.30                | 1.09               | 0.07            | 33.50           | 12.06               | 11.82              | 0.00            |
| 8.00            | 1.44                | 1.23               | 0.08            | 34.00           | 12.06               | 11.82              | 0.00            |
| 8.50            | 1.60                | 1.38               | 0.09            | 34.50           | 12.06               | 11.82              | 0.00            |
| 9.00            | 1.76                | 1.54               | 0.09            | 35.00           | 12.06               | 11.82              | 0.00            |
| 9.50            | 1.96                | 1.73               | 0.12            | 35.50           | 12.06               | 11.82              | 0.00            |
| 10.00           | 2.20                | 1.97               | 0.14            | 36.00           | 12.06               | 11.82              | 0.00            |
| 10.50           | 2.49                | 2.26               | 0.17            |                 |                     |                    |                 |
| 11.00           | 2.89                | 2.66               | 0.26            |                 |                     |                    |                 |
| 11.50           | 3.56                | 3.33               | 0.43            |                 |                     |                    |                 |
| 12.00           | 5.75                | 5.51               | 2.32            |                 |                     |                    |                 |
| 12.50           | 8.50                | 8.26               | 0.67            |                 |                     |                    |                 |
| 13.00           | 9.17                | 8.93               | 0.30            |                 |                     |                    |                 |
| 13.50           | 9.57                | 9.33               | 0.19            |                 |                     |                    |                 |
| 14.00           | 9.86                | 9.62               | 0.15            |                 |                     |                    |                 |
| 14.50           | 10.10               | 9.86               | 0.12            |                 |                     |                    |                 |
| 15.00           | 10.30               | 10.06              | 0.10            |                 |                     |                    |                 |
| 15.50           | 10.46               | 10.22              | 0.09            |                 |                     |                    |                 |
| 16.00           | 10.62               | 10.37              | 0.08            |                 |                     |                    |                 |
| 16.50           | 10.76               | 10.51              | 0.07            |                 |                     |                    |                 |
| 17.00           | 10.88               | 10.64              | 0.07            |                 |                     |                    |                 |
| 17.50           | 11.00               | 10.76              | 0.06            |                 |                     |                    |                 |
| 18.00           | 11.10               | 10.86              | 0.05            |                 |                     |                    |                 |
| 18.50           | 11.20               | 10.96              | 0.05            |                 |                     |                    |                 |
| 19.00           | 11.29               | 11.05              | 0.05            |                 |                     |                    |                 |
| 19.50           | 11.38               | 11.14              | 0.05            |                 |                     |                    |                 |
| 20.00           | 11.47               | 11.23              | 0.05            |                 |                     |                    |                 |
| 20.50           | 11.55               | 11.31              | 0.05            |                 |                     |                    |                 |
| 21.00           | 11.63               | 11.39              | 0.04            |                 |                     |                    |                 |
| 21.50           | 11.71               | 11.47              | 0.04            |                 |                     |                    |                 |
| 22.00           | 11.79               | 11.55              | 0.04            |                 |                     |                    |                 |
| 22.50           | 11.86               | 11.62              | 0.04            |                 |                     |                    |                 |
| 23.00           | 11.93               | 11.69              | 0.04            |                 |                     |                    |                 |
| 23.50           | 11.99               | 11.75              | 0.04            |                 |                     |                    |                 |
| 24.00           | 12.06               | 11.82              | 0.04            |                 |                     |                    |                 |
| 24.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.00           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |

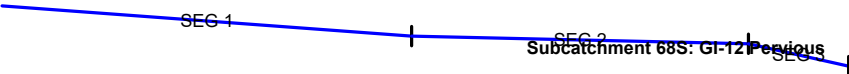
Summary for Subcatchment 68S: GI-12 Pervious

Runoff = 6.76 cfs @ 12.13 hrs, Volume= 18,543 cf, Depth= 4.07"  
Routed to Pond 60P : GI-12

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

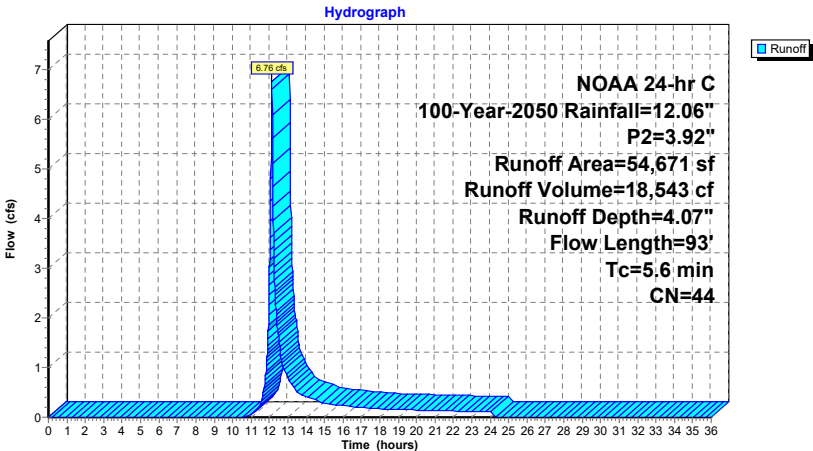
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 42,609    | 39 | >75% Grass cover, Good, HSG A |
| 12,062    | 61 | >75% Grass cover, Good, HSG B |
| 54,671    | 44 | Weighted Average              |
| 54,671    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------|
| 4.9      | 45            | 0.0450        | 0.15              |                | <b>Sheet Flow, SEG 1</b><br>Grass: Dense n= 0.240 P2= 3.92"                |
| 0.6      | 37            | 0.0140        | 1.08              |                | <b>Sheet Flow, SEG 2</b><br>Smooth surfaces n= 0.011 P2= 3.92"             |
| 0.1      | 11            | 0.1360        | 2.58              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Short Grass Pasture Kv= 7.0 fps |
| 5.6      | 93            | Total         |                   |                |                                                                            |





Subcatchment 68S: GI-12 Pervious



Hydrograph for Subcatchment 68S: GI-12 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 4.07               | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.00            | 26.50           | 12.06               | 4.07               | 0.00            |
| 1.00            | 0.13                | 0.00               | 0.00            | 27.00           | 12.06               | 4.07               | 0.00            |
| 1.50            | 0.20                | 0.00               | 0.00            | 27.50           | 12.06               | 4.07               | 0.00            |
| 2.00            | 0.27                | 0.00               | 0.00            | 28.00           | 12.06               | 4.07               | 0.00            |
| 2.50            | 0.35                | 0.00               | 0.00            | 28.50           | 12.06               | 4.07               | 0.00            |
| 3.00            | 0.43                | 0.00               | 0.00            | 29.00           | 12.06               | 4.07               | 0.00            |
| 3.50            | 0.51                | 0.00               | 0.00            | 29.50           | 12.06               | 4.07               | 0.00            |
| 4.00            | 0.59                | 0.00               | 0.00            | 30.00           | 12.06               | 4.07               | 0.00            |
| 4.50            | 0.68                | 0.00               | 0.00            | 30.50           | 12.06               | 4.07               | 0.00            |
| 5.00            | 0.77                | 0.00               | 0.00            | 31.00           | 12.06               | 4.07               | 0.00            |
| 5.50            | 0.86                | 0.00               | 0.00            | 31.50           | 12.06               | 4.07               | 0.00            |
| 6.00            | 0.96                | 0.00               | 0.00            | 32.00           | 12.06               | 4.07               | 0.00            |
| 6.50            | 1.06                | 0.00               | 0.00            | 32.50           | 12.06               | 4.07               | 0.00            |
| 7.00            | 1.18                | 0.00               | 0.00            | 33.00           | 12.06               | 4.07               | 0.00            |
| 7.50            | 1.30                | 0.00               | 0.00            | 33.50           | 12.06               | 4.07               | 0.00            |
| 8.00            | 1.44                | 0.00               | 0.00            | 34.00           | 12.06               | 4.07               | 0.00            |
| 8.50            | 1.60                | 0.00               | 0.00            | 34.50           | 12.06               | 4.07               | 0.00            |
| 9.00            | 1.76                | 0.00               | 0.00            | 35.00           | 12.06               | 4.07               | 0.00            |
| 9.50            | 1.96                | 0.00               | 0.00            | 35.50           | 12.06               | 4.07               | 0.00            |
| 10.00           | 2.20                | 0.00               | 0.00            | 36.00           | 12.06               | 4.07               | 0.00            |
| 10.50           | 2.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.89                | 0.01               | 0.05            |                 |                     |                    |                 |
| 11.50           | 3.56                | 0.08               | 0.25            |                 |                     |                    |                 |
| 12.00           | 5.75                | 0.64               | 2.85            |                 |                     |                    |                 |
| 12.50           | 8.50                | 1.90               | 1.66            |                 |                     |                    |                 |
| 13.00           | 9.17                | 2.27               | 0.80            |                 |                     |                    |                 |
| 13.50           | 9.57                | 2.50               | 0.52            |                 |                     |                    |                 |
| 14.00           | 9.86                | 2.67               | 0.41            |                 |                     |                    |                 |
| 14.50           | 10.10               | 2.82               | 0.35            |                 |                     |                    |                 |
| 15.00           | 10.30               | 2.94               | 0.28            |                 |                     |                    |                 |
| 15.50           | 10.46               | 3.04               | 0.25            |                 |                     |                    |                 |
| 16.00           | 10.62               | 3.13               | 0.23            |                 |                     |                    |                 |
| 16.50           | 10.76               | 3.22               | 0.22            |                 |                     |                    |                 |
| 17.00           | 10.88               | 3.30               | 0.20            |                 |                     |                    |                 |
| 17.50           | 11.00               | 3.37               | 0.18            |                 |                     |                    |                 |
| 18.00           | 11.10               | 3.44               | 0.16            |                 |                     |                    |                 |
| 18.50           | 11.20               | 3.50               | 0.15            |                 |                     |                    |                 |
| 19.00           | 11.29               | 3.56               | 0.15            |                 |                     |                    |                 |
| 19.50           | 11.38               | 3.62               | 0.15            |                 |                     |                    |                 |
| 20.00           | 11.47               | 3.68               | 0.14            |                 |                     |                    |                 |
| 20.50           | 11.55               | 3.73               | 0.14            |                 |                     |                    |                 |
| 21.00           | 11.63               | 3.79               | 0.13            |                 |                     |                    |                 |
| 21.50           | 11.71               | 3.84               | 0.13            |                 |                     |                    |                 |
| 22.00           | 11.79               | 3.89               | 0.12            |                 |                     |                    |                 |
| 22.50           | 11.86               | 3.94               | 0.12            |                 |                     |                    |                 |
| 23.00           | 11.93               | 3.98               | 0.12            |                 |                     |                    |                 |
| 23.50           | 11.99               | 4.03               | 0.11            |                 |                     |                    |                 |
| 24.00           | 12.06               | 4.07               | 0.12            |                 |                     |                    |                 |
| 24.50           | 12.06               | 4.07               | 0.00            |                 |                     |                    |                 |
| 25.00           | 12.06               | 4.07               | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 4.07               | 0.00            |                 |                     |                    |                 |

Summary for Pond 8P: GI-13

Inflow Area = 119,588 sf, 39.98% Impervious, Inflow Depth = 2.62" for 100-Year-2050 event  
Inflow = 2.94 cfs @ 12.21 hrs, Volume= 26,103 cf  
Outflow = 0.86 cfs @ 14.20 hrs, Volume= 18,936 cf, Atten= 71%, Lag= 119.3 min  
Discarded = 0.07 cfs @ 14.20 hrs, Volume= 5,890 cf  
Primary = 0.79 cfs @ 14.20 hrs, Volume= 13,046 cf  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 128.16' @ 14.20 hrs Surf.Area= 5,941 sf Storage= 10,753 cf

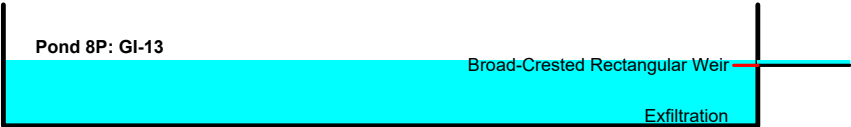
Plug-Flow detention time= 317.4 min calculated for 18,936 cf (73% of inflow)  
Center-of-Mass det. time= 222.6 min ( 1,123.9 - 901.3 )

| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 126.00'           | 23,208 cf              | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 126.00           | 4,028             | 0                      | 0                                                   |
| 130.00           | 7,576             | 23,208                 | 23,208                                              |

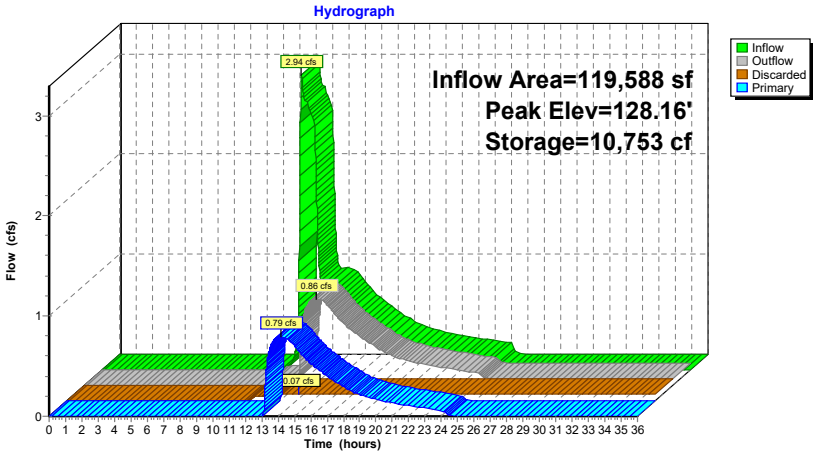
| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                                                                                                                          |
|--------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary   | 128.00' | 5.0' long + 3.0 ' SideZ x 6.0' breadth Broad-Crested Rectangular Weir<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00<br>2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65<br>2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83 |
| #2     | Discarded | 126.00' | 0.500 in/hr Exfiltration over Surface area<br>Conductivity to Groundwater Elevation = 1.00'                                                                                                                                                                                             |

Discarded OutFlow Max=0.07 cfs @ 14.20 hrs HW=128.16' (Free Discharge)  
2=Exfiltration ( Controls 0.07 cfs)

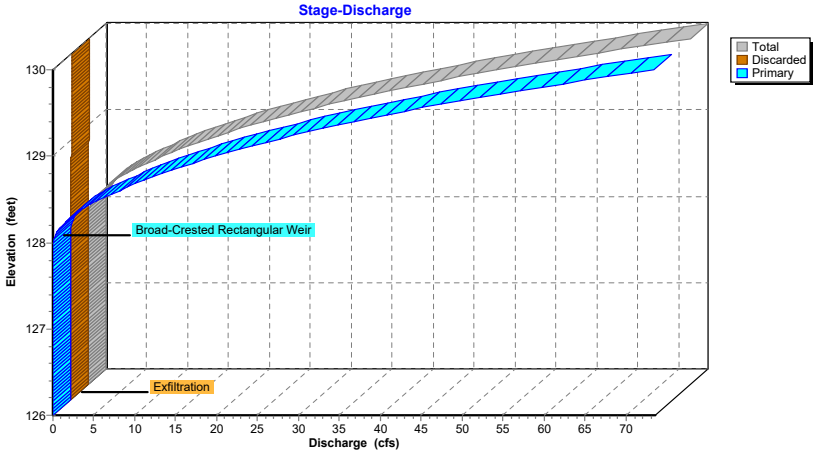
Primary OutFlow Max=0.79 cfs @ 14.20 hrs HW=128.16' TW=125.39' (Dynamic Tailwater)  
1=Broad-Crested Rectangular Weir(Weir Controls 0.79 cfs @ 0.92 fps)

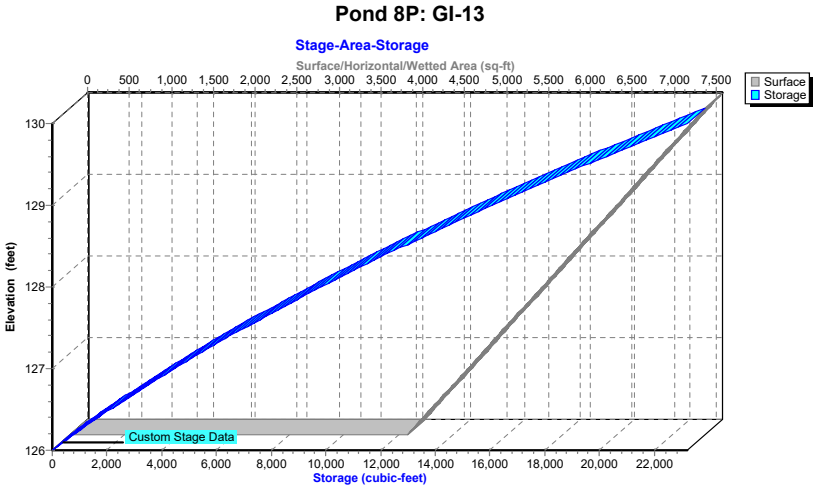


Pond 8P: GI-13



Pond 8P: GI-13





Hydrograph for Pond 8P: GI-13

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Outflow (cfs) | Discarded (cfs) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|-----------------|---------------|
| 0.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 1.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 2.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 3.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 4.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 5.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 6.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 7.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 8.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 9.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 10.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 11.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 12.00        | 0.56         | 236                  | 126.06           | 0.05          | 0.05            | 0.00          |
| 13.00        | 2.47         | 8,935                | 127.84           | 0.07          | 0.07            | 0.00          |
| 14.00        | 0.87         | 10,748               | 128.16           | 0.86          | 0.07            | 0.79          |
| 15.00        | 0.73         | 10,686               | 128.15           | 0.78          | 0.07            | 0.71          |
| 16.00        | 0.56         | 10,539               | 128.12           | 0.60          | 0.07            | 0.53          |
| 17.00        | 0.44         | 10,423               | 128.10           | 0.47          | 0.07            | 0.40          |
| 18.00        | 0.34         | 10,316               | 128.08           | 0.36          | 0.07            | 0.30          |
| 19.00        | 0.27         | 10,226               | 128.07           | 0.29          | 0.07            | 0.22          |
| 20.00        | 0.22         | 10,166               | 128.06           | 0.24          | 0.07            | 0.17          |
| 21.00        | 0.19         | 10,119               | 128.05           | 0.20          | 0.07            | 0.13          |
| 22.00        | 0.16         | 10,077               | 128.04           | 0.17          | 0.07            | 0.11          |
| 23.00        | 0.14         | 10,037               | 128.04           | 0.15          | 0.07            | 0.08          |
| 24.00        | 0.13         | 9,997                | 128.03           | 0.13          | 0.07            | 0.06          |
| 25.00        | 0.00         | 9,756                | 127.99           | 0.07          | 0.07            | 0.00          |
| 26.00        | 0.00         | 9,513                | 127.95           | 0.07          | 0.07            | 0.00          |
| 27.00        | 0.00         | 9,271                | 127.90           | 0.07          | 0.07            | 0.00          |
| 28.00        | 0.00         | 9,031                | 127.86           | 0.07          | 0.07            | 0.00          |
| 29.00        | 0.00         | 8,793                | 127.82           | 0.07          | 0.07            | 0.00          |
| 30.00        | 0.00         | 8,556                | 127.78           | 0.07          | 0.07            | 0.00          |
| 31.00        | 0.00         | 8,320                | 127.73           | 0.07          | 0.07            | 0.00          |
| 32.00        | 0.00         | 8,087                | 127.69           | 0.06          | 0.06            | 0.00          |
| 33.00        | 0.00         | 7,855                | 127.65           | 0.06          | 0.06            | 0.00          |
| 34.00        | 0.00         | 7,624                | 127.61           | 0.06          | 0.06            | 0.00          |
| 35.00        | 0.00         | 7,395                | 127.57           | 0.06          | 0.06            | 0.00          |
| 36.00        | 0.00         | 7,168                | 127.52           | 0.06          | 0.06            | 0.00          |

Stage-Discharge for Pond 8P: GI-13

| Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) |
|---------------------|--------------------|--------------------|------------------|---------------------|--------------------|--------------------|------------------|
| 126.00              | 0.00               | 0.00               | 0.00             | 128.60              | 8.16               | 0.07               | 8.08             |
| 126.05              | 0.05               | 0.05               | 0.00             | 128.65              | 9.34               | 0.08               | 9.26             |
| 126.10              | 0.05               | 0.05               | 0.00             | 128.70              | 10.60              | 0.08               | 10.52            |
| 126.15              | 0.05               | 0.05               | 0.00             | 128.75              | 11.94              | 0.08               | 11.86            |
| 126.20              | 0.05               | 0.05               | 0.00             | 128.80              | 13.35              | 0.08               | 13.27            |
| 126.25              | 0.05               | 0.05               | 0.00             | 128.85              | 14.86              | 0.08               | 14.79            |
| 126.30              | 0.05               | 0.05               | 0.00             | 128.90              | 16.46              | 0.08               | 16.38            |
| 126.35              | 0.05               | 0.05               | 0.00             | 128.95              | 18.14              | 0.08               | 18.07            |
| 126.40              | 0.05               | 0.05               | 0.00             | 129.00              | 19.91              | 0.08               | 19.83            |
| 126.45              | 0.05               | 0.05               | 0.00             | 129.05              | 21.74              | 0.08               | 21.66            |
| 126.50              | 0.05               | 0.05               | 0.00             | 129.10              | 23.66              | 0.08               | 23.58            |
| 126.55              | 0.05               | 0.05               | 0.00             | 129.15              | 25.66              | 0.08               | 25.58            |
| 126.60              | 0.05               | 0.05               | 0.00             | 129.20              | 27.74              | 0.08               | 27.66            |
| 126.65              | 0.05               | 0.05               | 0.00             | 129.25              | 29.88              | 0.08               | 29.80            |
| 126.70              | 0.05               | 0.05               | 0.00             | 129.30              | 32.10              | 0.08               | 32.01            |
| 126.75              | 0.05               | 0.05               | 0.00             | 129.35              | 34.40              | 0.08               | 34.32            |
| 126.80              | 0.06               | 0.06               | 0.00             | 129.40              | 36.78              | 0.08               | 36.70            |
| 126.85              | 0.06               | 0.06               | 0.00             | 129.45              | 39.32              | 0.08               | 39.24            |
| 126.90              | 0.06               | 0.06               | 0.00             | 129.50              | 41.95              | 0.08               | 41.87            |
| 126.95              | 0.06               | 0.06               | 0.00             | 129.55              | 44.68              | 0.08               | 44.59            |
| 127.00              | 0.06               | 0.06               | 0.00             | 129.60              | 47.50              | 0.09               | 47.41            |
| 127.05              | 0.06               | 0.06               | 0.00             | 129.65              | 50.41              | 0.09               | 50.32            |
| 127.10              | 0.06               | 0.06               | 0.00             | 129.70              | 53.42              | 0.09               | 53.33            |
| 127.15              | 0.06               | 0.06               | 0.00             | 129.75              | 56.53              | 0.09               | 56.44            |
| 127.20              | 0.06               | 0.06               | 0.00             | 129.80              | 59.73              | 0.09               | 59.64            |
| 127.25              | 0.06               | 0.06               | 0.00             | 129.85              | 63.04              | 0.09               | 62.95            |
| 127.30              | 0.06               | 0.06               | 0.00             | 129.90              | 66.44              | 0.09               | 66.35            |
| 127.35              | 0.06               | 0.06               | 0.00             | 129.95              | 69.94              | 0.09               | 69.85            |
| 127.40              | 0.06               | 0.06               | 0.00             | 130.00              | <b>73.54</b>       | <b>0.09</b>        | <b>73.45</b>     |
| 127.45              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.50              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.55              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.60              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.65              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.70              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.75              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.80              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.85              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.90              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.95              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 128.00              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 128.05              | 0.20               | 0.07               | 0.14             |                     |                    |                    |                  |
| 128.10              | 0.46               | 0.07               | 0.39             |                     |                    |                    |                  |
| 128.15              | 0.81               | 0.07               | 0.74             |                     |                    |                    |                  |
| 128.20              | 1.23               | 0.07               | 1.16             |                     |                    |                    |                  |
| 128.25              | 1.75               | 0.07               | 1.68             |                     |                    |                    |                  |
| 128.30              | 2.36               | 0.07               | 2.29             |                     |                    |                    |                  |
| 128.35              | 3.06               | 0.07               | 2.99             |                     |                    |                    |                  |
| 128.40              | 3.86               | 0.07               | 3.78             |                     |                    |                    |                  |
| 128.45              | 4.77               | 0.07               | 4.69             |                     |                    |                    |                  |
| 128.50              | 5.78               | 0.07               | 5.71             |                     |                    |                    |                  |
| 128.55              | 6.91               | 0.07               | 6.84             |                     |                    |                    |                  |

Stage-Area-Storage for Pond 8P: GI-13

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 126.00              | 4,028              | 0                       | 128.60              | 6,334              | 13,471                  |
| 126.05              | 4,072              | 203                     | 128.65              | 6,379              | 13,789                  |
| 126.10              | 4,117              | 407                     | 128.70              | 6,423              | 14,109                  |
| 126.15              | 4,161              | 614                     | 128.75              | 6,467              | 14,431                  |
| 126.20              | 4,205              | 823                     | 128.80              | 6,512              | 14,755                  |
| 126.25              | 4,250              | 1,035                   | 128.85              | 6,556              | 15,082                  |
| 126.30              | 4,294              | 1,248                   | 128.90              | 6,600              | 15,411                  |
| 126.35              | 4,338              | 1,464                   | 128.95              | 6,645              | 15,742                  |
| 126.40              | 4,383              | 1,682                   | 129.00              | 6,689              | 16,076                  |
| 126.45              | 4,427              | 1,902                   | 129.05              | 6,733              | 16,411                  |
| 126.50              | 4,472              | 2,125                   | 129.10              | 6,778              | 16,749                  |
| 126.55              | 4,516              | 2,350                   | 129.15              | 6,822              | 17,089                  |
| 126.60              | 4,560              | 2,576                   | 129.20              | 6,866              | 17,431                  |
| 126.65              | 4,605              | 2,806                   | 129.25              | 6,911              | 17,775                  |
| 126.70              | 4,649              | 3,037                   | 129.30              | 6,955              | 18,122                  |
| 126.75              | 4,693              | 3,270                   | 129.35              | 6,999              | 18,471                  |
| 126.80              | 4,738              | 3,506                   | 129.40              | 7,044              | 18,822                  |
| 126.85              | 4,782              | 3,744                   | 129.45              | 7,088              | 19,175                  |
| 126.90              | 4,826              | 3,984                   | 129.50              | 7,133              | 19,531                  |
| 126.95              | 4,871              | 4,227                   | 129.55              | 7,177              | 19,889                  |
| 127.00              | 4,915              | 4,472                   | 129.60              | 7,221              | 20,249                  |
| 127.05              | 4,959              | 4,718                   | 129.65              | 7,266              | 20,611                  |
| 127.10              | 5,004              | 4,967                   | 129.70              | 7,310              | 20,975                  |
| 127.15              | 5,048              | 5,219                   | 129.75              | 7,354              | 21,342                  |
| 127.20              | 5,092              | 5,472                   | 129.80              | 7,399              | 21,711                  |
| 127.25              | 5,137              | 5,728                   | 129.85              | 7,443              | 22,082                  |
| 127.30              | 5,181              | 5,986                   | 129.90              | 7,487              | 22,455                  |
| 127.35              | 5,225              | 6,246                   | 129.95              | 7,532              | 22,830                  |
| 127.40              | 5,270              | 6,508                   | 130.00              | <b>7,576</b>       | <b>23,208</b>           |
| 127.45              | 5,314              | 6,773                   |                     |                    |                         |
| 127.50              | 5,359              | 7,040                   |                     |                    |                         |
| 127.55              | 5,403              | 7,309                   |                     |                    |                         |
| 127.60              | 5,447              | 7,580                   |                     |                    |                         |
| 127.65              | 5,492              | 7,854                   |                     |                    |                         |
| 127.70              | 5,536              | 8,129                   |                     |                    |                         |
| 127.75              | 5,580              | 8,407                   |                     |                    |                         |
| 127.80              | 5,625              | 8,687                   |                     |                    |                         |
| 127.85              | 5,669              | 8,970                   |                     |                    |                         |
| 127.90              | 5,713              | 9,254                   |                     |                    |                         |
| 127.95              | 5,758              | 9,541                   |                     |                    |                         |
| 128.00              | 5,802              | 9,830                   |                     |                    |                         |
| 128.05              | 5,846              | 10,121                  |                     |                    |                         |
| 128.10              | 5,891              | 10,415                  |                     |                    |                         |
| 128.15              | 5,935              | 10,710                  |                     |                    |                         |
| 128.20              | 5,979              | 11,008                  |                     |                    |                         |
| 128.25              | 6,024              | 11,308                  |                     |                    |                         |
| 128.30              | 6,068              | 11,611                  |                     |                    |                         |
| 128.35              | 6,112              | 11,915                  |                     |                    |                         |
| 128.40              | 6,157              | 12,222                  |                     |                    |                         |
| 128.45              | 6,201              | 12,531                  |                     |                    |                         |
| 128.50              | 6,246              | 12,842                  |                     |                    |                         |
| 128.55              | 6,290              | 13,155                  |                     |                    |                         |

Summary for Pond 46P: GI-10

Inflow Area = 32,730 sf, 60.20% Impervious, Inflow Depth = 8.41" for 100-Year-2050 event  
Inflow = 6.88 cfs @ 12.12 hrs, Volume= 22,929 cf  
Outflow = 6.12 cfs @ 12.15 hrs, Volume= 13,368 cf, Atten= 11%, Lag= 1.7 min  
Primary = 6.12 cfs @ 12.15 hrs, Volume= 13,368 cf  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 125.96' @ 24.48 hrs Surf.Area= 5,198 sf Storage= 9,562 cf

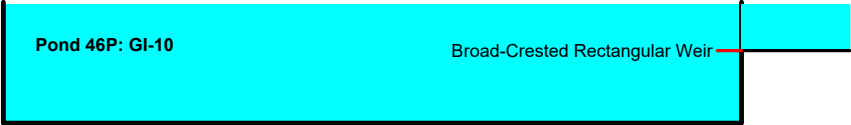
Plug-Flow detention time= 165.2 min calculated for 13,368 cf (58% of inflow)  
Center-of-Mass det. time= 39.8 min ( 798.0 - 758.2 )

| Volume | Invert  | Avail.Storage | Storage Description                                |
|--------|---------|---------------|----------------------------------------------------|
| #1     | 123.50' | 9,792 cf      | Custom Stage Data (Prismatic)Listed below (Recalc) |

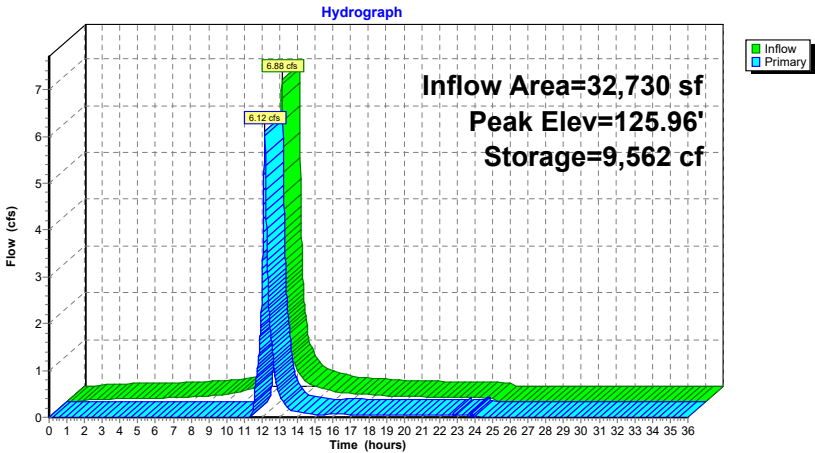
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 123.50           | 2,638             | 0                      | 0                      |
| 124.50           | 3,639             | 3,139                  | 3,139                  |
| 125.50           | 4,696             | 4,168                  | 7,306                  |
| 126.00           | 5,246             | 2,486                  | 9,792                  |

| Device | Routing | Invert  | Outlet Devices                                                            |
|--------|---------|---------|---------------------------------------------------------------------------|
| #1     | Primary | 125.00' | 10.0' long + 3.0 ' /' SideZ x 6.0' breadth Broad-Crested Rectangular Weir |
|        |         |         | Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00             |
|        |         |         | 2.50 3.00 3.50 4.00 4.50 5.00 5.50                                        |
|        |         |         | Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65              |
|        |         |         | 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83                                   |

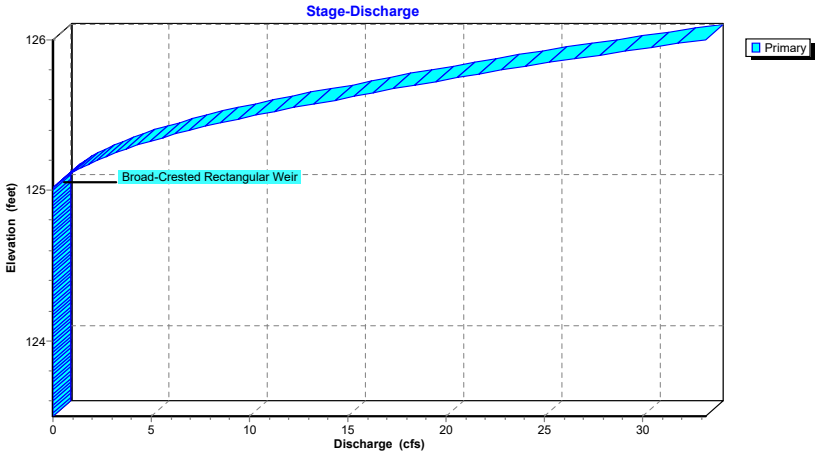
Primary OutFlow Max=6.11 cfs @ 12.15 hrs HW=125.37' TW=124.59' (Dynamic Tailwater)  
1=Broad-Crested Rectangular Weir(Weir Controls 6.11 cfs @ 1.48 fps)

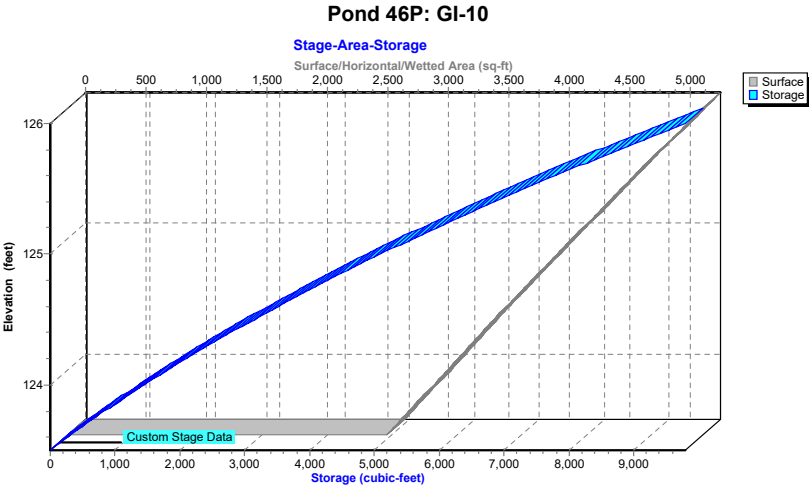


Pond 46P: GI-10



Pond 46P: GI-10





Hydrograph for Pond 46P: GI-10

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 123.50           | 0.00          |
| 1.00         | 0.03         | 38                   | 123.51           | 0.00          |
| 2.00         | 0.05         | 190                  | 123.57           | 0.00          |
| 3.00         | 0.06         | 397                  | 123.65           | 0.00          |
| 4.00         | 0.07         | 640                  | 123.73           | 0.00          |
| 5.00         | 0.08         | 911                  | 123.83           | 0.00          |
| 6.00         | 0.09         | 1,207                | 123.92           | 0.00          |
| 7.00         | 0.11         | 1,553                | 124.03           | 0.00          |
| 8.00         | 0.13         | 1,980                | 124.17           | 0.00          |
| 9.00         | 0.15         | 2,487                | 124.32           | 0.00          |
| 10.00        | 0.23         | 3,178                | 124.51           | 0.00          |
| 11.00        | 0.43         | 4,264                | 124.80           | 0.00          |
| 12.00        | 3.87         | 6,097                | 125.23           | 2.87          |
| 13.00        | 0.68         | 5,804                | 125.17           | 0.47          |
| 14.00        | 0.33         | 6,617                | 125.35           | 0.12          |
| 15.00        | 0.22         | 7,307                | 125.50           | 0.06          |
| 16.00        | 0.18         | 7,812                | 125.61           | 0.06          |
| 17.00        | 0.16         | 8,207                | 125.69           | 0.06          |
| 18.00        | 0.13         | 8,514                | 125.75           | 0.05          |
| 19.00        | 0.12         | 8,753                | 125.80           | 0.05          |
| 20.00        | 0.11         | 8,956                | 125.84           | 0.05          |
| 21.00        | 0.10         | 9,134                | 125.87           | 0.05          |
| 22.00        | 0.09         | 9,290                | 125.90           | 0.04          |
| 23.00        | 0.09         | 9,427                | 125.93           | 0.03          |
| 24.00        | 0.09         | 9,546                | 125.95           | 0.04          |
| 25.00        | 0.00         | 9,562                | 125.96           | 0.00          |
| 26.00        | 0.00         | 9,562                | 125.96           | 0.00          |
| 27.00        | 0.00         | 9,561                | 125.96           | 0.00          |
| 28.00        | 0.00         | 9,561                | 125.96           | 0.00          |
| 29.00        | 0.00         | 9,561                | 125.96           | 0.00          |
| 30.00        | 0.00         | 9,560                | 125.96           | 0.00          |
| 31.00        | 0.00         | 9,560                | 125.96           | 0.00          |
| 32.00        | 0.00         | 9,560                | 125.96           | 0.00          |
| 33.00        | 0.00         | 9,560                | 125.96           | 0.00          |
| 34.00        | 0.00         | 9,559                | 125.96           | 0.00          |
| 35.00        | 0.00         | 9,559                | 125.96           | 0.00          |
| 36.00        | 0.00         | 9,559                | 125.96           | 0.00          |

Stage-Discharge for Pond 46P: GI-10

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 123.50              | 0.00             | 124.54              | 0.00             | 125.58              | 13.49            |
| 123.52              | 0.00             | 124.56              | 0.00             | 125.60              | 14.36            |
| 123.54              | 0.00             | 124.58              | 0.00             | 125.62              | 15.13            |
| 123.56              | 0.00             | 124.60              | 0.00             | 125.64              | 15.92            |
| 123.58              | 0.00             | 124.62              | 0.00             | 125.66              | 16.73            |
| 123.60              | 0.00             | 124.64              | 0.00             | 125.68              | 17.56            |
| 123.62              | 0.00             | 124.66              | 0.00             | 125.70              | 18.40            |
| 123.64              | 0.00             | 124.68              | 0.00             | 125.72              | 19.26            |
| 123.66              | 0.00             | 124.70              | 0.00             | 125.74              | 20.13            |
| 123.68              | 0.00             | 124.72              | 0.00             | 125.76              | 21.03            |
| 123.70              | 0.00             | 124.74              | 0.00             | 125.78              | 21.93            |
| 123.72              | 0.00             | 124.76              | 0.00             | 125.80              | 22.86            |
| 123.74              | 0.00             | 124.78              | 0.00             | 125.82              | 23.82            |
| 123.76              | 0.00             | 124.80              | 0.00             | 125.84              | 24.79            |
| 123.78              | 0.00             | 124.82              | 0.00             | 125.86              | 25.79            |
| 123.80              | 0.00             | 124.84              | 0.00             | 125.88              | 26.80            |
| 123.82              | 0.00             | 124.86              | 0.00             | 125.90              | 27.82            |
| 123.84              | 0.00             | 124.88              | 0.00             | 125.92              | 28.87            |
| 123.86              | 0.00             | 124.90              | 0.00             | 125.94              | 29.93            |
| 123.88              | 0.00             | 124.92              | 0.00             | 125.96              | 31.02            |
| 123.90              | 0.00             | 124.94              | 0.00             | 125.98              | 32.12            |
| 123.92              | 0.00             | 124.96              | 0.00             | 126.00              | 33.23            |
| 123.94              | 0.00             | 124.98              | 0.00             |                     |                  |
| 123.96              | 0.00             | 125.00              | 0.00             |                     |                  |
| 123.98              | 0.00             | 125.02              | 0.07             |                     |                  |
| 124.00              | 0.00             | 125.04              | 0.19             |                     |                  |
| 124.02              | 0.00             | 125.06              | 0.35             |                     |                  |
| 124.04              | 0.00             | 125.08              | 0.55             |                     |                  |
| 124.06              | 0.00             | 125.10              | 0.77             |                     |                  |
| 124.08              | 0.00             | 125.12              | 1.01             |                     |                  |
| 124.10              | 0.00             | 125.14              | 1.28             |                     |                  |
| 124.12              | 0.00             | 125.16              | 1.58             |                     |                  |
| 124.14              | 0.00             | 125.18              | 1.89             |                     |                  |
| 124.16              | 0.00             | 125.20              | 2.22             |                     |                  |
| 124.18              | 0.00             | 125.22              | 2.59             |                     |                  |
| 124.20              | 0.00             | 125.24              | 2.98             |                     |                  |
| 124.22              | 0.00             | 125.26              | 3.40             |                     |                  |
| 124.24              | 0.00             | 125.28              | 3.84             |                     |                  |
| 124.26              | 0.00             | 125.30              | 4.30             |                     |                  |
| 124.28              | 0.00             | 125.32              | 4.78             |                     |                  |
| 124.30              | 0.00             | 125.34              | 5.29             |                     |                  |
| 124.32              | 0.00             | 125.36              | 5.82             |                     |                  |
| 124.34              | 0.00             | 125.38              | 6.38             |                     |                  |
| 124.36              | 0.00             | 125.40              | 6.96             |                     |                  |
| 124.38              | 0.00             | 125.42              | 7.58             |                     |                  |
| 124.40              | 0.00             | 125.44              | 8.22             |                     |                  |
| 124.42              | 0.00             | 125.46              | 8.89             |                     |                  |
| 124.44              | 0.00             | 125.48              | 9.59             |                     |                  |
| 124.46              | 0.00             | 125.50              | 10.32            |                     |                  |
| 124.48              | 0.00             | 125.52              | 11.07            |                     |                  |
| 124.50              | 0.00             | 125.54              | 11.85            |                     |                  |
| 124.52              | 0.00             | 125.56              | 12.65            |                     |                  |

Stage-Area-Storage for Pond 46P: GI-10

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|
| 123.50              | 2,638              | 0                       |
| 123.55              | 2,688              | 133                     |
| 123.60              | 2,738              | 269                     |
| 123.65              | 2,788              | 407                     |
| 123.70              | 2,838              | 548                     |
| 123.75              | 2,888              | 691                     |
| 123.80              | 2,938              | 836                     |
| 123.85              | 2,988              | 985                     |
| 123.90              | 3,038              | 1,135                   |
| 123.95              | 3,088              | 1,288                   |
| 124.00              | 3,139              | 1,444                   |
| 124.05              | 3,189              | 1,602                   |
| 124.10              | 3,239              | 1,763                   |
| 124.15              | 3,289              | 1,926                   |
| 124.20              | 3,339              | 2,092                   |
| 124.25              | 3,389              | 2,260                   |
| 124.30              | 3,439              | 2,431                   |
| 124.35              | 3,489              | 2,604                   |
| 124.40              | 3,539              | 2,780                   |
| 124.45              | 3,589              | 2,958                   |
| 124.50              | 3,639              | 3,139                   |
| 124.55              | 3,692              | 3,322                   |
| 124.60              | 3,745              | 3,508                   |
| 124.65              | 3,798              | 3,696                   |
| 124.70              | 3,850              | 3,887                   |
| 124.75              | 3,903              | 4,081                   |
| 124.80              | 3,956              | 4,278                   |
| 124.85              | 4,009              | 4,477                   |
| 124.90              | 4,062              | 4,679                   |
| 124.95              | 4,115              | 4,883                   |
| 125.00              | 4,168              | 5,090                   |
| 125.05              | 4,220              | 5,300                   |
| 125.10              | 4,273              | 5,512                   |
| 125.15              | 4,326              | 5,727                   |
| 125.20              | 4,379              | 5,945                   |
| 125.25              | 4,432              | 6,165                   |
| 125.30              | 4,485              | 6,388                   |
| 125.35              | 4,537              | 6,613                   |
| 125.40              | 4,590              | 6,842                   |
| 125.45              | 4,643              | 7,073                   |
| 125.50              | 4,696              | 7,306                   |
| 125.55              | 4,751              | 7,542                   |
| 125.60              | 4,806              | 7,781                   |
| 125.65              | 4,861              | 8,023                   |
| 125.70              | 4,916              | 8,267                   |
| 125.75              | 4,971              | 8,514                   |
| 125.80              | 5,026              | 8,764                   |
| 125.85              | 5,081              | 9,017                   |
| 125.90              | 5,136              | 9,272                   |
| 125.95              | 5,191              | 9,531                   |
| 126.00              | 5,246              | 9,792                   |

Summary for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

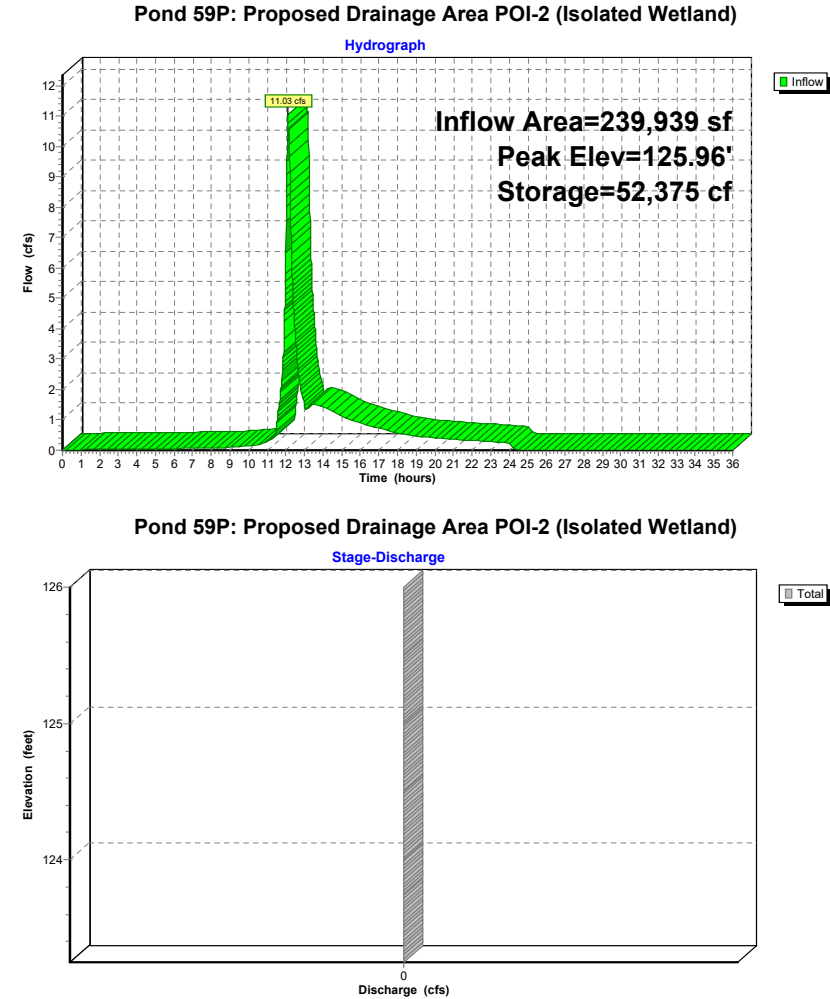
Inflow Area = 239,939 sf, 33.08% Impervious, Inflow Depth = 2.62" for 100-Year-2050 event  
Inflow = 11.03 cfs @ 12.10 hrs, Volume= 52,375 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 125.96' @ 36.00 hrs Surf.Area= 42,018 sf Storage= 52,375 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

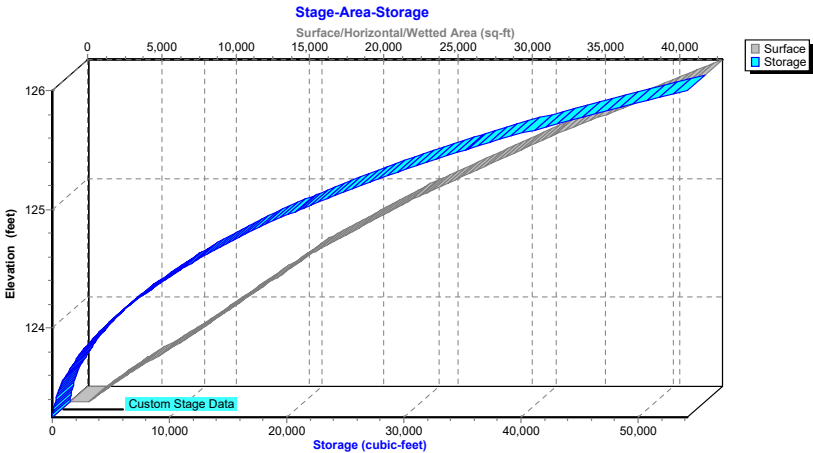
| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 123.25'           | 54,210 cf              | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 123.25           | 1,260             | 0                      | 0                                                   |
| 123.50           | 4,142             | 675                    | 675                                                 |
| 123.75           | 7,451             | 1,449                  | 2,124                                               |
| 124.00           | 10,505            | 2,245                  | 4,369                                               |
| 124.50           | 16,329            | 6,709                  | 11,077                                              |
| 125.00           | 23,865            | 10,049                 | 21,126                                              |
| 125.50           | 32,790            | 14,164                 | 35,290                                              |
| 126.00           | 42,891            | 18,920                 | 54,210                                              |

Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)





Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)



Hydrograph for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) |
|--------------|--------------|----------------------|------------------|--------------|--------------|----------------------|------------------|
| 0.00         | 0.00         | 0                    | 123.25           | 26.00        | 0.00         | 52,372               | 125.96           |
| 0.50         | 0.01         | 2                    | 123.25           | 26.50        | 0.00         | 52,372               | 125.96           |
| 1.00         | 0.02         | 27                   | 123.27           | 27.00        | 0.00         | 52,373               | 125.96           |
| 1.50         | 0.03         | 68                   | 123.29           | 27.50        | 0.00         | 52,373               | 125.96           |
| 2.00         | 0.03         | 120                  | 123.32           | 28.00        | 0.00         | 52,373               | 125.96           |
| 2.50         | 0.04         | 180                  | 123.35           | 28.50        | 0.00         | 52,373               | 125.96           |
| 3.00         | 0.04         | 247                  | 123.37           | 29.00        | 0.00         | 52,373               | 125.96           |
| 3.50         | 0.04         | 318                  | 123.40           | 29.50        | 0.00         | 52,373               | 125.96           |
| 4.00         | 0.04         | 394                  | 123.42           | 30.00        | 0.00         | 52,373               | 125.96           |
| 4.50         | 0.05         | 474                  | 123.45           | 30.50        | 0.00         | 52,374               | 125.96           |
| 5.00         | 0.05         | 558                  | 123.47           | 31.00        | 0.00         | 52,374               | 125.96           |
| 5.50         | 0.05         | 646                  | 123.49           | 31.50        | 0.00         | 52,374               | 125.96           |
| 6.00         | 0.05         | 737                  | 123.51           | 32.00        | 0.00         | 52,374               | 125.96           |
| 6.50         | 0.06         | 837                  | 123.54           | 32.50        | 0.00         | 52,374               | 125.96           |
| 7.00         | 0.07         | 949                  | 123.56           | 33.00        | 0.00         | 52,374               | 125.96           |
| 7.50         | 0.07         | 1,072                | 123.58           | 33.50        | 0.00         | 52,374               | 125.96           |
| 8.00         | 0.08         | 1,208                | 123.61           | 34.00        | 0.00         | 52,375               | 125.96           |
| 8.50         | 0.09         | 1,356                | 123.64           | 34.50        | 0.00         | 52,375               | 125.96           |
| 9.00         | 0.09         | 1,516                | 123.66           | 35.00        | 0.00         | 52,375               | 125.96           |
| 9.50         | 0.12         | 1,707                | 123.69           | 35.50        | 0.00         | 52,375               | 125.96           |
| 10.00        | 0.14         | 1,943                | 123.73           | 36.00        | 0.00         | 52,375               | 125.96           |
| 10.50        | 0.17         | 2,223                | 123.76           |              |              |                      |                  |
| 11.00        | 0.26         | 2,620                | 123.81           |              |              |                      |                  |
| 11.50        | 0.64         | 3,297                | 123.89           |              |              |                      |                  |
| 12.00        | 5.80         | 7,644                | 124.27           |              |              |                      |                  |
| 12.50        | 3.93         | 21,085               | 125.00           |              |              |                      |                  |
| 13.00        | 1.52         | 25,332               | 125.17           |              |              |                      |                  |
| 13.50        | 1.55         | 28,000               | 125.26           |              |              |                      |                  |
| 14.00        | 1.43         | 30,644               | 125.35           |              |              |                      |                  |
| 14.50        | 1.32         | 33,126               | 125.43           |              |              |                      |                  |
| 15.00        | 1.14         | 35,339               | 125.50           |              |              |                      |                  |
| 15.50        | 0.99         | 37,235               | 125.56           |              |              |                      |                  |
| 16.00        | 0.89         | 38,929               | 125.61           |              |              |                      |                  |
| 16.50        | 0.80         | 40,456               | 125.65           |              |              |                      |                  |
| 17.00        | 0.72         | 41,828               | 125.69           |              |              |                      |                  |
| 17.50        | 0.64         | 43,053               | 125.72           |              |              |                      |                  |
| 18.00        | 0.56         | 44,135               | 125.75           |              |              |                      |                  |
| 18.50        | 0.51         | 45,090               | 125.78           |              |              |                      |                  |
| 19.00        | 0.47         | 45,966               | 125.80           |              |              |                      |                  |
| 19.50        | 0.44         | 46,781               | 125.82           |              |              |                      |                  |
| 20.00        | 0.41         | 47,544               | 125.84           |              |              |                      |                  |
| 20.50        | 0.39         | 48,262               | 125.86           |              |              |                      |                  |
| 21.00        | 0.36         | 48,938               | 125.87           |              |              |                      |                  |
| 21.50        | 0.34         | 49,575               | 125.89           |              |              |                      |                  |
| 22.00        | 0.31         | 50,175               | 125.90           |              |              |                      |                  |
| 22.50        | 0.29         | 50,738               | 125.92           |              |              |                      |                  |
| 23.00        | 0.26         | 51,265               | 125.93           |              |              |                      |                  |
| 23.50        | 0.24         | 51,758               | 125.94           |              |              |                      |                  |
| 24.00        | 0.26         | 52,221               | 125.95           |              |              |                      |                  |
| 24.50        | 0.01         | 52,369               | 125.96           |              |              |                      |                  |
| 25.00        | 0.00         | 52,372               | 125.96           |              |              |                      |                  |
| 25.50        | 0.00         | 52,372               | 125.96           |              |              |                      |                  |

**Stage-Discharge for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)**

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 123.25              | 0.00               | 124.29              | 0.00               | 125.33              | 0.00               |
| 123.27              | 0.00               | 124.31              | 0.00               | 125.35              | 0.00               |
| 123.29              | 0.00               | 124.33              | 0.00               | 125.37              | 0.00               |
| 123.31              | 0.00               | 124.35              | 0.00               | 125.39              | 0.00               |
| 123.33              | 0.00               | 124.37              | 0.00               | 125.41              | 0.00               |
| 123.35              | 0.00               | 124.39              | 0.00               | 125.43              | 0.00               |
| 123.37              | 0.00               | 124.41              | 0.00               | 125.45              | 0.00               |
| 123.39              | 0.00               | 124.43              | 0.00               | 125.47              | 0.00               |
| 123.41              | 0.00               | 124.45              | 0.00               | 125.49              | 0.00               |
| 123.43              | 0.00               | 124.47              | 0.00               | 125.51              | 0.00               |
| 123.45              | 0.00               | 124.49              | 0.00               | 125.53              | 0.00               |
| 123.47              | 0.00               | 124.51              | 0.00               | 125.55              | 0.00               |
| 123.49              | 0.00               | 124.53              | 0.00               | 125.57              | 0.00               |
| 123.51              | 0.00               | 124.55              | 0.00               | 125.59              | 0.00               |
| 123.53              | 0.00               | 124.57              | 0.00               | 125.61              | 0.00               |
| 123.55              | 0.00               | 124.59              | 0.00               | 125.63              | 0.00               |
| 123.57              | 0.00               | 124.61              | 0.00               | 125.65              | 0.00               |
| 123.59              | 0.00               | 124.63              | 0.00               | 125.67              | 0.00               |
| 123.61              | 0.00               | 124.65              | 0.00               | 125.69              | 0.00               |
| 123.63              | 0.00               | 124.67              | 0.00               | 125.71              | 0.00               |
| 123.65              | 0.00               | 124.69              | 0.00               | 125.73              | 0.00               |
| 123.67              | 0.00               | 124.71              | 0.00               | 125.75              | 0.00               |
| 123.69              | 0.00               | 124.73              | 0.00               | 125.77              | 0.00               |
| 123.71              | 0.00               | 124.75              | 0.00               | 125.79              | 0.00               |
| 123.73              | 0.00               | 124.77              | 0.00               | 125.81              | 0.00               |
| 123.75              | 0.00               | 124.79              | 0.00               | 125.83              | 0.00               |
| 123.77              | 0.00               | 124.81              | 0.00               | 125.85              | 0.00               |
| 123.79              | 0.00               | 124.83              | 0.00               | 125.87              | 0.00               |
| 123.81              | 0.00               | 124.85              | 0.00               | 125.89              | 0.00               |
| 123.83              | 0.00               | 124.87              | 0.00               | 125.91              | 0.00               |
| 123.85              | 0.00               | 124.89              | 0.00               | 125.93              | 0.00               |
| 123.87              | 0.00               | 124.91              | 0.00               | 125.95              | 0.00               |
| 123.89              | 0.00               | 124.93              | 0.00               | 125.97              | 0.00               |
| 123.91              | 0.00               | 124.95              | 0.00               | 125.99              | 0.00               |
| 123.93              | 0.00               | 124.97              | 0.00               |                     |                    |
| 123.95              | 0.00               | 124.99              | 0.00               |                     |                    |
| 123.97              | 0.00               | 125.01              | 0.00               |                     |                    |
| 123.99              | 0.00               | 125.03              | 0.00               |                     |                    |
| 124.01              | 0.00               | 125.05              | 0.00               |                     |                    |
| 124.03              | 0.00               | 125.07              | 0.00               |                     |                    |
| 124.05              | 0.00               | 125.09              | 0.00               |                     |                    |
| 124.07              | 0.00               | 125.11              | 0.00               |                     |                    |
| 124.09              | 0.00               | 125.13              | 0.00               |                     |                    |
| 124.11              | 0.00               | 125.15              | 0.00               |                     |                    |
| 124.13              | 0.00               | 125.17              | 0.00               |                     |                    |
| 124.15              | 0.00               | 125.19              | 0.00               |                     |                    |
| 124.17              | 0.00               | 125.21              | 0.00               |                     |                    |
| 124.19              | 0.00               | 125.23              | 0.00               |                     |                    |
| 124.21              | 0.00               | 125.25              | 0.00               |                     |                    |
| 124.23              | 0.00               | 125.27              | 0.00               |                     |                    |
| 124.25              | 0.00               | 125.29              | 0.00               |                     |                    |
| 124.27              | 0.00               | 125.31              | 0.00               |                     |                    |

**Stage-Area-Storage for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 123.25              | 1,260              | 0                       | 125.85              | 39,861             | 48,003                  |
| 123.30              | 1,836              | 77                      | 125.90              | 40,871             | 50,022                  |
| 123.35              | 2,413              | 184                     | 125.95              | 41,881             | 52,091                  |
| 123.40              | 2,989              | 319                     | 126.00              | <b>42,891</b>      | <b>54,210</b>           |
| 123.45              | 3,566              | 483                     |                     |                    |                         |
| 123.50              | 4,142              | 675                     |                     |                    |                         |
| 123.55              | 4,804              | 899                     |                     |                    |                         |
| 123.60              | 5,466              | 1,156                   |                     |                    |                         |
| 123.65              | 6,127              | 1,445                   |                     |                    |                         |
| 123.70              | 6,789              | 1,768                   |                     |                    |                         |
| 123.75              | 7,451              | 2,124                   |                     |                    |                         |
| 123.80              | 8,062              | 2,512                   |                     |                    |                         |
| 123.85              | 8,673              | 2,931                   |                     |                    |                         |
| 123.90              | 9,283              | 3,379                   |                     |                    |                         |
| 123.95              | 9,894              | 3,859                   |                     |                    |                         |
| 124.00              | 10,505             | 4,369                   |                     |                    |                         |
| 124.05              | 11,087             | 4,909                   |                     |                    |                         |
| 124.10              | 11,670             | 5,478                   |                     |                    |                         |
| 124.15              | 12,252             | 6,076                   |                     |                    |                         |
| 124.20              | 12,835             | 6,703                   |                     |                    |                         |
| 124.25              | 13,417             | 7,359                   |                     |                    |                         |
| 124.30              | 13,999             | 8,045                   |                     |                    |                         |
| 124.35              | 14,582             | 8,759                   |                     |                    |                         |
| 124.40              | 15,164             | 9,503                   |                     |                    |                         |
| 124.45              | 15,747             | 10,275                  |                     |                    |                         |
| 124.50              | 16,329             | 11,077                  |                     |                    |                         |
| 124.55              | 17,083             | 11,913                  |                     |                    |                         |
| 124.60              | 17,836             | 12,786                  |                     |                    |                         |
| 124.65              | 18,590             | 13,696                  |                     |                    |                         |
| 124.70              | 19,343             | 14,645                  |                     |                    |                         |
| 124.75              | 20,097             | 15,631                  |                     |                    |                         |
| 124.80              | 20,851             | 16,654                  |                     |                    |                         |
| 124.85              | 21,604             | 17,716                  |                     |                    |                         |
| 124.90              | 22,358             | 18,815                  |                     |                    |                         |
| 124.95              | 23,111             | 19,951                  |                     |                    |                         |
| 125.00              | 23,865             | 21,126                  |                     |                    |                         |
| 125.05              | 24,757             | 22,341                  |                     |                    |                         |
| 125.10              | 25,650             | 23,602                  |                     |                    |                         |
| 125.15              | 26,543             | 24,906                  |                     |                    |                         |
| 125.20              | 27,435             | 26,256                  |                     |                    |                         |
| 125.25              | 28,328             | 27,650                  |                     |                    |                         |
| 125.30              | 29,220             | 29,089                  |                     |                    |                         |
| 125.35              | 30,112             | 30,572                  |                     |                    |                         |
| 125.40              | 31,005             | 32,100                  |                     |                    |                         |
| 125.45              | 31,898             | 33,672                  |                     |                    |                         |
| 125.50              | 32,790             | 35,290                  |                     |                    |                         |
| 125.55              | 33,800             | 36,954                  |                     |                    |                         |
| 125.60              | 34,810             | 38,670                  |                     |                    |                         |
| 125.65              | 35,820             | 40,435                  |                     |                    |                         |
| 125.70              | 36,830             | 42,252                  |                     |                    |                         |
| 125.75              | 37,841             | 44,118                  |                     |                    |                         |
| 125.80              | 38,851             | 46,036                  |                     |                    |                         |

Summary for Pond 60P: GI-12

Inflow Area = 102,485 sf, 46.65% Impervious, Inflow Depth = 7.69" for 100-Year-2050 event  
Inflow = 21.60 cfs @ 12.10 hrs, Volume= 65,634 cf  
Outflow = 2.45 cfs @ 12.80 hrs, Volume= 43,504 cf, Atten= 89%, Lag= 41.9 min  
Discarded = 0.20 cfs @ 14.15 hrs, Volume= 22,733 cf  
Primary = 2.26 cfs @ 12.80 hrs, Volume= 20,771 cf  
Routed to Pond 8P : GI-13

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 128.19' @ 14.15 hrs Surf.Area= 16,851 sf Storage= 32,961 cf

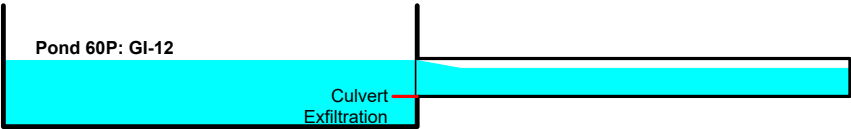
Plug-Flow detention time= (not calculated: outflow precedes inflow)  
Center-of-Mass det. time= 268.5 min ( 1,038.3 - 769.8 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 126.00' | 66,186 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

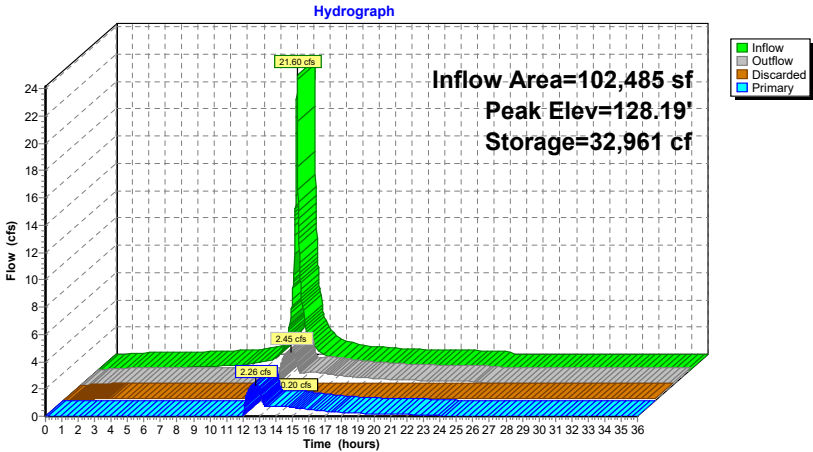
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 126.00           | 13,291            | 0                      | 0                      |
| 130.00           | 19,802            | 66,186                 | 66,186                 |

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                                        |
|--------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary   | 127.00' | 15.0" Round Culvert<br>L= 83.0' CMP, mitered to conform to fill, Ke= 0.700<br>Inlet / Outlet Invert= 127.00' / 127.00' S= 0.0000 '/ Cc= 0.900<br>n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf |
| #2     | Discarded | 126.00' | 0.500 in/hr Exfiltration over Surface area<br>Conductivity to Groundwater Elevation = 1.00'                                                                                                           |

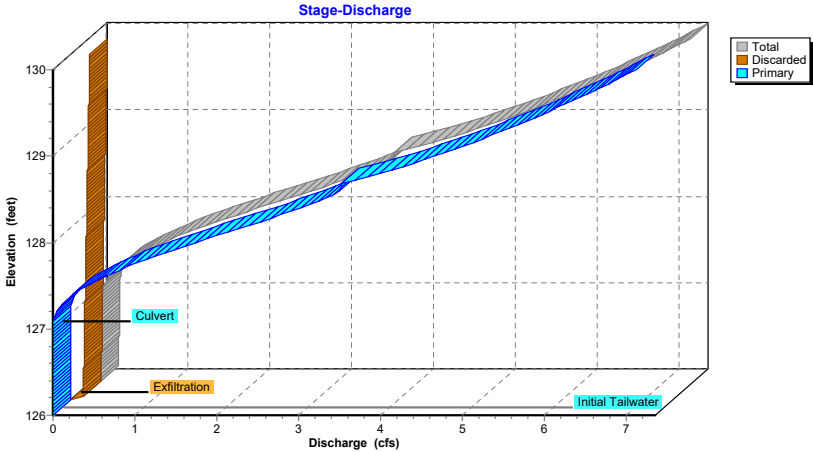
Discarded OutFlow Max=0.20 cfs @ 14.15 hrs HW=128.19' (Free Discharge)  
2=Exfiltration ( Controls 0.20 cfs)  
Primary OutFlow Max=2.26 cfs @ 12.80 hrs HW=128.16' TW=127.52' (Dynamic Tailwater)  
1=Culvert (Barrel Controls 2.26 cfs @ 2.48 fps)

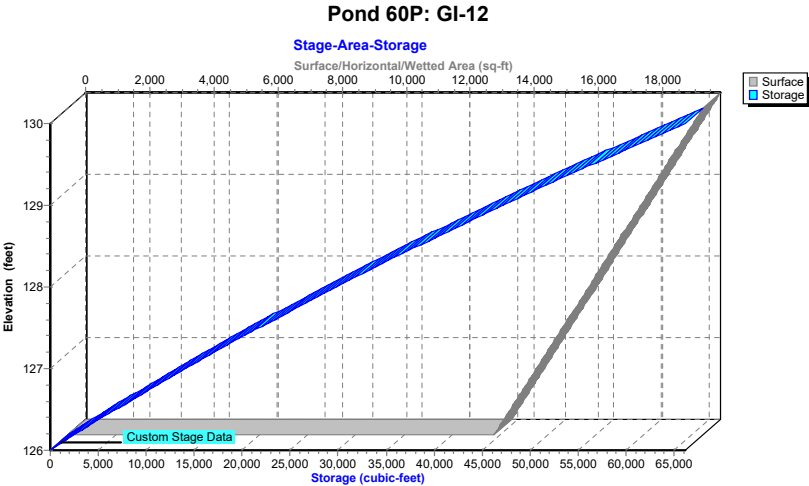


Pond 60P: GI-12



Pond 60P: GI-12





Hydrograph for Pond 60P: GI-12

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Outflow (cfs) | Discarded (cfs) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|-----------------|---------------|
| 0.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 1.00         | 0.08         | 0                    | 126.00           | 0.08          | 0.08            | 0.00          |
| 2.00         | 0.13         | 0                    | 126.00           | 0.13          | 0.13            | 0.00          |
| 3.00         | 0.15         | 0                    | 126.00           | 0.15          | 0.15            | 0.00          |
| 4.00         | 0.17         | 39                   | 126.00           | 0.15          | 0.15            | 0.00          |
| 5.00         | 0.19         | 146                  | 126.01           | 0.15          | 0.15            | 0.00          |
| 6.00         | 0.21         | 312                  | 126.02           | 0.15          | 0.15            | 0.00          |
| 7.00         | 0.26         | 605                  | 126.05           | 0.15          | 0.15            | 0.00          |
| 8.00         | 0.32         | 1,092                | 126.08           | 0.16          | 0.16            | 0.00          |
| 9.00         | 0.37         | 1,769                | 126.13           | 0.16          | 0.16            | 0.00          |
| 10.00        | 0.57         | 2,913                | 126.22           | 0.16          | 0.16            | 0.00          |
| 11.00        | 1.10         | 5,076                | 126.37           | 0.16          | 0.16            | 0.00          |
| 12.00        | 12.18        | 16,959               | 127.19           | 0.22          | 0.18            | 0.04          |
| 13.00        | 2.00         | 32,272               | 128.15           | 2.42          | 0.20            | 2.22          |
| 14.00        | 1.00         | 32,947               | 128.19           | 0.95          | 0.20            | 0.75          |
| 15.00        | 0.67         | 32,662               | 128.17           | 0.85          | 0.20            | 0.65          |
| 16.00        | 0.56         | 32,096               | 128.14           | 0.69          | 0.20            | 0.49          |
| 17.00        | 0.47         | 31,680               | 128.11           | 0.58          | 0.20            | 0.38          |
| 18.00        | 0.38         | 31,313               | 128.09           | 0.48          | 0.20            | 0.29          |
| 19.00        | 0.35         | 31,022               | 128.07           | 0.42          | 0.20            | 0.22          |
| 20.00        | 0.33         | 30,834               | 128.06           | 0.38          | 0.20            | 0.18          |
| 21.00        | 0.31         | 30,690               | 128.05           | 0.35          | 0.20            | 0.15          |
| 22.00        | 0.29         | 30,563               | 128.04           | 0.32          | 0.20            | 0.13          |
| 23.00        | 0.27         | 30,441               | 128.04           | 0.30          | 0.20            | 0.10          |
| 24.00        | 0.29         | 30,326               | 128.03           | 0.29          | 0.19            | 0.10          |
| 25.00        | 0.00         | 29,632               | 127.99           | 0.19          | 0.19            | 0.00          |
| 26.00        | 0.00         | 28,935               | 127.95           | 0.19          | 0.19            | 0.00          |
| 27.00        | 0.00         | 28,241               | 127.90           | 0.19          | 0.19            | 0.00          |
| 28.00        | 0.00         | 27,550               | 127.86           | 0.19          | 0.19            | 0.00          |
| 29.00        | 0.00         | 26,862               | 127.82           | 0.19          | 0.19            | 0.00          |
| 30.00        | 0.00         | 26,177               | 127.78           | 0.19          | 0.19            | 0.00          |
| 31.00        | 0.00         | 25,495               | 127.73           | 0.19          | 0.19            | 0.00          |
| 32.00        | 0.00         | 24,817               | 127.69           | 0.19          | 0.19            | 0.00          |
| 33.00        | 0.00         | 24,141               | 127.65           | 0.19          | 0.19            | 0.00          |
| 34.00        | 0.00         | 23,469               | 127.61           | 0.19          | 0.19            | 0.00          |
| 35.00        | 0.00         | 22,800               | 127.57           | 0.19          | 0.19            | 0.00          |
| 36.00        | 0.00         | 22,134               | 127.52           | 0.18          | 0.18            | 0.00          |

Stage-Discharge for Pond 60P: GI-12

| Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) |
|---------------------|--------------------|--------------------|------------------|---------------------|--------------------|--------------------|------------------|
| 126.00              | 0.00               | 0.00               | 0.00             | 128.60              | 3.70               | 0.21               | 3.49             |
| 126.05              | 0.15               | 0.15               | 0.00             | 128.65              | 3.73               | 0.21               | 3.52             |
| 126.10              | 0.16               | 0.16               | 0.00             | 128.70              | 3.82               | 0.21               | 3.61             |
| 126.15              | 0.16               | 0.16               | 0.00             | 128.75              | 4.01               | 0.21               | 3.81             |
| 126.20              | 0.16               | 0.16               | 0.00             | 128.80              | 4.20               | 0.21               | 3.99             |
| 126.25              | 0.16               | 0.16               | 0.00             | 128.85              | 4.38               | 0.21               | 4.17             |
| 126.30              | 0.16               | 0.16               | 0.00             | 128.90              | 4.55               | 0.21               | 4.34             |
| 126.35              | 0.16               | 0.16               | 0.00             | 128.95              | 4.72               | 0.21               | 4.50             |
| 126.40              | 0.16               | 0.16               | 0.00             | 129.00              | 4.88               | 0.21               | 4.66             |
| 126.45              | 0.16               | 0.16               | 0.00             | 129.05              | 5.03               | 0.22               | 4.81             |
| 126.50              | 0.16               | 0.16               | 0.00             | 129.10              | 5.18               | 0.22               | 4.96             |
| 126.55              | 0.16               | 0.16               | 0.00             | 129.15              | 5.32               | 0.22               | 5.11             |
| 126.60              | 0.17               | 0.17               | 0.00             | 129.20              | 5.46               | 0.22               | 5.24             |
| 126.65              | 0.17               | 0.17               | 0.00             | 129.25              | 5.60               | 0.22               | 5.38             |
| 126.70              | 0.17               | 0.17               | 0.00             | 129.30              | 5.74               | 0.22               | 5.51             |
| 126.75              | 0.17               | 0.17               | 0.00             | 129.35              | 5.87               | 0.22               | 5.64             |
| 126.80              | 0.17               | 0.17               | 0.00             | 129.40              | 5.99               | 0.22               | 5.77             |
| 126.85              | 0.17               | 0.17               | 0.00             | 129.45              | 6.12               | 0.22               | 5.89             |
| 126.90              | 0.17               | 0.17               | 0.00             | 129.50              | 6.24               | 0.22               | 6.02             |
| 126.95              | 0.17               | 0.17               | 0.00             | 129.55              | 6.36               | 0.23               | 6.14             |
| 127.00              | 0.17               | 0.17               | 0.00             | 129.60              | 6.48               | 0.23               | 6.25             |
| 127.05              | 0.18               | 0.17               | 0.00             | 129.65              | 6.60               | 0.23               | 6.37             |
| 127.10              | 0.18               | 0.18               | 0.01             | 129.70              | 6.71               | 0.23               | 6.48             |
| 127.15              | 0.20               | 0.18               | 0.02             | 129.75              | 6.82               | 0.23               | 6.59             |
| 127.20              | 0.23               | 0.18               | 0.05             | 129.80              | 6.93               | 0.23               | 6.70             |
| 127.25              | 0.26               | 0.18               | 0.08             | 129.85              | 7.04               | 0.23               | 6.81             |
| 127.30              | 0.31               | 0.18               | 0.13             | 129.90              | 7.15               | 0.23               | 6.91             |
| 127.35              | 0.37               | 0.18               | 0.18             | 129.95              | 7.25               | 0.23               | 7.02             |
| 127.40              | 0.43               | 0.18               | 0.25             | 130.00              | <b>7.35</b>        | <b>0.24</b>        | <b>7.12</b>      |
| 127.45              | 0.51               | 0.18               | 0.33             |                     |                    |                    |                  |
| 127.50              | 0.60               | 0.18               | 0.42             |                     |                    |                    |                  |
| 127.55              | 0.70               | 0.19               | 0.51             |                     |                    |                    |                  |
| 127.60              | 0.81               | 0.19               | 0.62             |                     |                    |                    |                  |
| 127.65              | 0.92               | 0.19               | 0.74             |                     |                    |                    |                  |
| 127.70              | 1.05               | 0.19               | 0.86             |                     |                    |                    |                  |
| 127.75              | 1.18               | 0.19               | 0.99             |                     |                    |                    |                  |
| 127.80              | 1.32               | 0.19               | 1.13             |                     |                    |                    |                  |
| 127.85              | 1.47               | 0.19               | 1.28             |                     |                    |                    |                  |
| 127.90              | 1.62               | 0.19               | 1.43             |                     |                    |                    |                  |
| 127.95              | 1.78               | 0.19               | 1.58             |                     |                    |                    |                  |
| 128.00              | 1.94               | 0.19               | 1.74             |                     |                    |                    |                  |
| 128.05              | 2.10               | 0.20               | 1.90             |                     |                    |                    |                  |
| 128.10              | 2.27               | 0.20               | 2.07             |                     |                    |                    |                  |
| 128.15              | 2.43               | 0.20               | 2.23             |                     |                    |                    |                  |
| 128.20              | 2.60               | 0.20               | 2.40             |                     |                    |                    |                  |
| 128.25              | 2.76               | 0.20               | 2.56             |                     |                    |                    |                  |
| 128.30              | 2.93               | 0.20               | 2.72             |                     |                    |                    |                  |
| 128.35              | 3.08               | 0.20               | 2.88             |                     |                    |                    |                  |
| 128.40              | 3.23               | 0.20               | 3.03             |                     |                    |                    |                  |
| 128.45              | 3.37               | 0.20               | 3.17             |                     |                    |                    |                  |
| 128.50              | 3.50               | 0.20               | 3.30             |                     |                    |                    |                  |
| 128.55              | 3.61               | 0.21               | 3.41             |                     |                    |                    |                  |

Stage-Area-Storage for Pond 60P: GI-12

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 126.00              | 13,291             | 0                       | 128.60              | 17,523             | 40,058                  |
| 126.05              | 13,372             | 667                     | 128.65              | 17,605             | 40,937                  |
| 126.10              | 13,454             | 1,337                   | 128.70              | 17,686             | 41,819                  |
| 126.15              | 13,535             | 2,012                   | 128.75              | 17,767             | 42,705                  |
| 126.20              | 13,617             | 2,691                   | 128.80              | 17,849             | 43,596                  |
| 126.25              | 13,698             | 3,374                   | 128.85              | 17,930             | 44,490                  |
| 126.30              | 13,779             | 4,061                   | 128.90              | 18,011             | 45,389                  |
| 126.35              | 13,861             | 4,752                   | 128.95              | 18,093             | 46,291                  |
| 126.40              | 13,942             | 5,447                   | 129.00              | 18,174             | 47,198                  |
| 126.45              | 14,023             | 6,146                   | 129.05              | 18,256             | 48,109                  |
| 126.50              | 14,105             | 6,849                   | 129.10              | 18,337             | 49,023                  |
| 126.55              | 14,186             | 7,556                   | 129.15              | 18,418             | 49,942                  |
| 126.60              | 14,268             | 8,268                   | 129.20              | 18,500             | 50,865                  |
| 126.65              | 14,349             | 8,983                   | 129.25              | 18,581             | 51,792                  |
| 126.70              | 14,430             | 9,702                   | 129.30              | 18,663             | 52,723                  |
| 126.75              | 14,512             | 10,426                  | 129.35              | 18,744             | 53,659                  |
| 126.80              | 14,593             | 11,154                  | 129.40              | 18,825             | 54,598                  |
| 126.85              | 14,675             | 11,885                  | 129.45              | 18,907             | 55,541                  |
| 126.90              | 14,756             | 12,621                  | 129.50              | 18,988             | 56,488                  |
| 126.95              | 14,837             | 13,361                  | 129.55              | 19,070             | 57,440                  |
| 127.00              | 14,919             | 14,105                  | 129.60              | 19,151             | 58,395                  |
| 127.05              | 15,000             | 14,853                  | 129.65              | 19,232             | 59,355                  |
| 127.10              | 15,082             | 15,605                  | 129.70              | 19,314             | 60,319                  |
| 127.15              | 15,163             | 16,361                  | 129.75              | 19,395             | 61,286                  |
| 127.20              | 15,244             | 17,121                  | 129.80              | 19,476             | 62,258                  |
| 127.25              | 15,326             | 17,885                  | 129.85              | 19,558             | 63,234                  |
| 127.30              | 15,407             | 18,654                  | 129.90              | 19,639             | 64,214                  |
| 127.35              | 15,488             | 19,426                  | 129.95              | 19,721             | 65,198                  |
| 127.40              | 15,570             | 20,203                  | 130.00              | <b>19,802</b>      | <b>66,186</b>           |
| 127.45              | 15,651             | 20,983                  |                     |                    |                         |
| 127.50              | 15,733             | 21,768                  |                     |                    |                         |
| 127.55              | 15,814             | 22,556                  |                     |                    |                         |
| 127.60              | 15,895             | 23,349                  |                     |                    |                         |
| 127.65              | 15,977             | 24,146                  |                     |                    |                         |
| 127.70              | 16,058             | 24,947                  |                     |                    |                         |
| 127.75              | 16,140             | 25,752                  |                     |                    |                         |
| 127.80              | 16,221             | 26,561                  |                     |                    |                         |
| 127.85              | 16,302             | 27,374                  |                     |                    |                         |
| 127.90              | 16,384             | 28,191                  |                     |                    |                         |
| 127.95              | 16,465             | 29,012                  |                     |                    |                         |
| 128.00              | 16,547             | 29,838                  |                     |                    |                         |
| 128.05              | 16,628             | 30,667                  |                     |                    |                         |
| 128.10              | 16,709             | 31,500                  |                     |                    |                         |
| 128.15              | 16,791             | 32,338                  |                     |                    |                         |
| 128.20              | 16,872             | 33,179                  |                     |                    |                         |
| 128.25              | 16,953             | 34,025                  |                     |                    |                         |
| 128.30              | 17,035             | 34,875                  |                     |                    |                         |
| 128.35              | 17,116             | 35,728                  |                     |                    |                         |
| 128.40              | 17,198             | 36,586                  |                     |                    |                         |
| 128.45              | 17,279             | 37,448                  |                     |                    |                         |
| 128.50              | 17,360             | 38,314                  |                     |                    |                         |
| 128.55              | 17,442             | 39,184                  |                     |                    |                         |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

|                                        |                                                                                                                                            |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Subcatchment44S: GI-10 Pervious        | Runoff Area=13,028 sf 0.00% Impervious Runoff Depth=0.00"<br>Flow Length=91' Tc=10.5 min CN=39 Runoff=0.00 cfs 0 cf                        |
| Subcatchment45S: GI-10 Impervious      | Runoff Area=19,702 sf 100.00% Impervious Runoff Depth=1.03"<br>Flow Length=660' Tc=4.5 min CN=98 Runoff=1.36 cfs 1,699 cf                  |
| Subcatchment62S: GI-12 Impervious      | Runoff Area=47,814 sf 100.00% Impervious Runoff Depth=1.03"<br>Flow Length=147' Tc=1.6 min CN=98 Runoff=3.38 cfs 4,122 cf                  |
| Subcatchment63S: GI-13 Pervious        | Runoff Area=17,103 sf 0.00% Impervious Runoff Depth=0.00"<br>Flow Length=90' Slope=0.0100 '/' Tc=9.6 min CN=42 Runoff=0.00 cfs 0 cf        |
| Subcatchment64S: Wetland Pervious      | Runoff Area=75,754 sf 0.00% Impervious Runoff Depth=0.00"<br>Flow Length=161' Tc=10.2 min CN=33 Runoff=0.00 cfs 0 cf                       |
| Subcatchment67S: Wetland Impervious    | Runoff Area=11,867 sf 100.00% Impervious Runoff Depth=1.03"<br>Flow Length=151' Tc=0.9 min CN=98 Runoff=0.84 cfs 1,023 cf                  |
| Subcatchment68S: GI-12 Pervious        | Runoff Area=54,671 sf 0.00% Impervious Runoff Depth=0.00"<br>Flow Length=93' Tc=5.6 min CN=44 Runoff=0.00 cfs 0 cf                         |
| Pond 8P: GI-13                         | Peak Elev=126.00' Storage=0 cf Inflow=0.00 cfs 0 cf<br>Discarded=0.00 cfs 0 cf Primary=0.00 cfs 0 cf Outflow=0.00 cfs 0 cf                 |
| Pond 46P: GI-10                        | Peak Elev=124.08' Storage=1,699 cf Inflow=1.36 cfs 1,699 cf<br>Outflow=0.00 cfs 0 cf                                                       |
| Pond 59P: Proposed Drainage Area POI-2 | Peak Elev=123.57' Storage=1,023 cf Inflow=0.84 cfs 1,023 cf<br>Outflow=0.00 cfs 0 cf                                                       |
| Pond 60P: GI-12                        | Peak Elev=126.24' Storage=3,263 cf Inflow=3.38 cfs 4,122 cf<br>Discarded=0.16 cfs 4,124 cf Primary=0.00 cfs 0 cf Outflow=0.16 cfs 4,124 cf |

Total Runoff Area = 239,939 sf Runoff Volume = 6,844 cf Average Runoff Depth = 0.34"  
66.92% Pervious = 160,556 sf 33.08% Impervious = 79,383 sf

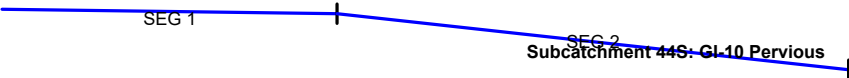
Summary for Subcatchment 44S: GI-10 Pervious

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"  
Routed to Pond 46P : GI-10

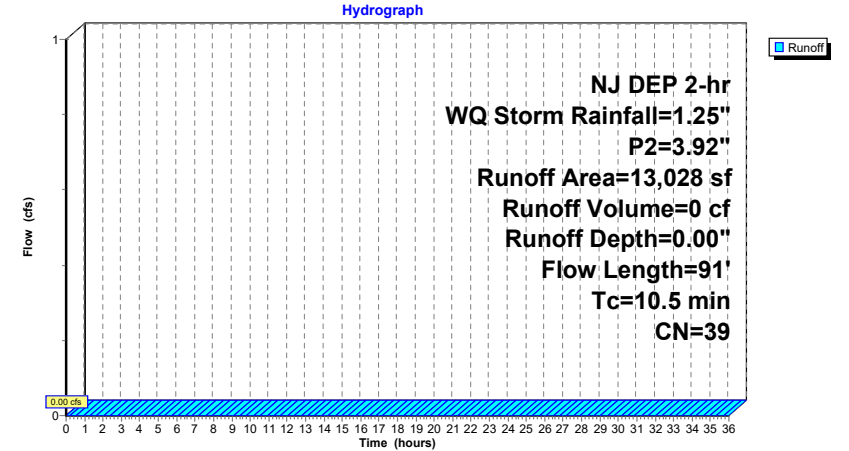
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 13,028    | 39 | >75% Grass cover, Good, HSG A |
| 13,028    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                          |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------|
| 6.6      | 36            | 0.0140        | 0.09              |                | Sheet Flow, SEG 1<br>Grass: Dense n= 0.240 P2= 3.92" |
| 3.9      | 55            | 0.1180        | 0.23              |                | Sheet Flow, SEG 2<br>Grass: Dense n= 0.240 P2= 3.92" |
| 10.5     | 91            | Total         |                   |                |                                                      |



Subcatchment 44S: GI-10 Pervious

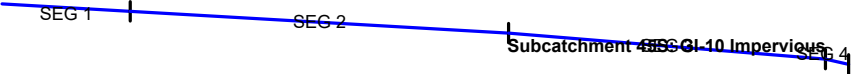


Hydrograph for Subcatchment 44S: GI-10 Pervious

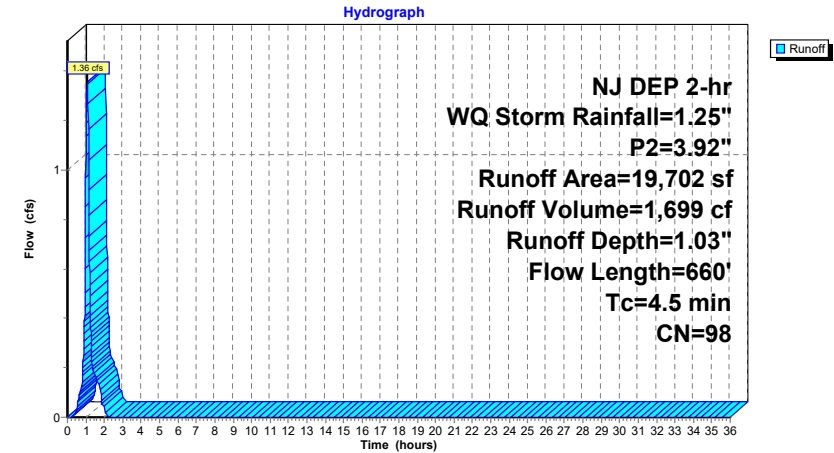
| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 0.00               | 0.00            |
| 0.50            | 0.10                | 0.00               | 0.00            | 26.50           | 1.25                | 0.00               | 0.00            |
| 1.00            | 0.63                | 0.00               | 0.00            | 27.00           | 1.25                | 0.00               | 0.00            |
| 1.50            | 1.15                | 0.00               | 0.00            | 27.50           | 1.25                | 0.00               | 0.00            |
| 2.00            | 1.25                | 0.00               | 0.00            | 28.00           | 1.25                | 0.00               | 0.00            |
| 2.50            | 1.25                | 0.00               | 0.00            | 28.50           | 1.25                | 0.00               | 0.00            |
| 3.00            | 1.25                | 0.00               | 0.00            | 29.00           | 1.25                | 0.00               | 0.00            |
| 3.50            | 1.25                | 0.00               | 0.00            | 29.50           | 1.25                | 0.00               | 0.00            |
| 4.00            | 1.25                | 0.00               | 0.00            | 30.00           | 1.25                | 0.00               | 0.00            |
| 4.50            | 1.25                | 0.00               | 0.00            | 30.50           | 1.25                | 0.00               | 0.00            |
| 5.00            | 1.25                | 0.00               | 0.00            | 31.00           | 1.25                | 0.00               | 0.00            |
| 5.50            | 1.25                | 0.00               | 0.00            | 31.50           | 1.25                | 0.00               | 0.00            |
| 6.00            | 1.25                | 0.00               | 0.00            | 32.00           | 1.25                | 0.00               | 0.00            |
| 6.50            | 1.25                | 0.00               | 0.00            | 32.50           | 1.25                | 0.00               | 0.00            |
| 7.00            | 1.25                | 0.00               | 0.00            | 33.00           | 1.25                | 0.00               | 0.00            |
| 7.50            | 1.25                | 0.00               | 0.00            | 33.50           | 1.25                | 0.00               | 0.00            |
| 8.00            | 1.25                | 0.00               | 0.00            | 34.00           | 1.25                | 0.00               | 0.00            |
| 8.50            | 1.25                | 0.00               | 0.00            | 34.50           | 1.25                | 0.00               | 0.00            |
| 9.00            | 1.25                | 0.00               | 0.00            | 35.00           | 1.25                | 0.00               | 0.00            |
| 9.50            | 1.25                | 0.00               | 0.00            | 35.50           | 1.25                | 0.00               | 0.00            |
| 10.00           | 1.25                | 0.00               | 0.00            | 36.00           | 1.25                | 0.00               | 0.00            |
| 10.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 45S: GI-10 Impervious

| Runoff = 1.36 cfs @ 1.09 hrs, Volume= 1,699 cf, Depth= 1.03"<br>Routed to Pond 46P : GI-10                                                |                  |                         |                      |                   |                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------|----------------------|-------------------|----------------------------------------------------------------------------|
| Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs<br>NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92" |                  |                         |                      |                   |                                                                            |
| Area (sf)                                                                                                                                 | CN               | Description             |                      |                   |                                                                            |
| 19,702                                                                                                                                    | 98               | Paved parking, HSG A    |                      |                   |                                                                            |
| 19,702                                                                                                                                    |                  | 100.00% Impervious Area |                      |                   |                                                                            |
| Tc<br>(min)                                                                                                                               | Length<br>(feet) | Slope<br>(ft/ft)        | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                                |
| 1.3                                                                                                                                       | 100              | 0.0140                  | 1.32                 |                   | <b>Sheet Flow, SEG 1</b><br>Smooth surfaces n= 0.011 P2= 3.92"             |
| 2.0                                                                                                                                       | 295              | 0.0140                  | 2.40                 |                   | <b>Shallow Concentrated Flow, SEG 2</b><br>Paved Kv= 20.3 fps              |
| 1.0                                                                                                                                       | 247              | 0.0200                  | 4.22                 | 0.84              | <b>Channel Flow, SEG 3</b><br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2                                                                                                                                       | 18               | 0.0560                  | 1.66                 |                   | <b>Shallow Concentrated Flow, SEG 4</b><br>Short Grass Pasture Kv= 7.0 fps |
| 4.5                                                                                                                                       | 660              | Total                   |                      |                   |                                                                            |



Subcatchment 45S: GI-10 Impervious



Hydrograph for Subcatchment 45S: GI-10 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 1.03               | 0.00            |
| 0.50            | 0.10                | 0.01               | 0.04            | 26.50           | 1.25                | 1.03               | 0.00            |
| 1.00            | 0.63                | 0.43               | 1.07            | 27.00           | 1.25                | 1.03               | 0.00            |
| 1.50            | 1.15                | 0.94               | 0.18            | 27.50           | 1.25                | 1.03               | 0.00            |
| 2.00            | 1.25                | 1.03               | 0.04            | 28.00           | 1.25                | 1.03               | 0.00            |
| 2.50            | 1.25                | 1.03               | 0.00            | 28.50           | 1.25                | 1.03               | 0.00            |
| 3.00            | 1.25                | 1.03               | 0.00            | 29.00           | 1.25                | 1.03               | 0.00            |
| 3.50            | 1.25                | 1.03               | 0.00            | 29.50           | 1.25                | 1.03               | 0.00            |
| 4.00            | 1.25                | 1.03               | 0.00            | 30.00           | 1.25                | 1.03               | 0.00            |
| 4.50            | 1.25                | 1.03               | 0.00            | 30.50           | 1.25                | 1.03               | 0.00            |
| 5.00            | 1.25                | 1.03               | 0.00            | 31.00           | 1.25                | 1.03               | 0.00            |
| 5.50            | 1.25                | 1.03               | 0.00            | 31.50           | 1.25                | 1.03               | 0.00            |
| 6.00            | 1.25                | 1.03               | 0.00            | 32.00           | 1.25                | 1.03               | 0.00            |
| 6.50            | 1.25                | 1.03               | 0.00            | 32.50           | 1.25                | 1.03               | 0.00            |
| 7.00            | 1.25                | 1.03               | 0.00            | 33.00           | 1.25                | 1.03               | 0.00            |
| 7.50            | 1.25                | 1.03               | 0.00            | 33.50           | 1.25                | 1.03               | 0.00            |
| 8.00            | 1.25                | 1.03               | 0.00            | 34.00           | 1.25                | 1.03               | 0.00            |
| 8.50            | 1.25                | 1.03               | 0.00            | 34.50           | 1.25                | 1.03               | 0.00            |
| 9.00            | 1.25                | 1.03               | 0.00            | 35.00           | 1.25                | 1.03               | 0.00            |
| 9.50            | 1.25                | 1.03               | 0.00            | 35.50           | 1.25                | 1.03               | 0.00            |
| 10.00           | 1.25                | 1.03               | 0.00            | 36.00           | 1.25                | 1.03               | 0.00            |
| 10.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |



Summary for Subcatchment 62S: GI-12 Impervious

Runoff = 3.38 cfs @ 1.08 hrs, Volume= 4,122 cf, Depth= 1.03"  
Routed to Pond 60P : GI-12

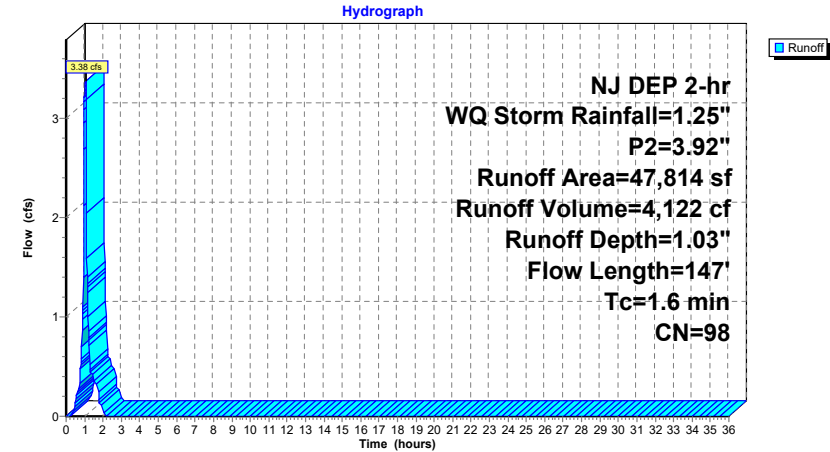
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 47,814    | 98 | Paved parking, HSG A    |
| 47,814    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                         |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------------------------------------|
| 1.1      | 85            | 0.0160        | 1.35              |                | Sheet Flow, SEG 1R<br>Smooth surfaces n= 0.011 P2= 3.92"            |
| 0.2      | 30            | 0.0100        | 2.98              | 0.60           | Channel Flow, SEG 2<br>Area= 0.2 sf Perim= 1.5' r= 0.13' n= 0.013   |
| 0.2      | 21            | 0.0100        | 2.03              |                | Shallow Concentrated Flow, SEG 3<br>Paved Kv= 20.3 fps              |
| 0.1      | 11            | 0.1360        | 2.58              |                | Shallow Concentrated Flow, SEG 4<br>Short Grass Pasture Kv= 7.0 fps |
| 1.6      | 147           | Total         |                   |                |                                                                     |



Subcatchment 62S: GI-12 Impervious



Hydrograph for Subcatchment 62S: GI-12 Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 1.03               | 0.00            |
| 0.50            | 0.10                | 0.01               | 0.12            | 26.50           | 1.25                | 1.03               | 0.00            |
| 1.00            | 0.63                | 0.43               | 3.24            | 27.00           | 1.25                | 1.03               | 0.00            |
| 1.50            | 1.15                | 0.94               | 0.43            | 27.50           | 1.25                | 1.03               | 0.00            |
| 2.00            | 1.25                | 1.03               | 0.11            | 28.00           | 1.25                | 1.03               | 0.00            |
| 2.50            | 1.25                | 1.03               | 0.00            | 28.50           | 1.25                | 1.03               | 0.00            |
| 3.00            | 1.25                | 1.03               | 0.00            | 29.00           | 1.25                | 1.03               | 0.00            |
| 3.50            | 1.25                | 1.03               | 0.00            | 29.50           | 1.25                | 1.03               | 0.00            |
| 4.00            | 1.25                | 1.03               | 0.00            | 30.00           | 1.25                | 1.03               | 0.00            |
| 4.50            | 1.25                | 1.03               | 0.00            | 30.50           | 1.25                | 1.03               | 0.00            |
| 5.00            | 1.25                | 1.03               | 0.00            | 31.00           | 1.25                | 1.03               | 0.00            |
| 5.50            | 1.25                | 1.03               | 0.00            | 31.50           | 1.25                | 1.03               | 0.00            |
| 6.00            | 1.25                | 1.03               | 0.00            | 32.00           | 1.25                | 1.03               | 0.00            |
| 6.50            | 1.25                | 1.03               | 0.00            | 32.50           | 1.25                | 1.03               | 0.00            |
| 7.00            | 1.25                | 1.03               | 0.00            | 33.00           | 1.25                | 1.03               | 0.00            |
| 7.50            | 1.25                | 1.03               | 0.00            | 33.50           | 1.25                | 1.03               | 0.00            |
| 8.00            | 1.25                | 1.03               | 0.00            | 34.00           | 1.25                | 1.03               | 0.00            |
| 8.50            | 1.25                | 1.03               | 0.00            | 34.50           | 1.25                | 1.03               | 0.00            |
| 9.00            | 1.25                | 1.03               | 0.00            | 35.00           | 1.25                | 1.03               | 0.00            |
| 9.50            | 1.25                | 1.03               | 0.00            | 35.50           | 1.25                | 1.03               | 0.00            |
| 10.00           | 1.25                | 1.03               | 0.00            | 36.00           | 1.25                | 1.03               | 0.00            |
| 10.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 63S: GI-13 Pervious

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

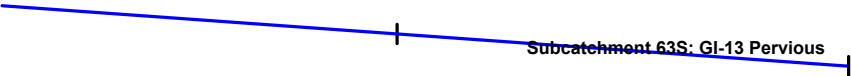
Routed to Pond 8P : GI-13

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

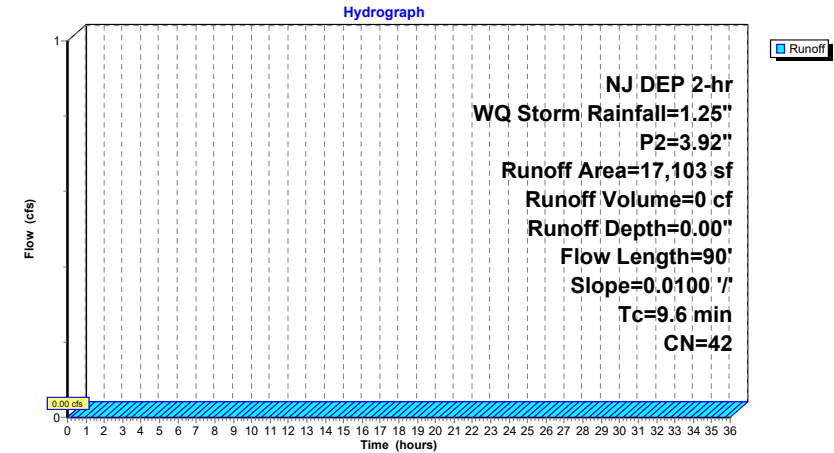
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 14,703    | 39 | >75% Grass cover, Good, HSG A |
| 2,400     | 61 | >75% Grass cover, Good, HSG B |
| 17,103    | 42 | Weighted Average              |
| 17,103    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                              |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------------------------------------------|
| 8.5      | 42            | 0.0100        | 0.08              |                | <b>Sheet Flow,</b><br>Grass: Dense n= 0.240 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 1.1      | 48            | 0.0100        | 0.70              |                | <b>Shallow Concentrated Flow,</b><br>Short Grass Pasture Kv= 7.0 fps                     |
| 9.6      | 90            | Total         |                   |                |                                                                                          |



Subcatchment 63S: GI-13 Pervious



Hydrograph for Subcatchment 63S: GI-13 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 0.00               | 0.00            |
| 0.50            | 0.10                | 0.00               | 0.00            | 26.50           | 1.25                | 0.00               | 0.00            |
| 1.00            | 0.63                | 0.00               | 0.00            | 27.00           | 1.25                | 0.00               | 0.00            |
| 1.50            | 1.15                | 0.00               | 0.00            | 27.50           | 1.25                | 0.00               | 0.00            |
| 2.00            | 1.25                | 0.00               | 0.00            | 28.00           | 1.25                | 0.00               | 0.00            |
| 2.50            | 1.25                | 0.00               | 0.00            | 28.50           | 1.25                | 0.00               | 0.00            |
| 3.00            | 1.25                | 0.00               | 0.00            | 29.00           | 1.25                | 0.00               | 0.00            |
| 3.50            | 1.25                | 0.00               | 0.00            | 29.50           | 1.25                | 0.00               | 0.00            |
| 4.00            | 1.25                | 0.00               | 0.00            | 30.00           | 1.25                | 0.00               | 0.00            |
| 4.50            | 1.25                | 0.00               | 0.00            | 30.50           | 1.25                | 0.00               | 0.00            |
| 5.00            | 1.25                | 0.00               | 0.00            | 31.00           | 1.25                | 0.00               | 0.00            |
| 5.50            | 1.25                | 0.00               | 0.00            | 31.50           | 1.25                | 0.00               | 0.00            |
| 6.00            | 1.25                | 0.00               | 0.00            | 32.00           | 1.25                | 0.00               | 0.00            |
| 6.50            | 1.25                | 0.00               | 0.00            | 32.50           | 1.25                | 0.00               | 0.00            |
| 7.00            | 1.25                | 0.00               | 0.00            | 33.00           | 1.25                | 0.00               | 0.00            |
| 7.50            | 1.25                | 0.00               | 0.00            | 33.50           | 1.25                | 0.00               | 0.00            |
| 8.00            | 1.25                | 0.00               | 0.00            | 34.00           | 1.25                | 0.00               | 0.00            |
| 8.50            | 1.25                | 0.00               | 0.00            | 34.50           | 1.25                | 0.00               | 0.00            |
| 9.00            | 1.25                | 0.00               | 0.00            | 35.00           | 1.25                | 0.00               | 0.00            |
| 9.50            | 1.25                | 0.00               | 0.00            | 35.50           | 1.25                | 0.00               | 0.00            |
| 10.00           | 1.25                | 0.00               | 0.00            | 36.00           | 1.25                | 0.00               | 0.00            |
| 10.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 64S: Wetland Pervious

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

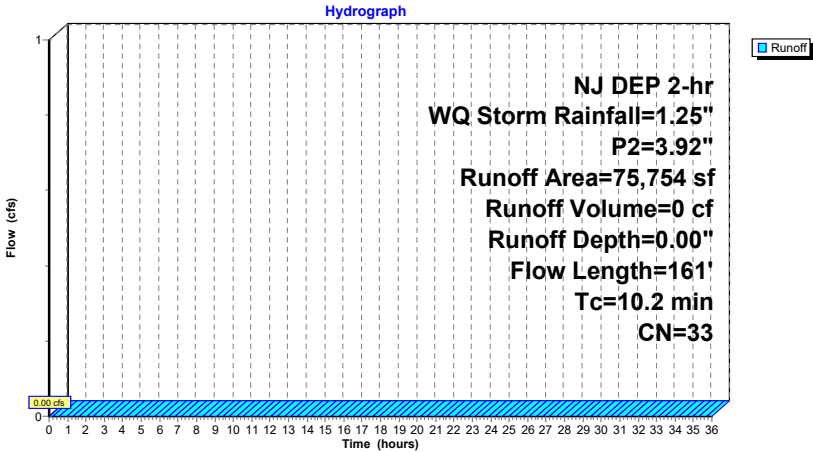
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 24,790    | 39 | >75% Grass cover, Good, HSG A |
| 50,964    | 30 | Woods, Good, HSG A            |
| 75,754    | 33 | Weighted Average              |
| 75,754    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                  |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------|
| 8.5      | 39            | 0.0240        | 0.08              |                | Sheet Flow,<br>Woods: Light underbrush n= 0.400 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 1.7      | 122           | 0.0570        | 1.19              |                | Shallow Concentrated Flow,<br>Woodland Kv= 5.0 fps                                           |
| 10.2     | 161           |               |                   |                | Total                                                                                        |



Subcatchment 64S: Wetland Pervious



Hydrograph for Subcatchment 64S: Wetland Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 0.00               | 0.00            |
| 0.50            | 0.10                | 0.00               | 0.00            | 26.50           | 1.25                | 0.00               | 0.00            |
| 1.00            | 0.63                | 0.00               | 0.00            | 27.00           | 1.25                | 0.00               | 0.00            |
| 1.50            | 1.15                | 0.00               | 0.00            | 27.50           | 1.25                | 0.00               | 0.00            |
| 2.00            | 1.25                | 0.00               | 0.00            | 28.00           | 1.25                | 0.00               | 0.00            |
| 2.50            | 1.25                | 0.00               | 0.00            | 28.50           | 1.25                | 0.00               | 0.00            |
| 3.00            | 1.25                | 0.00               | 0.00            | 29.00           | 1.25                | 0.00               | 0.00            |
| 3.50            | 1.25                | 0.00               | 0.00            | 29.50           | 1.25                | 0.00               | 0.00            |
| 4.00            | 1.25                | 0.00               | 0.00            | 30.00           | 1.25                | 0.00               | 0.00            |
| 4.50            | 1.25                | 0.00               | 0.00            | 30.50           | 1.25                | 0.00               | 0.00            |
| 5.00            | 1.25                | 0.00               | 0.00            | 31.00           | 1.25                | 0.00               | 0.00            |
| 5.50            | 1.25                | 0.00               | 0.00            | 31.50           | 1.25                | 0.00               | 0.00            |
| 6.00            | 1.25                | 0.00               | 0.00            | 32.00           | 1.25                | 0.00               | 0.00            |
| 6.50            | 1.25                | 0.00               | 0.00            | 32.50           | 1.25                | 0.00               | 0.00            |
| 7.00            | 1.25                | 0.00               | 0.00            | 33.00           | 1.25                | 0.00               | 0.00            |
| 7.50            | 1.25                | 0.00               | 0.00            | 33.50           | 1.25                | 0.00               | 0.00            |
| 8.00            | 1.25                | 0.00               | 0.00            | 34.00           | 1.25                | 0.00               | 0.00            |
| 8.50            | 1.25                | 0.00               | 0.00            | 34.50           | 1.25                | 0.00               | 0.00            |
| 9.00            | 1.25                | 0.00               | 0.00            | 35.00           | 1.25                | 0.00               | 0.00            |
| 9.50            | 1.25                | 0.00               | 0.00            | 35.50           | 1.25                | 0.00               | 0.00            |
| 10.00           | 1.25                | 0.00               | 0.00            | 36.00           | 1.25                | 0.00               | 0.00            |
| 10.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 67S: Wetland Impervious

Runoff = 0.84 cfs @ 1.08 hrs, Volume= 1,023 cf, Depth= 1.03"  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

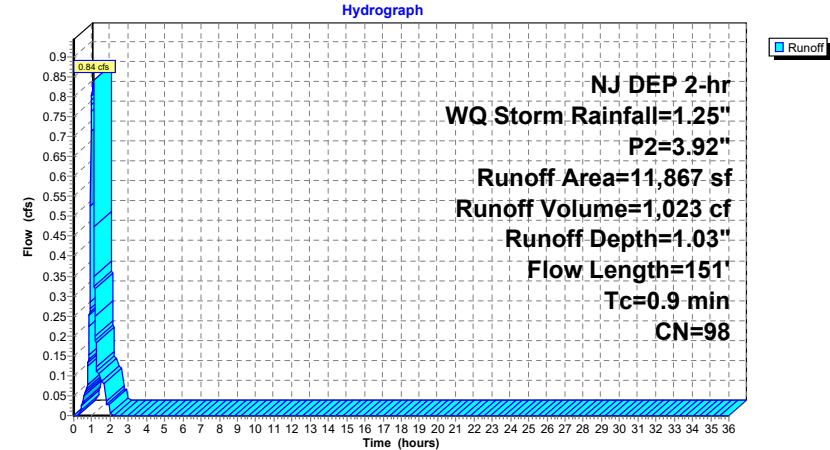
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 11,867    | 98 | Paved parking, HSG A    |
| 11,867    |    | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                 |
|----------|---------------|---------------|-------------------|----------------|-------------------------------------------------------------|
| 0.5      | 36            | 0.0200        | 1.24              |                | Sheet Flow,<br>Smooth surfaces n= 0.011 P2= 3.92"           |
| 0.4      | 115           | 0.1250        | 5.30              |                | Shallow Concentrated Flow,<br>Grassed Waterway Kv= 15.0 fps |
| 0.9      | 151           | Total         |                   |                |                                                             |



Subcatchment 67S: Wetland Impervious



Hydrograph for Subcatchment 67S: Wetland Impervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 1.03               | 0.00            |
| 0.50            | 0.10                | 0.01               | 0.03            | 26.50           | 1.25                | 1.03               | 0.00            |
| 1.00            | 0.63                | 0.43               | 0.81            | 27.00           | 1.25                | 1.03               | 0.00            |
| 1.50            | 1.15                | 0.94               | 0.11            | 27.50           | 1.25                | 1.03               | 0.00            |
| 2.00            | 1.25                | 1.03               | 0.03            | 28.00           | 1.25                | 1.03               | 0.00            |
| 2.50            | 1.25                | 1.03               | 0.00            | 28.50           | 1.25                | 1.03               | 0.00            |
| 3.00            | 1.25                | 1.03               | 0.00            | 29.00           | 1.25                | 1.03               | 0.00            |
| 3.50            | 1.25                | 1.03               | 0.00            | 29.50           | 1.25                | 1.03               | 0.00            |
| 4.00            | 1.25                | 1.03               | 0.00            | 30.00           | 1.25                | 1.03               | 0.00            |
| 4.50            | 1.25                | 1.03               | 0.00            | 30.50           | 1.25                | 1.03               | 0.00            |
| 5.00            | 1.25                | 1.03               | 0.00            | 31.00           | 1.25                | 1.03               | 0.00            |
| 5.50            | 1.25                | 1.03               | 0.00            | 31.50           | 1.25                | 1.03               | 0.00            |
| 6.00            | 1.25                | 1.03               | 0.00            | 32.00           | 1.25                | 1.03               | 0.00            |
| 6.50            | 1.25                | 1.03               | 0.00            | 32.50           | 1.25                | 1.03               | 0.00            |
| 7.00            | 1.25                | 1.03               | 0.00            | 33.00           | 1.25                | 1.03               | 0.00            |
| 7.50            | 1.25                | 1.03               | 0.00            | 33.50           | 1.25                | 1.03               | 0.00            |
| 8.00            | 1.25                | 1.03               | 0.00            | 34.00           | 1.25                | 1.03               | 0.00            |
| 8.50            | 1.25                | 1.03               | 0.00            | 34.50           | 1.25                | 1.03               | 0.00            |
| 9.00            | 1.25                | 1.03               | 0.00            | 35.00           | 1.25                | 1.03               | 0.00            |
| 9.50            | 1.25                | 1.03               | 0.00            | 35.50           | 1.25                | 1.03               | 0.00            |
| 10.00           | 1.25                | 1.03               | 0.00            | 36.00           | 1.25                | 1.03               | 0.00            |
| 10.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |

Summary for Subcatchment 68S: GI-12 Pervious

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

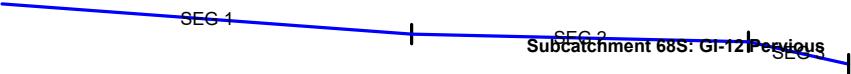
Routed to Pond 60P : GI-12

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

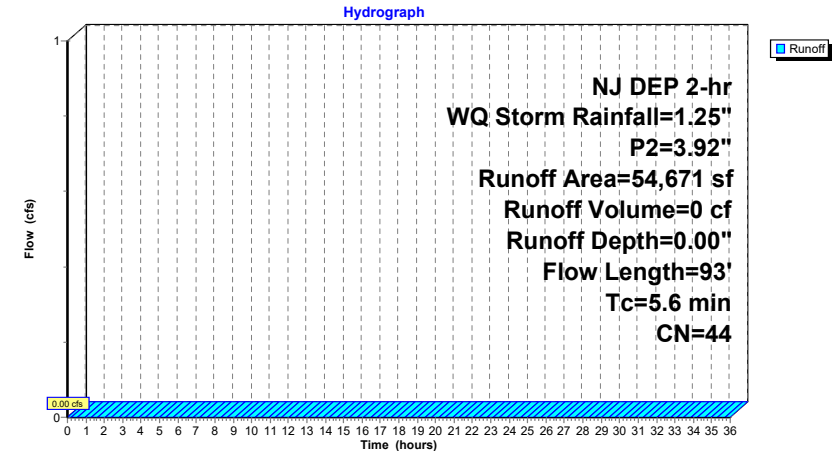
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 42,609    | 39 | >75% Grass cover, Good, HSG A |
| 12,062    | 61 | >75% Grass cover, Good, HSG B |
| 54,671    | 44 | Weighted Average              |
| 54,671    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------|
| 4.9      | 45            | 0.0450        | 0.15              |                | <b>Sheet Flow, SEG 1</b><br>Grass: Dense n= 0.240 P2= 3.92"                |
| 0.6      | 37            | 0.0140        | 1.08              |                | <b>Sheet Flow, SEG 2</b><br>Smooth surfaces n= 0.011 P2= 3.92"             |
| 0.1      | 11            | 0.1360        | 2.58              |                | <b>Shallow Concentrated Flow, SEG 3</b><br>Short Grass Pasture Kv= 7.0 fps |
| 5.6      | 93            | Total         |                   |                |                                                                            |



Subcatchment 68S: GI-12 Pervious



Hydrograph for Subcatchment 68S: GI-12 Pervious

| Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) | Time (hours) | Precip. (inches) | Excess (inches) | Runoff (cfs) |
|--------------|------------------|-----------------|--------------|--------------|------------------|-----------------|--------------|
| 0.00         | 0.00             | 0.00            | 0.00         | 26.00        | 1.25             | 0.00            | 0.00         |
| 0.50         | 0.10             | 0.00            | 0.00         | 26.50        | 1.25             | 0.00            | 0.00         |
| 1.00         | 0.63             | 0.00            | 0.00         | 27.00        | 1.25             | 0.00            | 0.00         |
| 1.50         | 1.15             | 0.00            | 0.00         | 27.50        | 1.25             | 0.00            | 0.00         |
| 2.00         | 1.25             | 0.00            | 0.00         | 28.00        | 1.25             | 0.00            | 0.00         |
| 2.50         | 1.25             | 0.00            | 0.00         | 28.50        | 1.25             | 0.00            | 0.00         |
| 3.00         | 1.25             | 0.00            | 0.00         | 29.00        | 1.25             | 0.00            | 0.00         |
| 3.50         | 1.25             | 0.00            | 0.00         | 29.50        | 1.25             | 0.00            | 0.00         |
| 4.00         | 1.25             | 0.00            | 0.00         | 30.00        | 1.25             | 0.00            | 0.00         |
| 4.50         | 1.25             | 0.00            | 0.00         | 30.50        | 1.25             | 0.00            | 0.00         |
| 5.00         | 1.25             | 0.00            | 0.00         | 31.00        | 1.25             | 0.00            | 0.00         |
| 5.50         | 1.25             | 0.00            | 0.00         | 31.50        | 1.25             | 0.00            | 0.00         |
| 6.00         | 1.25             | 0.00            | 0.00         | 32.00        | 1.25             | 0.00            | 0.00         |
| 6.50         | 1.25             | 0.00            | 0.00         | 32.50        | 1.25             | 0.00            | 0.00         |
| 7.00         | 1.25             | 0.00            | 0.00         | 33.00        | 1.25             | 0.00            | 0.00         |
| 7.50         | 1.25             | 0.00            | 0.00         | 33.50        | 1.25             | 0.00            | 0.00         |
| 8.00         | 1.25             | 0.00            | 0.00         | 34.00        | 1.25             | 0.00            | 0.00         |
| 8.50         | 1.25             | 0.00            | 0.00         | 34.50        | 1.25             | 0.00            | 0.00         |
| 9.00         | 1.25             | 0.00            | 0.00         | 35.00        | 1.25             | 0.00            | 0.00         |
| 9.50         | 1.25             | 0.00            | 0.00         | 35.50        | 1.25             | 0.00            | 0.00         |
| 10.00        | 1.25             | 0.00            | 0.00         | 36.00        | 1.25             | 0.00            | 0.00         |
| 10.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 11.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 11.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 12.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 12.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 13.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 13.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 14.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 14.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 15.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 15.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 16.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 16.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 17.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 17.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 18.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 18.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 19.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 19.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 20.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 20.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 21.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 21.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 22.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 22.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 23.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 23.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 24.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 24.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 25.00        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |
| 25.50        | 1.25             | 0.00            | 0.00         |              |                  |                 |              |

Summary for Pond 8P: GI-13

Inflow Area = 119,588 sf, 39.98% Impervious, Inflow Depth = 0.00" for WQ Storm event  
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min  
Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 126.00' @ 0.00 hrs Surf.Area= 4,028 sf Storage= 0 cf

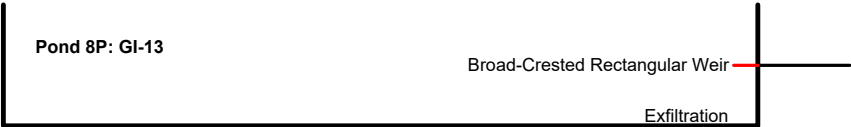
Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no inflow)

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 126.00' | 23,208 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

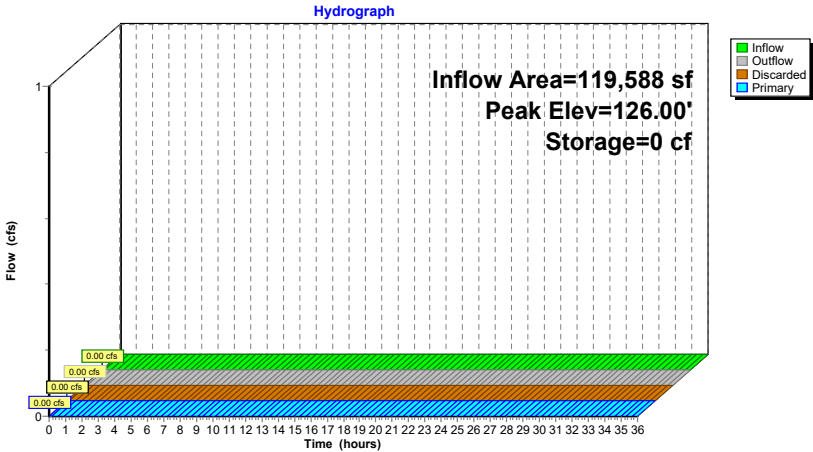
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 126.00           | 4,028             | 0                      | 0                      |
| 130.00           | 7,576             | 23,208                 | 23,208                 |

| Device | Routing | Invert  | Outlet Devices                                                                                                                                                                                                                                                                                                                                                                                              |
|--------|---------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary | 128.00' | 5.0' long + 3.0 ' SideZ x 6.0' breadth Broad-Crested Rectangular Weir<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00<br>2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65<br>2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83<br>#2 Discarded 126.00' 0.500 in/hr Exfiltration over Surface area<br>Conductivity to Groundwater Elevation = 1.00' |

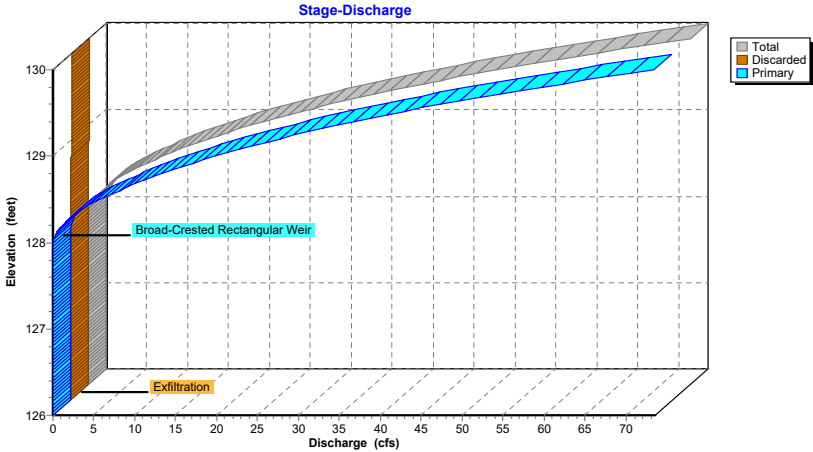
Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=126.00' (Free Discharge)  
↳2=Exfiltration (Passes 0.00 cfs of 0.05 cfs potential flow)  
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=126.00' TW=123.25' (Dynamic Tailwater)  
↳1=Broad-Crested Rectangular Weir( Controls 0.00 cfs)



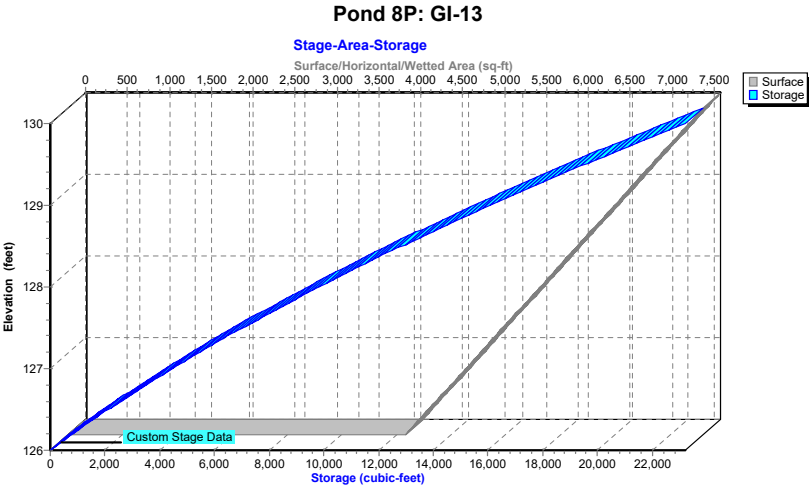
Pond 8P: GI-13



Pond 8P: GI-13







Hydrograph for Pond 8P: GI-13

| Time (hours) | Inflow (cfs) | Elevation (feet) | Outflow (cfs) | Discarded (cfs) | Primary (cfs) |
|--------------|--------------|------------------|---------------|-----------------|---------------|
| 0.00         | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 1.00         | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 2.00         | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 3.00         | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 4.00         | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 5.00         | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 6.00         | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 7.00         | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 8.00         | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 9.00         | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 10.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 11.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 12.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 13.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 14.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 15.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 16.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 17.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 18.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 19.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 20.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 21.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 22.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 23.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 24.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 25.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 26.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 27.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 28.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 29.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 30.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 31.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 32.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 33.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 34.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 35.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |
| 36.00        | 0.00         | 126.00           | 0.00          | 0.00            | 0.00          |

**2101ELK-STM Analysis POI-2**

NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 8P: GI-13**

| Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) |
|---------------------|--------------------|--------------------|------------------|---------------------|--------------------|--------------------|------------------|
| 126.00              | 0.00               | 0.00               | 0.00             | 128.60              | 8.16               | 0.07               | 8.08             |
| 126.05              | 0.05               | 0.05               | 0.00             | 128.65              | 9.34               | 0.08               | 9.26             |
| 126.10              | 0.05               | 0.05               | 0.00             | 128.70              | 10.60              | 0.08               | 10.52            |
| 126.15              | 0.05               | 0.05               | 0.00             | 128.75              | 11.94              | 0.08               | 11.86            |
| 126.20              | 0.05               | 0.05               | 0.00             | 128.80              | 13.35              | 0.08               | 13.27            |
| 126.25              | 0.05               | 0.05               | 0.00             | 128.85              | 14.86              | 0.08               | 14.79            |
| 126.30              | 0.05               | 0.05               | 0.00             | 128.90              | 16.46              | 0.08               | 16.38            |
| 126.35              | 0.05               | 0.05               | 0.00             | 128.95              | 18.14              | 0.08               | 18.07            |
| 126.40              | 0.05               | 0.05               | 0.00             | 129.00              | 19.91              | 0.08               | 19.83            |
| 126.45              | 0.05               | 0.05               | 0.00             | 129.05              | 21.74              | 0.08               | 21.66            |
| 126.50              | 0.05               | 0.05               | 0.00             | 129.10              | 23.66              | 0.08               | 23.58            |
| 126.55              | 0.05               | 0.05               | 0.00             | 129.15              | 25.66              | 0.08               | 25.58            |
| 126.60              | 0.05               | 0.05               | 0.00             | 129.20              | 27.74              | 0.08               | 27.66            |
| 126.65              | 0.05               | 0.05               | 0.00             | 129.25              | 29.88              | 0.08               | 29.80            |
| 126.70              | 0.05               | 0.05               | 0.00             | 129.30              | 32.10              | 0.08               | 32.01            |
| 126.75              | 0.05               | 0.05               | 0.00             | 129.35              | 34.40              | 0.08               | 34.32            |
| 126.80              | 0.06               | 0.06               | 0.00             | 129.40              | 36.78              | 0.08               | 36.70            |
| 126.85              | 0.06               | 0.06               | 0.00             | 129.45              | 39.32              | 0.08               | 39.24            |
| 126.90              | 0.06               | 0.06               | 0.00             | 129.50              | 41.95              | 0.08               | 41.87            |
| 126.95              | 0.06               | 0.06               | 0.00             | 129.55              | 44.68              | 0.08               | 44.59            |
| 127.00              | 0.06               | 0.06               | 0.00             | 129.60              | 47.50              | 0.09               | 47.41            |
| 127.05              | 0.06               | 0.06               | 0.00             | 129.65              | 50.41              | 0.09               | 50.32            |
| 127.10              | 0.06               | 0.06               | 0.00             | 129.70              | 53.42              | 0.09               | 53.33            |
| 127.15              | 0.06               | 0.06               | 0.00             | 129.75              | 56.53              | 0.09               | 56.44            |
| 127.20              | 0.06               | 0.06               | 0.00             | 129.80              | 59.73              | 0.09               | 59.64            |
| 127.25              | 0.06               | 0.06               | 0.00             | 129.85              | 63.04              | 0.09               | 62.95            |
| 127.30              | 0.06               | 0.06               | 0.00             | 129.90              | 66.44              | 0.09               | 66.35            |
| 127.35              | 0.06               | 0.06               | 0.00             | 129.95              | 69.94              | 0.09               | 69.85            |
| 127.40              | 0.06               | 0.06               | 0.00             | 130.00              | <b>73.54</b>       | <b>0.09</b>        | <b>73.45</b>     |
| 127.45              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.50              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.55              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.60              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.65              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.70              | 0.06               | 0.06               | 0.00             |                     |                    |                    |                  |
| 127.75              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.80              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.85              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.90              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 127.95              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 128.00              | 0.07               | 0.07               | 0.00             |                     |                    |                    |                  |
| 128.05              | 0.20               | 0.07               | 0.14             |                     |                    |                    |                  |
| 128.10              | 0.46               | 0.07               | 0.39             |                     |                    |                    |                  |
| 128.15              | 0.81               | 0.07               | 0.74             |                     |                    |                    |                  |
| 128.20              | 1.23               | 0.07               | 1.16             |                     |                    |                    |                  |
| 128.25              | 1.75               | 0.07               | 1.68             |                     |                    |                    |                  |
| 128.30              | 2.36               | 0.07               | 2.29             |                     |                    |                    |                  |
| 128.35              | 3.06               | 0.07               | 2.99             |                     |                    |                    |                  |
| 128.40              | 3.86               | 0.07               | 3.78             |                     |                    |                    |                  |
| 128.45              | 4.77               | 0.07               | 4.69             |                     |                    |                    |                  |
| 128.50              | 5.78               | 0.07               | 5.71             |                     |                    |                    |                  |
| 128.55              | 6.91               | 0.07               | 6.84             |                     |                    |                    |                  |

**2101ELK-STM Analysis POI-2**

NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 8P: GI-13**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 126.00              | 4,028              | 0                       | 128.60              | 6,334              | 13,471                  |
| 126.05              | 4,072              | 203                     | 128.65              | 6,379              | 13,789                  |
| 126.10              | 4,117              | 407                     | 128.70              | 6,423              | 14,109                  |
| 126.15              | 4,161              | 614                     | 128.75              | 6,467              | 14,431                  |
| 126.20              | 4,205              | 823                     | 128.80              | 6,512              | 14,755                  |
| 126.25              | 4,250              | 1,035                   | 128.85              | 6,556              | 15,082                  |
| 126.30              | 4,294              | 1,248                   | 128.90              | 6,600              | 15,411                  |
| 126.35              | 4,338              | 1,464                   | 128.95              | 6,645              | 15,742                  |
| 126.40              | 4,383              | 1,682                   | 129.00              | 6,689              | 16,076                  |
| 126.45              | 4,427              | 1,902                   | 129.05              | 6,733              | 16,411                  |
| 126.50              | 4,472              | 2,125                   | 129.10              | 6,778              | 16,749                  |
| 126.55              | 4,516              | 2,350                   | 129.15              | 6,822              | 17,089                  |
| 126.60              | 4,560              | 2,576                   | 129.20              | 6,866              | 17,431                  |
| 126.65              | 4,605              | 2,806                   | 129.25              | 6,911              | 17,775                  |
| 126.70              | 4,649              | 3,037                   | 129.30              | 6,955              | 18,122                  |
| 126.75              | 4,693              | 3,270                   | 129.35              | 6,999              | 18,471                  |
| 126.80              | 4,738              | 3,506                   | 129.40              | 7,044              | 18,822                  |
| 126.85              | 4,782              | 3,744                   | 129.45              | 7,088              | 19,175                  |
| 126.90              | 4,826              | 3,984                   | 129.50              | 7,133              | 19,531                  |
| 126.95              | 4,871              | 4,227                   | 129.55              | 7,177              | 19,889                  |
| 127.00              | 4,915              | 4,472                   | 129.60              | 7,221              | 20,249                  |
| 127.05              | 4,959              | 4,718                   | 129.65              | 7,266              | 20,611                  |
| 127.10              | 5,004              | 4,967                   | 129.70              | 7,310              | 20,975                  |
| 127.15              | 5,048              | 5,219                   | 129.75              | 7,354              | 21,342                  |
| 127.20              | 5,092              | 5,472                   | 129.80              | 7,399              | 21,711                  |
| 127.25              | 5,137              | 5,728                   | 129.85              | 7,443              | 22,082                  |
| 127.30              | 5,181              | 5,986                   | 129.90              | 7,487              | 22,455                  |
| 127.35              | 5,225              | 6,246                   | 129.95              | 7,532              | 22,830                  |
| 127.40              | 5,270              | 6,508                   | 130.00              | <b>7,576</b>       | <b>23,208</b>           |
| 127.45              | 5,314              | 6,773                   |                     |                    |                         |
| 127.50              | 5,359              | 7,040                   |                     |                    |                         |
| 127.55              | 5,403              | 7,309                   |                     |                    |                         |
| 127.60              | 5,447              | 7,580                   |                     |                    |                         |
| 127.65              | 5,492              | 7,854                   |                     |                    |                         |
| 127.70              | 5,536              | 8,129                   |                     |                    |                         |
| 127.75              | 5,580              | 8,407                   |                     |                    |                         |
| 127.80              | 5,625              | 8,687                   |                     |                    |                         |
| 127.85              | 5,669              | 8,970                   |                     |                    |                         |
| 127.90              | 5,713              | 9,254                   |                     |                    |                         |
| 127.95              | 5,758              | 9,541                   |                     |                    |                         |
| 128.00              | 5,802              | 9,830                   |                     |                    |                         |
| 128.05              | 5,846              | 10,121                  |                     |                    |                         |
| 128.10              | 5,891              | 10,415                  |                     |                    |                         |
| 128.15              | 5,935              | 10,710                  |                     |                    |                         |
| 128.20              | 5,979              | 11,008                  |                     |                    |                         |
| 128.25              | 6,024              | 11,308                  |                     |                    |                         |
| 128.30              | 6,068              | 11,611                  |                     |                    |                         |
| 128.35              | 6,112              | 11,915                  |                     |                    |                         |
| 128.40              | 6,157              | 12,222                  |                     |                    |                         |
| 128.45              | 6,201              | 12,531                  |                     |                    |                         |
| 128.50              | 6,246              | 12,842                  |                     |                    |                         |
| 128.55              | 6,290              | 13,155                  |                     |                    |                         |

Summary for Pond 46P: GI-10

Inflow Area = 32,730 sf, 60.20% Impervious, Inflow Depth = 0.62" for WQ Storm event  
Inflow = 1.36 cfs @ 1.09 hrs, Volume= 1,699 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Routed to Pond 59P : Proposed Drainage Area POI-2 (Isolated Wetland)

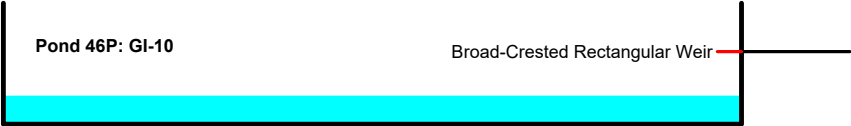
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 124.08' @ 2.26 hrs Surf.Area= 3,219 sf Storage= 1,699 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

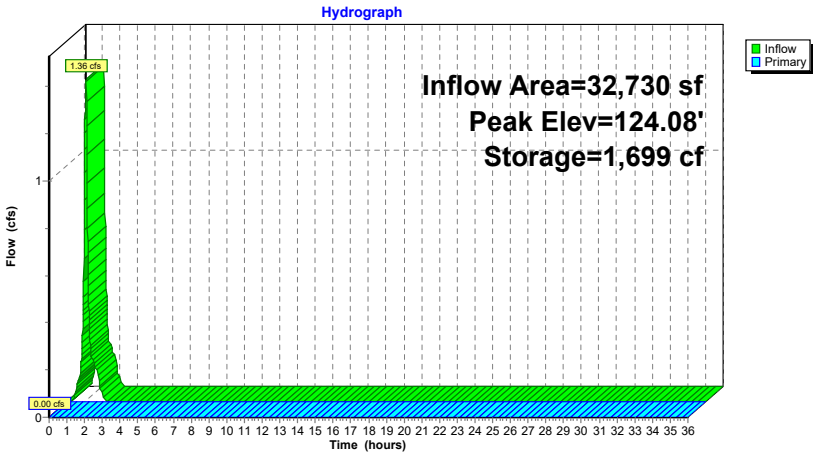
| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 123.50'           | 9,792 cf               | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 123.50           | 2,638             | 0                      | 0                                                   |
| 124.50           | 3,639             | 3,139                  | 3,139                                               |
| 125.50           | 4,696             | 4,168                  | 7,306                                               |
| 126.00           | 5,246             | 2,486                  | 9,792                                               |

| Device                                                        | Routing | Invert  | Outlet Devices                                                           |
|---------------------------------------------------------------|---------|---------|--------------------------------------------------------------------------|
| #1                                                            | Primary | 125.00' | 10.0' long + 3.0 ' / SideZ x 6.0' breadth Broad-Crested Rectangular Weir |
| Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 |         |         |                                                                          |
| 2.50 3.00 3.50 4.00 4.50 5.00 5.50                            |         |         |                                                                          |
| Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65  |         |         |                                                                          |
| 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83                       |         |         |                                                                          |

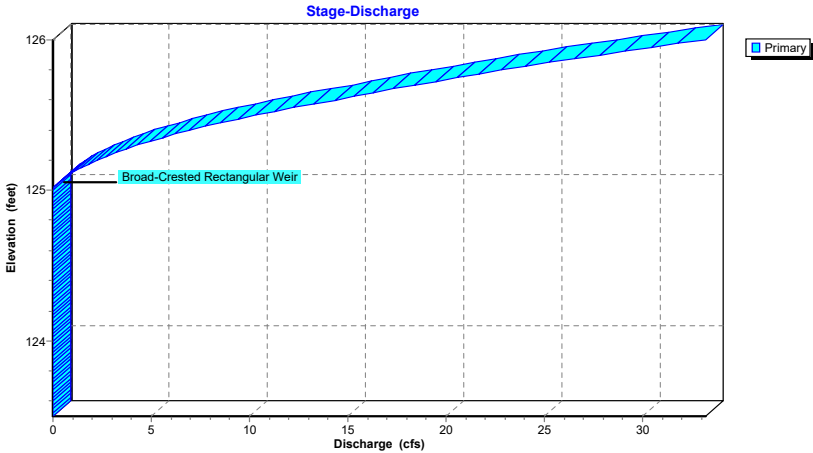
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=123.50' TW=123.25' (Dynamic Tailwater)  
1=Broad-Crested Rectangular Weir( Controls 0.00 cfs)

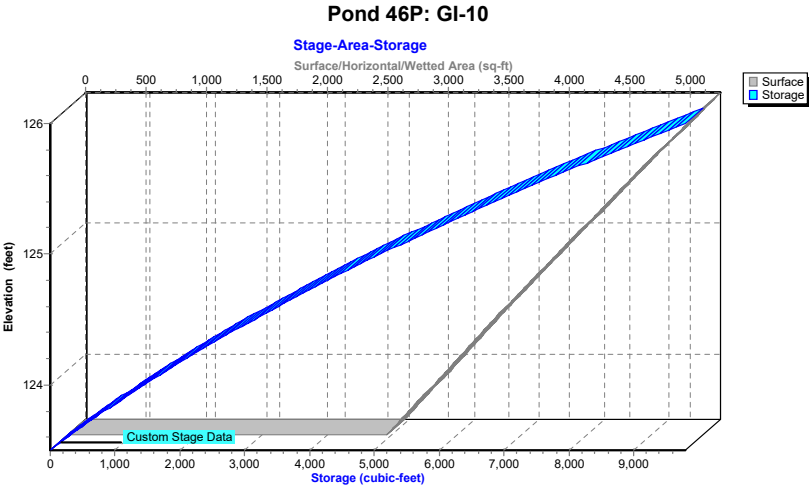


Pond 46P: GI-10



Pond 46P: GI-10





Hydrograph for Pond 46P: GI-10

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|
| 0.00         | 0.00         | 0                    | 123.50           | 0.00          |
| 1.00         | 1.07         | 405                  | 123.65           | 0.00          |
| 2.00         | 0.04         | 1,687                | 124.08           | 0.00          |
| 3.00         | 0.00         | 1,699                | 124.08           | 0.00          |
| 4.00         | 0.00         | 1,699                | 124.08           | 0.00          |
| 5.00         | 0.00         | 1,699                | 124.08           | 0.00          |
| 6.00         | 0.00         | 1,699                | 124.08           | 0.00          |
| 7.00         | 0.00         | 1,699                | 124.08           | 0.00          |
| 8.00         | 0.00         | 1,699                | 124.08           | 0.00          |
| 9.00         | 0.00         | 1,699                | 124.08           | 0.00          |
| 10.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 11.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 12.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 13.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 14.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 15.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 16.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 17.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 18.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 19.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 20.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 21.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 22.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 23.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 24.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 25.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 26.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 27.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 28.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 29.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 30.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 31.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 32.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 33.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 34.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 35.00        | 0.00         | 1,699                | 124.08           | 0.00          |
| 36.00        | 0.00         | 1,699                | 124.08           | 0.00          |

**2101ELK-STM Analysis POI-2**

NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

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**Stage-Discharge for Pond 46P: GI-10**

| Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) | Elevation<br>(feet) | Primary<br>(cfs) |
|---------------------|------------------|---------------------|------------------|---------------------|------------------|
| 123.50              | 0.00             | 124.54              | 0.00             | 125.58              | 13.49            |
| 123.52              | 0.00             | 124.56              | 0.00             | 125.60              | 14.36            |
| 123.54              | 0.00             | 124.58              | 0.00             | 125.62              | 15.13            |
| 123.56              | 0.00             | 124.60              | 0.00             | 125.64              | 15.92            |
| 123.58              | 0.00             | 124.62              | 0.00             | 125.66              | 16.73            |
| 123.60              | 0.00             | 124.64              | 0.00             | 125.68              | 17.56            |
| 123.62              | 0.00             | 124.66              | 0.00             | 125.70              | 18.40            |
| 123.64              | 0.00             | 124.68              | 0.00             | 125.72              | 19.26            |
| 123.66              | 0.00             | 124.70              | 0.00             | 125.74              | 20.13            |
| 123.68              | 0.00             | 124.72              | 0.00             | 125.76              | 21.03            |
| 123.70              | 0.00             | 124.74              | 0.00             | 125.78              | 21.93            |
| 123.72              | 0.00             | 124.76              | 0.00             | 125.80              | 22.86            |
| 123.74              | 0.00             | 124.78              | 0.00             | 125.82              | 23.82            |
| 123.76              | 0.00             | 124.80              | 0.00             | 125.84              | 24.79            |
| 123.78              | 0.00             | 124.82              | 0.00             | 125.86              | 25.79            |
| 123.80              | 0.00             | 124.84              | 0.00             | 125.88              | 26.80            |
| 123.82              | 0.00             | 124.86              | 0.00             | 125.90              | 27.82            |
| 123.84              | 0.00             | 124.88              | 0.00             | 125.92              | 28.87            |
| 123.86              | 0.00             | 124.90              | 0.00             | 125.94              | 29.93            |
| 123.88              | 0.00             | 124.92              | 0.00             | 125.96              | 31.02            |
| 123.90              | 0.00             | 124.94              | 0.00             | 125.98              | 32.12            |
| 123.92              | 0.00             | 124.96              | 0.00             | 126.00              | <b>33.23</b>     |
| 123.94              | 0.00             | 124.98              | 0.00             |                     |                  |
| 123.96              | 0.00             | 125.00              | 0.00             |                     |                  |
| 123.98              | 0.00             | 125.02              | 0.07             |                     |                  |
| 124.00              | 0.00             | 125.04              | 0.19             |                     |                  |
| 124.02              | 0.00             | 125.06              | 0.35             |                     |                  |
| 124.04              | 0.00             | 125.08              | 0.55             |                     |                  |
| 124.06              | 0.00             | 125.10              | 0.77             |                     |                  |
| 124.08              | 0.00             | 125.12              | 1.01             |                     |                  |
| 124.10              | 0.00             | 125.14              | 1.28             |                     |                  |
| 124.12              | 0.00             | 125.16              | 1.58             |                     |                  |
| 124.14              | 0.00             | 125.18              | 1.89             |                     |                  |
| 124.16              | 0.00             | 125.20              | 2.22             |                     |                  |
| 124.18              | 0.00             | 125.22              | 2.59             |                     |                  |
| 124.20              | 0.00             | 125.24              | 2.98             |                     |                  |
| 124.22              | 0.00             | 125.26              | 3.40             |                     |                  |
| 124.24              | 0.00             | 125.28              | 3.84             |                     |                  |
| 124.26              | 0.00             | 125.30              | 4.30             |                     |                  |
| 124.28              | 0.00             | 125.32              | 4.78             |                     |                  |
| 124.30              | 0.00             | 125.34              | 5.29             |                     |                  |
| 124.32              | 0.00             | 125.36              | 5.82             |                     |                  |
| 124.34              | 0.00             | 125.38              | 6.38             |                     |                  |
| 124.36              | 0.00             | 125.40              | 6.96             |                     |                  |
| 124.38              | 0.00             | 125.42              | 7.58             |                     |                  |
| 124.40              | 0.00             | 125.44              | 8.22             |                     |                  |
| 124.42              | 0.00             | 125.46              | 8.89             |                     |                  |
| 124.44              | 0.00             | 125.48              | 9.59             |                     |                  |
| 124.46              | 0.00             | 125.50              | 10.32            |                     |                  |
| 124.48              | 0.00             | 125.52              | 11.07            |                     |                  |
| 124.50              | 0.00             | 125.54              | 11.85            |                     |                  |
| 124.52              | 0.00             | 125.56              | 12.65            |                     |                  |

**2101ELK-STM Analysis POI-2**

NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 46P: GI-10**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|
| 123.50              | 2,638              | 0                       |
| 123.55              | 2,688              | 133                     |
| 123.60              | 2,738              | 269                     |
| 123.65              | 2,788              | 407                     |
| 123.70              | 2,838              | 548                     |
| 123.75              | 2,888              | 691                     |
| 123.80              | 2,938              | 836                     |
| 123.85              | 2,988              | 985                     |
| 123.90              | 3,038              | 1,135                   |
| 123.95              | 3,088              | 1,288                   |
| 124.00              | 3,139              | 1,444                   |
| 124.05              | 3,189              | 1,602                   |
| 124.10              | 3,239              | 1,763                   |
| 124.15              | 3,289              | 1,926                   |
| 124.20              | 3,339              | 2,092                   |
| 124.25              | 3,389              | 2,260                   |
| 124.30              | 3,439              | 2,431                   |
| 124.35              | 3,489              | 2,604                   |
| 124.40              | 3,539              | 2,780                   |
| 124.45              | 3,589              | 2,958                   |
| 124.50              | 3,639              | 3,139                   |
| 124.55              | 3,692              | 3,322                   |
| 124.60              | 3,745              | 3,508                   |
| 124.65              | 3,798              | 3,696                   |
| 124.70              | 3,850              | 3,887                   |
| 124.75              | 3,903              | 4,081                   |
| 124.80              | 3,956              | 4,278                   |
| 124.85              | 4,009              | 4,477                   |
| 124.90              | 4,062              | 4,679                   |
| 124.95              | 4,115              | 4,883                   |
| 125.00              | 4,168              | 5,090                   |
| 125.05              | 4,220              | 5,300                   |
| 125.10              | 4,273              | 5,512                   |
| 125.15              | 4,326              | 5,727                   |
| 125.20              | 4,379              | 5,945                   |
| 125.25              | 4,432              | 6,165                   |
| 125.30              | 4,485              | 6,388                   |
| 125.35              | 4,537              | 6,613                   |
| 125.40              | 4,590              | 6,842                   |
| 125.45              | 4,643              | 7,073                   |
| 125.50              | 4,696              | 7,306                   |
| 125.55              | 4,751              | 7,542                   |
| 125.60              | 4,806              | 7,781                   |
| 125.65              | 4,861              | 8,023                   |
| 125.70              | 4,916              | 8,267                   |
| 125.75              | 4,971              | 8,514                   |
| 125.80              | 5,026              | 8,764                   |
| 125.85              | 5,081              | 9,017                   |
| 125.90              | 5,136              | 9,272                   |
| 125.95              | 5,191              | 9,531                   |
| 126.00              | <b>5,246</b>       | <b>9,792</b>            |

Summary for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

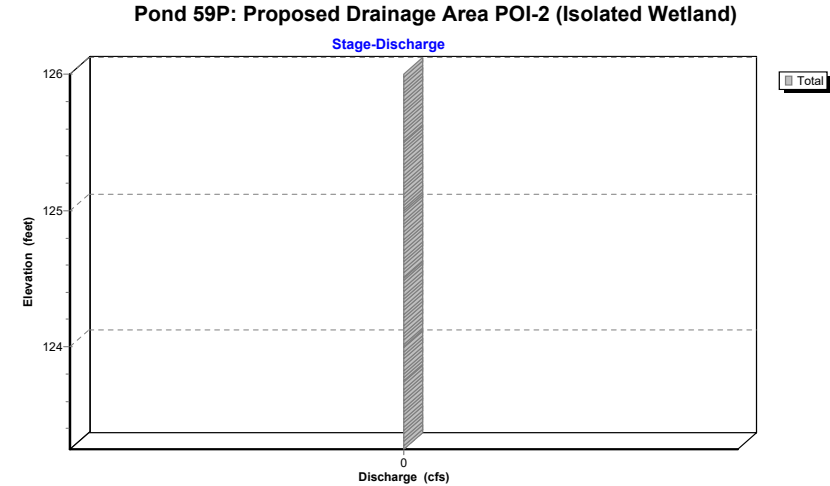
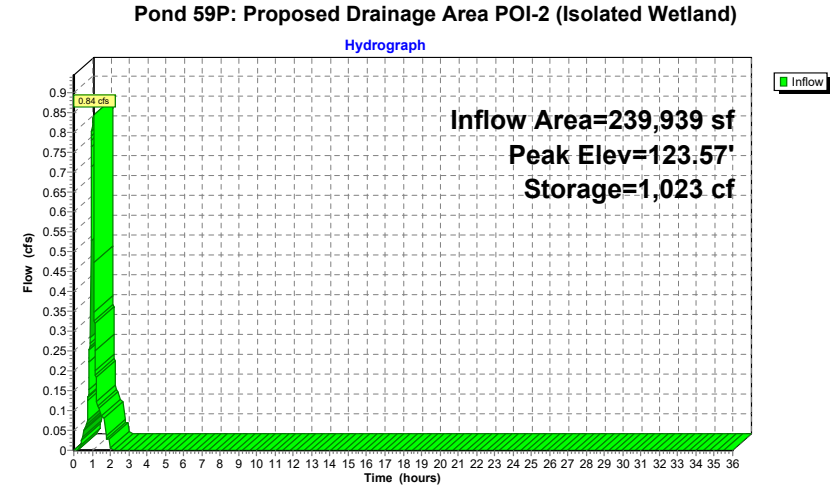
Inflow Area = 239,939 sf, 33.08% Impervious, Inflow Depth = 0.05" for WQ Storm event  
Inflow = 0.84 cfs @ 1.08 hrs, Volume= 1,023 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

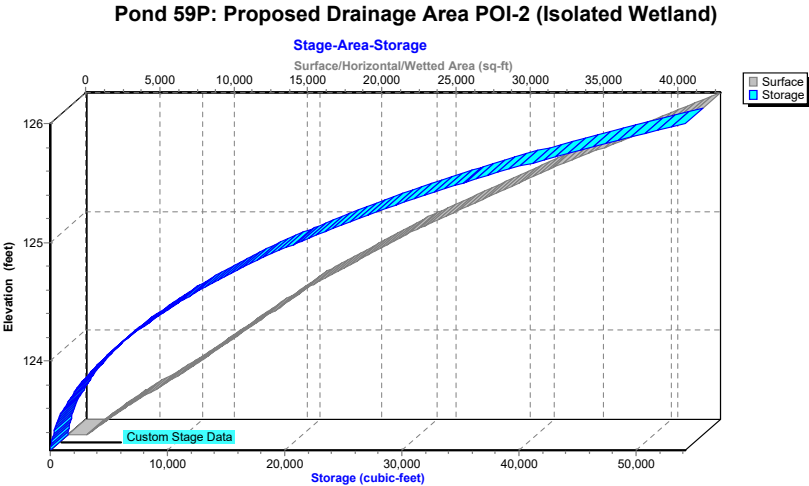
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 123.57' @ 2.06 hrs Surf.Area= 5,135 sf Storage= 1,023 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

| Volume           | Invert            | Avail.Storage          | Storage Description                                 |
|------------------|-------------------|------------------------|-----------------------------------------------------|
| #1               | 123.25'           | 54,210 cf              | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet)                              |
| 123.25           | 1,260             | 0                      | 0                                                   |
| 123.50           | 4,142             | 675                    | 675                                                 |
| 123.75           | 7,451             | 1,449                  | 2,124                                               |
| 124.00           | 10,505            | 2,245                  | 4,369                                               |
| 124.50           | 16,329            | 6,709                  | 11,077                                              |
| 125.00           | 23,865            | 10,049                 | 21,126                                              |
| 125.50           | 32,790            | 14,164                 | 35,290                                              |
| 126.00           | 42,891            | 18,920                 | 54,210                                              |

Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)





Hydrograph for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) |
|--------------|--------------|----------------------|------------------|--------------|--------------|----------------------|------------------|
| 0.00         | 0.00         | 0                    | 123.25           | 26.00        | 0.00         | 1,023                | 123.57           |
| 0.50         | 0.03         | 12                   | 123.26           | 26.50        | 0.00         | 1,023                | 123.57           |
| 1.00         | 0.81         | 387                  | 123.42           | 27.00        | 0.00         | 1,023                | 123.57           |
| 1.50         | 0.11         | 921                  | 123.55           | 27.50        | 0.00         | 1,023                | 123.57           |
| 2.00         | 0.03         | 1,022                | 123.57           | 28.00        | 0.00         | 1,023                | 123.57           |
| 2.50         | 0.00         | 1,023                | 123.57           | 28.50        | 0.00         | 1,023                | 123.57           |
| 3.00         | 0.00         | 1,023                | 123.57           | 29.00        | 0.00         | 1,023                | 123.57           |
| 3.50         | 0.00         | 1,023                | 123.57           | 29.50        | 0.00         | 1,023                | 123.57           |
| 4.00         | 0.00         | 1,023                | 123.57           | 30.00        | 0.00         | 1,023                | 123.57           |
| 4.50         | 0.00         | 1,023                | 123.57           | 30.50        | 0.00         | 1,023                | 123.57           |
| 5.00         | 0.00         | 1,023                | 123.57           | 31.00        | 0.00         | 1,023                | 123.57           |
| 5.50         | 0.00         | 1,023                | 123.57           | 31.50        | 0.00         | 1,023                | 123.57           |
| 6.00         | 0.00         | 1,023                | 123.57           | 32.00        | 0.00         | 1,023                | 123.57           |
| 6.50         | 0.00         | 1,023                | 123.57           | 32.50        | 0.00         | 1,023                | 123.57           |
| 7.00         | 0.00         | 1,023                | 123.57           | 33.00        | 0.00         | 1,023                | 123.57           |
| 7.50         | 0.00         | 1,023                | 123.57           | 33.50        | 0.00         | 1,023                | 123.57           |
| 8.00         | 0.00         | 1,023                | 123.57           | 34.00        | 0.00         | 1,023                | 123.57           |
| 8.50         | 0.00         | 1,023                | 123.57           | 34.50        | 0.00         | 1,023                | 123.57           |
| 9.00         | 0.00         | 1,023                | 123.57           | 35.00        | 0.00         | 1,023                | 123.57           |
| 9.50         | 0.00         | 1,023                | 123.57           | 35.50        | 0.00         | 1,023                | 123.57           |
| 10.00        | 0.00         | 1,023                | 123.57           | 36.00        | 0.00         | 1,023                | 123.57           |
| 10.50        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 11.00        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 11.50        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 12.00        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 12.50        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 13.00        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 13.50        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 14.00        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 14.50        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 15.00        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 15.50        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 16.00        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 16.50        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 17.00        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 17.50        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 18.00        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 18.50        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 19.00        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 19.50        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 20.00        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 20.50        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 21.00        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 21.50        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 22.00        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 22.50        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 23.00        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 23.50        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 24.00        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 24.50        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 25.00        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |
| 25.50        | 0.00         | 1,023                | 123.57           |              |              |                      |                  |

Stage-Discharge for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
| 123.25              | 0.00               | 124.29              | 0.00               | 125.33              | 0.00               |
| 123.27              | 0.00               | 124.31              | 0.00               | 125.35              | 0.00               |
| 123.29              | 0.00               | 124.33              | 0.00               | 125.37              | 0.00               |
| 123.31              | 0.00               | 124.35              | 0.00               | 125.39              | 0.00               |
| 123.33              | 0.00               | 124.37              | 0.00               | 125.41              | 0.00               |
| 123.35              | 0.00               | 124.39              | 0.00               | 125.43              | 0.00               |
| 123.37              | 0.00               | 124.41              | 0.00               | 125.45              | 0.00               |
| 123.39              | 0.00               | 124.43              | 0.00               | 125.47              | 0.00               |
| 123.41              | 0.00               | 124.45              | 0.00               | 125.49              | 0.00               |
| 123.43              | 0.00               | 124.47              | 0.00               | 125.51              | 0.00               |
| 123.45              | 0.00               | 124.49              | 0.00               | 125.53              | 0.00               |
| 123.47              | 0.00               | 124.51              | 0.00               | 125.55              | 0.00               |
| 123.49              | 0.00               | 124.53              | 0.00               | 125.57              | 0.00               |
| 123.51              | 0.00               | 124.55              | 0.00               | 125.59              | 0.00               |
| 123.53              | 0.00               | 124.57              | 0.00               | 125.61              | 0.00               |
| 123.55              | 0.00               | 124.59              | 0.00               | 125.63              | 0.00               |
| 123.57              | 0.00               | 124.61              | 0.00               | 125.65              | 0.00               |
| 123.59              | 0.00               | 124.63              | 0.00               | 125.67              | 0.00               |
| 123.61              | 0.00               | 124.65              | 0.00               | 125.69              | 0.00               |
| 123.63              | 0.00               | 124.67              | 0.00               | 125.71              | 0.00               |
| 123.65              | 0.00               | 124.69              | 0.00               | 125.73              | 0.00               |
| 123.67              | 0.00               | 124.71              | 0.00               | 125.75              | 0.00               |
| 123.69              | 0.00               | 124.73              | 0.00               | 125.77              | 0.00               |
| 123.71              | 0.00               | 124.75              | 0.00               | 125.79              | 0.00               |
| 123.73              | 0.00               | 124.77              | 0.00               | 125.81              | 0.00               |
| 123.75              | 0.00               | 124.79              | 0.00               | 125.83              | 0.00               |
| 123.77              | 0.00               | 124.81              | 0.00               | 125.85              | 0.00               |
| 123.79              | 0.00               | 124.83              | 0.00               | 125.87              | 0.00               |
| 123.81              | 0.00               | 124.85              | 0.00               | 125.89              | 0.00               |
| 123.83              | 0.00               | 124.87              | 0.00               | 125.91              | 0.00               |
| 123.85              | 0.00               | 124.89              | 0.00               | 125.93              | 0.00               |
| 123.87              | 0.00               | 124.91              | 0.00               | 125.95              | 0.00               |
| 123.89              | 0.00               | 124.93              | 0.00               | 125.97              | 0.00               |
| 123.91              | 0.00               | 124.95              | 0.00               | 125.99              | 0.00               |
| 123.93              | 0.00               | 124.97              | 0.00               |                     |                    |
| 123.95              | 0.00               | 124.99              | 0.00               |                     |                    |
| 123.97              | 0.00               | 125.01              | 0.00               |                     |                    |
| 123.99              | 0.00               | 125.03              | 0.00               |                     |                    |
| 124.01              | 0.00               | 125.05              | 0.00               |                     |                    |
| 124.03              | 0.00               | 125.07              | 0.00               |                     |                    |
| 124.05              | 0.00               | 125.09              | 0.00               |                     |                    |
| 124.07              | 0.00               | 125.11              | 0.00               |                     |                    |
| 124.09              | 0.00               | 125.13              | 0.00               |                     |                    |
| 124.11              | 0.00               | 125.15              | 0.00               |                     |                    |
| 124.13              | 0.00               | 125.17              | 0.00               |                     |                    |
| 124.15              | 0.00               | 125.19              | 0.00               |                     |                    |
| 124.17              | 0.00               | 125.21              | 0.00               |                     |                    |
| 124.19              | 0.00               | 125.23              | 0.00               |                     |                    |
| 124.21              | 0.00               | 125.25              | 0.00               |                     |                    |
| 124.23              | 0.00               | 125.27              | 0.00               |                     |                    |
| 124.25              | 0.00               | 125.29              | 0.00               |                     |                    |
| 124.27              | 0.00               | 125.31              | 0.00               |                     |                    |

Stage-Area-Storage for Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 123.25              | 1,260              | 0                       | 125.85              | 39,861             | 48,003                  |
| 123.30              | 1,836              | 77                      | 125.90              | 40,871             | 50,022                  |
| 123.35              | 2,413              | 184                     | 125.95              | 41,881             | 52,091                  |
| 123.40              | 2,989              | 319                     | 126.00              | 42,891             | 54,210                  |
| 123.45              | 3,566              | 483                     |                     |                    |                         |
| 123.50              | 4,142              | 675                     |                     |                    |                         |
| 123.55              | 4,804              | 899                     |                     |                    |                         |
| 123.60              | 5,466              | 1,156                   |                     |                    |                         |
| 123.65              | 6,127              | 1,445                   |                     |                    |                         |
| 123.70              | 6,789              | 1,768                   |                     |                    |                         |
| 123.75              | 7,451              | 2,124                   |                     |                    |                         |
| 123.80              | 8,062              | 2,512                   |                     |                    |                         |
| 123.85              | 8,673              | 2,931                   |                     |                    |                         |
| 123.90              | 9,283              | 3,379                   |                     |                    |                         |
| 123.95              | 9,894              | 3,859                   |                     |                    |                         |
| 124.00              | 10,505             | 4,369                   |                     |                    |                         |
| 124.05              | 11,087             | 4,909                   |                     |                    |                         |
| 124.10              | 11,670             | 5,478                   |                     |                    |                         |
| 124.15              | 12,252             | 6,076                   |                     |                    |                         |
| 124.20              | 12,835             | 6,703                   |                     |                    |                         |
| 124.25              | 13,417             | 7,359                   |                     |                    |                         |
| 124.30              | 13,999             | 8,045                   |                     |                    |                         |
| 124.35              | 14,582             | 8,759                   |                     |                    |                         |
| 124.40              | 15,164             | 9,503                   |                     |                    |                         |
| 124.45              | 15,747             | 10,275                  |                     |                    |                         |
| 124.50              | 16,329             | 11,077                  |                     |                    |                         |
| 124.55              | 17,083             | 11,913                  |                     |                    |                         |
| 124.60              | 17,836             | 12,786                  |                     |                    |                         |
| 124.65              | 18,590             | 13,696                  |                     |                    |                         |
| 124.70              | 19,343             | 14,645                  |                     |                    |                         |
| 124.75              | 20,097             | 15,631                  |                     |                    |                         |
| 124.80              | 20,851             | 16,654                  |                     |                    |                         |
| 124.85              | 21,604             | 17,716                  |                     |                    |                         |
| 124.90              | 22,358             | 18,815                  |                     |                    |                         |
| 124.95              | 23,111             | 19,951                  |                     |                    |                         |
| 125.00              | 23,865             | 21,126                  |                     |                    |                         |
| 125.05              | 24,757             | 22,341                  |                     |                    |                         |
| 125.10              | 25,650             | 23,602                  |                     |                    |                         |
| 125.15              | 26,543             | 24,906                  |                     |                    |                         |
| 125.20              | 27,435             | 26,256                  |                     |                    |                         |
| 125.25              | 28,328             | 27,650                  |                     |                    |                         |
| 125.30              | 29,220             | 29,089                  |                     |                    |                         |
| 125.35              | 30,112             | 30,572                  |                     |                    |                         |
| 125.40              | 31,005             | 32,100                  |                     |                    |                         |
| 125.45              | 31,898             | 33,672                  |                     |                    |                         |
| 125.50              | 32,790             | 35,290                  |                     |                    |                         |
| 125.55              | 33,800             | 36,954                  |                     |                    |                         |
| 125.60              | 34,810             | 38,670                  |                     |                    |                         |
| 125.65              | 35,820             | 40,435                  |                     |                    |                         |
| 125.70              | 36,830             | 42,252                  |                     |                    |                         |
| 125.75              | 37,841             | 44,118                  |                     |                    |                         |
| 125.80              | 38,851             | 46,036                  |                     |                    |                         |



Summary for Pond 60P: GI-12

Inflow Area = 102,485 sf, 46.65% Impervious, Inflow Depth = 0.48" for WQ Storm event  
Inflow = 3.38 cfs @ 1.08 hrs, Volume= 4,122 cf  
Outflow = 0.16 cfs @ 1.78 hrs, Volume= 4,124 cf, Atten= 95%, Lag= 42.2 min  
Discarded = 0.16 cfs @ 1.78 hrs, Volume= 4,124 cf  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf  
Routed to Pond 8P : GI-13

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 126.24' @ 1.78 hrs Surf.Area= 13,685 sf Storage= 3,263 cf

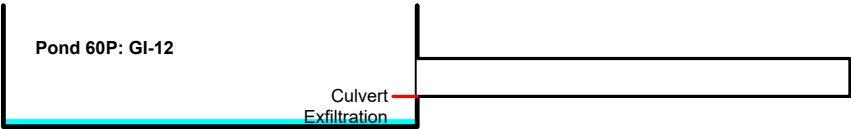
Plug-Flow detention time= 178.4 min calculated for 4,122 cf (100% of inflow)  
Center-of-Mass det. time= 178.5 min ( 244.7 - 66.2 )

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 126.00' | 66,186 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

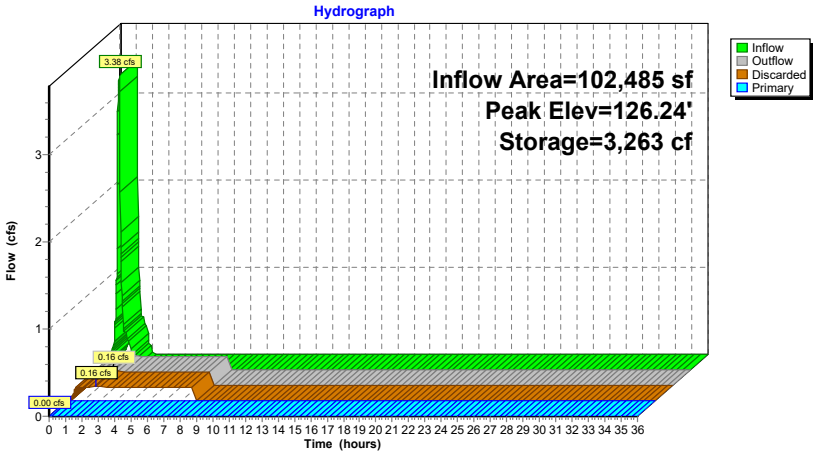
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|------------------|-------------------|------------------------|------------------------|
| 126.00           | 13,291            | 0                      | 0                      |
| 130.00           | 19,802            | 66,186                 | 66,186                 |

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                                        |
|--------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary   | 127.00' | 15.0" Round Culvert<br>L= 83.0' CMP, mitered to conform to fill, Ke= 0.700<br>Inlet / Outlet Invert= 127.00' / 127.00' S= 0.0000 '/ Cc= 0.900<br>n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf |
| #2     | Discarded | 126.00' | 0.500 in/hr Exfiltration over Surface area<br>Conductivity to Groundwater Elevation = 1.00'                                                                                                           |

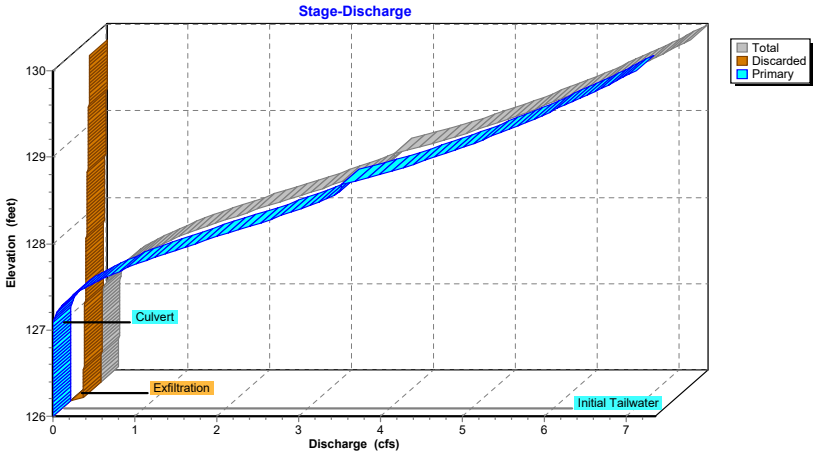
Discarded OutFlow Max=0.16 cfs @ 1.78 hrs HW=126.24' (Free Discharge)  
2=Exfiltration ( Controls 0.16 cfs)  
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=126.00' TW=126.00' (Dynamic Tailwater)  
1=Culvert ( Controls 0.00 cfs)

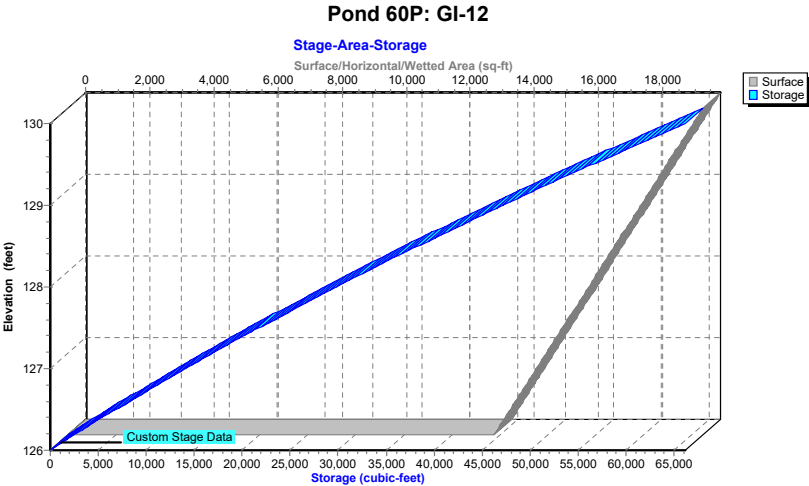


Pond 60P: GI-12



Pond 60P: GI-12





Hydrograph for Pond 60P: GI-12

| Time (hours) | Inflow (cfs) | Storage (cubic-feet) | Elevation (feet) | Outflow (cfs) | Discarded (cfs) | Primary (cfs) |
|--------------|--------------|----------------------|------------------|---------------|-----------------|---------------|
| 0.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 1.00         | 3.24         | 1,117                | 126.08           | 0.16          | 0.16            | 0.00          |
| 2.00         | 0.11         | 3,226                | 126.24           | 0.16          | 0.16            | 0.00          |
| 3.00         | 0.00         | 2,666                | 126.20           | 0.16          | 0.16            | 0.00          |
| 4.00         | 0.00         | 2,099                | 126.16           | 0.16          | 0.16            | 0.00          |
| 5.00         | 0.00         | 1,536                | 126.11           | 0.16          | 0.16            | 0.00          |
| 6.00         | 0.00         | 975                  | 126.07           | 0.16          | 0.16            | 0.00          |
| 7.00         | 0.00         | 417                  | 126.03           | 0.15          | 0.15            | 0.00          |
| 8.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 9.00         | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 10.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 11.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 12.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 13.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 14.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 15.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 16.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 17.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 18.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 19.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 20.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 21.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 22.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 23.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 24.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 25.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 26.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 27.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 28.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 29.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 30.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 31.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 32.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 33.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 34.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 35.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |
| 36.00        | 0.00         | 0                    | 126.00           | 0.00          | 0.00            | 0.00          |

**2101ELK-STM Analysis POI-2**

NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Discharge for Pond 60P: GI-12**

| Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) | Discarded<br>(cfs) | Primary<br>(cfs) |
|---------------------|--------------------|--------------------|------------------|---------------------|--------------------|--------------------|------------------|
| 126.00              | 0.00               | 0.00               | 0.00             | 128.60              | 3.70               | 0.21               | 3.49             |
| 126.05              | 0.15               | 0.15               | 0.00             | 128.65              | 3.73               | 0.21               | 3.52             |
| 126.10              | 0.16               | 0.16               | 0.00             | 128.70              | 3.82               | 0.21               | 3.61             |
| 126.15              | 0.16               | 0.16               | 0.00             | 128.75              | 4.01               | 0.21               | 3.81             |
| 126.20              | 0.16               | 0.16               | 0.00             | 128.80              | 4.20               | 0.21               | 3.99             |
| 126.25              | 0.16               | 0.16               | 0.00             | 128.85              | 4.38               | 0.21               | 4.17             |
| 126.30              | 0.16               | 0.16               | 0.00             | 128.90              | 4.55               | 0.21               | 4.34             |
| 126.35              | 0.16               | 0.16               | 0.00             | 128.95              | 4.72               | 0.21               | 4.50             |
| 126.40              | 0.16               | 0.16               | 0.00             | 129.00              | 4.88               | 0.21               | 4.66             |
| 126.45              | 0.16               | 0.16               | 0.00             | 129.05              | 5.03               | 0.22               | 4.81             |
| 126.50              | 0.16               | 0.16               | 0.00             | 129.10              | 5.18               | 0.22               | 4.96             |
| 126.55              | 0.16               | 0.16               | 0.00             | 129.15              | 5.32               | 0.22               | 5.11             |
| 126.60              | 0.17               | 0.17               | 0.00             | 129.20              | 5.46               | 0.22               | 5.24             |
| 126.65              | 0.17               | 0.17               | 0.00             | 129.25              | 5.60               | 0.22               | 5.38             |
| 126.70              | 0.17               | 0.17               | 0.00             | 129.30              | 5.74               | 0.22               | 5.51             |
| 126.75              | 0.17               | 0.17               | 0.00             | 129.35              | 5.87               | 0.22               | 5.64             |
| 126.80              | 0.17               | 0.17               | 0.00             | 129.40              | 5.99               | 0.22               | 5.77             |
| 126.85              | 0.17               | 0.17               | 0.00             | 129.45              | 6.12               | 0.22               | 5.89             |
| 126.90              | 0.17               | 0.17               | 0.00             | 129.50              | 6.24               | 0.22               | 6.02             |
| 126.95              | 0.17               | 0.17               | 0.00             | 129.55              | 6.36               | 0.23               | 6.14             |
| 127.00              | 0.17               | 0.17               | 0.00             | 129.60              | 6.48               | 0.23               | 6.25             |
| 127.05              | 0.18               | 0.17               | 0.00             | 129.65              | 6.60               | 0.23               | 6.37             |
| 127.10              | 0.18               | 0.18               | 0.01             | 129.70              | 6.71               | 0.23               | 6.48             |
| 127.15              | 0.20               | 0.18               | 0.02             | 129.75              | 6.82               | 0.23               | 6.59             |
| 127.20              | 0.23               | 0.18               | 0.05             | 129.80              | 6.93               | 0.23               | 6.70             |
| 127.25              | 0.26               | 0.18               | 0.08             | 129.85              | 7.04               | 0.23               | 6.81             |
| 127.30              | 0.31               | 0.18               | 0.13             | 129.90              | 7.15               | 0.23               | 6.91             |
| 127.35              | 0.37               | 0.18               | 0.18             | 129.95              | 7.25               | 0.23               | 7.02             |
| 127.40              | 0.43               | 0.18               | 0.25             | 130.00              | <b>7.35</b>        | <b>0.24</b>        | <b>7.12</b>      |
| 127.45              | 0.51               | 0.18               | 0.33             |                     |                    |                    |                  |
| 127.50              | 0.60               | 0.18               | 0.42             |                     |                    |                    |                  |
| 127.55              | 0.70               | 0.19               | 0.51             |                     |                    |                    |                  |
| 127.60              | 0.81               | 0.19               | 0.62             |                     |                    |                    |                  |
| 127.65              | 0.92               | 0.19               | 0.74             |                     |                    |                    |                  |
| 127.70              | 1.05               | 0.19               | 0.86             |                     |                    |                    |                  |
| 127.75              | 1.18               | 0.19               | 0.99             |                     |                    |                    |                  |
| 127.80              | 1.32               | 0.19               | 1.13             |                     |                    |                    |                  |
| 127.85              | 1.47               | 0.19               | 1.28             |                     |                    |                    |                  |
| 127.90              | 1.62               | 0.19               | 1.43             |                     |                    |                    |                  |
| 127.95              | 1.78               | 0.19               | 1.58             |                     |                    |                    |                  |
| 128.00              | 1.94               | 0.19               | 1.74             |                     |                    |                    |                  |
| 128.05              | 2.10               | 0.20               | 1.90             |                     |                    |                    |                  |
| 128.10              | 2.27               | 0.20               | 2.07             |                     |                    |                    |                  |
| 128.15              | 2.43               | 0.20               | 2.23             |                     |                    |                    |                  |
| 128.20              | 2.60               | 0.20               | 2.40             |                     |                    |                    |                  |
| 128.25              | 2.76               | 0.20               | 2.56             |                     |                    |                    |                  |
| 128.30              | 2.93               | 0.20               | 2.72             |                     |                    |                    |                  |
| 128.35              | 3.08               | 0.20               | 2.88             |                     |                    |                    |                  |
| 128.40              | 3.23               | 0.20               | 3.03             |                     |                    |                    |                  |
| 128.45              | 3.37               | 0.20               | 3.17             |                     |                    |                    |                  |
| 128.50              | 3.50               | 0.20               | 3.30             |                     |                    |                    |                  |
| 128.55              | 3.61               | 0.21               | 3.41             |                     |                    |                    |                  |

**2101ELK-STM Analysis POI-2**

NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

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**Stage-Area-Storage for Pond 60P: GI-12**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 126.00              | 13,291             | 0                       | 128.60              | 17,523             | 40,058                  |
| 126.05              | 13,372             | 667                     | 128.65              | 17,605             | 40,937                  |
| 126.10              | 13,454             | 1,337                   | 128.70              | 17,686             | 41,819                  |
| 126.15              | 13,535             | 2,012                   | 128.75              | 17,767             | 42,705                  |
| 126.20              | 13,617             | 2,691                   | 128.80              | 17,849             | 43,596                  |
| 126.25              | 13,698             | 3,374                   | 128.85              | 17,930             | 44,490                  |
| 126.30              | 13,779             | 4,061                   | 128.90              | 18,011             | 45,389                  |
| 126.35              | 13,861             | 4,752                   | 128.95              | 18,093             | 46,291                  |
| 126.40              | 13,942             | 5,447                   | 129.00              | 18,174             | 47,198                  |
| 126.45              | 14,023             | 6,146                   | 129.05              | 18,256             | 48,109                  |
| 126.50              | 14,105             | 6,849                   | 129.10              | 18,337             | 49,023                  |
| 126.55              | 14,186             | 7,556                   | 129.15              | 18,418             | 49,942                  |
| 126.60              | 14,268             | 8,268                   | 129.20              | 18,500             | 50,865                  |
| 126.65              | 14,349             | 8,983                   | 129.25              | 18,581             | 51,792                  |
| 126.70              | 14,430             | 9,702                   | 129.30              | 18,663             | 52,723                  |
| 126.75              | 14,512             | 10,426                  | 129.35              | 18,744             | 53,659                  |
| 126.80              | 14,593             | 11,154                  | 129.40              | 18,825             | 54,598                  |
| 126.85              | 14,675             | 11,885                  | 129.45              | 18,907             | 55,541                  |
| 126.90              | 14,756             | 12,621                  | 129.50              | 18,988             | 56,488                  |
| 126.95              | 14,837             | 13,361                  | 129.55              | 19,070             | 57,440                  |
| 127.00              | 14,919             | 14,105                  | 129.60              | 19,151             | 58,395                  |
| 127.05              | 15,000             | 14,853                  | 129.65              | 19,232             | 59,355                  |
| 127.10              | 15,082             | 15,605                  | 129.70              | 19,314             | 60,319                  |
| 127.15              | 15,163             | 16,361                  | 129.75              | 19,395             | 61,286                  |
| 127.20              | 15,244             | 17,121                  | 129.80              | 19,476             | 62,258                  |
| 127.25              | 15,326             | 17,885                  | 129.85              | 19,558             | 63,234                  |
| 127.30              | 15,407             | 18,654                  | 129.90              | 19,639             | 64,214                  |
| 127.35              | 15,488             | 19,426                  | 129.95              | 19,721             | 65,198                  |
| 127.40              | 15,570             | 20,203                  | 130.00              | <b>19,802</b>      | <b>66,186</b>           |
| 127.45              | 15,651             | 20,983                  |                     |                    |                         |
| 127.50              | 15,733             | 21,768                  |                     |                    |                         |
| 127.55              | 15,814             | 22,556                  |                     |                    |                         |
| 127.60              | 15,895             | 23,349                  |                     |                    |                         |
| 127.65              | 15,977             | 24,146                  |                     |                    |                         |
| 127.70              | 16,058             | 24,947                  |                     |                    |                         |
| 127.75              | 16,140             | 25,752                  |                     |                    |                         |
| 127.80              | 16,221             | 26,561                  |                     |                    |                         |
| 127.85              | 16,302             | 27,374                  |                     |                    |                         |
| 127.90              | 16,384             | 28,191                  |                     |                    |                         |
| 127.95              | 16,465             | 29,012                  |                     |                    |                         |
| 128.00              | 16,547             | 29,838                  |                     |                    |                         |
| 128.05              | 16,628             | 30,667                  |                     |                    |                         |
| 128.10              | 16,709             | 31,500                  |                     |                    |                         |
| 128.15              | 16,791             | 32,338                  |                     |                    |                         |
| 128.20              | 16,872             | 33,179                  |                     |                    |                         |
| 128.25              | 16,953             | 34,025                  |                     |                    |                         |
| 128.30              | 17,035             | 34,875                  |                     |                    |                         |
| 128.35              | 17,116             | 35,728                  |                     |                    |                         |
| 128.40              | 17,198             | 36,586                  |                     |                    |                         |
| 128.45              | 17,279             | 37,448                  |                     |                    |                         |
| 128.50              | 17,360             | 38,314                  |                     |                    |                         |
| 128.55              | 17,442             | 39,184                  |                     |                    |                         |

## 2101ELK-STM Analysis POI-2

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- 7 Node Listing
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- 10 Subcat 45S: GI-10 Impervious
- 13 Subcat 62S: GI-12 Impervious
- 16 Subcat 63S: GI-13 Pervious
- 19 Subcat 64S: Wetland Pervious
- 22 Subcat 67S: Wetland Impervious
- 24 Subcat 68S: GI-12 Pervious
- 27 Pond 8P: GI-13
- 33 Pond 46P: GI-10
- 39 Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)
- 45 Pond 60P: GI-12

#### 10-Year-2020 Event

- 51 Node Listing
- 52 Subcat 44S: GI-10 Pervious
- 54 Subcat 45S: GI-10 Impervious
- 57 Subcat 62S: GI-12 Impervious
- 60 Subcat 63S: GI-13 Pervious
- 63 Subcat 64S: Wetland Pervious
- 66 Subcat 67S: Wetland Impervious
- 68 Subcat 68S: GI-12 Pervious
- 71 Pond 8P: GI-13
- 77 Pond 46P: GI-10
- 83 Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)
- 89 Pond 60P: GI-12

#### 100-Year-2020 Event

- 95 Node Listing
- 96 Subcat 44S: GI-10 Pervious
- 98 Subcat 45S: GI-10 Impervious
- 101 Subcat 62S: GI-12 Impervious
- 104 Subcat 63S: GI-13 Pervious
- 107 Subcat 64S: Wetland Pervious
- 110 Subcat 67S: Wetland Impervious
- 112 Subcat 68S: GI-12 Pervious
- 115 Pond 8P: GI-13

## 2101ELK-STM Analysis POI-2

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- 121 Pond 46P: GI-10
- 127 Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)
- 133 Pond 60P: GI-12

#### 2-Year-2050 Event

- 139 Node Listing
- 140 Subcat 44S: GI-10 Pervious
- 142 Subcat 45S: GI-10 Impervious
- 145 Subcat 62S: GI-12 Impervious
- 148 Subcat 63S: GI-13 Pervious
- 151 Subcat 64S: Wetland Pervious
- 154 Subcat 67S: Wetland Impervious
- 156 Subcat 68S: GI-12 Pervious
- 159 Pond 8P: GI-13
- 165 Pond 46P: GI-10
- 171 Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)
- 177 Pond 60P: GI-12

#### 10-Year-2050 Event

- 183 Node Listing
- 184 Subcat 44S: GI-10 Pervious
- 186 Subcat 45S: GI-10 Impervious
- 189 Subcat 62S: GI-12 Impervious
- 192 Subcat 63S: GI-13 Pervious
- 195 Subcat 64S: Wetland Pervious
- 198 Subcat 67S: Wetland Impervious
- 200 Subcat 68S: GI-12 Pervious
- 203 Pond 8P: GI-13
- 209 Pond 46P: GI-10
- 215 Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)
- 221 Pond 60P: GI-12

#### 100-Year-2050 Event

- 227 Node Listing
- 228 Subcat 44S: GI-10 Pervious
- 230 Subcat 45S: GI-10 Impervious
- 233 Subcat 62S: GI-12 Impervious
- 236 Subcat 63S: GI-13 Pervious
- 239 Subcat 64S: Wetland Pervious
- 242 Subcat 67S: Wetland Impervious
- 244 Subcat 68S: GI-12 Pervious
- 247 Pond 8P: GI-13
- 253 Pond 46P: GI-10
- 259 Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)
- 265 Pond 60P: GI-12

#### WQ Storm Event

- 271 Node Listing

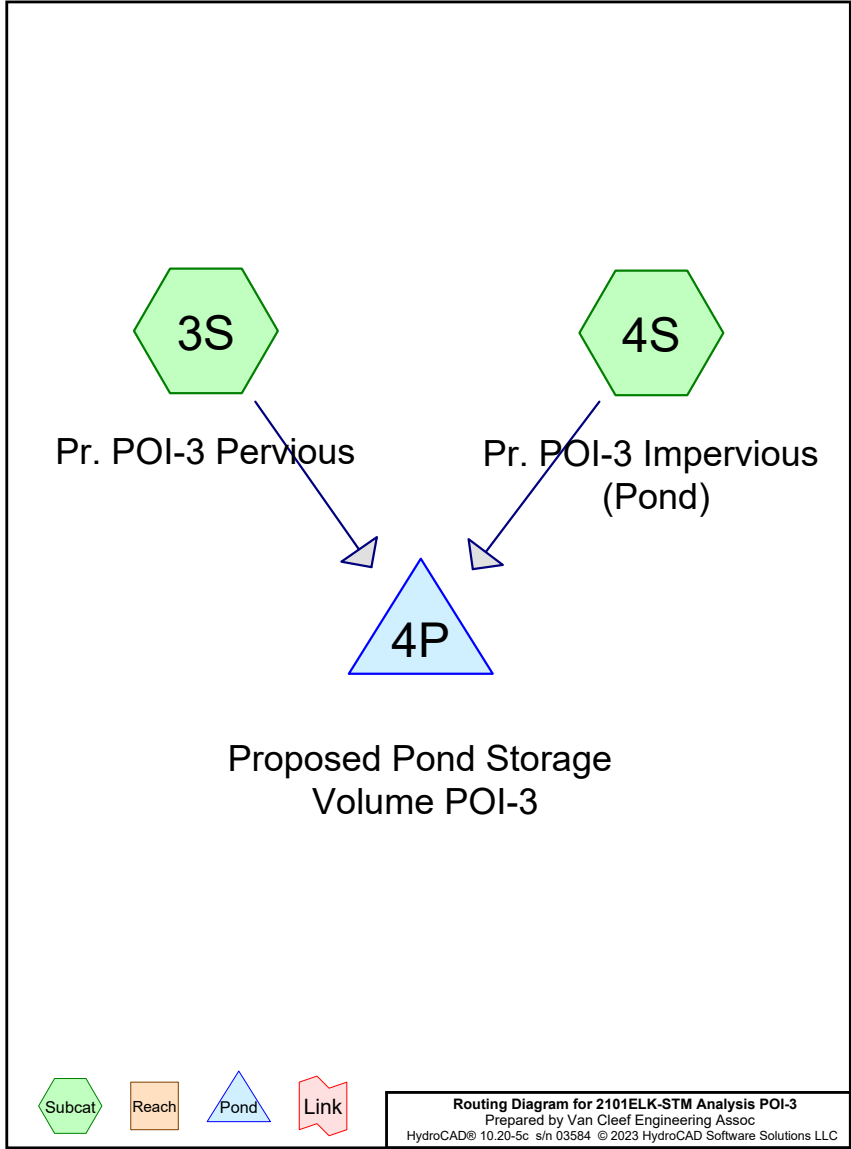
**2101ELK-STM Analysis POI-2**

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272 Subcat 44S: GI-10 Pervious  
274 Subcat 45S: GI-10 Impervious  
277 Subcat 62S: GI-12 Impervious  
280 Subcat 63S: GI-13 Pervious  
283 Subcat 64S: Wetland Pervious  
286 Subcat 67S: Wetland Impervious  
288 Subcat 68S: GI-12 Pervious  
291 Pond 8P: GI-13  
297 Pond 46P: GI-10  
303 Pond 59P: Proposed Drainage Area POI-2 (Isolated Wetland)  
309 Pond 60P: GI-12



Rainfall Events Listing

| Event# | Event Name    | Storm Type  | Curve | Mode    | Duration (hours) | B/B | Depth (inches) | AMC | P2 (inches) |
|--------|---------------|-------------|-------|---------|------------------|-----|----------------|-----|-------------|
| 1      | 2-Year-2020   | NOAA 24-hr  | C     | Default | 24.00            | 1   | 3.45           | 2   | 3.45        |
| 2      | 10-Year-2020  | NOAA 24-hr  | C     | Default | 24.00            | 1   | 5.35           | 2   | 3.45        |
| 3      | 100-Year-2020 | NOAA 24-hr  | C     | Default | 24.00            | 1   | 9.06           | 2   | 3.45        |
| 4      | 2-Year-2050   | NOAA 24-hr  | C     | Default | 24.00            | 1   | 3.92           | 2   | 3.92        |
| 5      | 10-Year-2050  | NOAA 24-hr  | C     | Default | 24.00            | 1   | 6.21           | 2   | 3.92        |
| 6      | 100-Year-2050 | NOAA 24-hr  | C     | Default | 24.00            | 1   | 12.06          | 2   | 3.92        |
| 7      | WQ Storm      | NJ DEP 2-hr |       | Default | 2.00             | 1   | 1.25           | 2   | 3.92        |

2101ELK-STM Analysis POI-3

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Area Listing (selected nodes)

| Area<br>(sq-ft) | CN | Description<br>(subcatchment-numbers) |
|-----------------|----|---------------------------------------|
| 9,575           | 39 | >75% Grass cover, Good, HSG A (3S)    |
| 2,327           | 61 | >75% Grass cover, Good, HSG B (3S)    |
| 218             | 30 | Meadow, non-grazed, HSG A (3S)        |
| 2,760           | 58 | Meadow, non-grazed, HSG B (3S)        |
| 8,729           | 98 | Water Surface, HSG B (4S)             |
| 25,530          | 30 | Woods, Good, HSG A (3S)               |
| 14,431          | 55 | Woods, Good, HSG B (3S)               |
| 63,570          | 49 | TOTAL AREA                            |

2101ELK-STM Analysis POI-3

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Soil Listing (selected nodes)

| Area<br>(sq-ft) | Soil<br>Group | Subcatchment<br>Numbers |
|-----------------|---------------|-------------------------|
| 35,323          | HSG A         | 3S                      |
| 28,247          | HSG B         | 3S, 4S                  |
| 0               | HSG C         |                         |
| 0               | HSG D         |                         |
| 0               | Other         |                         |
| 63,570          |               | TOTAL AREA              |

| Ground Covers (selected nodes) |                  |                  |                  |                  |                  |                           |
|--------------------------------|------------------|------------------|------------------|------------------|------------------|---------------------------|
| HSG-A<br>(sq-ft)               | HSG-B<br>(sq-ft) | HSG-C<br>(sq-ft) | HSG-D<br>(sq-ft) | Other<br>(sq-ft) | Total<br>(sq-ft) | Ground<br>Cover           |
| 9,575                          | 2,327            | 0                | 0                | 0                | 11,902           | >75% Grass<br>cover, Good |
| 218                            | 2,760            | 0                | 0                | 0                | 2,978            | Meadow,<br>non-grazed     |
| 0                              | 8,729            | 0                | 0                | 0                | 8,729            | Water Surface             |
| 25,530                         | 14,431           | 0                | 0                | 0                | 39,961           | Woods, Good               |
| 35,323                         | 28,247           | 0                | 0                | 0                | 63,570           | TOTAL AREA                |

Su  
Nu

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment3S: Pr. POI-3 Pervious** Runoff Area=54,841 sf 0.00% Impervious Runoff Depth=0.02"  
Flow Length=324' Tc=22.2 min CN=41 Runoff=0.00 cfs 100 cf

**Subcatchment4S: Pr. POI-3 Impervious** Runoff Area=8,729 sf 100.00% Impervious Runoff Depth=3.22"  
Tc=0.0 min CN=98 Runoff=0.81 cfs 2,340 cf

**Pond 4P: Proposed Pond Storage Volume** Peak Elev=119.25' Storage=2,440 cf Inflow=0.81 cfs 2,440 cf  
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 63,570 sf Runoff Volume = 2,440 cf Average Runoff Depth = 0.46"**  
**86.27% Pervious = 54,841 sf 13.73% Impervious = 8,729 sf**



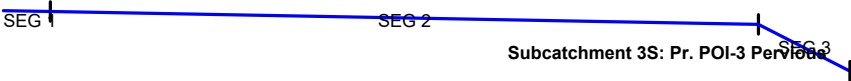
Summary for Subcatchment 3S: Pr. POI-3 Pervious

Runoff = 0.00 cfs @ 22.37 hrs, Volume= 100 cf, Depth= 0.02"  
Routed to Pond 4P : Proposed Pond Storage Volume POI-3

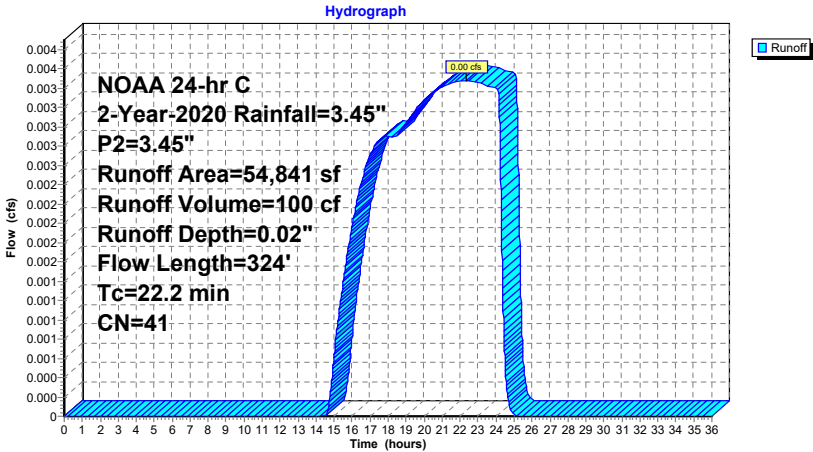
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 9,575     | 39 | >75% Grass cover, Good, HSG A |
| 2,327     | 61 | >75% Grass cover, Good, HSG B |
| 218       | 30 | Meadow, non-grazed, HSG A     |
| 2,760     | 58 | Meadow, non-grazed, HSG B     |
| 25,530    | 30 | Woods, Good, HSG A            |
| 14,431    | 55 | Woods, Good, HSG B            |
| 54,841    | 41 | Weighted Average              |
| 54,841    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 9.1      | 18            | 0.0050        | 0.03              |                | Sheet Flow, SEG 1<br>Woods: Light underbrush n= 0.400 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 12.8     | 271           | 0.0050        | 0.35              |                | Shallow Concentrated Flow, SEG 2<br>Woodland Kv= 5.0 fps                                           |
| 0.3      | 35            | 0.1400        | 1.87              |                | Shallow Concentrated Flow, SEG 3<br>Woodland Kv= 5.0 fps                                           |
| 22.2     | 324           | Total         |                   |                |                                                                                                    |



Subcatchment 3S: Pr. POI-3 Pervious



Hydrograph for Subcatchment 3S: Pr. POI-3 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 0.02               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 0.02               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 0.02               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 0.02               | 0.00            |
| 2.00            | 0.08                | 0.00               | 0.00            | 28.00           | 3.45                | 0.02               | 0.00            |
| 2.50            | 0.10                | 0.00               | 0.00            | 28.50           | 3.45                | 0.02               | 0.00            |
| 3.00            | 0.12                | 0.00               | 0.00            | 29.00           | 3.45                | 0.02               | 0.00            |
| 3.50            | 0.14                | 0.00               | 0.00            | 29.50           | 3.45                | 0.02               | 0.00            |
| 4.00            | 0.17                | 0.00               | 0.00            | 30.00           | 3.45                | 0.02               | 0.00            |
| 4.50            | 0.19                | 0.00               | 0.00            | 30.50           | 3.45                | 0.02               | 0.00            |
| 5.00            | 0.22                | 0.00               | 0.00            | 31.00           | 3.45                | 0.02               | 0.00            |
| 5.50            | 0.25                | 0.00               | 0.00            | 31.50           | 3.45                | 0.02               | 0.00            |
| 6.00            | 0.27                | 0.00               | 0.00            | 32.00           | 3.45                | 0.02               | 0.00            |
| 6.50            | 0.30                | 0.00               | 0.00            | 32.50           | 3.45                | 0.02               | 0.00            |
| 7.00            | 0.34                | 0.00               | 0.00            | 33.00           | 3.45                | 0.02               | 0.00            |
| 7.50            | 0.37                | 0.00               | 0.00            | 33.50           | 3.45                | 0.02               | 0.00            |
| 8.00            | 0.41                | 0.00               | 0.00            | 34.00           | 3.45                | 0.02               | 0.00            |
| 8.50            | 0.46                | 0.00               | 0.00            | 34.50           | 3.45                | 0.02               | 0.00            |
| 9.00            | 0.50                | 0.00               | 0.00            | 35.00           | 3.45                | 0.02               | 0.00            |
| 9.50            | 0.56                | 0.00               | 0.00            | 35.50           | 3.45                | 0.02               | 0.00            |
| 10.00           | 0.63                | 0.00               | 0.00            | 36.00           | 3.45                | 0.02               | 0.00            |
| 10.50           | 0.71                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.64                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.43                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 2.62                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 2.74                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 2.82                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 2.89                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 2.95                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 2.99                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 3.04                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 3.08                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 3.11                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 3.15                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.00           | 3.18                | 0.01               | 0.00            |                 |                     |                    |                 |
| 18.50           | 3.20                | 0.01               | 0.00            |                 |                     |                    |                 |
| 19.00           | 3.23                | 0.01               | 0.00            |                 |                     |                    |                 |
| 19.50           | 3.26                | 0.01               | 0.00            |                 |                     |                    |                 |
| 20.00           | 3.28                | 0.01               | 0.00            |                 |                     |                    |                 |
| 20.50           | 3.31                | 0.01               | 0.00            |                 |                     |                    |                 |
| 21.00           | 3.33                | 0.01               | 0.00            |                 |                     |                    |                 |
| 21.50           | 3.35                | 0.02               | 0.00            |                 |                     |                    |                 |
| 22.00           | 3.37                | 0.02               | 0.00            |                 |                     |                    |                 |
| 22.50           | 3.39                | 0.02               | 0.00            |                 |                     |                    |                 |
| 23.00           | 3.41                | 0.02               | 0.00            |                 |                     |                    |                 |
| 23.50           | 3.43                | 0.02               | 0.00            |                 |                     |                    |                 |
| 24.00           | 3.45                | 0.02               | 0.00            |                 |                     |                    |                 |
| 24.50           | 3.45                | 0.02               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 0.02               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 0.02               | 0.00            |                 |                     |                    |                 |

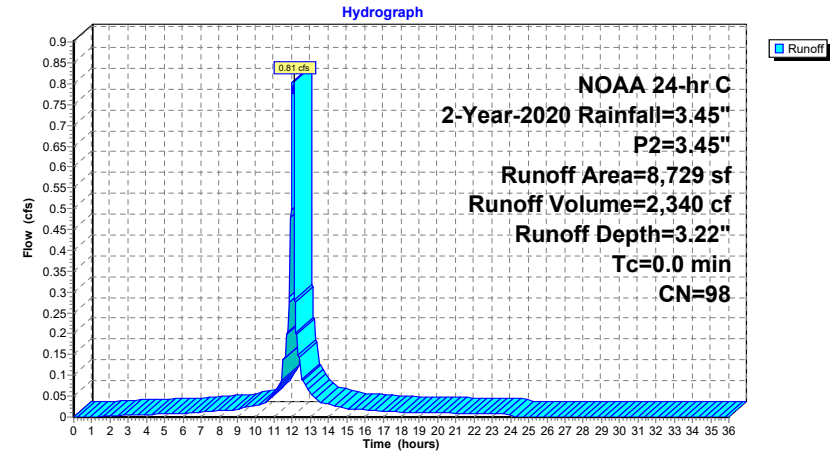
Summary for Subcatchment 4S: Pr. POI-3 Impervious (Pond)

Runoff = 0.81 cfs @ 12.09 hrs, Volume= 2,340 cf, Depth= 3.22"  
Routed to Pond 4P : Proposed Pond Storage Volume POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 8,729     | 98 | Water Surface, HSG B    |
| 8,729     |    | 100.00% Impervious Area |

Subcatchment 4S: Pr. POI-3 Impervious (Pond)



Hydrograph for Subcatchment 4S: Pr. POI-3 Impervious (Pond)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.45                | 3.22               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.45                | 3.22               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.45                | 3.22               | 0.00            |
| 1.50            | 0.06                | 0.00               | 0.00            | 27.50           | 3.45                | 3.22               | 0.00            |
| 2.00            | 0.08                | 0.01               | 0.00            | 28.00           | 3.45                | 3.22               | 0.00            |
| 2.50            | 0.10                | 0.01               | 0.00            | 28.50           | 3.45                | 3.22               | 0.00            |
| 3.00            | 0.12                | 0.02               | 0.00            | 29.00           | 3.45                | 3.22               | 0.00            |
| 3.50            | 0.14                | 0.04               | 0.01            | 29.50           | 3.45                | 3.22               | 0.00            |
| 4.00            | 0.17                | 0.05               | 0.01            | 30.00           | 3.45                | 3.22               | 0.00            |
| 4.50            | 0.19                | 0.07               | 0.01            | 30.50           | 3.45                | 3.22               | 0.00            |
| 5.00            | 0.22                | 0.08               | 0.01            | 31.00           | 3.45                | 3.22               | 0.00            |
| 5.50            | 0.25                | 0.10               | 0.01            | 31.50           | 3.45                | 3.22               | 0.00            |
| 6.00            | 0.27                | 0.12               | 0.01            | 32.00           | 3.45                | 3.22               | 0.00            |
| 6.50            | 0.30                | 0.15               | 0.01            | 32.50           | 3.45                | 3.22               | 0.00            |
| 7.00            | 0.34                | 0.17               | 0.01            | 33.00           | 3.45                | 3.22               | 0.00            |
| 7.50            | 0.37                | 0.21               | 0.01            | 33.50           | 3.45                | 3.22               | 0.00            |
| 8.00            | 0.41                | 0.24               | 0.01            | 34.00           | 3.45                | 3.22               | 0.00            |
| 8.50            | 0.46                | 0.28               | 0.02            | 34.50           | 3.45                | 3.22               | 0.00            |
| 9.00            | 0.50                | 0.32               | 0.02            | 35.00           | 3.45                | 3.22               | 0.00            |
| 9.50            | 0.56                | 0.37               | 0.02            | 35.50           | 3.45                | 3.22               | 0.00            |
| 10.00           | 0.63                | 0.44               | 0.03            | 36.00           | 3.45                | 3.22               | 0.00            |
| 10.50           | 0.71                | 0.51               | 0.04            |                 |                     |                    |                 |
| 11.00           | 0.83                | 0.63               | 0.06            |                 |                     |                    |                 |
| 11.50           | 1.02                | 0.81               | 0.11            |                 |                     |                    |                 |
| 12.00           | 1.64                | 1.42               | 0.64            |                 |                     |                    |                 |
| 12.50           | 2.43                | 2.20               | 0.12            |                 |                     |                    |                 |
| 13.00           | 2.62                | 2.39               | 0.06            |                 |                     |                    |                 |
| 13.50           | 2.74                | 2.51               | 0.04            |                 |                     |                    |                 |
| 14.00           | 2.82                | 2.59               | 0.03            |                 |                     |                    |                 |
| 14.50           | 2.89                | 2.66               | 0.03            |                 |                     |                    |                 |
| 15.00           | 2.95                | 2.71               | 0.02            |                 |                     |                    |                 |
| 15.50           | 2.99                | 2.76               | 0.02            |                 |                     |                    |                 |
| 16.00           | 3.04                | 2.80               | 0.02            |                 |                     |                    |                 |
| 16.50           | 3.08                | 2.84               | 0.02            |                 |                     |                    |                 |
| 17.00           | 3.11                | 2.88               | 0.01            |                 |                     |                    |                 |
| 17.50           | 3.15                | 2.91               | 0.01            |                 |                     |                    |                 |
| 18.00           | 3.18                | 2.94               | 0.01            |                 |                     |                    |                 |
| 18.50           | 3.20                | 2.97               | 0.01            |                 |                     |                    |                 |
| 19.00           | 3.23                | 3.00               | 0.01            |                 |                     |                    |                 |
| 19.50           | 3.26                | 3.02               | 0.01            |                 |                     |                    |                 |
| 20.00           | 3.28                | 3.05               | 0.01            |                 |                     |                    |                 |
| 20.50           | 3.31                | 3.07               | 0.01            |                 |                     |                    |                 |
| 21.00           | 3.33                | 3.10               | 0.01            |                 |                     |                    |                 |
| 21.50           | 3.35                | 3.12               | 0.01            |                 |                     |                    |                 |
| 22.00           | 3.37                | 3.14               | 0.01            |                 |                     |                    |                 |
| 22.50           | 3.39                | 3.16               | 0.01            |                 |                     |                    |                 |
| 23.00           | 3.41                | 3.18               | 0.01            |                 |                     |                    |                 |
| 23.50           | 3.43                | 3.20               | 0.01            |                 |                     |                    |                 |
| 24.00           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 24.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.45                | 3.22               | 0.00            |                 |                     |                    |                 |

Summary for Pond 4P: Proposed Pond Storage Volume POI-3

Inflow Area = 63,570 sf, 13.73% Impervious, Inflow Depth = 0.46" for 2-Year-2020 event  
Inflow = 0.81 cfs @ 12.09 hrs, Volume= 2,440 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

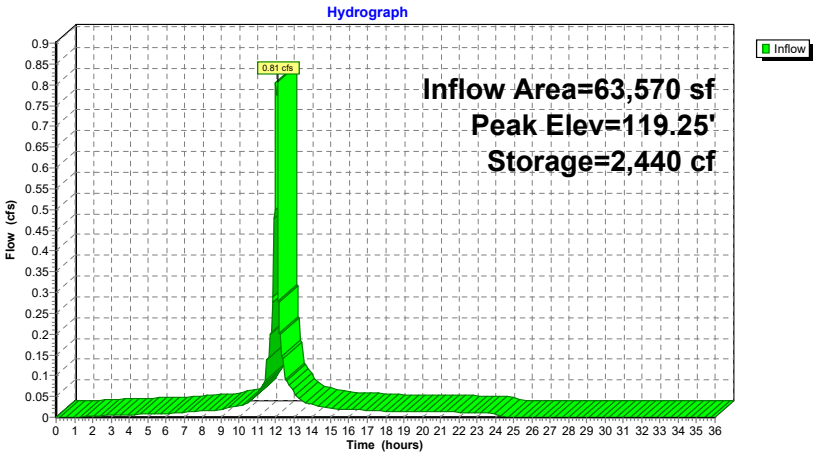
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 119.25' @ 25.27 hrs Surf.Area= 10,090 sf Storage= 2,440 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

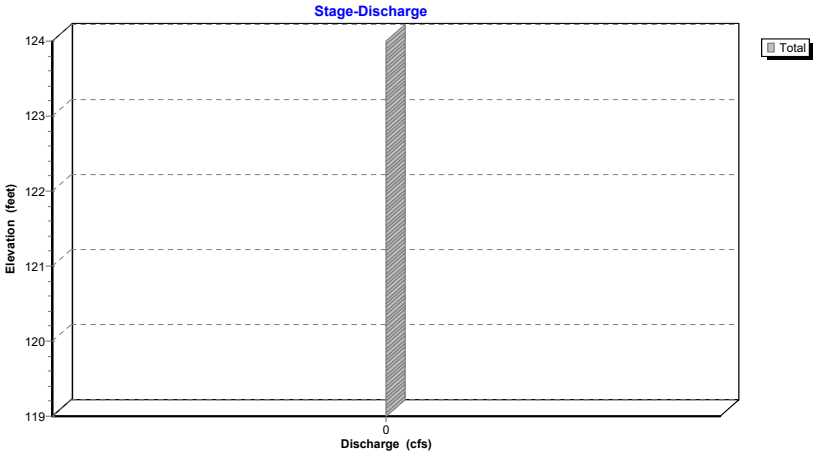
| Volume              | Invert               | Avail.Storage             | Storage Description                                 |
|---------------------|----------------------|---------------------------|-----------------------------------------------------|
| #1                  | 119.00'              | 65,239 cf                 | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                           |
| 119.00              | 9,792                | 0                         | 0                                                   |
| 120.00              | 11,006               | 10,399                    | 10,399                                              |
| 121.00              | 12,283               | 11,645                    | 22,044                                              |
| 122.00              | 13,612               | 12,948                    | 34,991                                              |
| 123.00              | 15,010               | 14,311                    | 49,302                                              |
| 124.00              | 16,863               | 15,937                    | 65,239                                              |

Pond 4P: Proposed Pond Storage Volume POI-3

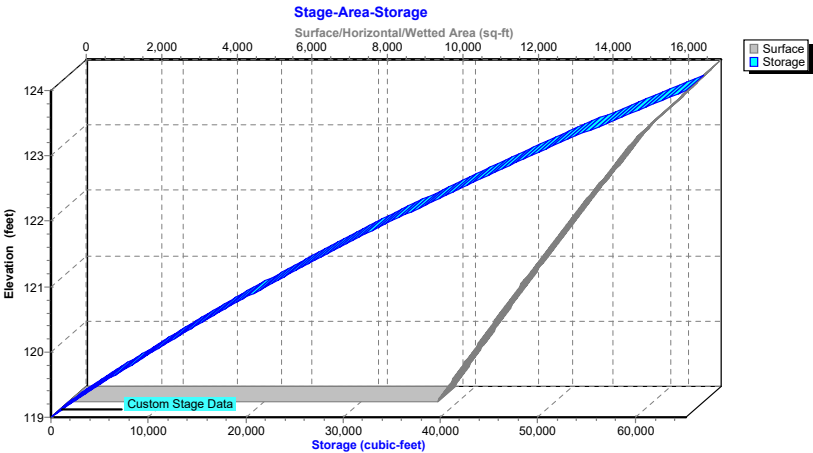
Pond 4P: Proposed Pond Storage Volume POI-3



Pond 4P: Proposed Pond Storage Volume POI-3



Pond 4P: Proposed Pond Storage Volume POI-3



**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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**Hydrograph for Pond 4P: Proposed Pond Storage Volume POI-3**

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) |
|-----------------|-----------------|-------------------------|---------------------|-----------------|-----------------|-------------------------|---------------------|
| 0.00            | 0.00            | 0                       | 119.00              | 26.00           | 0.00            | 2,440                   | 119.25              |
| 0.50            | 0.00            | 0                       | 119.00              | 26.50           | 0.00            | 2,440                   | 119.25              |
| 1.00            | 0.00            | 0                       | 119.00              | 27.00           | 0.00            | 2,440                   | 119.25              |
| 1.50            | 0.00            | 1                       | 119.00              | 27.50           | 0.00            | 2,440                   | 119.25              |
| 2.00            | 0.00            | 4                       | 119.00              | 28.00           | 0.00            | 2,440                   | 119.25              |
| 2.50            | 0.00            | 10                      | 119.00              | 28.50           | 0.00            | 2,440                   | 119.25              |
| 3.00            | 0.00            | 17                      | 119.00              | 29.00           | 0.00            | 2,440                   | 119.25              |
| 3.50            | 0.01            | 26                      | 119.00              | 29.50           | 0.00            | 2,440                   | 119.25              |
| 4.00            | 0.01            | 36                      | 119.00              | 30.00           | 0.00            | 2,440                   | 119.25              |
| 4.50            | 0.01            | 48                      | 119.00              | 30.50           | 0.00            | 2,440                   | 119.25              |
| 5.00            | 0.01            | 61                      | 119.01              | 31.00           | 0.00            | 2,440                   | 119.25              |
| 5.50            | 0.01            | 75                      | 119.01              | 31.50           | 0.00            | 2,440                   | 119.25              |
| 6.00            | 0.01            | 90                      | 119.01              | 32.00           | 0.00            | 2,440                   | 119.25              |
| 6.50            | 0.01            | 107                     | 119.01              | 32.50           | 0.00            | 2,440                   | 119.25              |
| 7.00            | 0.01            | 127                     | 119.01              | 33.00           | 0.00            | 2,440                   | 119.25              |
| 7.50            | 0.01            | 150                     | 119.02              | 33.50           | 0.00            | 2,440                   | 119.25              |
| 8.00            | 0.01            | 175                     | 119.02              | 34.00           | 0.00            | 2,440                   | 119.25              |
| 8.50            | 0.02            | 203                     | 119.02              | 34.50           | 0.00            | 2,440                   | 119.25              |
| 9.00            | 0.02            | 234                     | 119.02              | 35.00           | 0.00            | 2,440                   | 119.25              |
| 9.50            | 0.02            | 271                     | 119.03              | 35.50           | 0.00            | 2,440                   | 119.25              |
| 10.00           | 0.03            | 318                     | 119.03              | 36.00           | 0.00            | 2,440                   | 119.25              |
| 10.50           | 0.04            | 374                     | 119.04              |                 |                 |                         |                     |
| 11.00           | 0.06            | 455                     | 119.05              |                 |                 |                         |                     |
| 11.50           | 0.11            | 589                     | 119.06              |                 |                 |                         |                     |
| 12.00           | <b>0.64</b>     | 1,038                   | 119.11              |                 |                 |                         |                     |
| 12.50           | <b>0.12</b>     | 1,601                   | 119.16              |                 |                 |                         |                     |
| 13.00           | 0.06            | 1,740                   | 119.18              |                 |                 |                         |                     |
| 13.50           | 0.04            | 1,825                   | 119.18              |                 |                 |                         |                     |
| 14.00           | 0.03            | 1,884                   | 119.19              |                 |                 |                         |                     |
| 14.50           | 0.03            | 1,934                   | 119.20              |                 |                 |                         |                     |
| 15.00           | 0.02            | 1,975                   | 119.20              |                 |                 |                         |                     |
| 15.50           | 0.02            | 2,011                   | 119.20              |                 |                 |                         |                     |
| 16.00           | 0.02            | 2,046                   | 119.21              |                 |                 |                         |                     |
| 16.50           | 0.02            | 2,079                   | 119.21              |                 |                 |                         |                     |
| 17.00           | 0.02            | 2,110                   | 119.21              |                 |                 |                         |                     |
| 17.50           | 0.02            | 2,139                   | 119.22              |                 |                 |                         |                     |
| 18.00           | 0.01            | 2,166                   | 119.22              |                 |                 |                         |                     |
| 18.50           | 0.01            | 2,191                   | 119.22              |                 |                 |                         |                     |
| 19.00           | 0.01            | 2,215                   | 119.22              |                 |                 |                         |                     |
| 19.50           | 0.01            | 2,240                   | 119.23              |                 |                 |                         |                     |
| 20.00           | 0.01            | 2,264                   | 119.23              |                 |                 |                         |                     |
| 20.50           | 0.01            | 2,287                   | 119.23              |                 |                 |                         |                     |
| 21.00           | 0.01            | 2,310                   | 119.23              |                 |                 |                         |                     |
| 21.50           | 0.01            | 2,332                   | 119.23              |                 |                 |                         |                     |
| 22.00           | 0.01            | 2,354                   | 119.24              |                 |                 |                         |                     |
| 22.50           | 0.01            | 2,375                   | 119.24              |                 |                 |                         |                     |
| 23.00           | 0.01            | 2,396                   | 119.24              |                 |                 |                         |                     |
| 23.50           | 0.01            | 2,415                   | 119.24              |                 |                 |                         |                     |
| 24.00           | 0.01            | 2,435                   | 119.24              |                 |                 |                         |                     |
| 24.50           | 0.00            | 2,439                   | 119.25              |                 |                 |                         |                     |
| 25.00           | 0.00            | <b>2,440</b>            | <b>119.25</b>       |                 |                 |                         |                     |
| 25.50           | 0.00            | <b>2,440</b>            | <b>119.25</b>       |                 |                 |                         |                     |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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**Stage-Discharge for Pond 4P: Proposed Pond Storage Volume POI-3**

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|
| 119.00              | <b>0.00</b>        | 121.60              | 0.00               |
| 119.05              | 0.00               | 121.65              | 0.00               |
| 119.10              | 0.00               | 121.70              | 0.00               |
| 119.15              | 0.00               | 121.75              | 0.00               |
| 119.20              | 0.00               | 121.80              | 0.00               |
| 119.25              | 0.00               | 121.85              | 0.00               |
| 119.30              | 0.00               | 121.90              | 0.00               |
| 119.35              | 0.00               | 121.95              | 0.00               |
| 119.40              | 0.00               | 122.00              | 0.00               |
| 119.45              | 0.00               | 122.05              | 0.00               |
| 119.50              | 0.00               | 122.10              | 0.00               |
| 119.55              | 0.00               | 122.15              | 0.00               |
| 119.60              | 0.00               | 122.20              | 0.00               |
| 119.65              | 0.00               | 122.25              | 0.00               |
| 119.70              | 0.00               | 122.30              | 0.00               |
| 119.75              | 0.00               | 122.35              | 0.00               |
| 119.80              | 0.00               | 122.40              | 0.00               |
| 119.85              | 0.00               | 122.45              | 0.00               |
| 119.90              | 0.00               | 122.50              | 0.00               |
| 119.95              | 0.00               | 122.55              | 0.00               |
| 120.00              | 0.00               | 122.60              | 0.00               |
| 120.05              | 0.00               | 122.65              | 0.00               |
| 120.10              | 0.00               | 122.70              | 0.00               |
| 120.15              | 0.00               | 122.75              | 0.00               |
| 120.20              | 0.00               | 122.80              | 0.00               |
| 120.25              | 0.00               | 122.85              | 0.00               |
| 120.30              | 0.00               | 122.90              | 0.00               |
| 120.35              | 0.00               | 122.95              | 0.00               |
| 120.40              | 0.00               | 123.00              | 0.00               |
| 120.45              | 0.00               | 123.05              | 0.00               |
| 120.50              | 0.00               | 123.10              | 0.00               |
| 120.55              | 0.00               | 123.15              | 0.00               |
| 120.60              | 0.00               | 123.20              | 0.00               |
| 120.65              | 0.00               | 123.25              | 0.00               |
| 120.70              | 0.00               | 123.30              | 0.00               |
| 120.75              | 0.00               | 123.35              | 0.00               |
| 120.80              | 0.00               | 123.40              | 0.00               |
| 120.85              | 0.00               | 123.45              | 0.00               |
| 120.90              | 0.00               | 123.50              | 0.00               |
| 120.95              | 0.00               | 123.55              | 0.00               |
| 121.00              | 0.00               | 123.60              | 0.00               |
| 121.05              | 0.00               | 123.65              | 0.00               |
| 121.10              | 0.00               | 123.70              | 0.00               |
| 121.15              | 0.00               | 123.75              | 0.00               |
| 121.20              | 0.00               | 123.80              | 0.00               |
| 121.25              | 0.00               | 123.85              | 0.00               |
| 121.30              | 0.00               | 123.90              | 0.00               |
| 121.35              | 0.00               | 123.95              | 0.00               |
| 121.40              | 0.00               | 124.00              | 0.00               |
| 121.45              | 0.00               |                     |                    |
| 121.50              | 0.00               |                     |                    |
| 121.55              | 0.00               |                     |                    |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 2-Year-2020 Rainfall=3.45", P2=3.45"

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**Stage-Area-Storage for Pond 4P: Proposed Pond Storage Volume POI-3**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 119.00              | 9,792              | 0                       | 121.60              | 13,080             | 29,653                  |
| 119.05              | 9,853              | 491                     | 121.65              | 13,147             | 30,308                  |
| 119.10              | 9,913              | 985                     | 121.70              | 13,213             | 30,967                  |
| 119.15              | 9,974              | 1,482                   | 121.75              | 13,280             | 31,630                  |
| 119.20              | 10,035             | 1,983                   | 121.80              | 13,346             | 32,295                  |
| 119.25              | 10,096             | 2,486                   | 121.85              | 13,413             | 32,964                  |
| 119.30              | 10,156             | 2,992                   | 121.90              | 13,479             | 33,636                  |
| 119.35              | 10,217             | 3,502                   | 121.95              | 13,546             | 34,312                  |
| 119.40              | 10,278             | 4,014                   | 122.00              | 13,612             | 34,991                  |
| 119.45              | 10,338             | 4,529                   | 122.05              | 13,682             | 35,673                  |
| 119.50              | 10,399             | 5,048                   | 122.10              | 13,752             | 36,359                  |
| 119.55              | 10,460             | 5,569                   | 122.15              | 13,822             | 37,049                  |
| 119.60              | 10,520             | 6,094                   | 122.20              | 13,892             | 37,741                  |
| 119.65              | 10,581             | 6,621                   | 122.25              | 13,962             | 38,438                  |
| 119.70              | 10,642             | 7,152                   | 122.30              | 14,031             | 39,138                  |
| 119.75              | 10,703             | 7,685                   | 122.35              | 14,101             | 39,841                  |
| 119.80              | 10,763             | 8,222                   | 122.40              | 14,171             | 40,548                  |
| 119.85              | 10,824             | 8,762                   | 122.45              | 14,241             | 41,258                  |
| 119.90              | 10,885             | 9,304                   | 122.50              | 14,311             | 41,972                  |
| 119.95              | 10,945             | 9,850                   | 122.55              | 14,381             | 42,689                  |
| 120.00              | 11,006             | 10,399                  | 122.60              | 14,451             | 43,410                  |
| 120.05              | 11,070             | 10,951                  | 122.65              | 14,521             | 44,134                  |
| 120.10              | 11,134             | 11,506                  | 122.70              | 14,591             | 44,862                  |
| 120.15              | 11,198             | 12,064                  | 122.75              | 14,661             | 45,593                  |
| 120.20              | 11,261             | 12,626                  | 122.80              | 14,730             | 46,328                  |
| 120.25              | 11,325             | 13,190                  | 122.85              | 14,800             | 47,066                  |
| 120.30              | 11,389             | 13,758                  | 122.90              | 14,870             | 47,808                  |
| 120.35              | 11,453             | 14,329                  | 122.95              | 14,940             | 48,553                  |
| 120.40              | 11,517             | 14,904                  | 123.00              | 15,010             | 49,302                  |
| 120.45              | 11,581             | 15,481                  | 123.05              | 15,103             | 50,055                  |
| 120.50              | 11,645             | 16,062                  | 123.10              | 15,195             | 50,812                  |
| 120.55              | 11,708             | 16,645                  | 123.15              | 15,288             | 51,574                  |
| 120.60              | 11,772             | 17,232                  | 123.20              | 15,381             | 52,341                  |
| 120.65              | 11,836             | 17,823                  | 123.25              | 15,473             | 53,112                  |
| 120.70              | 11,900             | 18,416                  | 123.30              | 15,566             | 53,888                  |
| 120.75              | 11,964             | 19,013                  | 123.35              | 15,659             | 54,669                  |
| 120.80              | 12,028             | 19,612                  | 123.40              | 15,751             | 55,454                  |
| 120.85              | 12,091             | 20,215                  | 123.45              | 15,844             | 56,244                  |
| 120.90              | 12,155             | 20,822                  | 123.50              | 15,937             | 57,039                  |
| 120.95              | 12,219             | 21,431                  | 123.55              | 16,029             | 57,838                  |
| 121.00              | 12,283             | 22,044                  | 123.60              | 16,122             | 58,642                  |
| 121.05              | 12,349             | 22,659                  | 123.65              | 16,214             | 59,450                  |
| 121.10              | 12,416             | 23,278                  | 123.70              | 16,307             | 60,263                  |
| 121.15              | 12,482             | 23,901                  | 123.75              | 16,400             | 61,081                  |
| 121.20              | 12,549             | 24,527                  | 123.80              | 16,492             | 61,903                  |
| 121.25              | 12,615             | 25,156                  | 123.85              | 16,585             | 62,730                  |
| 121.30              | 12,682             | 25,788                  | 123.90              | 16,678             | 63,561                  |
| 121.35              | 12,748             | 26,424                  | 123.95              | 16,770             | 64,398                  |
| 121.40              | 12,815             | 27,063                  | 124.00              | <b>16,863</b>      | <b>65,239</b>           |
| 121.45              | 12,881             | 27,705                  |                     |                    |                         |
| 121.50              | 12,948             | 28,351                  |                     |                    |                         |
| 121.55              | 13,014             | 29,000                  |                     |                    |                         |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment3S: Pr. POI-3 Pervious** Runoff Area=54,841 sf 0.00% Impervious Runoff Depth=0.36"  
Flow Length=324' Tc=22.2 min CN=41 Runoff=0.13 cfs 1,656 cf

**Subcatchment4S: Pr. POI-3 Impervious** Runoff Area=8,729 sf 100.00% Impervious Runoff Depth=5.11"  
Tc=0.0 min CN=98 Runoff=1.26 cfs 3,719 cf

**Pond 4P: Proposed Pond Storage Volume** Peak Elev=119.53' Storage=5,375 cf Inflow=1.26 cfs 5,375 cf  
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 63,570 sf Runoff Volume = 5,375 cf Average Runoff Depth = 1.01"**  
**86.27% Pervious = 54,841 sf 13.73% Impervious = 8,729 sf**

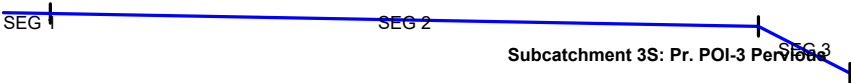
Summary for Subcatchment 3S: Pr. POI-3 Pervious

Runoff = 0.13 cfs @ 12.65 hrs, Volume= 1,656 cf, Depth= 0.36"  
Routed to Pond 4P : Proposed Pond Storage Volume POI-3

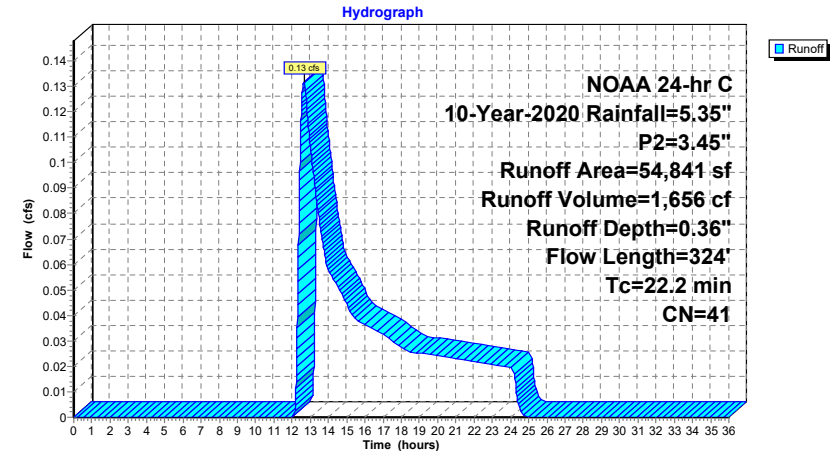
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 9,575     | 39 | >75% Grass cover, Good, HSG A |
| 2,327     | 61 | >75% Grass cover, Good, HSG B |
| 218       | 30 | Meadow, non-grazed, HSG A     |
| 2,760     | 58 | Meadow, non-grazed, HSG B     |
| 25,530    | 30 | Woods, Good, HSG A            |
| 14,431    | 55 | Woods, Good, HSG B            |
| 54,841    | 41 | Weighted Average              |
| 54,841    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 9.1      | 18            | 0.0050        | 0.03              |                | Sheet Flow, SEG 1<br>Woods: Light underbrush n= 0.400 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 12.8     | 271           | 0.0050        | 0.35              |                | Shallow Concentrated Flow, SEG 2<br>Woodland Kv= 5.0 fps                                           |
| 0.3      | 35            | 0.1400        | 1.87              |                | Shallow Concentrated Flow, SEG 3<br>Woodland Kv= 5.0 fps                                           |
| 22.2     | 324           |               |                   |                | Total                                                                                              |



Subcatchment 3S: Pr. POI-3 Pervious



**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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**Hydrograph for Subcatchment 3S: Pr. POI-3 Pervious**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 0.36               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 0.36               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 0.36               | 0.00            |
| 1.50            | 0.09                | 0.00               | 0.00            | 27.50           | 5.35                | 0.36               | 0.00            |
| 2.00            | 0.12                | 0.00               | 0.00            | 28.00           | 5.35                | 0.36               | 0.00            |
| 2.50            | 0.15                | 0.00               | 0.00            | 28.50           | 5.35                | 0.36               | 0.00            |
| 3.00            | 0.19                | 0.00               | 0.00            | 29.00           | 5.35                | 0.36               | 0.00            |
| 3.50            | 0.22                | 0.00               | 0.00            | 29.50           | 5.35                | 0.36               | 0.00            |
| 4.00            | 0.26                | 0.00               | 0.00            | 30.00           | 5.35                | 0.36               | 0.00            |
| 4.50            | 0.30                | 0.00               | 0.00            | 30.50           | 5.35                | 0.36               | 0.00            |
| 5.00            | 0.34                | 0.00               | 0.00            | 31.00           | 5.35                | 0.36               | 0.00            |
| 5.50            | 0.38                | 0.00               | 0.00            | 31.50           | 5.35                | 0.36               | 0.00            |
| 6.00            | 0.42                | 0.00               | 0.00            | 32.00           | 5.35                | 0.36               | 0.00            |
| 6.50            | 0.47                | 0.00               | 0.00            | 32.50           | 5.35                | 0.36               | 0.00            |
| 7.00            | 0.52                | 0.00               | 0.00            | 33.00           | 5.35                | 0.36               | 0.00            |
| 7.50            | 0.58                | 0.00               | 0.00            | 33.50           | 5.35                | 0.36               | 0.00            |
| 8.00            | 0.64                | 0.00               | 0.00            | 34.00           | 5.35                | 0.36               | 0.00            |
| 8.50            | 0.71                | 0.00               | 0.00            | 34.50           | 5.35                | 0.36               | 0.00            |
| 9.00            | 0.78                | 0.00               | 0.00            | 35.00           | 5.35                | 0.36               | 0.00            |
| 9.50            | 0.87                | 0.00               | 0.00            | 35.50           | 5.35                | 0.36               | 0.00            |
| 10.00           | 0.98                | 0.00               | 0.00            | 36.00           | 5.35                | 0.36               | 0.00            |
| 10.50           | 1.10                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.58                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.55                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 3.77                | 0.05               | 0.12            |                 |                     |                    |                 |
| 13.00           | 4.07                | 0.09               | 0.11            |                 |                     |                    |                 |
| 13.50           | 4.25                | 0.12               | 0.08            |                 |                     |                    |                 |
| 14.00           | 4.37                | 0.14               | 0.06            |                 |                     |                    |                 |
| 14.50           | 4.48                | 0.16               | 0.05            |                 |                     |                    |                 |
| 15.00           | 4.57                | 0.18               | 0.04            |                 |                     |                    |                 |
| 15.50           | 4.64                | 0.19               | 0.04            |                 |                     |                    |                 |
| 16.00           | 4.71                | 0.21               | 0.04            |                 |                     |                    |                 |
| 16.50           | 4.77                | 0.22               | 0.03            |                 |                     |                    |                 |
| 17.00           | 4.83                | 0.23               | 0.03            |                 |                     |                    |                 |
| 17.50           | 4.88                | 0.24               | 0.03            |                 |                     |                    |                 |
| 18.00           | 4.93                | 0.26               | 0.03            |                 |                     |                    |                 |
| 18.50           | 4.97                | 0.27               | 0.03            |                 |                     |                    |                 |
| 19.00           | 5.01                | 0.28               | 0.03            |                 |                     |                    |                 |
| 19.50           | 5.05                | 0.28               | 0.02            |                 |                     |                    |                 |
| 20.00           | 5.09                | 0.29               | 0.02            |                 |                     |                    |                 |
| 20.50           | 5.13                | 0.30               | 0.02            |                 |                     |                    |                 |
| 21.00           | 5.16                | 0.31               | 0.02            |                 |                     |                    |                 |
| 21.50           | 5.20                | 0.32               | 0.02            |                 |                     |                    |                 |
| 22.00           | 5.23                | 0.33               | 0.02            |                 |                     |                    |                 |
| 22.50           | 5.26                | 0.34               | 0.02            |                 |                     |                    |                 |
| 23.00           | 5.29                | 0.35               | 0.02            |                 |                     |                    |                 |
| 23.50           | 5.32                | 0.35               | 0.02            |                 |                     |                    |                 |
| 24.00           | 5.35                | 0.36               | 0.02            |                 |                     |                    |                 |
| 24.50           | 5.35                | 0.36               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 0.36               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 0.36               | 0.00            |                 |                     |                    |                 |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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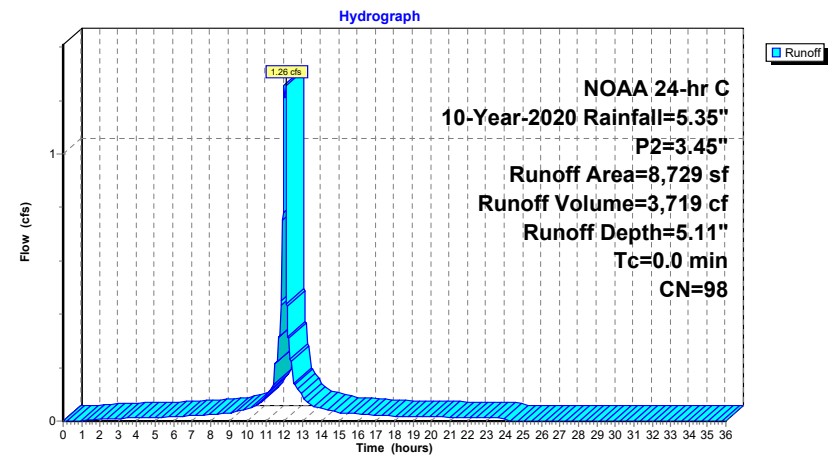
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**Summary for Subcatchment 4S: Pr. POI-3 Impervious (Pond)**

Runoff = 1.26 cfs @ 12.09 hrs, Volume= 3,719 cf, Depth= 5.11"  
Routed to Pond 4P : Proposed Pond Storage Volume POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 8,729     | 98 | Water Surface, HSG B    |
| 8,729     |    | 100.00% Impervious Area |

**Subcatchment 4S: Pr. POI-3 Impervious (Pond)**



Hydrograph for Subcatchment 4S: Pr. POI-3 Impervious (Pond)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 5.35                | 5.11               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 5.35                | 5.11               | 0.00            |
| 1.00            | 0.06                | 0.00               | 0.00            | 27.00           | 5.35                | 5.11               | 0.00            |
| 1.50            | 0.09                | 0.01               | 0.00            | 27.50           | 5.35                | 5.11               | 0.00            |
| 2.00            | 0.12                | 0.02               | 0.01            | 28.00           | 5.35                | 5.11               | 0.00            |
| 2.50            | 0.15                | 0.04               | 0.01            | 28.50           | 5.35                | 5.11               | 0.00            |
| 3.00            | 0.19                | 0.06               | 0.01            | 29.00           | 5.35                | 5.11               | 0.00            |
| 3.50            | 0.22                | 0.09               | 0.01            | 29.50           | 5.35                | 5.11               | 0.00            |
| 4.00            | 0.26                | 0.11               | 0.01            | 30.00           | 5.35                | 5.11               | 0.00            |
| 4.50            | 0.30                | 0.15               | 0.01            | 30.50           | 5.35                | 5.11               | 0.00            |
| 5.00            | 0.34                | 0.18               | 0.01            | 31.00           | 5.35                | 5.11               | 0.00            |
| 5.50            | 0.38                | 0.21               | 0.01            | 31.50           | 5.35                | 5.11               | 0.00            |
| 6.00            | 0.42                | 0.25               | 0.02            | 32.00           | 5.35                | 5.11               | 0.00            |
| 6.50            | 0.47                | 0.29               | 0.02            | 32.50           | 5.35                | 5.11               | 0.00            |
| 7.00            | 0.52                | 0.34               | 0.02            | 33.00           | 5.35                | 5.11               | 0.00            |
| 7.50            | 0.58                | 0.39               | 0.02            | 33.50           | 5.35                | 5.11               | 0.00            |
| 8.00            | 0.64                | 0.45               | 0.02            | 34.00           | 5.35                | 5.11               | 0.00            |
| 8.50            | 0.71                | 0.51               | 0.03            | 34.50           | 5.35                | 5.11               | 0.00            |
| 9.00            | 0.78                | 0.58               | 0.03            | 35.00           | 5.35                | 5.11               | 0.00            |
| 9.50            | 0.87                | 0.66               | 0.04            | 35.50           | 5.35                | 5.11               | 0.00            |
| 10.00           | 0.98                | 0.77               | 0.05            | 36.00           | 5.35                | 5.11               | 0.00            |
| 10.50           | 1.10                | 0.89               | 0.06            |                 |                     |                    |                 |
| 11.00           | 1.28                | 1.07               | 0.09            |                 |                     |                    |                 |
| 11.50           | 1.58                | 1.36               | 0.18            |                 |                     |                    |                 |
| 12.00           | 2.55                | 2.32               | 1.00            |                 |                     |                    |                 |
| 12.50           | 3.77                | 3.53               | 0.18            |                 |                     |                    |                 |
| 13.00           | 4.07                | 3.83               | 0.09            |                 |                     |                    |                 |
| 13.50           | 4.25                | 4.01               | 0.06            |                 |                     |                    |                 |
| 14.00           | 4.37                | 4.14               | 0.05            |                 |                     |                    |                 |
| 14.50           | 4.48                | 4.25               | 0.04            |                 |                     |                    |                 |
| 15.00           | 4.57                | 4.33               | 0.03            |                 |                     |                    |                 |
| 15.50           | 4.64                | 4.41               | 0.03            |                 |                     |                    |                 |
| 16.00           | 4.71                | 4.47               | 0.03            |                 |                     |                    |                 |
| 16.50           | 4.77                | 4.53               | 0.02            |                 |                     |                    |                 |
| 17.00           | 4.83                | 4.59               | 0.02            |                 |                     |                    |                 |
| 17.50           | 4.88                | 4.64               | 0.02            |                 |                     |                    |                 |
| 18.00           | 4.93                | 4.69               | 0.02            |                 |                     |                    |                 |
| 18.50           | 4.97                | 4.73               | 0.02            |                 |                     |                    |                 |
| 19.00           | 5.01                | 4.77               | 0.02            |                 |                     |                    |                 |
| 19.50           | 5.05                | 4.81               | 0.02            |                 |                     |                    |                 |
| 20.00           | 5.09                | 4.85               | 0.02            |                 |                     |                    |                 |
| 20.50           | 5.13                | 4.89               | 0.01            |                 |                     |                    |                 |
| 21.00           | 5.16                | 4.92               | 0.01            |                 |                     |                    |                 |
| 21.50           | 5.20                | 4.96               | 0.01            |                 |                     |                    |                 |
| 22.00           | 5.23                | 4.99               | 0.01            |                 |                     |                    |                 |
| 22.50           | 5.26                | 5.02               | 0.01            |                 |                     |                    |                 |
| 23.00           | 5.29                | 5.05               | 0.01            |                 |                     |                    |                 |
| 23.50           | 5.32                | 5.08               | 0.01            |                 |                     |                    |                 |
| 24.00           | 5.35                | 5.11               | 0.01            |                 |                     |                    |                 |
| 24.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.00           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |
| 25.50           | 5.35                | 5.11               | 0.00            |                 |                     |                    |                 |

Summary for Pond 4P: Proposed Pond Storage Volume POI-3

Inflow Area = 63,570 sf, 13.73% Impervious, Inflow Depth = 1.01" for 10-Year-2020 event  
Inflow = 1.26 cfs @ 12.09 hrs, Volume= 5,375 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

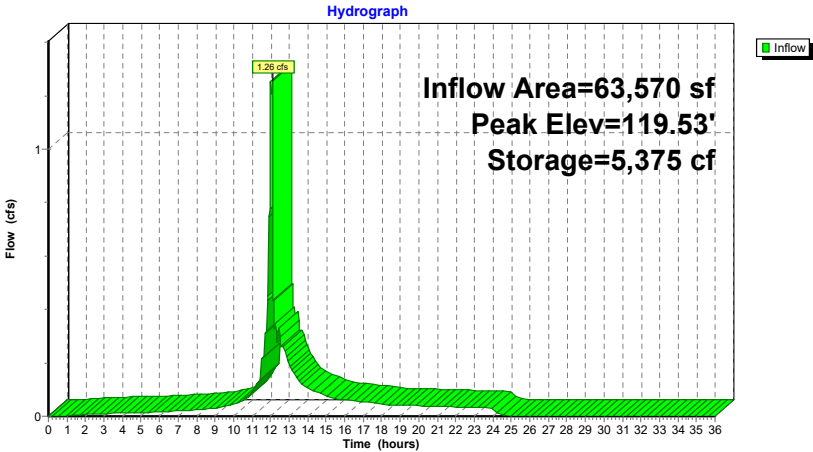
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 119.53' @ 25.27 hrs Surf.Area= 10,437 sf Storage= 5,375 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

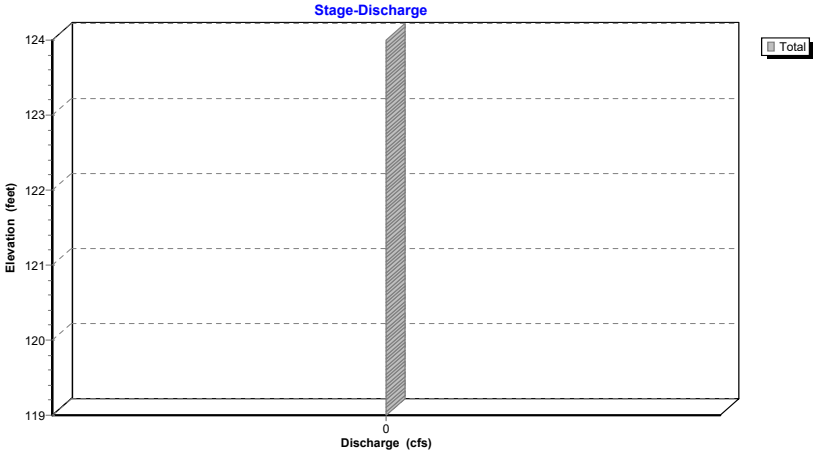
| Volume              | Invert               | Avail.Storage             | Storage Description                                 |
|---------------------|----------------------|---------------------------|-----------------------------------------------------|
| #1                  | 119.00'              | 65,239 cf                 | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                           |
| 119.00              | 9,792                | 0                         | 0                                                   |
| 120.00              | 11,006               | 10,399                    | 10,399                                              |
| 121.00              | 12,283               | 11,645                    | 22,044                                              |
| 122.00              | 13,612               | 12,948                    | 34,991                                              |
| 123.00              | 15,010               | 14,311                    | 49,302                                              |
| 124.00              | 16,863               | 15,937                    | 65,239                                              |

Pond 4P: Proposed Pond Storage Volume POI-3

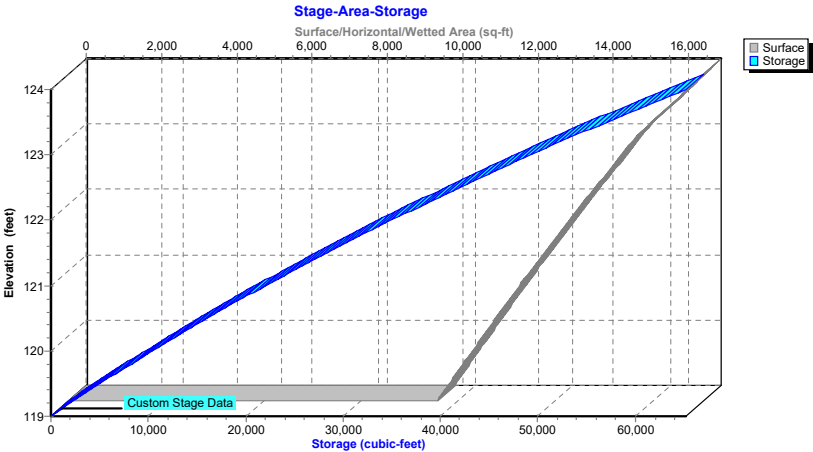
Pond 4P: Proposed Pond Storage Volume POI-3



Pond 4P: Proposed Pond Storage Volume POI-3



Pond 4P: Proposed Pond Storage Volume POI-3



**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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**Hydrograph for Pond 4P: Proposed Pond Storage Volume POI-3**

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) |
|-----------------|-----------------|-------------------------|---------------------|-----------------|-----------------|-------------------------|---------------------|
| 0.00            | 0.00            | 0                       | 119.00              | 26.00           | 0.00            | 5,375                   | 119.53              |
| 0.50            | 0.00            | 0                       | 119.00              | 26.50           | 0.00            | 5,375                   | 119.53              |
| 1.00            | 0.00            | 1                       | 119.00              | 27.00           | 0.00            | 5,375                   | 119.53              |
| 1.50            | 0.00            | 7                       | 119.00              | 27.50           | 0.00            | 5,375                   | 119.53              |
| 2.00            | 0.01            | 16                      | 119.00              | 28.00           | 0.00            | 5,375                   | 119.53              |
| 2.50            | 0.01            | 29                      | 119.00              | 28.50           | 0.00            | 5,375                   | 119.53              |
| 3.00            | 0.01            | 45                      | 119.00              | 29.00           | 0.00            | 5,375                   | 119.53              |
| 3.50            | 0.01            | 63                      | 119.01              | 29.50           | 0.00            | 5,375                   | 119.53              |
| 4.00            | 0.01            | 84                      | 119.01              | 30.00           | 0.00            | 5,375                   | 119.53              |
| 4.50            | 0.01            | 106                     | 119.01              | 30.50           | 0.00            | 5,375                   | 119.53              |
| 5.00            | 0.01            | 130                     | 119.01              | 31.00           | 0.00            | 5,375                   | 119.53              |
| 5.50            | 0.01            | 155                     | 119.02              | 31.50           | 0.00            | 5,375                   | 119.53              |
| 6.00            | 0.02            | 182                     | 119.02              | 32.00           | 0.00            | 5,375                   | 119.53              |
| 6.50            | 0.02            | 212                     | 119.02              | 32.50           | 0.00            | 5,375                   | 119.53              |
| 7.00            | 0.02            | 246                     | 119.03              | 33.00           | 0.00            | 5,375                   | 119.53              |
| 7.50            | 0.02            | 284                     | 119.03              | 33.50           | 0.00            | 5,375                   | 119.53              |
| 8.00            | 0.02            | 326                     | 119.03              | 34.00           | 0.00            | 5,375                   | 119.53              |
| 8.50            | 0.03            | 372                     | 119.04              | 34.50           | 0.00            | 5,375                   | 119.53              |
| 9.00            | 0.03            | 422                     | 119.04              | 35.00           | 0.00            | 5,375                   | 119.53              |
| 9.50            | 0.04            | 483                     | 119.05              | 35.50           | 0.00            | 5,375                   | 119.53              |
| 10.00           | 0.05            | 558                     | 119.06              | 36.00           | 0.00            | 5,375                   | 119.53              |
| 10.50           | 0.06            | 648                     | 119.07              |                 |                 |                         |                     |
| 11.00           | 0.09            | 777                     | 119.08              |                 |                 |                         |                     |
| 11.50           | 0.18            | 990                     | 119.10              |                 |                 |                         |                     |
| 12.00           | 1.00            | 1,692                   | 119.17              |                 |                 |                         |                     |
| 12.50           | 0.30            | 2,643                   | 119.27              |                 |                 |                         |                     |
| 13.00           | 0.20            | 3,079                   | 119.31              |                 |                 |                         |                     |
| 13.50           | 0.13            | 3,374                   | 119.34              |                 |                 |                         |                     |
| 14.00           | 0.11            | 3,586                   | 119.36              |                 |                 |                         |                     |
| 14.50           | 0.09            | 3,762                   | 119.38              |                 |                 |                         |                     |
| 15.00           | 0.08            | 3,911                   | 119.39              |                 |                 |                         |                     |
| 15.50           | 0.07            | 4,038                   | 119.40              |                 |                 |                         |                     |
| 16.00           | 0.06            | 4,154                   | 119.41              |                 |                 |                         |                     |
| 16.50           | 0.06            | 4,263                   | 119.42              |                 |                 |                         |                     |
| 17.00           | 0.05            | 4,364                   | 119.43              |                 |                 |                         |                     |
| 17.50           | 0.05            | 4,458                   | 119.44              |                 |                 |                         |                     |
| 18.00           | 0.05            | 4,544                   | 119.45              |                 |                 |                         |                     |
| 18.50           | 0.04            | 4,622                   | 119.46              |                 |                 |                         |                     |
| 19.00           | 0.04            | 4,698                   | 119.47              |                 |                 |                         |                     |
| 19.50           | 0.04            | 4,772                   | 119.47              |                 |                 |                         |                     |
| 20.00           | 0.04            | 4,844                   | 119.48              |                 |                 |                         |                     |
| 20.50           | 0.04            | 4,914                   | 119.49              |                 |                 |                         |                     |
| 21.00           | 0.04            | 4,982                   | 119.49              |                 |                 |                         |                     |
| 21.50           | 0.04            | 5,049                   | 119.50              |                 |                 |                         |                     |
| 22.00           | 0.04            | 5,113                   | 119.51              |                 |                 |                         |                     |
| 22.50           | 0.03            | 5,175                   | 119.51              |                 |                 |                         |                     |
| 23.00           | 0.03            | 5,235                   | 119.52              |                 |                 |                         |                     |
| 23.50           | 0.03            | 5,293                   | 119.52              |                 |                 |                         |                     |
| 24.00           | 0.03            | 5,350                   | 119.53              |                 |                 |                         |                     |
| 24.50           | 0.00            | 5,373                   | 119.53              |                 |                 |                         |                     |
| 25.00           | 0.00            | 5,375                   | 119.53              |                 |                 |                         |                     |
| 25.50           | 0.00            | 5,375                   | 119.53              |                 |                 |                         |                     |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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**Stage-Discharge for Pond 4P: Proposed Pond Storage Volume POI-3**

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|
| 119.00              | 0.00               | 121.60              | 0.00               |
| 119.05              | 0.00               | 121.65              | 0.00               |
| 119.10              | 0.00               | 121.70              | 0.00               |
| 119.15              | 0.00               | 121.75              | 0.00               |
| 119.20              | 0.00               | 121.80              | 0.00               |
| 119.25              | 0.00               | 121.85              | 0.00               |
| 119.30              | 0.00               | 121.90              | 0.00               |
| 119.35              | 0.00               | 121.95              | 0.00               |
| 119.40              | 0.00               | 122.00              | 0.00               |
| 119.45              | 0.00               | 122.05              | 0.00               |
| 119.50              | 0.00               | 122.10              | 0.00               |
| 119.55              | 0.00               | 122.15              | 0.00               |
| 119.60              | 0.00               | 122.20              | 0.00               |
| 119.65              | 0.00               | 122.25              | 0.00               |
| 119.70              | 0.00               | 122.30              | 0.00               |
| 119.75              | 0.00               | 122.35              | 0.00               |
| 119.80              | 0.00               | 122.40              | 0.00               |
| 119.85              | 0.00               | 122.45              | 0.00               |
| 119.90              | 0.00               | 122.50              | 0.00               |
| 119.95              | 0.00               | 122.55              | 0.00               |
| 120.00              | 0.00               | 122.60              | 0.00               |
| 120.05              | 0.00               | 122.65              | 0.00               |
| 120.10              | 0.00               | 122.70              | 0.00               |
| 120.15              | 0.00               | 122.75              | 0.00               |
| 120.20              | 0.00               | 122.80              | 0.00               |
| 120.25              | 0.00               | 122.85              | 0.00               |
| 120.30              | 0.00               | 122.90              | 0.00               |
| 120.35              | 0.00               | 122.95              | 0.00               |
| 120.40              | 0.00               | 123.00              | 0.00               |
| 120.45              | 0.00               | 123.05              | 0.00               |
| 120.50              | 0.00               | 123.10              | 0.00               |
| 120.55              | 0.00               | 123.15              | 0.00               |
| 120.60              | 0.00               | 123.20              | 0.00               |
| 120.65              | 0.00               | 123.25              | 0.00               |
| 120.70              | 0.00               | 123.30              | 0.00               |
| 120.75              | 0.00               | 123.35              | 0.00               |
| 120.80              | 0.00               | 123.40              | 0.00               |
| 120.85              | 0.00               | 123.45              | 0.00               |
| 120.90              | 0.00               | 123.50              | 0.00               |
| 120.95              | 0.00               | 123.55              | 0.00               |
| 121.00              | 0.00               | 123.60              | 0.00               |
| 121.05              | 0.00               | 123.65              | 0.00               |
| 121.10              | 0.00               | 123.70              | 0.00               |
| 121.15              | 0.00               | 123.75              | 0.00               |
| 121.20              | 0.00               | 123.80              | 0.00               |
| 121.25              | 0.00               | 123.85              | 0.00               |
| 121.30              | 0.00               | 123.90              | 0.00               |
| 121.35              | 0.00               | 123.95              | 0.00               |
| 121.40              | 0.00               | 124.00              | 0.00               |
| 121.45              | 0.00               |                     |                    |
| 121.50              | 0.00               |                     |                    |
| 121.55              | 0.00               |                     |                    |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 10-Year-2020 Rainfall=5.35", P2=3.45"

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**Stage-Area-Storage for Pond 4P: Proposed Pond Storage Volume POI-3**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 119.00              | 9,792              | 0                       | 121.60              | 13,080             | 29,653                  |
| 119.05              | 9,853              | 491                     | 121.65              | 13,147             | 30,308                  |
| 119.10              | 9,913              | 985                     | 121.70              | 13,213             | 30,967                  |
| 119.15              | 9,974              | 1,482                   | 121.75              | 13,280             | 31,630                  |
| 119.20              | 10,035             | 1,983                   | 121.80              | 13,346             | 32,295                  |
| 119.25              | 10,096             | 2,486                   | 121.85              | 13,413             | 32,964                  |
| 119.30              | 10,156             | 2,992                   | 121.90              | 13,479             | 33,636                  |
| 119.35              | 10,217             | 3,502                   | 121.95              | 13,546             | 34,312                  |
| 119.40              | 10,278             | 4,014                   | 122.00              | 13,612             | 34,991                  |
| 119.45              | 10,338             | 4,529                   | 122.05              | 13,682             | 35,673                  |
| 119.50              | 10,399             | 5,048                   | 122.10              | 13,752             | 36,359                  |
| 119.55              | 10,460             | 5,569                   | 122.15              | 13,822             | 37,049                  |
| 119.60              | 10,520             | 6,094                   | 122.20              | 13,892             | 37,741                  |
| 119.65              | 10,581             | 6,621                   | 122.25              | 13,962             | 38,438                  |
| 119.70              | 10,642             | 7,152                   | 122.30              | 14,031             | 39,138                  |
| 119.75              | 10,703             | 7,685                   | 122.35              | 14,101             | 39,841                  |
| 119.80              | 10,763             | 8,222                   | 122.40              | 14,171             | 40,548                  |
| 119.85              | 10,824             | 8,762                   | 122.45              | 14,241             | 41,258                  |
| 119.90              | 10,885             | 9,304                   | 122.50              | 14,311             | 41,972                  |
| 119.95              | 10,945             | 9,850                   | 122.55              | 14,381             | 42,689                  |
| 120.00              | 11,006             | 10,399                  | 122.60              | 14,451             | 43,410                  |
| 120.05              | 11,070             | 10,951                  | 122.65              | 14,521             | 44,134                  |
| 120.10              | 11,134             | 11,506                  | 122.70              | 14,591             | 44,862                  |
| 120.15              | 11,198             | 12,064                  | 122.75              | 14,661             | 45,593                  |
| 120.20              | 11,261             | 12,626                  | 122.80              | 14,730             | 46,328                  |
| 120.25              | 11,325             | 13,190                  | 122.85              | 14,800             | 47,066                  |
| 120.30              | 11,389             | 13,758                  | 122.90              | 14,870             | 47,808                  |
| 120.35              | 11,453             | 14,329                  | 122.95              | 14,940             | 48,553                  |
| 120.40              | 11,517             | 14,904                  | 123.00              | 15,010             | 49,302                  |
| 120.45              | 11,581             | 15,481                  | 123.05              | 15,103             | 50,055                  |
| 120.50              | 11,645             | 16,062                  | 123.10              | 15,195             | 50,812                  |
| 120.55              | 11,708             | 16,645                  | 123.15              | 15,288             | 51,574                  |
| 120.60              | 11,772             | 17,232                  | 123.20              | 15,381             | 52,341                  |
| 120.65              | 11,836             | 17,823                  | 123.25              | 15,473             | 53,112                  |
| 120.70              | 11,900             | 18,416                  | 123.30              | 15,566             | 53,888                  |
| 120.75              | 11,964             | 19,013                  | 123.35              | 15,659             | 54,669                  |
| 120.80              | 12,028             | 19,612                  | 123.40              | 15,751             | 55,454                  |
| 120.85              | 12,091             | 20,215                  | 123.45              | 15,844             | 56,244                  |
| 120.90              | 12,155             | 20,822                  | 123.50              | 15,937             | 57,039                  |
| 120.95              | 12,219             | 21,431                  | 123.55              | 16,029             | 57,838                  |
| 121.00              | 12,283             | 22,044                  | 123.60              | 16,122             | 58,642                  |
| 121.05              | 12,349             | 22,659                  | 123.65              | 16,214             | 59,450                  |
| 121.10              | 12,416             | 23,278                  | 123.70              | 16,307             | 60,263                  |
| 121.15              | 12,482             | 23,901                  | 123.75              | 16,400             | 61,081                  |
| 121.20              | 12,549             | 24,527                  | 123.80              | 16,492             | 61,903                  |
| 121.25              | 12,615             | 25,156                  | 123.85              | 16,585             | 62,730                  |
| 121.30              | 12,682             | 25,788                  | 123.90              | 16,678             | 63,561                  |
| 121.35              | 12,748             | 26,424                  | 123.95              | 16,770             | 64,398                  |
| 121.40              | 12,815             | 27,063                  | 124.00              | <b>16,863</b>      | <b>65,239</b>           |
| 121.45              | 12,881             | 27,705                  |                     |                    |                         |
| 121.50              | 12,948             | 28,351                  |                     |                    |                         |
| 121.55              | 13,014             | 29,000                  |                     |                    |                         |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment3S: Pr. POI-3 Pervious** Runoff Area=54,841 sf 0.00% Impervious Runoff Depth=1.86"  
Flow Length=324' Tc=22.2 min CN=41 Runoff=1.55 cfs 8,490 cf

**Subcatchment4S: Pr. POI-3 Impervious** Runoff Area=8,729 sf 100.00% Impervious Runoff Depth=8.82"  
Tc=0.0 min CN=98 Runoff=2.13 cfs 6,416 cf

**Pond 4P: Proposed Pond Storage Volume** Peak Elev=120.40' Storage=14,905 cf Inflow=2.46 cfs 14,905 cf  
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 63,570 sf Runoff Volume = 14,905 cf Average Runoff Depth = 2.81"**  
**86.27% Pervious = 54,841 sf 13.73% Impervious = 8,729 sf**

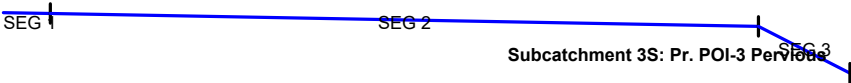
Summary for Subcatchment 3S: Pr. POI-3 Pervious

Runoff = 1.55 cfs @ 12.36 hrs, Volume= 8,490 cf, Depth= 1.86"  
Routed to Pond 4P : Proposed Pond Storage Volume POI-3

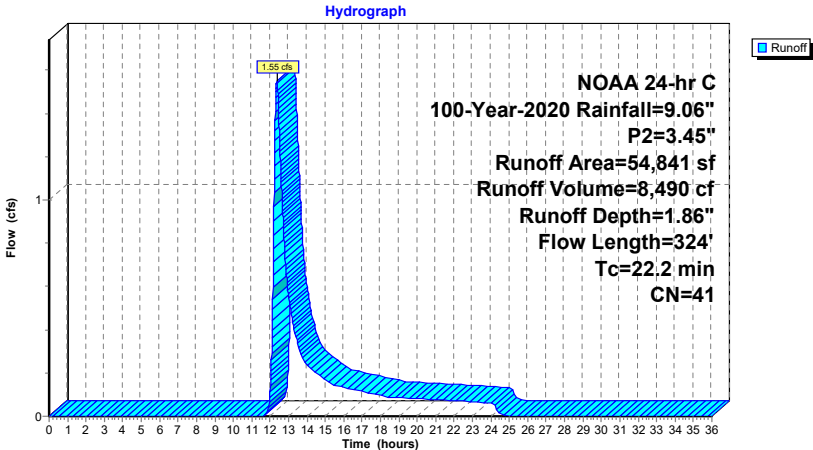
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 9,575     | 39 | >75% Grass cover, Good, HSG A |
| 2,327     | 61 | >75% Grass cover, Good, HSG B |
| 218       | 30 | Meadow, non-grazed, HSG A     |
| 2,760     | 58 | Meadow, non-grazed, HSG B     |
| 25,530    | 30 | Woods, Good, HSG A            |
| 14,431    | 55 | Woods, Good, HSG B            |
| 54,841    | 41 | Weighted Average              |
| 54,841    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 9.1      | 18            | 0.0050        | 0.03              |                | Sheet Flow, SEG 1<br>Woods: Light underbrush n= 0.400 P2= 3.45"<br>Using McCuen-Spiess flow length |
| 12.8     | 271           | 0.0050        | 0.35              |                | Shallow Concentrated Flow, SEG 2<br>Woodland Kv= 5.0 fps                                           |
| 0.3      | 35            | 0.1400        | 1.87              |                | Shallow Concentrated Flow, SEG 3<br>Woodland Kv= 5.0 fps                                           |
| 22.2     | 324           | Total         |                   |                |                                                                                                    |



Subcatchment 3S: Pr. POI-3 Pervious



**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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**Hydrograph for Subcatchment 3S: Pr. POI-3 Pervious**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 1.86               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 1.86               | 0.00            |
| 1.00            | 0.10                | 0.00               | 0.00            | 27.00           | 9.06                | 1.86               | 0.00            |
| 1.50            | 0.15                | 0.00               | 0.00            | 27.50           | 9.06                | 1.86               | 0.00            |
| 2.00            | 0.20                | 0.00               | 0.00            | 28.00           | 9.06                | 1.86               | 0.00            |
| 2.50            | 0.26                | 0.00               | 0.00            | 28.50           | 9.06                | 1.86               | 0.00            |
| 3.00            | 0.32                | 0.00               | 0.00            | 29.00           | 9.06                | 1.86               | 0.00            |
| 3.50            | 0.38                | 0.00               | 0.00            | 29.50           | 9.06                | 1.86               | 0.00            |
| 4.00            | 0.44                | 0.00               | 0.00            | 30.00           | 9.06                | 1.86               | 0.00            |
| 4.50            | 0.51                | 0.00               | 0.00            | 30.50           | 9.06                | 1.86               | 0.00            |
| 5.00            | 0.58                | 0.00               | 0.00            | 31.00           | 9.06                | 1.86               | 0.00            |
| 5.50            | 0.65                | 0.00               | 0.00            | 31.50           | 9.06                | 1.86               | 0.00            |
| 6.00            | 0.72                | 0.00               | 0.00            | 32.00           | 9.06                | 1.86               | 0.00            |
| 6.50            | 0.80                | 0.00               | 0.00            | 32.50           | 9.06                | 1.86               | 0.00            |
| 7.00            | 0.88                | 0.00               | 0.00            | 33.00           | 9.06                | 1.86               | 0.00            |
| 7.50            | 0.98                | 0.00               | 0.00            | 33.50           | 9.06                | 1.86               | 0.00            |
| 8.00            | 1.09                | 0.00               | 0.00            | 34.00           | 9.06                | 1.86               | 0.00            |
| 8.50            | 1.20                | 0.00               | 0.00            | 34.50           | 9.06                | 1.86               | 0.00            |
| 9.00            | 1.32                | 0.00               | 0.00            | 35.00           | 9.06                | 1.86               | 0.00            |
| 9.50            | 1.47                | 0.00               | 0.00            | 35.50           | 9.06                | 1.86               | 0.00            |
| 10.00           | 1.65                | 0.00               | 0.00            | 36.00           | 9.06                | 1.86               | 0.00            |
| 10.50           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.17                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 2.68                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 4.32                | 0.13               | 0.12            |                 |                     |                    |                 |
| 12.50           | 6.38                | 0.69               | 1.32            |                 |                     |                    |                 |
| 13.00           | 6.89                | 0.87               | 0.56            |                 |                     |                    |                 |
| 13.50           | 7.19                | 1.00               | 0.34            |                 |                     |                    |                 |
| 14.00           | 7.41                | 1.08               | 0.24            |                 |                     |                    |                 |
| 14.50           | 7.59                | 1.16               | 0.20            |                 |                     |                    |                 |
| 15.00           | 7.74                | 1.23               | 0.17            |                 |                     |                    |                 |
| 15.50           | 7.86                | 1.28               | 0.14            |                 |                     |                    |                 |
| 16.00           | 7.97                | 1.33               | 0.13            |                 |                     |                    |                 |
| 16.50           | 8.08                | 1.38               | 0.12            |                 |                     |                    |                 |
| 17.00           | 8.18                | 1.43               | 0.12            |                 |                     |                    |                 |
| 17.50           | 8.26                | 1.47               | 0.11            |                 |                     |                    |                 |
| 18.00           | 8.34                | 1.50               | 0.10            |                 |                     |                    |                 |
| 18.50           | 8.41                | 1.54               | 0.09            |                 |                     |                    |                 |
| 19.00           | 8.48                | 1.57               | 0.09            |                 |                     |                    |                 |
| 19.50           | 8.55                | 1.60               | 0.08            |                 |                     |                    |                 |
| 20.00           | 8.62                | 1.64               | 0.08            |                 |                     |                    |                 |
| 20.50           | 8.68                | 1.67               | 0.08            |                 |                     |                    |                 |
| 21.00           | 8.74                | 1.70               | 0.08            |                 |                     |                    |                 |
| 21.50           | 8.80                | 1.73               | 0.07            |                 |                     |                    |                 |
| 22.00           | 8.86                | 1.75               | 0.07            |                 |                     |                    |                 |
| 22.50           | 8.91                | 1.78               | 0.07            |                 |                     |                    |                 |
| 23.00           | 8.96                | 1.81               | 0.07            |                 |                     |                    |                 |
| 23.50           | 9.01                | 1.83               | 0.06            |                 |                     |                    |                 |
| 24.00           | 9.06                | 1.86               | 0.06            |                 |                     |                    |                 |
| 24.50           | 9.06                | 1.86               | 0.01            |                 |                     |                    |                 |
| 25.00           | 9.06                | 1.86               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 1.86               | 0.00            |                 |                     |                    |                 |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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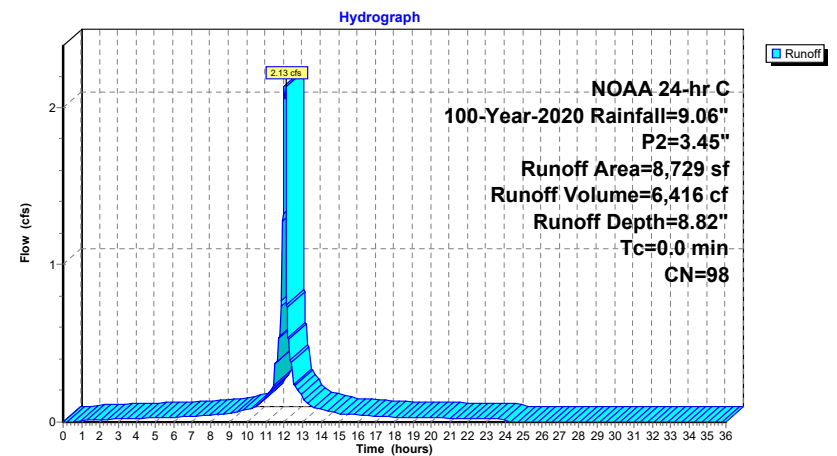
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**Summary for Subcatchment 4S: Pr. POI-3 Impervious (Pond)**

Runoff = 2.13 cfs @ 12.09 hrs, Volume= 6,416 cf, Depth= 8.82"  
Routed to Pond 4P : Proposed Pond Storage Volume POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 8,729     | 98 | Water Surface, HSG B    |
| 8,729     |    | 100.00% Impervious Area |

**Subcatchment 4S: Pr. POI-3 Impervious (Pond)**

Hydrograph for Subcatchment 4S: Pr. POI-3 Impervious (Pond)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 9.06                | 8.82               | 0.00            |
| 0.50            | 0.05                | 0.00               | 0.00            | 26.50           | 9.06                | 8.82               | 0.00            |
| 1.00            | 0.10                | 0.01               | 0.01            | 27.00           | 9.06                | 8.82               | 0.00            |
| 1.50            | 0.15                | 0.04               | 0.01            | 27.50           | 9.06                | 8.82               | 0.00            |
| 2.00            | 0.20                | 0.07               | 0.02            | 28.00           | 9.06                | 8.82               | 0.00            |
| 2.50            | 0.26                | 0.11               | 0.02            | 28.50           | 9.06                | 8.82               | 0.00            |
| 3.00            | 0.32                | 0.16               | 0.02            | 29.00           | 9.06                | 8.82               | 0.00            |
| 3.50            | 0.38                | 0.21               | 0.02            | 29.50           | 9.06                | 8.82               | 0.00            |
| 4.00            | 0.44                | 0.27               | 0.02            | 30.00           | 9.06                | 8.82               | 0.00            |
| 4.50            | 0.51                | 0.33               | 0.02            | 30.50           | 9.06                | 8.82               | 0.00            |
| 5.00            | 0.58                | 0.39               | 0.03            | 31.00           | 9.06                | 8.82               | 0.00            |
| 5.50            | 0.65                | 0.45               | 0.03            | 31.50           | 9.06                | 8.82               | 0.00            |
| 6.00            | 0.72                | 0.52               | 0.03            | 32.00           | 9.06                | 8.82               | 0.00            |
| 6.50            | 0.80                | 0.59               | 0.03            | 32.50           | 9.06                | 8.82               | 0.00            |
| 7.00            | 0.88                | 0.68               | 0.04            | 33.00           | 9.06                | 8.82               | 0.00            |
| 7.50            | 0.98                | 0.77               | 0.04            | 33.50           | 9.06                | 8.82               | 0.00            |
| 8.00            | 1.09                | 0.87               | 0.04            | 34.00           | 9.06                | 8.82               | 0.00            |
| 8.50            | 1.20                | 0.99               | 0.05            | 34.50           | 9.06                | 8.82               | 0.00            |
| 9.00            | 1.32                | 1.11               | 0.05            | 35.00           | 9.06                | 8.82               | 0.00            |
| 9.50            | 1.47                | 1.25               | 0.07            | 35.50           | 9.06                | 8.82               | 0.00            |
| 10.00           | 1.65                | 1.43               | 0.08            | 36.00           | 9.06                | 8.82               | 0.00            |
| 10.50           | 1.87                | 1.64               | 0.10            |                 |                     |                    |                 |
| 11.00           | 2.17                | 1.95               | 0.15            |                 |                     |                    |                 |
| 11.50           | 2.68                | 2.45               | 0.30            |                 |                     |                    |                 |
| 12.00           | 4.32                | 4.08               | 1.70            |                 |                     |                    |                 |
| 12.50           | 6.38                | 6.14               | 0.30            |                 |                     |                    |                 |
| 13.00           | 6.89                | 6.65               | 0.15            |                 |                     |                    |                 |
| 13.50           | 7.19                | 6.95               | 0.10            |                 |                     |                    |                 |
| 14.00           | 7.41                | 7.17               | 0.08            |                 |                     |                    |                 |
| 14.50           | 7.59                | 7.35               | 0.07            |                 |                     |                    |                 |
| 15.00           | 7.74                | 7.50               | 0.05            |                 |                     |                    |                 |
| 15.50           | 7.86                | 7.62               | 0.05            |                 |                     |                    |                 |
| 16.00           | 7.97                | 7.73               | 0.04            |                 |                     |                    |                 |
| 16.50           | 8.08                | 7.84               | 0.04            |                 |                     |                    |                 |
| 17.00           | 8.18                | 7.94               | 0.04            |                 |                     |                    |                 |
| 17.50           | 8.26                | 8.02               | 0.03            |                 |                     |                    |                 |
| 18.00           | 8.34                | 8.10               | 0.03            |                 |                     |                    |                 |
| 18.50           | 8.41                | 8.17               | 0.03            |                 |                     |                    |                 |
| 19.00           | 8.48                | 8.24               | 0.03            |                 |                     |                    |                 |
| 19.50           | 8.55                | 8.31               | 0.03            |                 |                     |                    |                 |
| 20.00           | 8.62                | 8.38               | 0.03            |                 |                     |                    |                 |
| 20.50           | 8.68                | 8.44               | 0.03            |                 |                     |                    |                 |
| 21.00           | 8.74                | 8.50               | 0.02            |                 |                     |                    |                 |
| 21.50           | 8.80                | 8.56               | 0.02            |                 |                     |                    |                 |
| 22.00           | 8.86                | 8.61               | 0.02            |                 |                     |                    |                 |
| 22.50           | 8.91                | 8.67               | 0.02            |                 |                     |                    |                 |
| 23.00           | 8.96                | 8.72               | 0.02            |                 |                     |                    |                 |
| 23.50           | 9.01                | 8.77               | 0.02            |                 |                     |                    |                 |
| 24.00           | 9.06                | 8.82               | 0.01            |                 |                     |                    |                 |
| 24.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.00           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |
| 25.50           | 9.06                | 8.82               | 0.00            |                 |                     |                    |                 |

Summary for Pond 4P: Proposed Pond Storage Volume POI-3

Inflow Area = 63,570 sf, 13.73% Impervious, Inflow Depth = 2.81" for 100-Year-2020 event  
Inflow = 2.46 cfs @ 12.09 hrs, Volume= 14,905 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

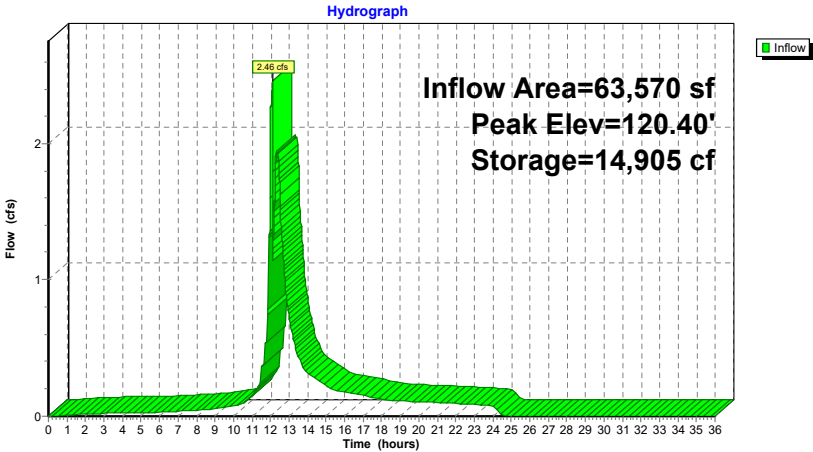
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 120.40' @ 25.27 hrs Surf.Area= 11,517 sf Storage= 14,905 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

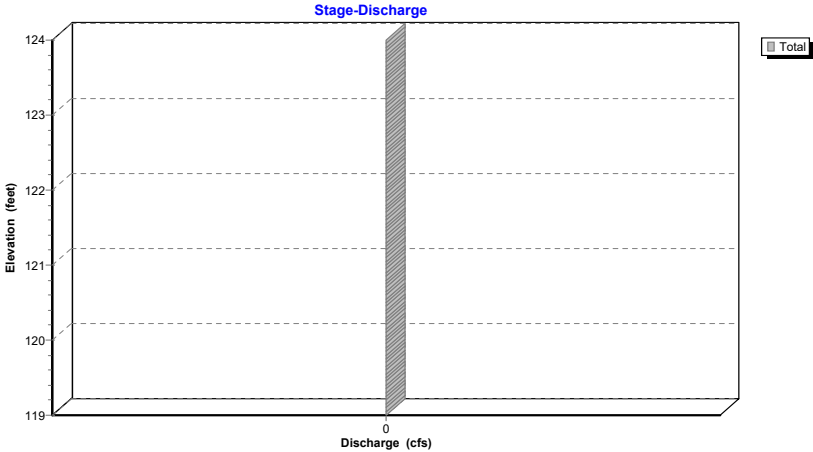
| Volume              | Invert               | Avail.Storage             | Storage Description                                 |
|---------------------|----------------------|---------------------------|-----------------------------------------------------|
| #1                  | 119.00'              | 65,239 cf                 | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                           |
| 119.00              | 9,792                | 0                         | 0                                                   |
| 120.00              | 11,006               | 10,399                    | 10,399                                              |
| 121.00              | 12,283               | 11,645                    | 22,044                                              |
| 122.00              | 13,612               | 12,948                    | 34,991                                              |
| 123.00              | 15,010               | 14,311                    | 49,302                                              |
| 124.00              | 16,863               | 15,937                    | 65,239                                              |

Pond 4P: Proposed Pond Storage Volume POI-3

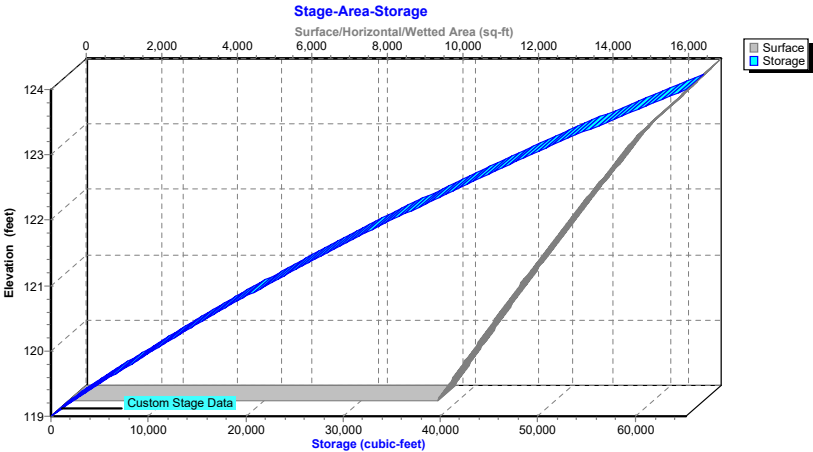
Pond 4P: Proposed Pond Storage Volume POI-3



Pond 4P: Proposed Pond Storage Volume POI-3



Pond 4P: Proposed Pond Storage Volume POI-3





**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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**Hydrograph for Pond 4P: Proposed Pond Storage Volume POI-3**

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) |
|-----------------|-----------------|-------------------------|---------------------|-----------------|-----------------|-------------------------|---------------------|
| 0.00            | 0.00            | 0                       | 119.00              | 26.00           | 0.00            | 14,905                  | 120.40              |
| 0.50            | 0.00            | 0                       | 119.00              | 26.50           | 0.00            | 14,905                  | 120.40              |
| 1.00            | 0.01            | 9                       | 119.00              | 27.00           | 0.00            | 14,905                  | 120.40              |
| 1.50            | 0.01            | 28                      | 119.00              | 27.50           | 0.00            | 14,905                  | 120.40              |
| 2.00            | 0.02            | 53                      | 119.01              | 28.00           | 0.00            | 14,905                  | 120.40              |
| 2.50            | 0.02            | 83                      | 119.01              | 28.50           | 0.00            | 14,905                  | 120.40              |
| 3.00            | 0.02            | 117                     | 119.01              | 29.00           | 0.00            | 14,905                  | 120.40              |
| 3.50            | 0.02            | 154                     | 119.02              | 29.50           | 0.00            | 14,905                  | 120.40              |
| 4.00            | 0.02            | 194                     | 119.02              | 30.00           | 0.00            | 14,905                  | 120.40              |
| 4.50            | 0.02            | 237                     | 119.02              | 30.50           | 0.00            | 14,905                  | 120.40              |
| 5.00            | 0.03            | 282                     | 119.03              | 31.00           | 0.00            | 14,905                  | 120.40              |
| 5.50            | 0.03            | 329                     | 119.03              | 31.50           | 0.00            | 14,905                  | 120.40              |
| 6.00            | 0.03            | 379                     | 119.04              | 32.00           | 0.00            | 14,905                  | 120.40              |
| 6.50            | 0.03            | 433                     | 119.04              | 32.50           | 0.00            | 14,905                  | 120.40              |
| 7.00            | 0.04            | 494                     | 119.05              | 33.00           | 0.00            | 14,905                  | 120.40              |
| 7.50            | 0.04            | 561                     | 119.06              | 33.50           | 0.00            | 14,905                  | 120.40              |
| 8.00            | 0.04            | 636                     | 119.06              | 34.00           | 0.00            | 14,905                  | 120.40              |
| 8.50            | 0.05            | 717                     | 119.07              | 34.50           | 0.00            | 14,905                  | 120.40              |
| 9.00            | 0.05            | 805                     | 119.08              | 35.00           | 0.00            | 14,905                  | 120.40              |
| 9.50            | 0.07            | 910                     | 119.09              | 35.50           | 0.00            | 14,905                  | 120.40              |
| 10.00           | 0.08            | 1,040                   | 119.11              | 36.00           | 0.00            | 14,905                  | 120.40              |
| 10.50           | 0.10            | 1,195                   | 119.12              |                 |                 |                         |                     |
| 11.00           | 0.15            | 1,417                   | 119.14              |                 |                 |                         |                     |
| 11.50           | 0.30            | 1,781                   | 119.18              |                 |                 |                         |                     |
| 12.00           | <b>1.82</b>     | 3,008                   | 119.30              |                 |                 |                         |                     |
| 12.50           | <b>1.63</b>     | 6,299                   | 119.62              |                 |                 |                         |                     |
| 13.00           | 0.71            | 8,228                   | 119.80              |                 |                 |                         |                     |
| 13.50           | 0.44            | 9,230                   | 119.89              |                 |                 |                         |                     |
| 14.00           | 0.32            | 9,891                   | 119.95              |                 |                 |                         |                     |
| 14.50           | 0.27            | 10,417                  | 120.00              |                 |                 |                         |                     |
| 15.00           | 0.22            | 10,860                  | 120.04              |                 |                 |                         |                     |
| 15.50           | 0.19            | 11,227                  | 120.07              |                 |                 |                         |                     |
| 16.00           | 0.18            | 11,557                  | 120.10              |                 |                 |                         |                     |
| 16.50           | 0.16            | 11,865                  | 120.13              |                 |                 |                         |                     |
| 17.00           | 0.15            | 12,150                  | 120.16              |                 |                 |                         |                     |
| 17.50           | 0.14            | 12,412                  | 120.18              |                 |                 |                         |                     |
| 18.00           | 0.13            | 12,650                  | 120.20              |                 |                 |                         |                     |
| 18.50           | 0.12            | 12,867                  | 120.22              |                 |                 |                         |                     |
| 19.00           | 0.11            | 13,074                  | 120.24              |                 |                 |                         |                     |
| 19.50           | 0.11            | 13,275                  | 120.26              |                 |                 |                         |                     |
| 20.00           | 0.11            | 13,470                  | 120.27              |                 |                 |                         |                     |
| 20.50           | 0.10            | 13,660                  | 120.29              |                 |                 |                         |                     |
| 21.00           | 0.10            | 13,844                  | 120.31              |                 |                 |                         |                     |
| 21.50           | 0.10            | 14,023                  | 120.32              |                 |                 |                         |                     |
| 22.00           | 0.09            | 14,195                  | 120.34              |                 |                 |                         |                     |
| 22.50           | 0.09            | 14,361                  | 120.35              |                 |                 |                         |                     |
| 23.00           | 0.09            | 14,521                  | 120.37              |                 |                 |                         |                     |
| 23.50           | 0.08            | 14,675                  | 120.38              |                 |                 |                         |                     |
| 24.00           | 0.07            | 14,824                  | 120.39              |                 |                 |                         |                     |
| 24.50           | 0.01            | 14,900                  | 120.40              |                 |                 |                         |                     |
| 25.00           | 0.00            | <b>14,905</b>           | <b>120.40</b>       |                 |                 |                         |                     |
| 25.50           | 0.00            | <b>14,905</b>           | <b>120.40</b>       |                 |                 |                         |                     |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 100-Year-2020 Rainfall=9.06", P2=3.45"

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**Stage-Discharge for Pond 4P: Proposed Pond Storage Volume POI-3**

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|
| 119.00              | <b>0.00</b>        | 121.60              | 0.00               |
| 119.05              | 0.00               | 121.65              | 0.00               |
| 119.10              | 0.00               | 121.70              | 0.00               |
| 119.15              | 0.00               | 121.75              | 0.00               |
| 119.20              | 0.00               | 121.80              | 0.00               |
| 119.25              | 0.00               | 121.85              | 0.00               |
| 119.30              | 0.00               | 121.90              | 0.00               |
| 119.35              | 0.00               | 121.95              | 0.00               |
| 119.40              | 0.00               | 122.00              | 0.00               |
| 119.45              | 0.00               | 122.05              | 0.00               |
| 119.50              | 0.00               | 122.10              | 0.00               |
| 119.55              | 0.00               | 122.15              | 0.00               |
| 119.60              | 0.00               | 122.20              | 0.00               |
| 119.65              | 0.00               | 122.25              | 0.00               |
| 119.70              | 0.00               | 122.30              | 0.00               |
| 119.75              | 0.00               | 122.35              | 0.00               |
| 119.80              | 0.00               | 122.40              | 0.00               |
| 119.85              | 0.00               | 122.45              | 0.00               |
| 119.90              | 0.00               | 122.50              | 0.00               |
| 119.95              | 0.00               | 122.55              | 0.00               |
| 120.00              | 0.00               | 122.60              | 0.00               |
| 120.05              | 0.00               | 122.65              | 0.00               |
| 120.10              | 0.00               | 122.70              | 0.00               |
| 120.15              | 0.00               | 122.75              | 0.00               |
| 120.20              | 0.00               | 122.80              | 0.00               |
| 120.25              | 0.00               | 122.85              | 0.00               |
| 120.30              | 0.00               | 122.90              | 0.00               |
| 120.35              | 0.00               | 122.95              | 0.00               |
| 120.40              | 0.00               | 123.00              | 0.00               |
| 120.45              | 0.00               | 123.05              | 0.00               |
| 120.50              | 0.00               | 123.10              | 0.00               |
| 120.55              | 0.00               | 123.15              | 0.00               |
| 120.60              | 0.00               | 123.20              | 0.00               |
| 120.65              | 0.00               | 123.25              | 0.00               |
| 120.70              | 0.00               | 123.30              | 0.00               |
| 120.75              | 0.00               | 123.35              | 0.00               |
| 120.80              | 0.00               | 123.40              | 0.00               |
| 120.85              | 0.00               | 123.45              | 0.00               |
| 120.90              | 0.00               | 123.50              | 0.00               |
| 120.95              | 0.00               | 123.55              | 0.00               |
| 121.00              | 0.00               | 123.60              | 0.00               |
| 121.05              | 0.00               | 123.65              | 0.00               |
| 121.10              | 0.00               | 123.70              | 0.00               |
| 121.15              | 0.00               | 123.75              | 0.00               |
| 121.20              | 0.00               | 123.80              | 0.00               |
| 121.25              | 0.00               | 123.85              | 0.00               |
| 121.30              | 0.00               | 123.90              | 0.00               |
| 121.35              | 0.00               | 123.95              | 0.00               |
| 121.40              | 0.00               | 124.00              | 0.00               |
| 121.45              | 0.00               |                     |                    |
| 121.50              | 0.00               |                     |                    |
| 121.55              | 0.00               |                     |                    |

**Stage-Area-Storage for Pond 4P: Proposed Pond Storage Volume POI-3**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 119.00              | 9,792              | 0                       | 121.60              | 13,080             | 29,653                  |
| 119.05              | 9,853              | 491                     | 121.65              | 13,147             | 30,308                  |
| 119.10              | 9,913              | 985                     | 121.70              | 13,213             | 30,967                  |
| 119.15              | 9,974              | 1,482                   | 121.75              | 13,280             | 31,630                  |
| 119.20              | 10,035             | 1,983                   | 121.80              | 13,346             | 32,295                  |
| 119.25              | 10,096             | 2,486                   | 121.85              | 13,413             | 32,964                  |
| 119.30              | 10,156             | 2,992                   | 121.90              | 13,479             | 33,636                  |
| 119.35              | 10,217             | 3,502                   | 121.95              | 13,546             | 34,312                  |
| 119.40              | 10,278             | 4,014                   | 122.00              | 13,612             | 34,991                  |
| 119.45              | 10,338             | 4,529                   | 122.05              | 13,682             | 35,673                  |
| 119.50              | 10,399             | 5,048                   | 122.10              | 13,752             | 36,359                  |
| 119.55              | 10,460             | 5,569                   | 122.15              | 13,822             | 37,049                  |
| 119.60              | 10,520             | 6,094                   | 122.20              | 13,892             | 37,741                  |
| 119.65              | 10,581             | 6,621                   | 122.25              | 13,962             | 38,438                  |
| 119.70              | 10,642             | 7,152                   | 122.30              | 14,031             | 39,138                  |
| 119.75              | 10,703             | 7,685                   | 122.35              | 14,101             | 39,841                  |
| 119.80              | 10,763             | 8,222                   | 122.40              | 14,171             | 40,548                  |
| 119.85              | 10,824             | 8,762                   | 122.45              | 14,241             | 41,258                  |
| 119.90              | 10,885             | 9,304                   | 122.50              | 14,311             | 41,972                  |
| 119.95              | 10,945             | 9,850                   | 122.55              | 14,381             | 42,689                  |
| 120.00              | 11,006             | 10,399                  | 122.60              | 14,451             | 43,410                  |
| 120.05              | 11,070             | 10,951                  | 122.65              | 14,521             | 44,134                  |
| 120.10              | 11,134             | 11,506                  | 122.70              | 14,591             | 44,862                  |
| 120.15              | 11,198             | 12,064                  | 122.75              | 14,661             | 45,593                  |
| 120.20              | 11,261             | 12,626                  | 122.80              | 14,730             | 46,328                  |
| 120.25              | 11,325             | 13,190                  | 122.85              | 14,800             | 47,066                  |
| 120.30              | 11,389             | 13,758                  | 122.90              | 14,870             | 47,808                  |
| 120.35              | 11,453             | 14,329                  | 122.95              | 14,940             | 48,553                  |
| 120.40              | 11,517             | 14,904                  | 123.00              | 15,010             | 49,302                  |
| 120.45              | 11,581             | 15,481                  | 123.05              | 15,103             | 50,055                  |
| 120.50              | 11,645             | 16,062                  | 123.10              | 15,195             | 50,812                  |
| 120.55              | 11,708             | 16,645                  | 123.15              | 15,288             | 51,574                  |
| 120.60              | 11,772             | 17,232                  | 123.20              | 15,381             | 52,341                  |
| 120.65              | 11,836             | 17,823                  | 123.25              | 15,473             | 53,112                  |
| 120.70              | 11,900             | 18,416                  | 123.30              | 15,566             | 53,888                  |
| 120.75              | 11,964             | 19,013                  | 123.35              | 15,659             | 54,669                  |
| 120.80              | 12,028             | 19,612                  | 123.40              | 15,751             | 55,454                  |
| 120.85              | 12,091             | 20,215                  | 123.45              | 15,844             | 56,244                  |
| 120.90              | 12,155             | 20,822                  | 123.50              | 15,937             | 57,039                  |
| 120.95              | 12,219             | 21,431                  | 123.55              | 16,029             | 57,838                  |
| 121.00              | 12,283             | 22,044                  | 123.60              | 16,122             | 58,642                  |
| 121.05              | 12,349             | 22,659                  | 123.65              | 16,214             | 59,450                  |
| 121.10              | 12,416             | 23,278                  | 123.70              | 16,307             | 60,263                  |
| 121.15              | 12,482             | 23,901                  | 123.75              | 16,400             | 61,081                  |
| 121.20              | 12,549             | 24,527                  | 123.80              | 16,492             | 61,903                  |
| 121.25              | 12,615             | 25,156                  | 123.85              | 16,585             | 62,730                  |
| 121.30              | 12,682             | 25,788                  | 123.90              | 16,678             | 63,561                  |
| 121.35              | 12,748             | 26,424                  | 123.95              | 16,770             | 64,398                  |
| 121.40              | 12,815             | 27,063                  | 124.00              | <b>16,863</b>      | <b>65,239</b>           |
| 121.45              | 12,881             | 27,705                  |                     |                    |                         |
| 121.50              | 12,948             | 28,351                  |                     |                    |                         |
| 121.55              | 13,014             | 29,000                  |                     |                    |                         |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment3S: Pr. POI-3 Pervious** Runoff Area=54,841 sf 0.00% Impervious Runoff Depth=0.07"  
 Flow Length=324' Tc=21.7 min CN=41 Runoff=0.01 cfs 322 cf

**Subcatchment4S: Pr. POI-3 Impervious** Runoff Area=8,729 sf 100.00% Impervious Runoff Depth=3.69"  
 Tc=0.0 min CN=98 Runoff=0.92 cfs 2,681 cf

**Pond 4P: Proposed Pond Storage Volume** Peak Elev=119.30' Storage=3,002 cf Inflow=0.92 cfs 3,002 cf  
 Outflow=0.00 cfs 0 cf

**Total Runoff Area = 63,570 sf Runoff Volume = 3,002 cf Average Runoff Depth = 0.57"**  
**86.27% Pervious = 54,841 sf 13.73% Impervious = 8,729 sf**

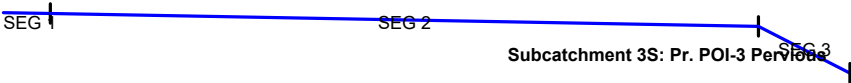
Summary for Subcatchment 3S: Pr. POI-3 Pervious

Runoff = 0.01 cfs @ 14.68 hrs, Volume= 322 cf, Depth= 0.07"  
Routed to Pond 4P : Proposed Pond Storage Volume POI-3

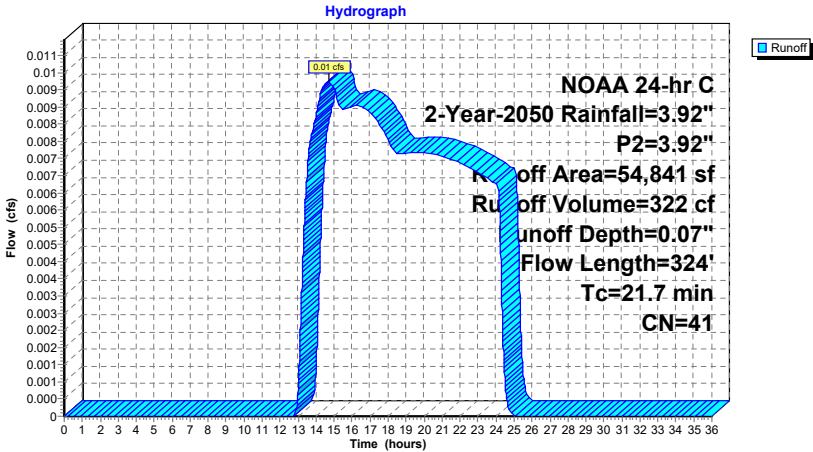
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 9,575     | 39 | >75% Grass cover, Good, HSG A |
| 2,327     | 61 | >75% Grass cover, Good, HSG B |
| 218       | 30 | Meadow, non-grazed, HSG A     |
| 2,760     | 58 | Meadow, non-grazed, HSG B     |
| 25,530    | 30 | Woods, Good, HSG A            |
| 14,431    | 55 | Woods, Good, HSG B            |
| 54,841    | 41 | Weighted Average              |
| 54,841    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 8.6      | 18            | 0.0050        | 0.04              |                | Sheet Flow, SEG 1<br>Woods: Light underbrush n= 0.400 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 12.8     | 271           | 0.0050        | 0.35              |                | Shallow Concentrated Flow, SEG 2<br>Woodland Kv= 5.0 fps                                           |
| 0.3      | 35            | 0.1400        | 1.87              |                | Shallow Concentrated Flow, SEG 3<br>Woodland Kv= 5.0 fps                                           |
| 21.7     | 324           | Total         |                   |                |                                                                                                    |



Subcatchment 3S: Pr. POI-3 Pervious



**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

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**Hydrograph for Subcatchment 3S: Pr. POI-3 Pervious**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 0.07               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 0.07               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 0.07               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 0.07               | 0.00            |
| 2.00            | 0.09                | 0.00               | 0.00            | 28.00           | 3.92                | 0.07               | 0.00            |
| 2.50            | 0.11                | 0.00               | 0.00            | 28.50           | 3.92                | 0.07               | 0.00            |
| 3.00            | 0.14                | 0.00               | 0.00            | 29.00           | 3.92                | 0.07               | 0.00            |
| 3.50            | 0.16                | 0.00               | 0.00            | 29.50           | 3.92                | 0.07               | 0.00            |
| 4.00            | 0.19                | 0.00               | 0.00            | 30.00           | 3.92                | 0.07               | 0.00            |
| 4.50            | 0.22                | 0.00               | 0.00            | 30.50           | 3.92                | 0.07               | 0.00            |
| 5.00            | 0.25                | 0.00               | 0.00            | 31.00           | 3.92                | 0.07               | 0.00            |
| 5.50            | 0.28                | 0.00               | 0.00            | 31.50           | 3.92                | 0.07               | 0.00            |
| 6.00            | 0.31                | 0.00               | 0.00            | 32.00           | 3.92                | 0.07               | 0.00            |
| 6.50            | 0.34                | 0.00               | 0.00            | 32.50           | 3.92                | 0.07               | 0.00            |
| 7.00            | 0.38                | 0.00               | 0.00            | 33.00           | 3.92                | 0.07               | 0.00            |
| 7.50            | 0.42                | 0.00               | 0.00            | 33.50           | 3.92                | 0.07               | 0.00            |
| 8.00            | 0.47                | 0.00               | 0.00            | 34.00           | 3.92                | 0.07               | 0.00            |
| 8.50            | 0.52                | 0.00               | 0.00            | 34.50           | 3.92                | 0.07               | 0.00            |
| 9.00            | 0.57                | 0.00               | 0.00            | 35.00           | 3.92                | 0.07               | 0.00            |
| 9.50            | 0.64                | 0.00               | 0.00            | 35.50           | 3.92                | 0.07               | 0.00            |
| 10.00           | 0.71                | 0.00               | 0.00            | 36.00           | 3.92                | 0.07               | 0.00            |
| 10.50           | 0.81                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.87                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 2.76                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 2.98                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 3.11                | 0.00               | 0.01            |                 |                     |                    |                 |
| 14.00           | 3.21                | 0.01               | 0.01            |                 |                     |                    |                 |
| 14.50           | 3.28                | 0.01               | 0.01            |                 |                     |                    |                 |
| 15.00           | 3.35                | 0.01               | 0.01            |                 |                     |                    |                 |
| 15.50           | 3.40                | 0.02               | 0.01            |                 |                     |                    |                 |
| 16.00           | 3.45                | 0.02               | 0.01            |                 |                     |                    |                 |
| 16.50           | 3.50                | 0.03               | 0.01            |                 |                     |                    |                 |
| 17.00           | 3.54                | 0.03               | 0.01            |                 |                     |                    |                 |
| 17.50           | 3.58                | 0.03               | 0.01            |                 |                     |                    |                 |
| 18.00           | 3.61                | 0.04               | 0.01            |                 |                     |                    |                 |
| 18.50           | 3.64                | 0.04               | 0.01            |                 |                     |                    |                 |
| 19.00           | 3.67                | 0.04               | 0.01            |                 |                     |                    |                 |
| 19.50           | 3.70                | 0.04               | 0.01            |                 |                     |                    |                 |
| 20.00           | 3.73                | 0.05               | 0.01            |                 |                     |                    |                 |
| 20.50           | 3.76                | 0.05               | 0.01            |                 |                     |                    |                 |
| 21.00           | 3.78                | 0.05               | 0.01            |                 |                     |                    |                 |
| 21.50           | 3.81                | 0.06               | 0.01            |                 |                     |                    |                 |
| 22.00           | 3.83                | 0.06               | 0.01            |                 |                     |                    |                 |
| 22.50           | 3.85                | 0.06               | 0.01            |                 |                     |                    |                 |
| 23.00           | 3.88                | 0.06               | 0.01            |                 |                     |                    |                 |
| 23.50           | 3.90                | 0.07               | 0.01            |                 |                     |                    |                 |
| 24.00           | 3.92                | 0.07               | 0.01            |                 |                     |                    |                 |
| 24.50           | 3.92                | 0.07               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 0.07               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 0.07               | 0.00            |                 |                     |                    |                 |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

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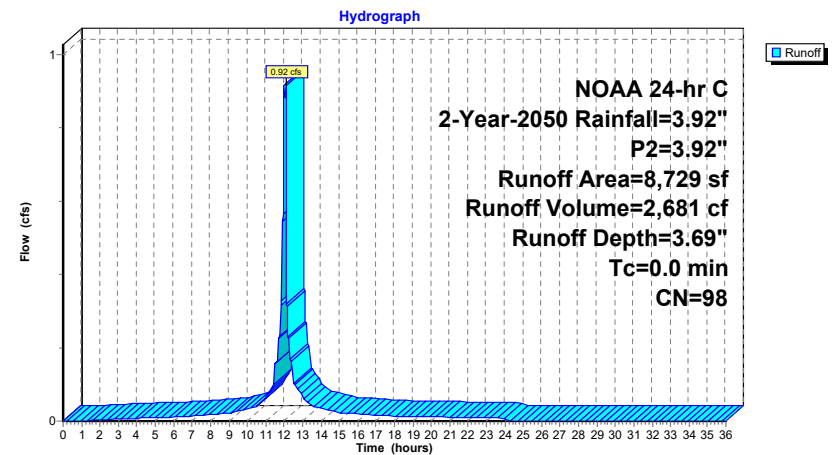
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**Summary for Subcatchment 4S: Pr. POI-3 Impervious (Pond)**

Runoff = 0.92 cfs @ 12.09 hrs, Volume= 2,681 cf, Depth= 3.69"  
Routed to Pond 4P : Proposed Pond Storage Volume POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 8,729     | 98 | Water Surface, HSG B    |
| 8,729     |    | 100.00% Impervious Area |

**Subcatchment 4S: Pr. POI-3 Impervious (Pond)**

Hydrograph for Subcatchment 4S: Pr. POI-3 Impervious (Pond)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 3.92                | 3.69               | 0.00            |
| 0.50            | 0.02                | 0.00               | 0.00            | 26.50           | 3.92                | 3.69               | 0.00            |
| 1.00            | 0.04                | 0.00               | 0.00            | 27.00           | 3.92                | 3.69               | 0.00            |
| 1.50            | 0.07                | 0.00               | 0.00            | 27.50           | 3.92                | 3.69               | 0.00            |
| 2.00            | 0.09                | 0.01               | 0.00            | 28.00           | 3.92                | 3.69               | 0.00            |
| 2.50            | 0.11                | 0.02               | 0.00            | 28.50           | 3.92                | 3.69               | 0.00            |
| 3.00            | 0.14                | 0.03               | 0.01            | 29.00           | 3.92                | 3.69               | 0.00            |
| 3.50            | 0.16                | 0.05               | 0.01            | 29.50           | 3.92                | 3.69               | 0.00            |
| 4.00            | 0.19                | 0.06               | 0.01            | 30.00           | 3.92                | 3.69               | 0.00            |
| 4.50            | 0.22                | 0.08               | 0.01            | 30.50           | 3.92                | 3.69               | 0.00            |
| 5.00            | 0.25                | 0.11               | 0.01            | 31.00           | 3.92                | 3.69               | 0.00            |
| 5.50            | 0.28                | 0.13               | 0.01            | 31.50           | 3.92                | 3.69               | 0.00            |
| 6.00            | 0.31                | 0.15               | 0.01            | 32.00           | 3.92                | 3.69               | 0.00            |
| 6.50            | 0.34                | 0.18               | 0.01            | 32.50           | 3.92                | 3.69               | 0.00            |
| 7.00            | 0.38                | 0.21               | 0.01            | 33.00           | 3.92                | 3.69               | 0.00            |
| 7.50            | 0.42                | 0.25               | 0.02            | 33.50           | 3.92                | 3.69               | 0.00            |
| 8.00            | 0.47                | 0.29               | 0.02            | 34.00           | 3.92                | 3.69               | 0.00            |
| 8.50            | 0.52                | 0.34               | 0.02            | 34.50           | 3.92                | 3.69               | 0.00            |
| 9.00            | 0.57                | 0.38               | 0.02            | 35.00           | 3.92                | 3.69               | 0.00            |
| 9.50            | 0.64                | 0.44               | 0.03            | 35.50           | 3.92                | 3.69               | 0.00            |
| 10.00           | 0.71                | 0.52               | 0.03            | 36.00           | 3.92                | 3.69               | 0.00            |
| 10.50           | 0.81                | 0.61               | 0.04            |                 |                     |                    |                 |
| 11.00           | 0.94                | 0.73               | 0.06            |                 |                     |                    |                 |
| 11.50           | 1.16                | 0.94               | 0.13            |                 |                     |                    |                 |
| 12.00           | 1.87                | 1.64               | 0.73            |                 |                     |                    |                 |
| 12.50           | 2.76                | 2.53               | 0.13            |                 |                     |                    |                 |
| 13.00           | 2.98                | 2.75               | 0.07            |                 |                     |                    |                 |
| 13.50           | 3.11                | 2.88               | 0.04            |                 |                     |                    |                 |
| 14.00           | 3.21                | 2.97               | 0.03            |                 |                     |                    |                 |
| 14.50           | 3.28                | 3.05               | 0.03            |                 |                     |                    |                 |
| 15.00           | 3.35                | 3.11               | 0.02            |                 |                     |                    |                 |
| 15.50           | 3.40                | 3.17               | 0.02            |                 |                     |                    |                 |
| 16.00           | 3.45                | 3.22               | 0.02            |                 |                     |                    |                 |
| 16.50           | 3.50                | 3.26               | 0.02            |                 |                     |                    |                 |
| 17.00           | 3.54                | 3.30               | 0.02            |                 |                     |                    |                 |
| 17.50           | 3.58                | 3.34               | 0.01            |                 |                     |                    |                 |
| 18.00           | 3.61                | 3.38               | 0.01            |                 |                     |                    |                 |
| 18.50           | 3.64                | 3.41               | 0.01            |                 |                     |                    |                 |
| 19.00           | 3.67                | 3.44               | 0.01            |                 |                     |                    |                 |
| 19.50           | 3.70                | 3.47               | 0.01            |                 |                     |                    |                 |
| 20.00           | 3.73                | 3.49               | 0.01            |                 |                     |                    |                 |
| 20.50           | 3.76                | 3.52               | 0.01            |                 |                     |                    |                 |
| 21.00           | 3.78                | 3.55               | 0.01            |                 |                     |                    |                 |
| 21.50           | 3.81                | 3.57               | 0.01            |                 |                     |                    |                 |
| 22.00           | 3.83                | 3.60               | 0.01            |                 |                     |                    |                 |
| 22.50           | 3.85                | 3.62               | 0.01            |                 |                     |                    |                 |
| 23.00           | 3.88                | 3.64               | 0.01            |                 |                     |                    |                 |
| 23.50           | 3.90                | 3.66               | 0.01            |                 |                     |                    |                 |
| 24.00           | 3.92                | 3.69               | 0.01            |                 |                     |                    |                 |
| 24.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.00           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |
| 25.50           | 3.92                | 3.69               | 0.00            |                 |                     |                    |                 |

Summary for Pond 4P: Proposed Pond Storage Volume POI-3

Inflow Area = 63,570 sf, 13.73% Impervious, Inflow Depth = 0.57" for 2-Year-2050 event  
Inflow = 0.92 cfs @ 12.09 hrs, Volume= 3,002 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

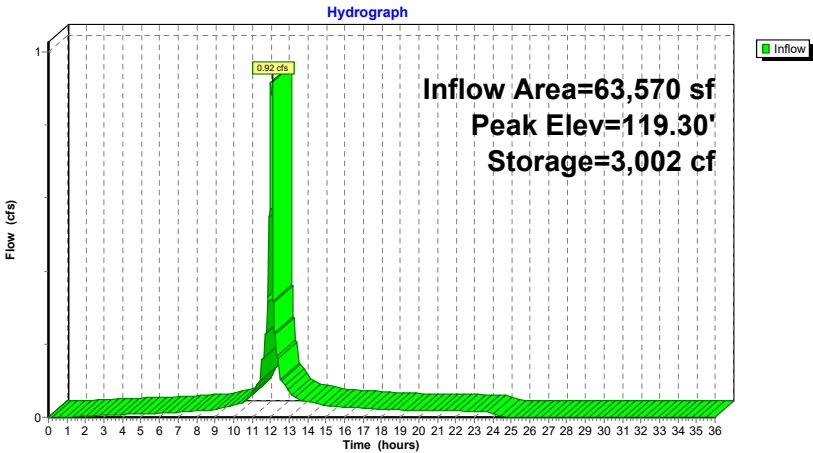
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 119.30' @ 25.23 hrs Surf.Area= 10,157 sf Storage= 3,002 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

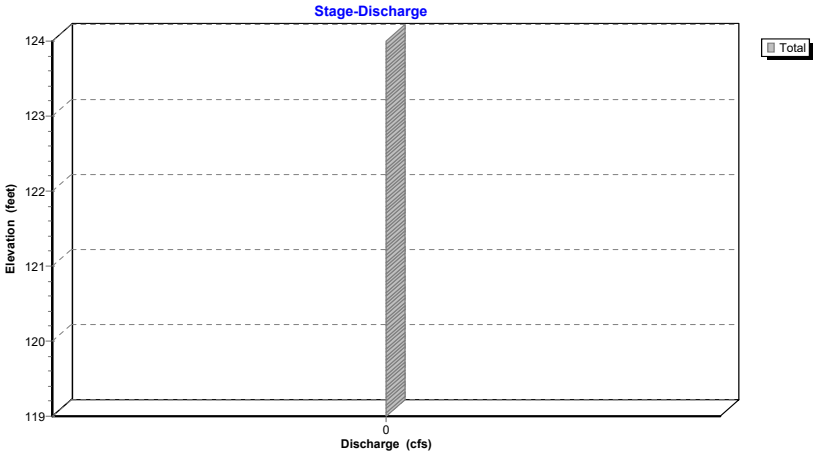
| Volume              | Invert               | Avail.Storage             | Storage Description                                 |
|---------------------|----------------------|---------------------------|-----------------------------------------------------|
| #1                  | 119.00'              | 65,239 cf                 | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                           |
| 119.00              | 9,792                | 0                         | 0                                                   |
| 120.00              | 11,006               | 10,399                    | 10,399                                              |
| 121.00              | 12,283               | 11,645                    | 22,044                                              |
| 122.00              | 13,612               | 12,948                    | 34,991                                              |
| 123.00              | 15,010               | 14,311                    | 49,302                                              |
| 124.00              | 16,863               | 15,937                    | 65,239                                              |

Pond 4P: Proposed Pond Storage Volume POI-3

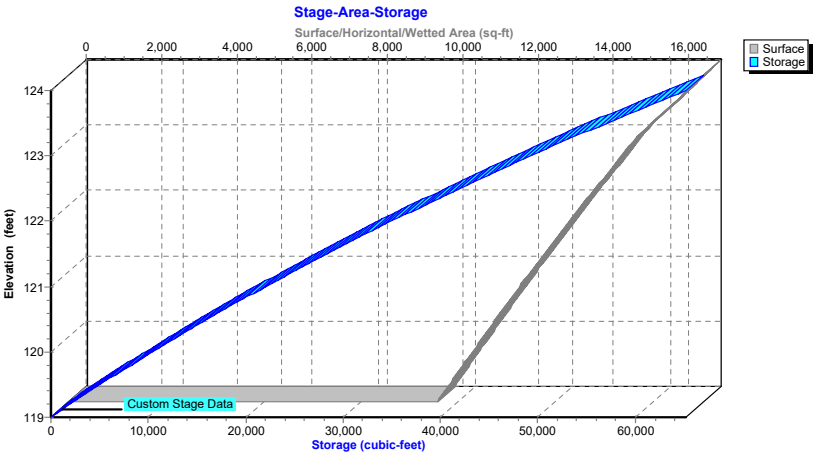
Pond 4P: Proposed Pond Storage Volume POI-3



Pond 4P: Proposed Pond Storage Volume POI-3



Pond 4P: Proposed Pond Storage Volume POI-3



Hydrograph for Pond 4P: Proposed Pond Storage Volume POI-3

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) |
|-----------------|-----------------|-------------------------|---------------------|-----------------|-----------------|-------------------------|---------------------|
| 0.00            | 0.00            | 0                       | 119.00              | 26.00           | 0.00            | 3,002                   | 119.30              |
| 0.50            | 0.00            | 0                       | 119.00              | 26.50           | 0.00            | 3,002                   | 119.30              |
| 1.00            | 0.00            | 0                       | 119.00              | 27.00           | 0.00            | 3,002                   | 119.30              |
| 1.50            | 0.00            | 2                       | 119.00              | 27.50           | 0.00            | 3,002                   | 119.30              |
| 2.00            | 0.00            | 7                       | 119.00              | 28.00           | 0.00            | 3,002                   | 119.30              |
| 2.50            | 0.00            | 14                      | 119.00              | 28.50           | 0.00            | 3,002                   | 119.30              |
| 3.00            | 0.01            | 23                      | 119.00              | 29.00           | 0.00            | 3,002                   | 119.30              |
| 3.50            | 0.01            | 34                      | 119.00              | 29.50           | 0.00            | 3,002                   | 119.30              |
| 4.00            | 0.01            | 47                      | 119.00              | 30.00           | 0.00            | 3,002                   | 119.30              |
| 4.50            | 0.01            | 61                      | 119.01              | 30.50           | 0.00            | 3,002                   | 119.30              |
| 5.00            | 0.01            | 77                      | 119.01              | 31.00           | 0.00            | 3,002                   | 119.30              |
| 5.50            | 0.01            | 94                      | 119.01              | 31.50           | 0.00            | 3,002                   | 119.30              |
| 6.00            | 0.01            | 112                     | 119.01              | 32.00           | 0.00            | 3,002                   | 119.30              |
| 6.50            | 0.01            | 132                     | 119.01              | 32.50           | 0.00            | 3,002                   | 119.30              |
| 7.00            | 0.01            | 156                     | 119.02              | 33.00           | 0.00            | 3,002                   | 119.30              |
| 7.50            | 0.02            | 182                     | 119.02              | 33.50           | 0.00            | 3,002                   | 119.30              |
| 8.00            | 0.02            | 211                     | 119.02              | 34.00           | 0.00            | 3,002                   | 119.30              |
| 8.50            | 0.02            | 244                     | 119.02              | 34.50           | 0.00            | 3,002                   | 119.30              |
| 9.00            | 0.02            | 279                     | 119.03              | 35.00           | 0.00            | 3,002                   | 119.30              |
| 9.50            | 0.03            | 323                     | 119.03              | 35.50           | 0.00            | 3,002                   | 119.30              |
| 10.00           | 0.03            | 376                     | 119.04              | 36.00           | 0.00            | 3,002                   | 119.30              |
| 10.50           | 0.04            | 441                     | 119.04              |                 |                 |                         |                     |
| 11.00           | 0.06            | 534                     | 119.05              |                 |                 |                         |                     |
| 11.50           | 0.13            | 688                     | 119.07              |                 |                 |                         |                     |
| 12.00           | 0.73            | 1,199                   | 119.12              |                 |                 |                         |                     |
| 12.50           | 0.13            | 1,841                   | 119.19              |                 |                 |                         |                     |
| 13.00           | 0.07            | 1,999                   | 119.20              |                 |                 |                         |                     |
| 13.50           | 0.05            | 2,102                   | 119.21              |                 |                 |                         |                     |
| 14.00           | 0.04            | 2,185                   | 119.22              |                 |                 |                         |                     |
| 14.50           | 0.04            | 2,258                   | 119.23              |                 |                 |                         |                     |
| 15.00           | 0.03            | 2,322                   | 119.23              |                 |                 |                         |                     |
| 15.50           | 0.03            | 2,377                   | 119.24              |                 |                 |                         |                     |
| 16.00           | 0.03            | 2,429                   | 119.24              |                 |                 |                         |                     |
| 16.50           | 0.03            | 2,479                   | 119.25              |                 |                 |                         |                     |
| 17.00           | 0.02            | 2,525                   | 119.25              |                 |                 |                         |                     |
| 17.50           | 0.02            | 2,568                   | 119.26              |                 |                 |                         |                     |
| 18.00           | 0.02            | 2,607                   | 119.26              |                 |                 |                         |                     |
| 18.50           | 0.02            | 2,644                   | 119.27              |                 |                 |                         |                     |
| 19.00           | 0.02            | 2,680                   | 119.27              |                 |                 |                         |                     |
| 19.50           | 0.02            | 2,715                   | 119.27              |                 |                 |                         |                     |
| 20.00           | 0.02            | 2,749                   | 119.28              |                 |                 |                         |                     |
| 20.50           | 0.02            | 2,783                   | 119.28              |                 |                 |                         |                     |
| 21.00           | 0.02            | 2,815                   | 119.28              |                 |                 |                         |                     |
| 21.50           | 0.02            | 2,847                   | 119.29              |                 |                 |                         |                     |
| 22.00           | 0.02            | 2,878                   | 119.29              |                 |                 |                         |                     |
| 22.50           | 0.02            | 2,908                   | 119.29              |                 |                 |                         |                     |
| 23.00           | 0.02            | 2,938                   | 119.29              |                 |                 |                         |                     |
| 23.50           | 0.02            | 2,966                   | 119.30              |                 |                 |                         |                     |
| 24.00           | 0.01            | 2,993                   | 119.30              |                 |                 |                         |                     |
| 24.50           | 0.00            | 3,002                   | 119.30              |                 |                 |                         |                     |
| 25.00           | 0.00            | 3,002                   | 119.30              |                 |                 |                         |                     |
| 25.50           | 0.00            | 3,002                   | 119.30              |                 |                 |                         |                     |

Stage-Discharge for Pond 4P: Proposed Pond Storage Volume POI-3

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|
| 119.00              | 0.00               | 121.60              | 0.00               |
| 119.05              | 0.00               | 121.65              | 0.00               |
| 119.10              | 0.00               | 121.70              | 0.00               |
| 119.15              | 0.00               | 121.75              | 0.00               |
| 119.20              | 0.00               | 121.80              | 0.00               |
| 119.25              | 0.00               | 121.85              | 0.00               |
| 119.30              | 0.00               | 121.90              | 0.00               |
| 119.35              | 0.00               | 121.95              | 0.00               |
| 119.40              | 0.00               | 122.00              | 0.00               |
| 119.45              | 0.00               | 122.05              | 0.00               |
| 119.50              | 0.00               | 122.10              | 0.00               |
| 119.55              | 0.00               | 122.15              | 0.00               |
| 119.60              | 0.00               | 122.20              | 0.00               |
| 119.65              | 0.00               | 122.25              | 0.00               |
| 119.70              | 0.00               | 122.30              | 0.00               |
| 119.75              | 0.00               | 122.35              | 0.00               |
| 119.80              | 0.00               | 122.40              | 0.00               |
| 119.85              | 0.00               | 122.45              | 0.00               |
| 119.90              | 0.00               | 122.50              | 0.00               |
| 119.95              | 0.00               | 122.55              | 0.00               |
| 120.00              | 0.00               | 122.60              | 0.00               |
| 120.05              | 0.00               | 122.65              | 0.00               |
| 120.10              | 0.00               | 122.70              | 0.00               |
| 120.15              | 0.00               | 122.75              | 0.00               |
| 120.20              | 0.00               | 122.80              | 0.00               |
| 120.25              | 0.00               | 122.85              | 0.00               |
| 120.30              | 0.00               | 122.90              | 0.00               |
| 120.35              | 0.00               | 122.95              | 0.00               |
| 120.40              | 0.00               | 123.00              | 0.00               |
| 120.45              | 0.00               | 123.05              | 0.00               |
| 120.50              | 0.00               | 123.10              | 0.00               |
| 120.55              | 0.00               | 123.15              | 0.00               |
| 120.60              | 0.00               | 123.20              | 0.00               |
| 120.65              | 0.00               | 123.25              | 0.00               |
| 120.70              | 0.00               | 123.30              | 0.00               |
| 120.75              | 0.00               | 123.35              | 0.00               |
| 120.80              | 0.00               | 123.40              | 0.00               |
| 120.85              | 0.00               | 123.45              | 0.00               |
| 120.90              | 0.00               | 123.50              | 0.00               |
| 120.95              | 0.00               | 123.55              | 0.00               |
| 121.00              | 0.00               | 123.60              | 0.00               |
| 121.05              | 0.00               | 123.65              | 0.00               |
| 121.10              | 0.00               | 123.70              | 0.00               |
| 121.15              | 0.00               | 123.75              | 0.00               |
| 121.20              | 0.00               | 123.80              | 0.00               |
| 121.25              | 0.00               | 123.85              | 0.00               |
| 121.30              | 0.00               | 123.90              | 0.00               |
| 121.35              | 0.00               | 123.95              | 0.00               |
| 121.40              | 0.00               | 124.00              | 0.00               |
| 121.45              | 0.00               |                     |                    |
| 121.50              | 0.00               |                     |                    |
| 121.55              | 0.00               |                     |                    |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 2-Year-2050 Rainfall=3.92", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 4P: Proposed Pond Storage Volume POI-3**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 119.00              | 9,792              | 0                       | 121.60              | 13,080             | 29,653                  |
| 119.05              | 9,853              | 491                     | 121.65              | 13,147             | 30,308                  |
| 119.10              | 9,913              | 985                     | 121.70              | 13,213             | 30,967                  |
| 119.15              | 9,974              | 1,482                   | 121.75              | 13,280             | 31,630                  |
| 119.20              | 10,035             | 1,983                   | 121.80              | 13,346             | 32,295                  |
| 119.25              | 10,096             | 2,486                   | 121.85              | 13,413             | 32,964                  |
| 119.30              | 10,156             | 2,992                   | 121.90              | 13,479             | 33,636                  |
| 119.35              | 10,217             | 3,502                   | 121.95              | 13,546             | 34,312                  |
| 119.40              | 10,278             | 4,014                   | 122.00              | 13,612             | 34,991                  |
| 119.45              | 10,338             | 4,529                   | 122.05              | 13,682             | 35,673                  |
| 119.50              | 10,399             | 5,048                   | 122.10              | 13,752             | 36,359                  |
| 119.55              | 10,460             | 5,569                   | 122.15              | 13,822             | 37,049                  |
| 119.60              | 10,520             | 6,094                   | 122.20              | 13,892             | 37,741                  |
| 119.65              | 10,581             | 6,621                   | 122.25              | 13,962             | 38,438                  |
| 119.70              | 10,642             | 7,152                   | 122.30              | 14,031             | 39,138                  |
| 119.75              | 10,703             | 7,685                   | 122.35              | 14,101             | 39,841                  |
| 119.80              | 10,763             | 8,222                   | 122.40              | 14,171             | 40,548                  |
| 119.85              | 10,824             | 8,762                   | 122.45              | 14,241             | 41,258                  |
| 119.90              | 10,885             | 9,304                   | 122.50              | 14,311             | 41,972                  |
| 119.95              | 10,945             | 9,850                   | 122.55              | 14,381             | 42,689                  |
| 120.00              | 11,006             | 10,399                  | 122.60              | 14,451             | 43,410                  |
| 120.05              | 11,070             | 10,951                  | 122.65              | 14,521             | 44,134                  |
| 120.10              | 11,134             | 11,506                  | 122.70              | 14,591             | 44,862                  |
| 120.15              | 11,198             | 12,064                  | 122.75              | 14,661             | 45,593                  |
| 120.20              | 11,261             | 12,626                  | 122.80              | 14,730             | 46,328                  |
| 120.25              | 11,325             | 13,190                  | 122.85              | 14,800             | 47,066                  |
| 120.30              | 11,389             | 13,758                  | 122.90              | 14,870             | 47,808                  |
| 120.35              | 11,453             | 14,329                  | 122.95              | 14,940             | 48,553                  |
| 120.40              | 11,517             | 14,904                  | 123.00              | 15,010             | 49,302                  |
| 120.45              | 11,581             | 15,481                  | 123.05              | 15,103             | 50,055                  |
| 120.50              | 11,645             | 16,062                  | 123.10              | 15,195             | 50,812                  |
| 120.55              | 11,708             | 16,645                  | 123.15              | 15,288             | 51,574                  |
| 120.60              | 11,772             | 17,232                  | 123.20              | 15,381             | 52,341                  |
| 120.65              | 11,836             | 17,823                  | 123.25              | 15,473             | 53,112                  |
| 120.70              | 11,900             | 18,416                  | 123.30              | 15,566             | 53,888                  |
| 120.75              | 11,964             | 19,013                  | 123.35              | 15,659             | 54,669                  |
| 120.80              | 12,028             | 19,612                  | 123.40              | 15,751             | 55,454                  |
| 120.85              | 12,091             | 20,215                  | 123.45              | 15,844             | 56,244                  |
| 120.90              | 12,155             | 20,822                  | 123.50              | 15,937             | 57,039                  |
| 120.95              | 12,219             | 21,431                  | 123.55              | 16,029             | 57,838                  |
| 121.00              | 12,283             | 22,044                  | 123.60              | 16,122             | 58,642                  |
| 121.05              | 12,349             | 22,659                  | 123.65              | 16,214             | 59,450                  |
| 121.10              | 12,416             | 23,278                  | 123.70              | 16,307             | 60,263                  |
| 121.15              | 12,482             | 23,901                  | 123.75              | 16,400             | 61,081                  |
| 121.20              | 12,549             | 24,527                  | 123.80              | 16,492             | 61,903                  |
| 121.25              | 12,615             | 25,156                  | 123.85              | 16,585             | 62,730                  |
| 121.30              | 12,682             | 25,788                  | 123.90              | 16,678             | 63,561                  |
| 121.35              | 12,748             | 26,424                  | 123.95              | 16,770             | 64,398                  |
| 121.40              | 12,815             | 27,063                  | 124.00              | <b>16,863</b>      | <b>65,239</b>           |
| 121.45              | 12,881             | 27,705                  |                     |                    |                         |
| 121.50              | 12,948             | 28,351                  |                     |                    |                         |
| 121.55              | 13,014             | 29,000                  |                     |                    |                         |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment3S: Pr. POI-3 Pervious** Runoff Area=54,841 sf 0.00% Impervious Runoff Depth=0.63"  
Flow Length=324' Tc=21.7 min CN=41 Runoff=0.32 cfs 2,863 cf

**Subcatchment4S: Pr. POI-3 Impervious** Runoff Area=8,729 sf 100.00% Impervious Runoff Depth=5.97"  
Tc=0.0 min CN=98 Runoff=1.46 cfs 4,344 cf

**Pond 4P: Proposed Pond Storage Volume** Peak Elev=119.71' Storage=7,207 cf Inflow=1.46 cfs 7,207 cf  
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 63,570 sf Runoff Volume = 7,207 cf Average Runoff Depth = 1.36"**  
**86.27% Pervious = 54,841 sf 13.73% Impervious = 8,729 sf**



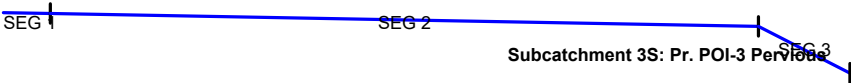
Summary for Subcatchment 3S: Pr. POI-3 Pervious

Runoff = 0.32 cfs @ 12.46 hrs, Volume= 2,863 cf, Depth= 0.63"  
Routed to Pond 4P : Proposed Pond Storage Volume POI-3

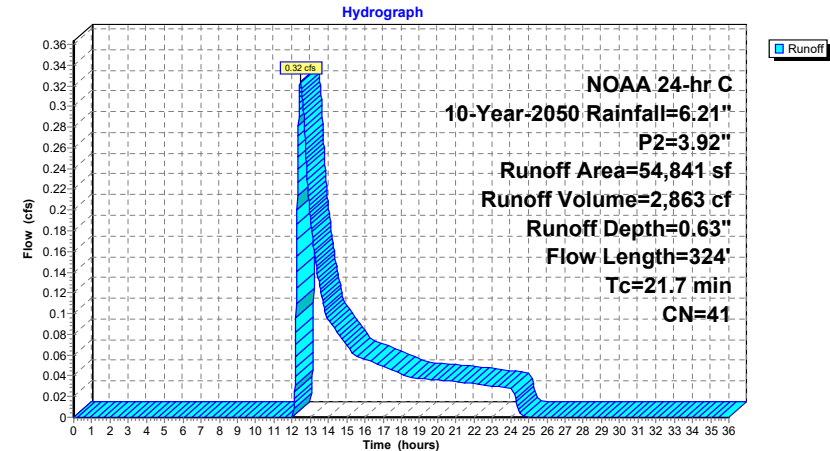
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 9,575     | 39 | >75% Grass cover, Good, HSG A |
| 2,327     | 61 | >75% Grass cover, Good, HSG B |
| 218       | 30 | Meadow, non-grazed, HSG A     |
| 2,760     | 58 | Meadow, non-grazed, HSG B     |
| 25,530    | 30 | Woods, Good, HSG A            |
| 14,431    | 55 | Woods, Good, HSG B            |
| 54,841    | 41 | Weighted Average              |
| 54,841    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 8.6      | 18            | 0.0050        | 0.04              |                | Sheet Flow, SEG 1<br>Woods: Light underbrush n= 0.400 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 12.8     | 271           | 0.0050        | 0.35              |                | Shallow Concentrated Flow, SEG 2<br>Woodland Kv= 5.0 fps                                           |
| 0.3      | 35            | 0.1400        | 1.87              |                | Shallow Concentrated Flow, SEG 3<br>Woodland Kv= 5.0 fps                                           |
| 21.7     | 324           | Total         |                   |                |                                                                                                    |



Subcatchment 3S: Pr. POI-3 Pervious



Hydrograph for Subcatchment 3S: Pr. POI-3 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 0.63               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 0.63               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 0.63               | 0.00            |
| 1.50            | 0.10                | 0.00               | 0.00            | 27.50           | 6.21                | 0.63               | 0.00            |
| 2.00            | 0.14                | 0.00               | 0.00            | 28.00           | 6.21                | 0.63               | 0.00            |
| 2.50            | 0.18                | 0.00               | 0.00            | 28.50           | 6.21                | 0.63               | 0.00            |
| 3.00            | 0.22                | 0.00               | 0.00            | 29.00           | 6.21                | 0.63               | 0.00            |
| 3.50            | 0.26                | 0.00               | 0.00            | 29.50           | 6.21                | 0.63               | 0.00            |
| 4.00            | 0.30                | 0.00               | 0.00            | 30.00           | 6.21                | 0.63               | 0.00            |
| 4.50            | 0.35                | 0.00               | 0.00            | 30.50           | 6.21                | 0.63               | 0.00            |
| 5.00            | 0.39                | 0.00               | 0.00            | 31.00           | 6.21                | 0.63               | 0.00            |
| 5.50            | 0.44                | 0.00               | 0.00            | 31.50           | 6.21                | 0.63               | 0.00            |
| 6.00            | 0.49                | 0.00               | 0.00            | 32.00           | 6.21                | 0.63               | 0.00            |
| 6.50            | 0.55                | 0.00               | 0.00            | 32.50           | 6.21                | 0.63               | 0.00            |
| 7.00            | 0.61                | 0.00               | 0.00            | 33.00           | 6.21                | 0.63               | 0.00            |
| 7.50            | 0.67                | 0.00               | 0.00            | 33.50           | 6.21                | 0.63               | 0.00            |
| 8.00            | 0.74                | 0.00               | 0.00            | 34.00           | 6.21                | 0.63               | 0.00            |
| 8.50            | 0.82                | 0.00               | 0.00            | 34.50           | 6.21                | 0.63               | 0.00            |
| 9.00            | 0.91                | 0.00               | 0.00            | 35.00           | 6.21                | 0.63               | 0.00            |
| 9.50            | 1.01                | 0.00               | 0.00            | 35.50           | 6.21                | 0.63               | 0.00            |
| 10.00           | 1.13                | 0.00               | 0.00            | 36.00           | 6.21                | 0.63               | 0.00            |
| 10.50           | 1.28                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.84                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 2.96                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 4.37                | 0.14               | 0.32            |                 |                     |                    |                 |
| 13.00           | 4.72                | 0.21               | 0.19            |                 |                     |                    |                 |
| 13.50           | 4.93                | 0.26               | 0.13            |                 |                     |                    |                 |
| 14.00           | 5.08                | 0.29               | 0.09            |                 |                     |                    |                 |
| 14.50           | 5.20                | 0.32               | 0.08            |                 |                     |                    |                 |
| 15.00           | 5.30                | 0.35               | 0.07            |                 |                     |                    |                 |
| 15.50           | 5.39                | 0.37               | 0.06            |                 |                     |                    |                 |
| 16.00           | 5.47                | 0.39               | 0.06            |                 |                     |                    |                 |
| 16.50           | 5.54                | 0.42               | 0.05            |                 |                     |                    |                 |
| 17.00           | 5.60                | 0.43               | 0.05            |                 |                     |                    |                 |
| 17.50           | 5.66                | 0.45               | 0.05            |                 |                     |                    |                 |
| 18.00           | 5.72                | 0.47               | 0.04            |                 |                     |                    |                 |
| 18.50           | 5.77                | 0.48               | 0.04            |                 |                     |                    |                 |
| 19.00           | 5.82                | 0.50               | 0.04            |                 |                     |                    |                 |
| 19.50           | 5.86                | 0.51               | 0.04            |                 |                     |                    |                 |
| 20.00           | 5.91                | 0.53               | 0.04            |                 |                     |                    |                 |
| 20.50           | 5.95                | 0.54               | 0.04            |                 |                     |                    |                 |
| 21.00           | 5.99                | 0.55               | 0.03            |                 |                     |                    |                 |
| 21.50           | 6.03                | 0.57               | 0.03            |                 |                     |                    |                 |
| 22.00           | 6.07                | 0.58               | 0.03            |                 |                     |                    |                 |
| 22.50           | 6.11                | 0.59               | 0.03            |                 |                     |                    |                 |
| 23.00           | 6.14                | 0.60               | 0.03            |                 |                     |                    |                 |
| 23.50           | 6.18                | 0.61               | 0.03            |                 |                     |                    |                 |
| 24.00           | 6.21                | 0.63               | 0.03            |                 |                     |                    |                 |
| 24.50           | 6.21                | 0.63               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 0.63               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 0.63               | 0.00            |                 |                     |                    |                 |

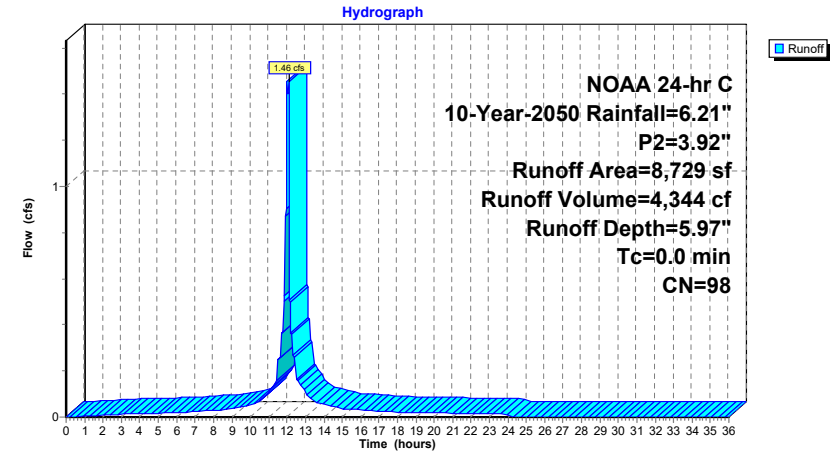
Summary for Subcatchment 4S: Pr. POI-3 Impervious (Pond)

Runoff = 1.46 cfs @ 12.09 hrs, Volume= 4,344 cf, Depth= 5.97"  
Routed to Pond 4P : Proposed Pond Storage Volume POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 8,729     | 98 | Water Surface, HSG B    |
| 8,729     |    | 100.00% Impervious Area |

Subcatchment 4S: Pr. POI-3 Impervious (Pond)



Hydrograph for Subcatchment 4S: Pr. POI-3 Impervious (Pond)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 6.21                | 5.97               | 0.00            |
| 0.50            | 0.03                | 0.00               | 0.00            | 26.50           | 6.21                | 5.97               | 0.00            |
| 1.00            | 0.07                | 0.00               | 0.00            | 27.00           | 6.21                | 5.97               | 0.00            |
| 1.50            | 0.10                | 0.01               | 0.01            | 27.50           | 6.21                | 5.97               | 0.00            |
| 2.00            | 0.14                | 0.03               | 0.01            | 28.00           | 6.21                | 5.97               | 0.00            |
| 2.50            | 0.18                | 0.06               | 0.01            | 28.50           | 6.21                | 5.97               | 0.00            |
| 3.00            | 0.22                | 0.08               | 0.01            | 29.00           | 6.21                | 5.97               | 0.00            |
| 3.50            | 0.26                | 0.11               | 0.01            | 29.50           | 6.21                | 5.97               | 0.00            |
| 4.00            | 0.30                | 0.15               | 0.01            | 30.00           | 6.21                | 5.97               | 0.00            |
| 4.50            | 0.35                | 0.19               | 0.02            | 30.50           | 6.21                | 5.97               | 0.00            |
| 5.00            | 0.39                | 0.22               | 0.02            | 31.00           | 6.21                | 5.97               | 0.00            |
| 5.50            | 0.44                | 0.27               | 0.02            | 31.50           | 6.21                | 5.97               | 0.00            |
| 6.00            | 0.49                | 0.31               | 0.02            | 32.00           | 6.21                | 5.97               | 0.00            |
| 6.50            | 0.55                | 0.36               | 0.02            | 32.50           | 6.21                | 5.97               | 0.00            |
| 7.00            | 0.61                | 0.41               | 0.02            | 33.00           | 6.21                | 5.97               | 0.00            |
| 7.50            | 0.67                | 0.48               | 0.03            | 33.50           | 6.21                | 5.97               | 0.00            |
| 8.00            | 0.74                | 0.55               | 0.03            | 34.00           | 6.21                | 5.97               | 0.00            |
| 8.50            | 0.82                | 0.62               | 0.03            | 34.50           | 6.21                | 5.97               | 0.00            |
| 9.00            | 0.91                | 0.70               | 0.03            | 35.00           | 6.21                | 5.97               | 0.00            |
| 9.50            | 1.01                | 0.80               | 0.04            | 35.50           | 6.21                | 5.97               | 0.00            |
| 10.00           | 1.13                | 0.92               | 0.05            | 36.00           | 6.21                | 5.97               | 0.00            |
| 10.50           | 1.28                | 1.06               | 0.07            |                 |                     |                    |                 |
| 11.00           | 1.49                | 1.27               | 0.10            |                 |                     |                    |                 |
| 11.50           | 1.84                | 1.61               | 0.21            |                 |                     |                    |                 |
| 12.00           | 2.96                | 2.73               | 1.17            |                 |                     |                    |                 |
| 12.50           | 4.37                | 4.14               | 0.21            |                 |                     |                    |                 |
| 13.00           | 4.72                | 4.48               | 0.11            |                 |                     |                    |                 |
| 13.50           | 4.93                | 4.69               | 0.07            |                 |                     |                    |                 |
| 14.00           | 5.08                | 4.84               | 0.05            |                 |                     |                    |                 |
| 14.50           | 5.20                | 4.96               | 0.05            |                 |                     |                    |                 |
| 15.00           | 5.30                | 5.07               | 0.04            |                 |                     |                    |                 |
| 15.50           | 5.39                | 5.15               | 0.03            |                 |                     |                    |                 |
| 16.00           | 5.47                | 5.23               | 0.03            |                 |                     |                    |                 |
| 16.50           | 5.54                | 5.30               | 0.03            |                 |                     |                    |                 |
| 17.00           | 5.60                | 5.37               | 0.03            |                 |                     |                    |                 |
| 17.50           | 5.66                | 5.43               | 0.02            |                 |                     |                    |                 |
| 18.00           | 5.72                | 5.48               | 0.02            |                 |                     |                    |                 |
| 18.50           | 5.77                | 5.53               | 0.02            |                 |                     |                    |                 |
| 19.00           | 5.82                | 5.58               | 0.02            |                 |                     |                    |                 |
| 19.50           | 5.86                | 5.62               | 0.02            |                 |                     |                    |                 |
| 20.00           | 5.91                | 5.67               | 0.02            |                 |                     |                    |                 |
| 20.50           | 5.95                | 5.71               | 0.02            |                 |                     |                    |                 |
| 21.00           | 5.99                | 5.75               | 0.02            |                 |                     |                    |                 |
| 21.50           | 6.03                | 5.79               | 0.02            |                 |                     |                    |                 |
| 22.00           | 6.07                | 5.83               | 0.02            |                 |                     |                    |                 |
| 22.50           | 6.11                | 5.87               | 0.01            |                 |                     |                    |                 |
| 23.00           | 6.14                | 5.90               | 0.01            |                 |                     |                    |                 |
| 23.50           | 6.18                | 5.94               | 0.01            |                 |                     |                    |                 |
| 24.00           | 6.21                | 5.97               | 0.01            |                 |                     |                    |                 |
| 24.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.00           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |
| 25.50           | 6.21                | 5.97               | 0.00            |                 |                     |                    |                 |

Summary for Pond 4P: Proposed Pond Storage Volume POI-3

Inflow Area = 63,570 sf, 13.73% Impervious, Inflow Depth = 1.36" for 10-Year-2050 event  
Inflow = 1.46 cfs @ 12.09 hrs, Volume= 7,207 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 119.71' @ 25.23 hrs Surf.Area= 10,648 sf Storage= 7,207 cf

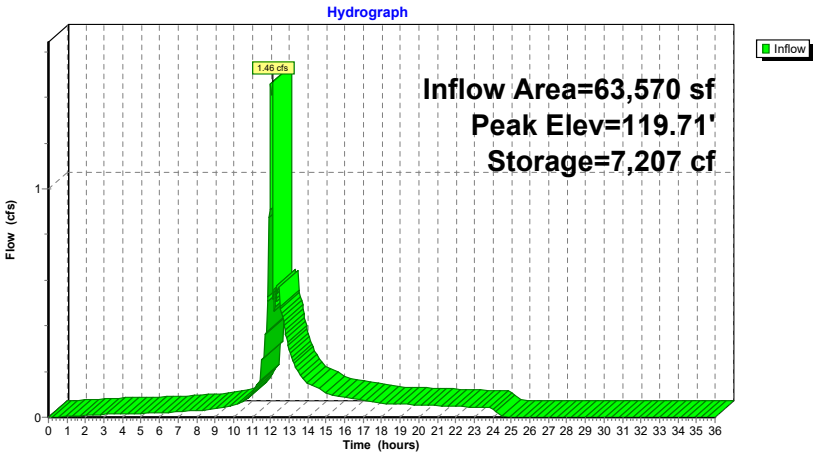
Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 119.00' | 65,239 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

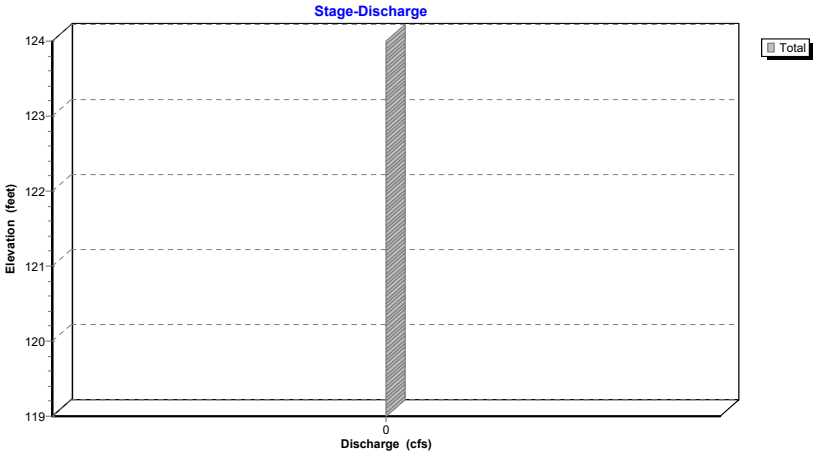
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 119.00              | 9,792                | 0                         | 0                         |
| 120.00              | 11,006               | 10,399                    | 10,399                    |
| 121.00              | 12,283               | 11,645                    | 22,044                    |
| 122.00              | 13,612               | 12,948                    | 34,991                    |
| 123.00              | 15,010               | 14,311                    | 49,302                    |
| 124.00              | 16,863               | 15,937                    | 65,239                    |

Pond 4P: Proposed Pond Storage Volume POI-3

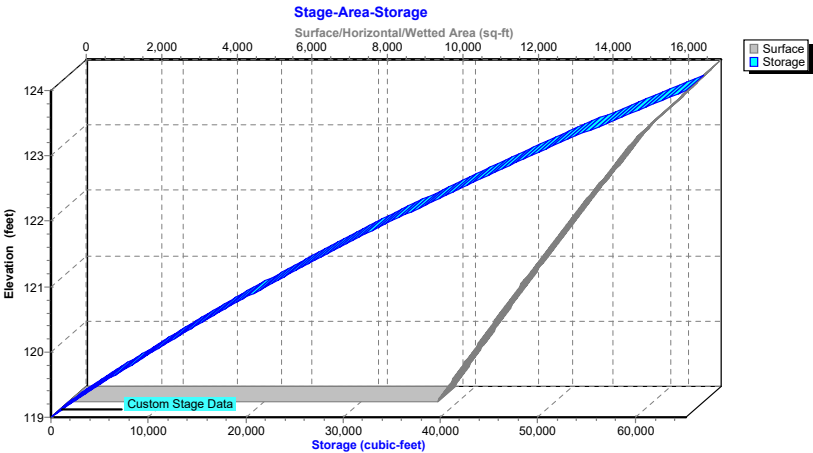
Pond 4P: Proposed Pond Storage Volume POI-3



Pond 4P: Proposed Pond Storage Volume POI-3



Pond 4P: Proposed Pond Storage Volume POI-3



Hydrograph for Pond 4P: Proposed Pond Storage Volume POI-3

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) |
|-----------------|-----------------|-------------------------|---------------------|-----------------|-----------------|-------------------------|---------------------|
| 0.00            | 0.00            | 0                       | 119.00              | 26.00           | 0.00            | 7,207                   | 119.71              |
| 0.50            | 0.00            | 0                       | 119.00              | 26.50           | 0.00            | 7,207                   | 119.71              |
| 1.00            | 0.00            | 2                       | 119.00              | 27.00           | 0.00            | 7,207                   | 119.71              |
| 1.50            | 0.01            | 11                      | 119.00              | 27.50           | 0.00            | 7,207                   | 119.71              |
| 2.00            | 0.01            | 24                      | 119.00              | 28.00           | 0.00            | 7,207                   | 119.71              |
| 2.50            | 0.01            | 41                      | 119.00              | 28.50           | 0.00            | 7,207                   | 119.71              |
| 3.00            | 0.01            | 60                      | 119.01              | 29.00           | 0.00            | 7,207                   | 119.71              |
| 3.50            | 0.01            | 83                      | 119.01              | 29.50           | 0.00            | 7,207                   | 119.71              |
| 4.00            | 0.01            | 108                     | 119.01              | 30.00           | 0.00            | 7,207                   | 119.71              |
| 4.50            | 0.02            | 135                     | 119.01              | 30.50           | 0.00            | 7,207                   | 119.71              |
| 5.00            | 0.02            | 163                     | 119.02              | 31.00           | 0.00            | 7,207                   | 119.71              |
| 5.50            | 0.02            | 194                     | 119.02              | 31.50           | 0.00            | 7,207                   | 119.71              |
| 6.00            | 0.02            | 226                     | 119.02              | 32.00           | 0.00            | 7,207                   | 119.71              |
| 6.50            | 0.02            | 262                     | 119.03              | 32.50           | 0.00            | 7,207                   | 119.71              |
| 7.00            | 0.02            | 302                     | 119.03              | 33.00           | 0.00            | 7,207                   | 119.71              |
| 7.50            | 0.03            | 347                     | 119.04              | 33.50           | 0.00            | 7,207                   | 119.71              |
| 8.00            | 0.03            | 396                     | 119.04              | 34.00           | 0.00            | 7,207                   | 119.71              |
| 8.50            | 0.03            | 451                     | 119.05              | 34.50           | 0.00            | 7,207                   | 119.71              |
| 9.00            | 0.03            | 510                     | 119.05              | 35.00           | 0.00            | 7,207                   | 119.71              |
| 9.50            | 0.04            | 581                     | 119.06              | 35.50           | 0.00            | 7,207                   | 119.71              |
| 10.00           | 0.05            | 669                     | 119.07              | 36.00           | 0.00            | 7,207                   | 119.71              |
| 10.50           | 0.07            | 774                     | 119.08              |                 |                 |                         |                     |
| 11.00           | 0.10            | 924                     | 119.09              |                 |                 |                         |                     |
| 11.50           | 0.21            | 1,173                   | 119.12              |                 |                 |                         |                     |
| 12.00           | 1.17            | 1,990                   | 119.20              |                 |                 |                         |                     |
| 12.50           | 0.53            | 3,295                   | 119.33              |                 |                 |                         |                     |
| 13.00           | 0.30            | 4,007                   | 119.40              |                 |                 |                         |                     |
| 13.50           | 0.20            | 4,443                   | 119.44              |                 |                 |                         |                     |
| 14.00           | 0.15            | 4,745                   | 119.47              |                 |                 |                         |                     |
| 14.50           | 0.13            | 4,993                   | 119.49              |                 |                 |                         |                     |
| 15.00           | 0.11            | 5,203                   | 119.51              |                 |                 |                         |                     |
| 15.50           | 0.09            | 5,379                   | 119.53              |                 |                 |                         |                     |
| 16.00           | 0.09            | 5,539                   | 119.55              |                 |                 |                         |                     |
| 16.50           | 0.08            | 5,690                   | 119.56              |                 |                 |                         |                     |
| 17.00           | 0.07            | 5,830                   | 119.57              |                 |                 |                         |                     |
| 17.50           | 0.07            | 5,959                   | 119.59              |                 |                 |                         |                     |
| 18.00           | 0.06            | 6,076                   | 119.60              |                 |                 |                         |                     |
| 18.50           | 0.06            | 6,184                   | 119.61              |                 |                 |                         |                     |
| 19.00           | 0.06            | 6,287                   | 119.62              |                 |                 |                         |                     |
| 19.50           | 0.06            | 6,387                   | 119.63              |                 |                 |                         |                     |
| 20.00           | 0.05            | 6,485                   | 119.64              |                 |                 |                         |                     |
| 20.50           | 0.05            | 6,581                   | 119.65              |                 |                 |                         |                     |
| 21.00           | 0.05            | 6,674                   | 119.65              |                 |                 |                         |                     |
| 21.50           | 0.05            | 6,764                   | 119.66              |                 |                 |                         |                     |
| 22.00           | 0.05            | 6,851                   | 119.67              |                 |                 |                         |                     |
| 22.50           | 0.05            | 6,935                   | 119.68              |                 |                 |                         |                     |
| 23.00           | 0.04            | 7,016                   | 119.69              |                 |                 |                         |                     |
| 23.50           | 0.04            | 7,094                   | 119.69              |                 |                 |                         |                     |
| 24.00           | 0.04            | 7,171                   | 119.70              |                 |                 |                         |                     |
| 24.50           | 0.00            | 7,205                   | 119.70              |                 |                 |                         |                     |
| 25.00           | 0.00            | 7,207                   | 119.71              |                 |                 |                         |                     |
| 25.50           | 0.00            | 7,207                   | 119.71              |                 |                 |                         |                     |

Stage-Discharge for Pond 4P: Proposed Pond Storage Volume POI-3

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|
| 119.00              | 0.00               | 121.60              | 0.00               |
| 119.05              | 0.00               | 121.65              | 0.00               |
| 119.10              | 0.00               | 121.70              | 0.00               |
| 119.15              | 0.00               | 121.75              | 0.00               |
| 119.20              | 0.00               | 121.80              | 0.00               |
| 119.25              | 0.00               | 121.85              | 0.00               |
| 119.30              | 0.00               | 121.90              | 0.00               |
| 119.35              | 0.00               | 121.95              | 0.00               |
| 119.40              | 0.00               | 122.00              | 0.00               |
| 119.45              | 0.00               | 122.05              | 0.00               |
| 119.50              | 0.00               | 122.10              | 0.00               |
| 119.55              | 0.00               | 122.15              | 0.00               |
| 119.60              | 0.00               | 122.20              | 0.00               |
| 119.65              | 0.00               | 122.25              | 0.00               |
| 119.70              | 0.00               | 122.30              | 0.00               |
| 119.75              | 0.00               | 122.35              | 0.00               |
| 119.80              | 0.00               | 122.40              | 0.00               |
| 119.85              | 0.00               | 122.45              | 0.00               |
| 119.90              | 0.00               | 122.50              | 0.00               |
| 119.95              | 0.00               | 122.55              | 0.00               |
| 120.00              | 0.00               | 122.60              | 0.00               |
| 120.05              | 0.00               | 122.65              | 0.00               |
| 120.10              | 0.00               | 122.70              | 0.00               |
| 120.15              | 0.00               | 122.75              | 0.00               |
| 120.20              | 0.00               | 122.80              | 0.00               |
| 120.25              | 0.00               | 122.85              | 0.00               |
| 120.30              | 0.00               | 122.90              | 0.00               |
| 120.35              | 0.00               | 122.95              | 0.00               |
| 120.40              | 0.00               | 123.00              | 0.00               |
| 120.45              | 0.00               | 123.05              | 0.00               |
| 120.50              | 0.00               | 123.10              | 0.00               |
| 120.55              | 0.00               | 123.15              | 0.00               |
| 120.60              | 0.00               | 123.20              | 0.00               |
| 120.65              | 0.00               | 123.25              | 0.00               |
| 120.70              | 0.00               | 123.30              | 0.00               |
| 120.75              | 0.00               | 123.35              | 0.00               |
| 120.80              | 0.00               | 123.40              | 0.00               |
| 120.85              | 0.00               | 123.45              | 0.00               |
| 120.90              | 0.00               | 123.50              | 0.00               |
| 120.95              | 0.00               | 123.55              | 0.00               |
| 121.00              | 0.00               | 123.60              | 0.00               |
| 121.05              | 0.00               | 123.65              | 0.00               |
| 121.10              | 0.00               | 123.70              | 0.00               |
| 121.15              | 0.00               | 123.75              | 0.00               |
| 121.20              | 0.00               | 123.80              | 0.00               |
| 121.25              | 0.00               | 123.85              | 0.00               |
| 121.30              | 0.00               | 123.90              | 0.00               |
| 121.35              | 0.00               | 123.95              | 0.00               |
| 121.40              | 0.00               | 124.00              | 0.00               |
| 121.45              | 0.00               |                     |                    |
| 121.50              | 0.00               |                     |                    |
| 121.55              | 0.00               |                     |                    |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 10-Year-2050 Rainfall=6.21", P2=3.92"

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**Stage-Area-Storage for Pond 4P: Proposed Pond Storage Volume POI-3**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 119.00              | 9,792              | 0                       | 121.60              | 13,080             | 29,653                  |
| 119.05              | 9,853              | 491                     | 121.65              | 13,147             | 30,308                  |
| 119.10              | 9,913              | 985                     | 121.70              | 13,213             | 30,967                  |
| 119.15              | 9,974              | 1,482                   | 121.75              | 13,280             | 31,630                  |
| 119.20              | 10,035             | 1,983                   | 121.80              | 13,346             | 32,295                  |
| 119.25              | 10,096             | 2,486                   | 121.85              | 13,413             | 32,964                  |
| 119.30              | 10,156             | 2,992                   | 121.90              | 13,479             | 33,636                  |
| 119.35              | 10,217             | 3,502                   | 121.95              | 13,546             | 34,312                  |
| 119.40              | 10,278             | 4,014                   | 122.00              | 13,612             | 34,991                  |
| 119.45              | 10,338             | 4,529                   | 122.05              | 13,682             | 35,673                  |
| 119.50              | 10,399             | 5,048                   | 122.10              | 13,752             | 36,359                  |
| 119.55              | 10,460             | 5,569                   | 122.15              | 13,822             | 37,049                  |
| 119.60              | 10,520             | 6,094                   | 122.20              | 13,892             | 37,741                  |
| 119.65              | 10,581             | 6,621                   | 122.25              | 13,962             | 38,438                  |
| 119.70              | 10,642             | 7,152                   | 122.30              | 14,031             | 39,138                  |
| 119.75              | 10,703             | 7,685                   | 122.35              | 14,101             | 39,841                  |
| 119.80              | 10,763             | 8,222                   | 122.40              | 14,171             | 40,548                  |
| 119.85              | 10,824             | 8,762                   | 122.45              | 14,241             | 41,258                  |
| 119.90              | 10,885             | 9,304                   | 122.50              | 14,311             | 41,972                  |
| 119.95              | 10,945             | 9,850                   | 122.55              | 14,381             | 42,689                  |
| 120.00              | 11,006             | 10,399                  | 122.60              | 14,451             | 43,410                  |
| 120.05              | 11,070             | 10,951                  | 122.65              | 14,521             | 44,134                  |
| 120.10              | 11,134             | 11,506                  | 122.70              | 14,591             | 44,862                  |
| 120.15              | 11,198             | 12,064                  | 122.75              | 14,661             | 45,593                  |
| 120.20              | 11,261             | 12,626                  | 122.80              | 14,730             | 46,328                  |
| 120.25              | 11,325             | 13,190                  | 122.85              | 14,800             | 47,066                  |
| 120.30              | 11,389             | 13,758                  | 122.90              | 14,870             | 47,808                  |
| 120.35              | 11,453             | 14,329                  | 122.95              | 14,940             | 48,553                  |
| 120.40              | 11,517             | 14,904                  | 123.00              | 15,010             | 49,302                  |
| 120.45              | 11,581             | 15,481                  | 123.05              | 15,103             | 50,055                  |
| 120.50              | 11,645             | 16,062                  | 123.10              | 15,195             | 50,812                  |
| 120.55              | 11,708             | 16,645                  | 123.15              | 15,288             | 51,574                  |
| 120.60              | 11,772             | 17,232                  | 123.20              | 15,381             | 52,341                  |
| 120.65              | 11,836             | 17,823                  | 123.25              | 15,473             | 53,112                  |
| 120.70              | 11,900             | 18,416                  | 123.30              | 15,566             | 53,888                  |
| 120.75              | 11,964             | 19,013                  | 123.35              | 15,659             | 54,669                  |
| 120.80              | 12,028             | 19,612                  | 123.40              | 15,751             | 55,454                  |
| 120.85              | 12,091             | 20,215                  | 123.45              | 15,844             | 56,244                  |
| 120.90              | 12,155             | 20,822                  | 123.50              | 15,937             | 57,039                  |
| 120.95              | 12,219             | 21,431                  | 123.55              | 16,029             | 57,838                  |
| 121.00              | 12,283             | 22,044                  | 123.60              | 16,122             | 58,642                  |
| 121.05              | 12,349             | 22,659                  | 123.65              | 16,214             | 59,450                  |
| 121.10              | 12,416             | 23,278                  | 123.70              | 16,307             | 60,263                  |
| 121.15              | 12,482             | 23,901                  | 123.75              | 16,400             | 61,081                  |
| 121.20              | 12,549             | 24,527                  | 123.80              | 16,492             | 61,903                  |
| 121.25              | 12,615             | 25,156                  | 123.85              | 16,585             | 62,730                  |
| 121.30              | 12,682             | 25,788                  | 123.90              | 16,678             | 63,561                  |
| 121.35              | 12,748             | 26,424                  | 123.95              | 16,770             | 64,398                  |
| 121.40              | 12,815             | 27,063                  | 124.00              | <b>16,863</b>      | <b>65,239</b>           |
| 121.45              | 12,881             | 27,705                  |                     |                    |                         |
| 121.50              | 12,948             | 28,351                  |                     |                    |                         |
| 121.55              | 13,014             | 29,000                  |                     |                    |                         |

**2101ELK-STM Analysis POI-3**

NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment3S: Pr. POI-3 Pervious** Runoff Area=54,841 sf 0.00% Impervious Runoff Depth=3.58"  
Flow Length=324' Tc=21.7 min CN=41 Runoff=3.42 cfs 16,345 cf

**Subcatchment4S: Pr. POI-3 Impervious** Runoff Area=8,729 sf 100.00% Impervious Runoff Depth=11.82"  
Tc=0.0 min CN=98 Runoff=2.84 cfs 8,597 cf

**Pond 4P: Proposed Pond Storage Volume** Peak Elev=121.23' Storage=24,942 cf Inflow=4.01 cfs 24,942 cf  
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 63,570 sf Runoff Volume = 24,942 cf Average Runoff Depth = 4.71"**  
**86.27% Pervious = 54,841 sf 13.73% Impervious = 8,729 sf**

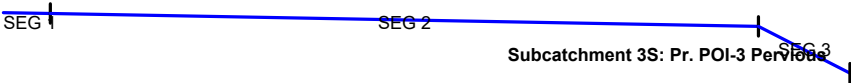
Summary for Subcatchment 3S: Pr. POI-3 Pervious

Runoff = 3.42 cfs @ 12.34 hrs, Volume= 16,345 cf, Depth= 3.58"  
Routed to Pond 4P : Proposed Pond Storage Volume POI-3

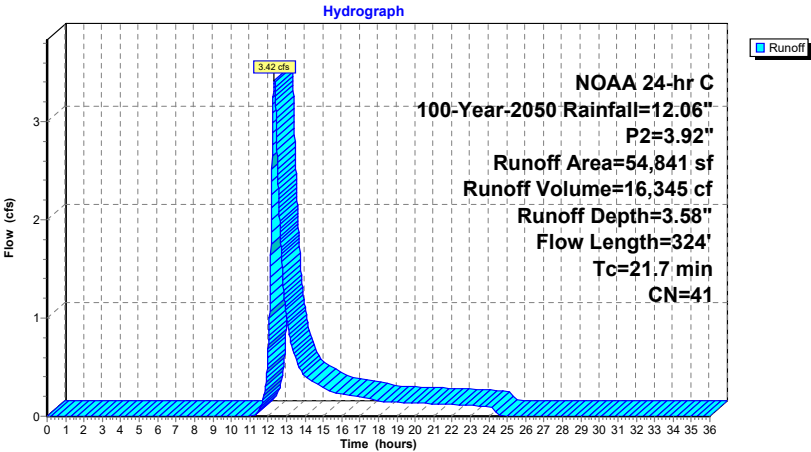
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 9,575     | 39 | >75% Grass cover, Good, HSG A |
| 2,327     | 61 | >75% Grass cover, Good, HSG B |
| 218       | 30 | Meadow, non-grazed, HSG A     |
| 2,760     | 58 | Meadow, non-grazed, HSG B     |
| 25,530    | 30 | Woods, Good, HSG A            |
| 14,431    | 55 | Woods, Good, HSG B            |
| 54,841    | 41 | Weighted Average              |
| 54,841    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 8.6      | 18            | 0.0050        | 0.04              |                | Sheet Flow, SEG 1<br>Woods: Light underbrush n= 0.400 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 12.8     | 271           | 0.0050        | 0.35              |                | Shallow Concentrated Flow, SEG 2<br>Woodland Kv= 5.0 fps                                           |
| 0.3      | 35            | 0.1400        | 1.87              |                | Shallow Concentrated Flow, SEG 3<br>Woodland Kv= 5.0 fps                                           |
| 21.7     | 324           | Total         |                   |                |                                                                                                    |



Subcatchment 3S: Pr. POI-3 Pervious



**Hydrograph for Subcatchment 3S: Pr. POI-3 Pervious**

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 3.58               | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.00            | 26.50           | 12.06               | 3.58               | 0.00            |
| 1.00            | 0.13                | 0.00               | 0.00            | 27.00           | 12.06               | 3.58               | 0.00            |
| 1.50            | 0.20                | 0.00               | 0.00            | 27.50           | 12.06               | 3.58               | 0.00            |
| 2.00            | 0.27                | 0.00               | 0.00            | 28.00           | 12.06               | 3.58               | 0.00            |
| 2.50            | 0.35                | 0.00               | 0.00            | 28.50           | 12.06               | 3.58               | 0.00            |
| 3.00            | 0.43                | 0.00               | 0.00            | 29.00           | 12.06               | 3.58               | 0.00            |
| 3.50            | 0.51                | 0.00               | 0.00            | 29.50           | 12.06               | 3.58               | 0.00            |
| 4.00            | 0.59                | 0.00               | 0.00            | 30.00           | 12.06               | 3.58               | 0.00            |
| 4.50            | 0.68                | 0.00               | 0.00            | 30.50           | 12.06               | 3.58               | 0.00            |
| 5.00            | 0.77                | 0.00               | 0.00            | 31.00           | 12.06               | 3.58               | 0.00            |
| 5.50            | 0.86                | 0.00               | 0.00            | 31.50           | 12.06               | 3.58               | 0.00            |
| 6.00            | 0.96                | 0.00               | 0.00            | 32.00           | 12.06               | 3.58               | 0.00            |
| 6.50            | 1.06                | 0.00               | 0.00            | 32.50           | 12.06               | 3.58               | 0.00            |
| 7.00            | 1.18                | 0.00               | 0.00            | 33.00           | 12.06               | 3.58               | 0.00            |
| 7.50            | 1.30                | 0.00               | 0.00            | 33.50           | 12.06               | 3.58               | 0.00            |
| 8.00            | 1.44                | 0.00               | 0.00            | 34.00           | 12.06               | 3.58               | 0.00            |
| 8.50            | 1.60                | 0.00               | 0.00            | 34.50           | 12.06               | 3.58               | 0.00            |
| 9.00            | 1.76                | 0.00               | 0.00            | 35.00           | 12.06               | 3.58               | 0.00            |
| 9.50            | 1.96                | 0.00               | 0.00            | 35.50           | 12.06               | 3.58               | 0.00            |
| 10.00           | 2.20                | 0.00               | 0.00            | 36.00           | 12.06               | 3.58               | 0.00            |
| 10.50           | 2.49                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 2.89                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 3.56                | 0.03               | 0.05            |                 |                     |                    |                 |
| 12.00           | 5.75                | 0.48               | 0.65            |                 |                     |                    |                 |
| 12.50           | 8.50                | 1.58               | 2.64            |                 |                     |                    |                 |
| 13.00           | 9.17                | 1.91               | 1.00            |                 |                     |                    |                 |
| 13.50           | 9.57                | 2.13               | 0.59            |                 |                     |                    |                 |
| 14.00           | 9.86                | 2.28               | 0.41            |                 |                     |                    |                 |
| 14.50           | 10.10               | 2.41               | 0.35            |                 |                     |                    |                 |
| 15.00           | 10.30               | 2.52               | 0.29            |                 |                     |                    |                 |
| 15.50           | 10.46               | 2.62               | 0.24            |                 |                     |                    |                 |
| 16.00           | 10.62               | 2.71               | 0.22            |                 |                     |                    |                 |
| 16.50           | 10.76               | 2.79               | 0.21            |                 |                     |                    |                 |
| 17.00           | 10.88               | 2.86               | 0.19            |                 |                     |                    |                 |
| 17.50           | 11.00               | 2.93               | 0.18            |                 |                     |                    |                 |
| 18.00           | 11.10               | 2.99               | 0.16            |                 |                     |                    |                 |
| 18.50           | 11.20               | 3.05               | 0.15            |                 |                     |                    |                 |
| 19.00           | 11.29               | 3.11               | 0.14            |                 |                     |                    |                 |
| 19.50           | 11.38               | 3.16               | 0.14            |                 |                     |                    |                 |
| 20.00           | 11.47               | 3.21               | 0.13            |                 |                     |                    |                 |
| 20.50           | 11.55               | 3.26               | 0.13            |                 |                     |                    |                 |
| 21.00           | 11.63               | 3.31               | 0.13            |                 |                     |                    |                 |
| 21.50           | 11.71               | 3.36               | 0.12            |                 |                     |                    |                 |
| 22.00           | 11.79               | 3.41               | 0.12            |                 |                     |                    |                 |
| 22.50           | 11.86               | 3.45               | 0.11            |                 |                     |                    |                 |
| 23.00           | 11.93               | 3.49               | 0.11            |                 |                     |                    |                 |
| 23.50           | 11.99               | 3.54               | 0.11            |                 |                     |                    |                 |
| 24.00           | 12.06               | 3.58               | 0.10            |                 |                     |                    |                 |
| 24.50           | 12.06               | 3.58               | 0.02            |                 |                     |                    |                 |
| 25.00           | 12.06               | 3.58               | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 3.58               | 0.00            |                 |                     |                    |                 |

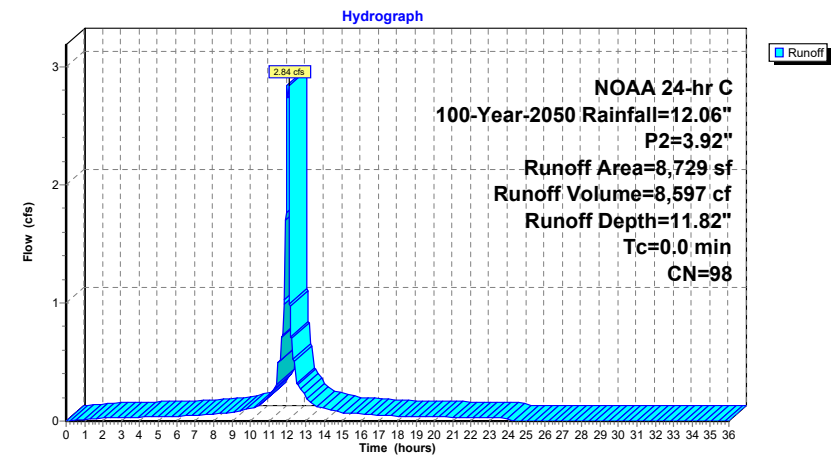
**Summary for Subcatchment 4S: Pr. POI-3 Impervious (Pond)**

Runoff = 2.84 cfs @ 12.09 hrs, Volume= 8,597 cf, Depth=11.82"  
 Routed to Pond 4P : Proposed Pond Storage Volume POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 NOAA 24-hr C 100-Year-2050 Rainfall=12.06", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 8,729     | 98 | Water Surface, HSG B    |
| 8,729     |    | 100.00% Impervious Area |

**Subcatchment 4S: Pr. POI-3 Impervious (Pond)**





Hydrograph for Subcatchment 4S: Pr. POI-3 Impervious (Pond)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 12.06               | 11.82              | 0.00            |
| 0.50            | 0.07                | 0.00               | 0.01            | 26.50           | 12.06               | 11.82              | 0.00            |
| 1.00            | 0.13                | 0.03               | 0.01            | 27.00           | 12.06               | 11.82              | 0.00            |
| 1.50            | 0.20                | 0.07               | 0.02            | 27.50           | 12.06               | 11.82              | 0.00            |
| 2.00            | 0.27                | 0.12               | 0.02            | 28.00           | 12.06               | 11.82              | 0.00            |
| 2.50            | 0.35                | 0.18               | 0.03            | 28.50           | 12.06               | 11.82              | 0.00            |
| 3.00            | 0.43                | 0.25               | 0.03            | 29.00           | 12.06               | 11.82              | 0.00            |
| 3.50            | 0.51                | 0.32               | 0.03            | 29.50           | 12.06               | 11.82              | 0.00            |
| 4.00            | 0.59                | 0.40               | 0.03            | 30.00           | 12.06               | 11.82              | 0.00            |
| 4.50            | 0.68                | 0.48               | 0.03            | 30.50           | 12.06               | 11.82              | 0.00            |
| 5.00            | 0.77                | 0.57               | 0.04            | 31.00           | 12.06               | 11.82              | 0.00            |
| 5.50            | 0.86                | 0.66               | 0.04            | 31.50           | 12.06               | 11.82              | 0.00            |
| 6.00            | 0.96                | 0.75               | 0.04            | 32.00           | 12.06               | 11.82              | 0.00            |
| 6.50            | 1.06                | 0.85               | 0.04            | 32.50           | 12.06               | 11.82              | 0.00            |
| 7.00            | 1.18                | 0.96               | 0.05            | 33.00           | 12.06               | 11.82              | 0.00            |
| 7.50            | 1.30                | 1.09               | 0.05            | 33.50           | 12.06               | 11.82              | 0.00            |
| 8.00            | 1.44                | 1.23               | 0.06            | 34.00           | 12.06               | 11.82              | 0.00            |
| 8.50            | 1.60                | 1.38               | 0.06            | 34.50           | 12.06               | 11.82              | 0.00            |
| 9.00            | 1.76                | 1.54               | 0.07            | 35.00           | 12.06               | 11.82              | 0.00            |
| 9.50            | 1.96                | 1.73               | 0.09            | 35.50           | 12.06               | 11.82              | 0.00            |
| 10.00           | 2.20                | 1.97               | 0.11            | 36.00           | 12.06               | 11.82              | 0.00            |
| 10.50           | 2.49                | 2.26               | 0.13            |                 |                     |                    |                 |
| 11.00           | 2.89                | 2.66               | 0.21            |                 |                     |                    |                 |
| 11.50           | 3.56                | 3.33               | 0.40            |                 |                     |                    |                 |
| 12.00           | 5.75                | 5.51               | 2.27            |                 |                     |                    |                 |
| 12.50           | 8.50                | 8.26               | 0.41            |                 |                     |                    |                 |
| 13.00           | 9.17                | 8.93               | 0.21            |                 |                     |                    |                 |
| 13.50           | 9.57                | 9.33               | 0.13            |                 |                     |                    |                 |
| 14.00           | 9.86                | 9.62               | 0.11            |                 |                     |                    |                 |
| 14.50           | 10.10               | 9.86               | 0.09            |                 |                     |                    |                 |
| 15.00           | 10.30               | 10.06              | 0.07            |                 |                     |                    |                 |
| 15.50           | 10.46               | 10.22              | 0.06            |                 |                     |                    |                 |
| 16.00           | 10.62               | 10.37              | 0.06            |                 |                     |                    |                 |
| 16.50           | 10.76               | 10.51              | 0.05            |                 |                     |                    |                 |
| 17.00           | 10.88               | 10.64              | 0.05            |                 |                     |                    |                 |
| 17.50           | 11.00               | 10.76              | 0.04            |                 |                     |                    |                 |
| 18.00           | 11.10               | 10.86              | 0.04            |                 |                     |                    |                 |
| 18.50           | 11.20               | 10.96              | 0.04            |                 |                     |                    |                 |
| 19.00           | 11.29               | 11.05              | 0.04            |                 |                     |                    |                 |
| 19.50           | 11.38               | 11.14              | 0.04            |                 |                     |                    |                 |
| 20.00           | 11.47               | 11.23              | 0.03            |                 |                     |                    |                 |
| 20.50           | 11.55               | 11.31              | 0.03            |                 |                     |                    |                 |
| 21.00           | 11.63               | 11.39              | 0.03            |                 |                     |                    |                 |
| 21.50           | 11.71               | 11.47              | 0.03            |                 |                     |                    |                 |
| 22.00           | 11.79               | 11.55              | 0.03            |                 |                     |                    |                 |
| 22.50           | 11.86               | 11.62              | 0.03            |                 |                     |                    |                 |
| 23.00           | 11.93               | 11.69              | 0.03            |                 |                     |                    |                 |
| 23.50           | 11.99               | 11.75              | 0.03            |                 |                     |                    |                 |
| 24.00           | 12.06               | 11.82              | 0.02            |                 |                     |                    |                 |
| 24.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.00           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |
| 25.50           | 12.06               | 11.82              | 0.00            |                 |                     |                    |                 |

Summary for Pond 4P: Proposed Pond Storage Volume POI-3

Inflow Area = 63,570 sf, 13.73% Impervious, Inflow Depth = 4.71" for 100-Year-2050 event  
Inflow = 4.01 cfs @ 12.29 hrs, Volume= 24,942 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

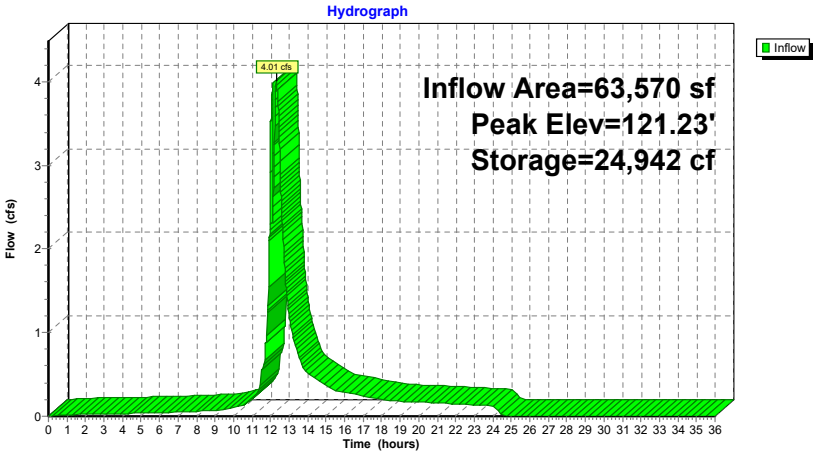
Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 121.23' @ 25.23 hrs Surf.Area= 12,593 sf Storage= 24,942 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

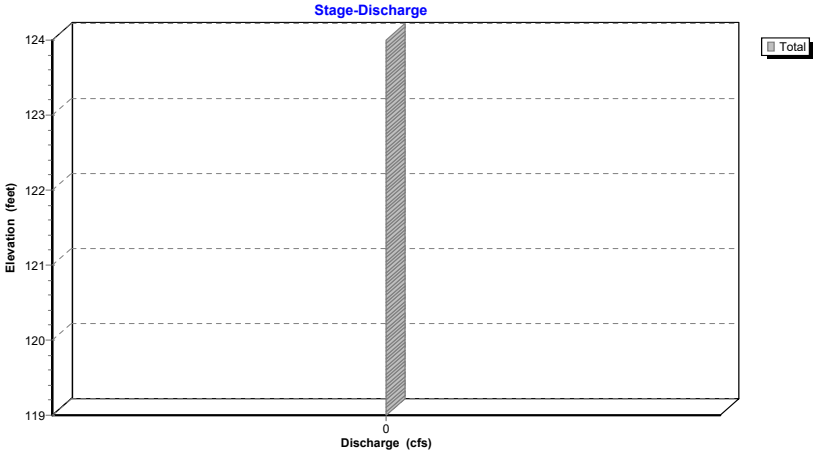
| Volume              | Invert               | Avail.Storage             | Storage Description                                 |
|---------------------|----------------------|---------------------------|-----------------------------------------------------|
| #1                  | 119.00'              | 65,239 cf                 | Custom Stage Data (Prismatic) Listed below (Recalc) |
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet)                           |
| 119.00              | 9,792                | 0                         | 0                                                   |
| 120.00              | 11,006               | 10,399                    | 10,399                                              |
| 121.00              | 12,283               | 11,645                    | 22,044                                              |
| 122.00              | 13,612               | 12,948                    | 34,991                                              |
| 123.00              | 15,010               | 14,311                    | 49,302                                              |
| 124.00              | 16,863               | 15,937                    | 65,239                                              |

Pond 4P: Proposed Pond Storage Volume POI-3

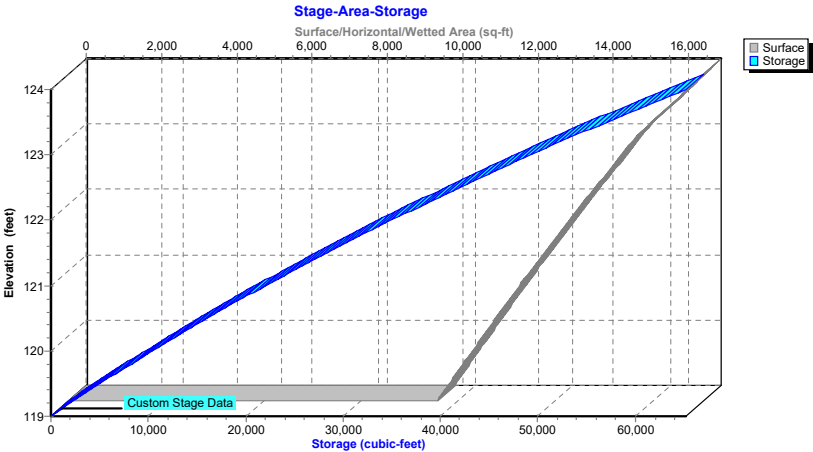
Pond 4P: Proposed Pond Storage Volume POI-3



Pond 4P: Proposed Pond Storage Volume POI-3



Pond 4P: Proposed Pond Storage Volume POI-3



Hydrograph for Pond 4P: Proposed Pond Storage Volume POI-3

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) |
|-----------------|-----------------|-------------------------|---------------------|-----------------|-----------------|-------------------------|---------------------|
| 0.00            | 0.00            | 0                       | 119.00              | 26.00           | 0.00            | 24,942                  | 121.23              |
| 0.50            | 0.01            | 2                       | 119.00              | 26.50           | 0.00            | 24,942                  | 121.23              |
| 1.00            | 0.01            | 20                      | 119.00              | 27.00           | 0.00            | 24,942                  | 121.23              |
| 1.50            | 0.02            | 51                      | 119.01              | 27.50           | 0.00            | 24,942                  | 121.23              |
| 2.00            | 0.02            | 90                      | 119.01              | 28.00           | 0.00            | 24,942                  | 121.23              |
| 2.50            | 0.03            | 134                     | 119.01              | 28.50           | 0.00            | 24,942                  | 121.23              |
| 3.00            | 0.03            | 183                     | 119.02              | 29.00           | 0.00            | 24,942                  | 121.23              |
| 3.50            | 0.03            | 235                     | 119.02              | 29.50           | 0.00            | 24,942                  | 121.23              |
| 4.00            | 0.03            | 291                     | 119.03              | 30.00           | 0.00            | 24,942                  | 121.23              |
| 4.50            | 0.03            | 350                     | 119.04              | 30.50           | 0.00            | 24,942                  | 121.23              |
| 5.00            | 0.04            | 412                     | 119.04              | 31.00           | 0.00            | 24,942                  | 121.23              |
| 5.50            | 0.04            | 477                     | 119.05              | 31.50           | 0.00            | 24,942                  | 121.23              |
| 6.00            | 0.04            | 544                     | 119.06              | 32.00           | 0.00            | 24,942                  | 121.23              |
| 6.50            | 0.04            | 618                     | 119.06              | 32.50           | 0.00            | 24,942                  | 121.23              |
| 7.00            | 0.05            | 700                     | 119.07              | 33.00           | 0.00            | 24,942                  | 121.23              |
| 7.50            | 0.05            | 792                     | 119.08              | 33.50           | 0.00            | 24,942                  | 121.23              |
| 8.00            | 0.06            | 892                     | 119.09              | 34.00           | 0.00            | 24,942                  | 121.23              |
| 8.50            | 0.06            | 1,001                   | 119.10              | 34.50           | 0.00            | 24,942                  | 121.23              |
| 9.00            | 0.07            | 1,119                   | 119.11              | 35.00           | 0.00            | 24,942                  | 121.23              |
| 9.50            | 0.09            | 1,260                   | 119.13              | 35.50           | 0.00            | 24,942                  | 121.23              |
| 10.00           | 0.11            | 1,434                   | 119.15              | 36.00           | 0.00            | 24,942                  | 121.23              |
| 10.50           | 0.13            | 1,641                   | 119.17              |                 |                 |                         |                     |
| 11.00           | 0.21            | 1,937                   | 119.20              |                 |                 |                         |                     |
| 11.50           | 0.46            | 2,448                   | 119.25              |                 |                 |                         |                     |
| 12.00           | 2.92            | 4,468                   | 119.44              |                 |                 |                         |                     |
| 12.50           | 3.04            | 10,758                  | 120.03              |                 |                 |                         |                     |
| 13.00           | 1.21            | 14,191                  | 120.34              |                 |                 |                         |                     |
| 13.50           | 0.72            | 15,866                  | 120.48              |                 |                 |                         |                     |
| 14.00           | 0.52            | 16,951                  | 120.58              |                 |                 |                         |                     |
| 14.50           | 0.44            | 17,806                  | 120.65              |                 |                 |                         |                     |
| 15.00           | 0.36            | 18,523                  | 120.71              |                 |                 |                         |                     |
| 15.50           | 0.31            | 19,114                  | 120.76              |                 |                 |                         |                     |
| 16.00           | 0.28            | 19,644                  | 120.80              |                 |                 |                         |                     |
| 16.50           | 0.26            | 20,136                  | 120.84              |                 |                 |                         |                     |
| 17.00           | 0.24            | 20,591                  | 120.88              |                 |                 |                         |                     |
| 17.50           | 0.22            | 21,009                  | 120.92              |                 |                 |                         |                     |
| 18.00           | 0.20            | 21,388                  | 120.95              |                 |                 |                         |                     |
| 18.50           | 0.18            | 21,732                  | 120.97              |                 |                 |                         |                     |
| 19.00           | 0.18            | 22,059                  | 121.00              |                 |                 |                         |                     |
| 19.50           | 0.17            | 22,377                  | 121.03              |                 |                 |                         |                     |
| 20.00           | 0.17            | 22,686                  | 121.05              |                 |                 |                         |                     |
| 20.50           | 0.16            | 22,985                  | 121.08              |                 |                 |                         |                     |
| 21.00           | 0.16            | 23,275                  | 121.10              |                 |                 |                         |                     |
| 21.50           | 0.15            | 23,556                  | 121.12              |                 |                 |                         |                     |
| 22.00           | 0.15            | 23,826                  | 121.14              |                 |                 |                         |                     |
| 22.50           | 0.14            | 24,088                  | 121.16              |                 |                 |                         |                     |
| 23.00           | 0.14            | 24,339                  | 121.19              |                 |                 |                         |                     |
| 23.50           | 0.13            | 24,580                  | 121.20              |                 |                 |                         |                     |
| 24.00           | 0.12            | 24,813                  | 121.22              |                 |                 |                         |                     |
| 24.50           | 0.02            | 24,935                  | 121.23              |                 |                 |                         |                     |
| 25.00           | 0.00            | 24,942                  | 121.23              |                 |                 |                         |                     |
| 25.50           | 0.00            | 24,942                  | 121.23              |                 |                 |                         |                     |

Stage-Discharge for Pond 4P: Proposed Pond Storage Volume POI-3

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|
| 119.00              | 0.00               | 121.60              | 0.00               |
| 119.05              | 0.00               | 121.65              | 0.00               |
| 119.10              | 0.00               | 121.70              | 0.00               |
| 119.15              | 0.00               | 121.75              | 0.00               |
| 119.20              | 0.00               | 121.80              | 0.00               |
| 119.25              | 0.00               | 121.85              | 0.00               |
| 119.30              | 0.00               | 121.90              | 0.00               |
| 119.35              | 0.00               | 121.95              | 0.00               |
| 119.40              | 0.00               | 122.00              | 0.00               |
| 119.45              | 0.00               | 122.05              | 0.00               |
| 119.50              | 0.00               | 122.10              | 0.00               |
| 119.55              | 0.00               | 122.15              | 0.00               |
| 119.60              | 0.00               | 122.20              | 0.00               |
| 119.65              | 0.00               | 122.25              | 0.00               |
| 119.70              | 0.00               | 122.30              | 0.00               |
| 119.75              | 0.00               | 122.35              | 0.00               |
| 119.80              | 0.00               | 122.40              | 0.00               |
| 119.85              | 0.00               | 122.45              | 0.00               |
| 119.90              | 0.00               | 122.50              | 0.00               |
| 119.95              | 0.00               | 122.55              | 0.00               |
| 120.00              | 0.00               | 122.60              | 0.00               |
| 120.05              | 0.00               | 122.65              | 0.00               |
| 120.10              | 0.00               | 122.70              | 0.00               |
| 120.15              | 0.00               | 122.75              | 0.00               |
| 120.20              | 0.00               | 122.80              | 0.00               |
| 120.25              | 0.00               | 122.85              | 0.00               |
| 120.30              | 0.00               | 122.90              | 0.00               |
| 120.35              | 0.00               | 122.95              | 0.00               |
| 120.40              | 0.00               | 123.00              | 0.00               |
| 120.45              | 0.00               | 123.05              | 0.00               |
| 120.50              | 0.00               | 123.10              | 0.00               |
| 120.55              | 0.00               | 123.15              | 0.00               |
| 120.60              | 0.00               | 123.20              | 0.00               |
| 120.65              | 0.00               | 123.25              | 0.00               |
| 120.70              | 0.00               | 123.30              | 0.00               |
| 120.75              | 0.00               | 123.35              | 0.00               |
| 120.80              | 0.00               | 123.40              | 0.00               |
| 120.85              | 0.00               | 123.45              | 0.00               |
| 120.90              | 0.00               | 123.50              | 0.00               |
| 120.95              | 0.00               | 123.55              | 0.00               |
| 121.00              | 0.00               | 123.60              | 0.00               |
| 121.05              | 0.00               | 123.65              | 0.00               |
| 121.10              | 0.00               | 123.70              | 0.00               |
| 121.15              | 0.00               | 123.75              | 0.00               |
| 121.20              | 0.00               | 123.80              | 0.00               |
| 121.25              | 0.00               | 123.85              | 0.00               |
| 121.30              | 0.00               | 123.90              | 0.00               |
| 121.35              | 0.00               | 123.95              | 0.00               |
| 121.40              | 0.00               | 124.00              | 0.00               |
| 121.45              | 0.00               |                     |                    |
| 121.50              | 0.00               |                     |                    |
| 121.55              | 0.00               |                     |                    |

**Stage-Area-Storage for Pond 4P: Proposed Pond Storage Volume POI-3**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 119.00              | 9,792              | 0                       | 121.60              | 13,080             | 29,653                  |
| 119.05              | 9,853              | 491                     | 121.65              | 13,147             | 30,308                  |
| 119.10              | 9,913              | 985                     | 121.70              | 13,213             | 30,967                  |
| 119.15              | 9,974              | 1,482                   | 121.75              | 13,280             | 31,630                  |
| 119.20              | 10,035             | 1,983                   | 121.80              | 13,346             | 32,295                  |
| 119.25              | 10,096             | 2,486                   | 121.85              | 13,413             | 32,964                  |
| 119.30              | 10,156             | 2,992                   | 121.90              | 13,479             | 33,636                  |
| 119.35              | 10,217             | 3,502                   | 121.95              | 13,546             | 34,312                  |
| 119.40              | 10,278             | 4,014                   | 122.00              | 13,612             | 34,991                  |
| 119.45              | 10,338             | 4,529                   | 122.05              | 13,682             | 35,673                  |
| 119.50              | 10,399             | 5,048                   | 122.10              | 13,752             | 36,359                  |
| 119.55              | 10,460             | 5,569                   | 122.15              | 13,822             | 37,049                  |
| 119.60              | 10,520             | 6,094                   | 122.20              | 13,892             | 37,741                  |
| 119.65              | 10,581             | 6,621                   | 122.25              | 13,962             | 38,438                  |
| 119.70              | 10,642             | 7,152                   | 122.30              | 14,031             | 39,138                  |
| 119.75              | 10,703             | 7,685                   | 122.35              | 14,101             | 39,841                  |
| 119.80              | 10,763             | 8,222                   | 122.40              | 14,171             | 40,548                  |
| 119.85              | 10,824             | 8,762                   | 122.45              | 14,241             | 41,258                  |
| 119.90              | 10,885             | 9,304                   | 122.50              | 14,311             | 41,972                  |
| 119.95              | 10,945             | 9,850                   | 122.55              | 14,381             | 42,689                  |
| 120.00              | 11,006             | 10,399                  | 122.60              | 14,451             | 43,410                  |
| 120.05              | 11,070             | 10,951                  | 122.65              | 14,521             | 44,134                  |
| 120.10              | 11,134             | 11,506                  | 122.70              | 14,591             | 44,862                  |
| 120.15              | 11,198             | 12,064                  | 122.75              | 14,661             | 45,593                  |
| 120.20              | 11,261             | 12,626                  | 122.80              | 14,730             | 46,328                  |
| 120.25              | 11,325             | 13,190                  | 122.85              | 14,800             | 47,066                  |
| 120.30              | 11,389             | 13,758                  | 122.90              | 14,870             | 47,808                  |
| 120.35              | 11,453             | 14,329                  | 122.95              | 14,940             | 48,553                  |
| 120.40              | 11,517             | 14,904                  | 123.00              | 15,010             | 49,302                  |
| 120.45              | 11,581             | 15,481                  | 123.05              | 15,103             | 50,055                  |
| 120.50              | 11,645             | 16,062                  | 123.10              | 15,195             | 50,812                  |
| 120.55              | 11,708             | 16,645                  | 123.15              | 15,288             | 51,574                  |
| 120.60              | 11,772             | 17,232                  | 123.20              | 15,381             | 52,341                  |
| 120.65              | 11,836             | 17,823                  | 123.25              | 15,473             | 53,112                  |
| 120.70              | 11,900             | 18,416                  | 123.30              | 15,566             | 53,888                  |
| 120.75              | 11,964             | 19,013                  | 123.35              | 15,659             | 54,669                  |
| 120.80              | 12,028             | 19,612                  | 123.40              | 15,751             | 55,454                  |
| 120.85              | 12,091             | 20,215                  | 123.45              | 15,844             | 56,244                  |
| 120.90              | 12,155             | 20,822                  | 123.50              | 15,937             | 57,039                  |
| 120.95              | 12,219             | 21,431                  | 123.55              | 16,029             | 57,838                  |
| 121.00              | 12,283             | 22,044                  | 123.60              | 16,122             | 58,642                  |
| 121.05              | 12,349             | 22,659                  | 123.65              | 16,214             | 59,450                  |
| 121.10              | 12,416             | 23,278                  | 123.70              | 16,307             | 60,263                  |
| 121.15              | 12,482             | 23,901                  | 123.75              | 16,400             | 61,081                  |
| 121.20              | 12,549             | 24,527                  | 123.80              | 16,492             | 61,903                  |
| 121.25              | 12,615             | 25,156                  | 123.85              | 16,585             | 62,730                  |
| 121.30              | 12,682             | 25,788                  | 123.90              | 16,678             | 63,561                  |
| 121.35              | 12,748             | 26,424                  | 123.95              | 16,770             | 64,398                  |
| 121.40              | 12,815             | 27,063                  | 124.00              | <b>16,863</b>      | <b>65,239</b>           |
| 121.45              | 12,881             | 27,705                  |                     |                    |                         |
| 121.50              | 12,948             | 28,351                  |                     |                    |                         |
| 121.55              | 13,014             | 29,000                  |                     |                    |                         |

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment3S: Pr. POI-3 Pervious** Runoff Area=54,841 sf 0.00% Impervious Runoff Depth=0.00"  
 Flow Length=324' Tc=21.7 min CN=41 Runoff=0.00 cfs 0 cf

**Subcatchment4S: Pr. POI-3 Impervious** Runoff Area=8,729 sf 100.00% Impervious Runoff Depth=1.03"  
 Tc=0.0 min CN=98 Runoff=0.62 cfs 753 cf

**Pond 4P: Proposed Pond Storage Volume POI-3** Peak Elev=119.08' Storage=753 cf Inflow=0.62 cfs 753 cf  
 Outflow=0.00 cfs 0 cf

**Total Runoff Area = 63,570 sf Runoff Volume = 753 cf Average Runoff Depth = 0.14"**  
**86.27% Pervious = 54,841 sf 13.73% Impervious = 8,729 sf**

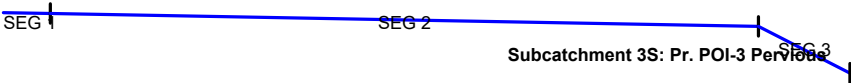
Summary for Subcatchment 3S: Pr. POI-3 Pervious

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"  
Routed to Pond 4P : Proposed Pond Storage Volume POI-3

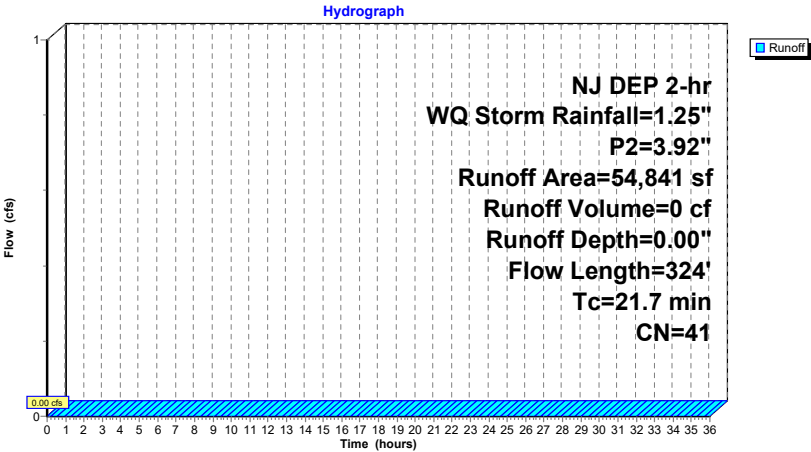
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 9,575     | 39 | >75% Grass cover, Good, HSG A |
| 2,327     | 61 | >75% Grass cover, Good, HSG B |
| 218       | 30 | Meadow, non-grazed, HSG A     |
| 2,760     | 58 | Meadow, non-grazed, HSG B     |
| 25,530    | 30 | Woods, Good, HSG A            |
| 14,431    | 55 | Woods, Good, HSG B            |
| 54,841    | 41 | Weighted Average              |
| 54,841    |    | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                                        |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------------------------------------|
| 8.6      | 18            | 0.0050        | 0.04              |                | Sheet Flow, SEG 1<br>Woods: Light underbrush n= 0.400 P2= 3.92"<br>Using McCuen-Spiess flow length |
| 12.8     | 271           | 0.0050        | 0.35              |                | Shallow Concentrated Flow, SEG 2<br>Woodland Kv= 5.0 fps                                           |
| 0.3      | 35            | 0.1400        | 1.87              |                | Shallow Concentrated Flow, SEG 3<br>Woodland Kv= 5.0 fps                                           |
| 21.7     | 324           | Total         |                   |                |                                                                                                    |



Subcatchment 3S: Pr. POI-3 Pervious



Hydrograph for Subcatchment 3S: Pr. POI-3 Pervious

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 0.00               | 0.00            |
| 0.50            | 0.10                | 0.00               | 0.00            | 26.50           | 1.25                | 0.00               | 0.00            |
| 1.00            | 0.63                | 0.00               | 0.00            | 27.00           | 1.25                | 0.00               | 0.00            |
| 1.50            | 1.15                | 0.00               | 0.00            | 27.50           | 1.25                | 0.00               | 0.00            |
| 2.00            | 1.25                | 0.00               | 0.00            | 28.00           | 1.25                | 0.00               | 0.00            |
| 2.50            | 1.25                | 0.00               | 0.00            | 28.50           | 1.25                | 0.00               | 0.00            |
| 3.00            | 1.25                | 0.00               | 0.00            | 29.00           | 1.25                | 0.00               | 0.00            |
| 3.50            | 1.25                | 0.00               | 0.00            | 29.50           | 1.25                | 0.00               | 0.00            |
| 4.00            | 1.25                | 0.00               | 0.00            | 30.00           | 1.25                | 0.00               | 0.00            |
| 4.50            | 1.25                | 0.00               | 0.00            | 30.50           | 1.25                | 0.00               | 0.00            |
| 5.00            | 1.25                | 0.00               | 0.00            | 31.00           | 1.25                | 0.00               | 0.00            |
| 5.50            | 1.25                | 0.00               | 0.00            | 31.50           | 1.25                | 0.00               | 0.00            |
| 6.00            | 1.25                | 0.00               | 0.00            | 32.00           | 1.25                | 0.00               | 0.00            |
| 6.50            | 1.25                | 0.00               | 0.00            | 32.50           | 1.25                | 0.00               | 0.00            |
| 7.00            | 1.25                | 0.00               | 0.00            | 33.00           | 1.25                | 0.00               | 0.00            |
| 7.50            | 1.25                | 0.00               | 0.00            | 33.50           | 1.25                | 0.00               | 0.00            |
| 8.00            | 1.25                | 0.00               | 0.00            | 34.00           | 1.25                | 0.00               | 0.00            |
| 8.50            | 1.25                | 0.00               | 0.00            | 34.50           | 1.25                | 0.00               | 0.00            |
| 9.00            | 1.25                | 0.00               | 0.00            | 35.00           | 1.25                | 0.00               | 0.00            |
| 9.50            | 1.25                | 0.00               | 0.00            | 35.50           | 1.25                | 0.00               | 0.00            |
| 10.00           | 1.25                | 0.00               | 0.00            | 36.00           | 1.25                | 0.00               | 0.00            |
| 10.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 0.00               | 0.00            |                 |                     |                    |                 |

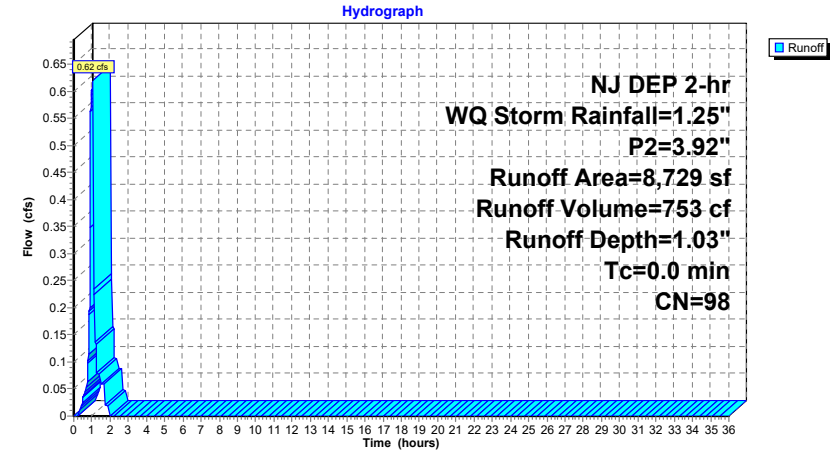
Summary for Subcatchment 4S: Pr. POI-3 Impervious (Pond)

Runoff = 0.62 cfs @ 1.07 hrs, Volume= 753 cf, Depth= 1.03"  
Routed to Pond 4P : Proposed Pond Storage Volume POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 8,729     | 98 | Water Surface, HSG B    |
| 8,729     |    | 100.00% Impervious Area |

Subcatchment 4S: Pr. POI-3 Impervious (Pond)



Hydrograph for Subcatchment 4S: Pr. POI-3 Impervious (Pond)

| Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) | Time<br>(hours) | Precip.<br>(inches) | Excess<br>(inches) | Runoff<br>(cfs) |
|-----------------|---------------------|--------------------|-----------------|-----------------|---------------------|--------------------|-----------------|
| 0.00            | 0.00                | 0.00               | 0.00            | 26.00           | 1.25                | 1.03               | 0.00            |
| 0.50            | 0.10                | 0.01               | 0.03            | 26.50           | 1.25                | 1.03               | 0.00            |
| 1.00            | 0.63                | 0.43               | 0.60            | 27.00           | 1.25                | 1.03               | 0.00            |
| 1.50            | 1.15                | 0.94               | 0.07            | 27.50           | 1.25                | 1.03               | 0.00            |
| 2.00            | 1.25                | 1.03               | 0.01            | 28.00           | 1.25                | 1.03               | 0.00            |
| 2.50            | 1.25                | 1.03               | 0.00            | 28.50           | 1.25                | 1.03               | 0.00            |
| 3.00            | 1.25                | 1.03               | 0.00            | 29.00           | 1.25                | 1.03               | 0.00            |
| 3.50            | 1.25                | 1.03               | 0.00            | 29.50           | 1.25                | 1.03               | 0.00            |
| 4.00            | 1.25                | 1.03               | 0.00            | 30.00           | 1.25                | 1.03               | 0.00            |
| 4.50            | 1.25                | 1.03               | 0.00            | 30.50           | 1.25                | 1.03               | 0.00            |
| 5.00            | 1.25                | 1.03               | 0.00            | 31.00           | 1.25                | 1.03               | 0.00            |
| 5.50            | 1.25                | 1.03               | 0.00            | 31.50           | 1.25                | 1.03               | 0.00            |
| 6.00            | 1.25                | 1.03               | 0.00            | 32.00           | 1.25                | 1.03               | 0.00            |
| 6.50            | 1.25                | 1.03               | 0.00            | 32.50           | 1.25                | 1.03               | 0.00            |
| 7.00            | 1.25                | 1.03               | 0.00            | 33.00           | 1.25                | 1.03               | 0.00            |
| 7.50            | 1.25                | 1.03               | 0.00            | 33.50           | 1.25                | 1.03               | 0.00            |
| 8.00            | 1.25                | 1.03               | 0.00            | 34.00           | 1.25                | 1.03               | 0.00            |
| 8.50            | 1.25                | 1.03               | 0.00            | 34.50           | 1.25                | 1.03               | 0.00            |
| 9.00            | 1.25                | 1.03               | 0.00            | 35.00           | 1.25                | 1.03               | 0.00            |
| 9.50            | 1.25                | 1.03               | 0.00            | 35.50           | 1.25                | 1.03               | 0.00            |
| 10.00           | 1.25                | 1.03               | 0.00            | 36.00           | 1.25                | 1.03               | 0.00            |
| 10.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 11.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 12.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 13.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 14.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 15.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 16.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 17.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 18.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 19.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 20.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 21.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 22.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 23.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 24.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.00           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |
| 25.50           | 1.25                | 1.03               | 0.00            |                 |                     |                    |                 |

Summary for Pond 4P: Proposed Pond Storage Volume POI-3

Inflow Area = 63,570 sf, 13.73% Impervious, Inflow Depth = 0.14" for WQ Storm event  
Inflow = 0.62 cfs @ 1.07 hrs, Volume= 753 cf  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Peak Elev= 119.08' @ 2.01 hrs Surf.Area= 9,885 sf Storage= 753 cf

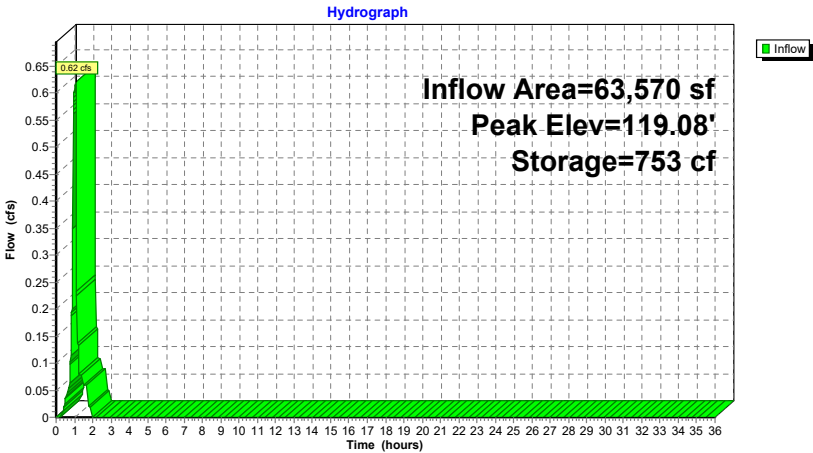
Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
Center-of-Mass det. time= (not calculated: no outflow)

| Volume | Invert  | Avail.Storage | Storage Description                                 |
|--------|---------|---------------|-----------------------------------------------------|
| #1     | 119.00' | 65,239 cf     | Custom Stage Data (Prismatic) Listed below (Recalc) |

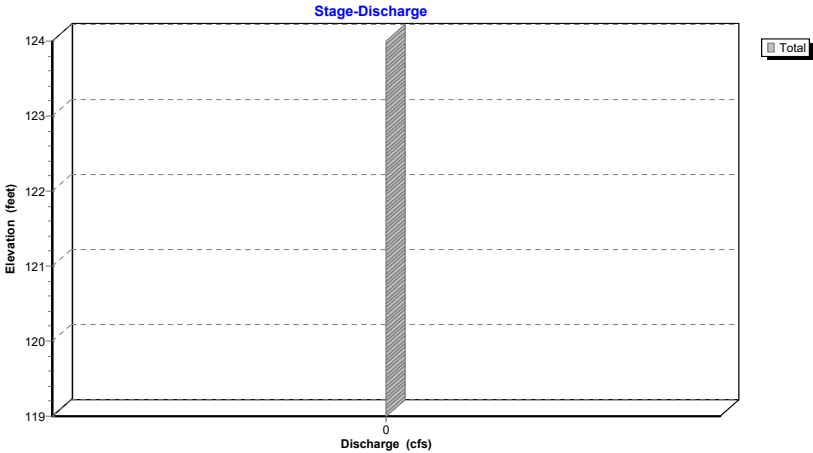
| Elevation<br>(feet) | Surf.Area<br>(sq-ft) | Inc.Store<br>(cubic-feet) | Cum.Store<br>(cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 119.00              | 9,792                | 0                         | 0                         |
| 120.00              | 11,006               | 10,399                    | 10,399                    |
| 121.00              | 12,283               | 11,645                    | 22,044                    |
| 122.00              | 13,612               | 12,948                    | 34,991                    |
| 123.00              | 15,010               | 14,311                    | 49,302                    |
| 124.00              | 16,863               | 15,937                    | 65,239                    |

Pond 4P: Proposed Pond Storage Volume POI-3

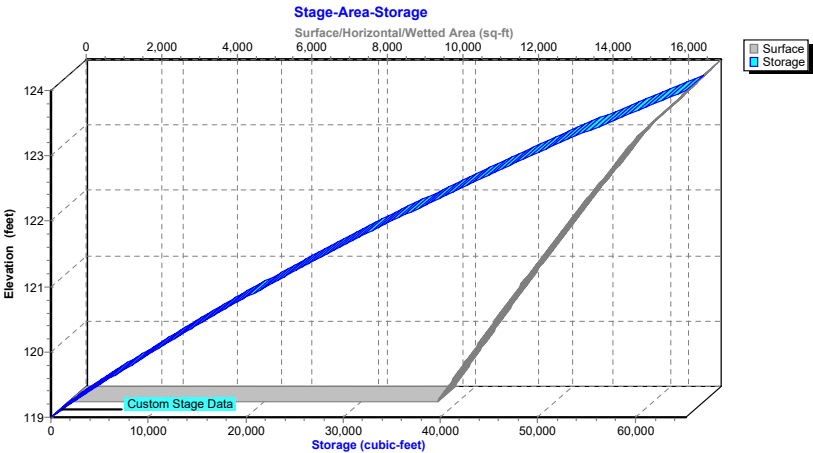
Pond 4P: Proposed Pond Storage Volume POI-3



Pond 4P: Proposed Pond Storage Volume POI-3



Pond 4P: Proposed Pond Storage Volume POI-3





Hydrograph for Pond 4P: Proposed Pond Storage Volume POI-3

| Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Time<br>(hours) | Inflow<br>(cfs) | Storage<br>(cubic-feet) | Elevation<br>(feet) |
|-----------------|-----------------|-------------------------|---------------------|-----------------|-----------------|-------------------------|---------------------|
| 0.00            | 0.00            | 0                       | 119.00              | 26.00           | 0.00            | 753                     | 119.08              |
| 0.50            | 0.03            | 10                      | 119.00              | 26.50           | 0.00            | 753                     | 119.08              |
| 1.00            | 0.60            | 315                     | 119.03              | 27.00           | 0.00            | 753                     | 119.08              |
| 1.50            | 0.07            | 681                     | 119.07              | 27.50           | 0.00            | 753                     | 119.08              |
| 2.00            | 0.01            | 752                     | 119.08              | 28.00           | 0.00            | 753                     | 119.08              |
| 2.50            | 0.00            | 753                     | 119.08              | 28.50           | 0.00            | 753                     | 119.08              |
| 3.00            | 0.00            | 753                     | 119.08              | 29.00           | 0.00            | 753                     | 119.08              |
| 3.50            | 0.00            | 753                     | 119.08              | 29.50           | 0.00            | 753                     | 119.08              |
| 4.00            | 0.00            | 753                     | 119.08              | 30.00           | 0.00            | 753                     | 119.08              |
| 4.50            | 0.00            | 753                     | 119.08              | 30.50           | 0.00            | 753                     | 119.08              |
| 5.00            | 0.00            | 753                     | 119.08              | 31.00           | 0.00            | 753                     | 119.08              |
| 5.50            | 0.00            | 753                     | 119.08              | 31.50           | 0.00            | 753                     | 119.08              |
| 6.00            | 0.00            | 753                     | 119.08              | 32.00           | 0.00            | 753                     | 119.08              |
| 6.50            | 0.00            | 753                     | 119.08              | 32.50           | 0.00            | 753                     | 119.08              |
| 7.00            | 0.00            | 753                     | 119.08              | 33.00           | 0.00            | 753                     | 119.08              |
| 7.50            | 0.00            | 753                     | 119.08              | 33.50           | 0.00            | 753                     | 119.08              |
| 8.00            | 0.00            | 753                     | 119.08              | 34.00           | 0.00            | 753                     | 119.08              |
| 8.50            | 0.00            | 753                     | 119.08              | 34.50           | 0.00            | 753                     | 119.08              |
| 9.00            | 0.00            | 753                     | 119.08              | 35.00           | 0.00            | 753                     | 119.08              |
| 9.50            | 0.00            | 753                     | 119.08              | 35.50           | 0.00            | 753                     | 119.08              |
| 10.00           | 0.00            | 753                     | 119.08              | 36.00           | 0.00            | 753                     | 119.08              |
| 10.50           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 11.00           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 11.50           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 12.00           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 12.50           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 13.00           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 13.50           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 14.00           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 14.50           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 15.00           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 15.50           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 16.00           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 16.50           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 17.00           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 17.50           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 18.00           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 18.50           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 19.00           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 19.50           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 20.00           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 20.50           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 21.00           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 21.50           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 22.00           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 22.50           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 23.00           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 23.50           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 24.00           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 24.50           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 25.00           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |
| 25.50           | 0.00            | 753                     | 119.08              |                 |                 |                         |                     |

Stage-Discharge for Pond 4P: Proposed Pond Storage Volume POI-3

| Elevation<br>(feet) | Discharge<br>(cfs) | Elevation<br>(feet) | Discharge<br>(cfs) |
|---------------------|--------------------|---------------------|--------------------|
| 119.00              | 0.00               | 121.60              | 0.00               |
| 119.05              | 0.00               | 121.65              | 0.00               |
| 119.10              | 0.00               | 121.70              | 0.00               |
| 119.15              | 0.00               | 121.75              | 0.00               |
| 119.20              | 0.00               | 121.80              | 0.00               |
| 119.25              | 0.00               | 121.85              | 0.00               |
| 119.30              | 0.00               | 121.90              | 0.00               |
| 119.35              | 0.00               | 121.95              | 0.00               |
| 119.40              | 0.00               | 122.00              | 0.00               |
| 119.45              | 0.00               | 122.05              | 0.00               |
| 119.50              | 0.00               | 122.10              | 0.00               |
| 119.55              | 0.00               | 122.15              | 0.00               |
| 119.60              | 0.00               | 122.20              | 0.00               |
| 119.65              | 0.00               | 122.25              | 0.00               |
| 119.70              | 0.00               | 122.30              | 0.00               |
| 119.75              | 0.00               | 122.35              | 0.00               |
| 119.80              | 0.00               | 122.40              | 0.00               |
| 119.85              | 0.00               | 122.45              | 0.00               |
| 119.90              | 0.00               | 122.50              | 0.00               |
| 119.95              | 0.00               | 122.55              | 0.00               |
| 120.00              | 0.00               | 122.60              | 0.00               |
| 120.05              | 0.00               | 122.65              | 0.00               |
| 120.10              | 0.00               | 122.70              | 0.00               |
| 120.15              | 0.00               | 122.75              | 0.00               |
| 120.20              | 0.00               | 122.80              | 0.00               |
| 120.25              | 0.00               | 122.85              | 0.00               |
| 120.30              | 0.00               | 122.90              | 0.00               |
| 120.35              | 0.00               | 122.95              | 0.00               |
| 120.40              | 0.00               | 123.00              | 0.00               |
| 120.45              | 0.00               | 123.05              | 0.00               |
| 120.50              | 0.00               | 123.10              | 0.00               |
| 120.55              | 0.00               | 123.15              | 0.00               |
| 120.60              | 0.00               | 123.20              | 0.00               |
| 120.65              | 0.00               | 123.25              | 0.00               |
| 120.70              | 0.00               | 123.30              | 0.00               |
| 120.75              | 0.00               | 123.35              | 0.00               |
| 120.80              | 0.00               | 123.40              | 0.00               |
| 120.85              | 0.00               | 123.45              | 0.00               |
| 120.90              | 0.00               | 123.50              | 0.00               |
| 120.95              | 0.00               | 123.55              | 0.00               |
| 121.00              | 0.00               | 123.60              | 0.00               |
| 121.05              | 0.00               | 123.65              | 0.00               |
| 121.10              | 0.00               | 123.70              | 0.00               |
| 121.15              | 0.00               | 123.75              | 0.00               |
| 121.20              | 0.00               | 123.80              | 0.00               |
| 121.25              | 0.00               | 123.85              | 0.00               |
| 121.30              | 0.00               | 123.90              | 0.00               |
| 121.35              | 0.00               | 123.95              | 0.00               |
| 121.40              | 0.00               | 124.00              | 0.00               |
| 121.45              | 0.00               |                     |                    |
| 121.50              | 0.00               |                     |                    |
| 121.55              | 0.00               |                     |                    |

**2101ELK-STM Analysis POI-3**

NJ DEP 2-hr WQ Storm Rainfall=1.25", P2=3.92"

Prepared by Van Cleef Engineering Assoc

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**Stage-Area-Storage for Pond 4P: Proposed Pond Storage Volume POI-3**

| Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) | Elevation<br>(feet) | Surface<br>(sq-ft) | Storage<br>(cubic-feet) |
|---------------------|--------------------|-------------------------|---------------------|--------------------|-------------------------|
| 119.00              | 9,792              | 0                       | 121.60              | 13,080             | 29,653                  |
| 119.05              | 9,853              | 491                     | 121.65              | 13,147             | 30,308                  |
| 119.10              | 9,913              | 985                     | 121.70              | 13,213             | 30,967                  |
| 119.15              | 9,974              | 1,482                   | 121.75              | 13,280             | 31,630                  |
| 119.20              | 10,035             | 1,983                   | 121.80              | 13,346             | 32,295                  |
| 119.25              | 10,096             | 2,486                   | 121.85              | 13,413             | 32,964                  |
| 119.30              | 10,156             | 2,992                   | 121.90              | 13,479             | 33,636                  |
| 119.35              | 10,217             | 3,502                   | 121.95              | 13,546             | 34,312                  |
| 119.40              | 10,278             | 4,014                   | 122.00              | 13,612             | 34,991                  |
| 119.45              | 10,338             | 4,529                   | 122.05              | 13,682             | 35,673                  |
| 119.50              | 10,399             | 5,048                   | 122.10              | 13,752             | 36,359                  |
| 119.55              | 10,460             | 5,569                   | 122.15              | 13,822             | 37,049                  |
| 119.60              | 10,520             | 6,094                   | 122.20              | 13,892             | 37,741                  |
| 119.65              | 10,581             | 6,621                   | 122.25              | 13,962             | 38,438                  |
| 119.70              | 10,642             | 7,152                   | 122.30              | 14,031             | 39,138                  |
| 119.75              | 10,703             | 7,685                   | 122.35              | 14,101             | 39,841                  |
| 119.80              | 10,763             | 8,222                   | 122.40              | 14,171             | 40,548                  |
| 119.85              | 10,824             | 8,762                   | 122.45              | 14,241             | 41,258                  |
| 119.90              | 10,885             | 9,304                   | 122.50              | 14,311             | 41,972                  |
| 119.95              | 10,945             | 9,850                   | 122.55              | 14,381             | 42,689                  |
| 120.00              | 11,006             | 10,399                  | 122.60              | 14,451             | 43,410                  |
| 120.05              | 11,070             | 10,951                  | 122.65              | 14,521             | 44,134                  |
| 120.10              | 11,134             | 11,506                  | 122.70              | 14,591             | 44,862                  |
| 120.15              | 11,198             | 12,064                  | 122.75              | 14,661             | 45,593                  |
| 120.20              | 11,261             | 12,626                  | 122.80              | 14,730             | 46,328                  |
| 120.25              | 11,325             | 13,190                  | 122.85              | 14,800             | 47,066                  |
| 120.30              | 11,389             | 13,758                  | 122.90              | 14,870             | 47,808                  |
| 120.35              | 11,453             | 14,329                  | 122.95              | 14,940             | 48,553                  |
| 120.40              | 11,517             | 14,904                  | 123.00              | 15,010             | 49,302                  |
| 120.45              | 11,581             | 15,481                  | 123.05              | 15,103             | 50,055                  |
| 120.50              | 11,645             | 16,062                  | 123.10              | 15,195             | 50,812                  |
| 120.55              | 11,708             | 16,645                  | 123.15              | 15,288             | 51,574                  |
| 120.60              | 11,772             | 17,232                  | 123.20              | 15,381             | 52,341                  |
| 120.65              | 11,836             | 17,823                  | 123.25              | 15,473             | 53,112                  |
| 120.70              | 11,900             | 18,416                  | 123.30              | 15,566             | 53,888                  |
| 120.75              | 11,964             | 19,013                  | 123.35              | 15,659             | 54,669                  |
| 120.80              | 12,028             | 19,612                  | 123.40              | 15,751             | 55,454                  |
| 120.85              | 12,091             | 20,215                  | 123.45              | 15,844             | 56,244                  |
| 120.90              | 12,155             | 20,822                  | 123.50              | 15,937             | 57,039                  |
| 120.95              | 12,219             | 21,431                  | 123.55              | 16,029             | 57,838                  |
| 121.00              | 12,283             | 22,044                  | 123.60              | 16,122             | 58,642                  |
| 121.05              | 12,349             | 22,659                  | 123.65              | 16,214             | 59,450                  |
| 121.10              | 12,416             | 23,278                  | 123.70              | 16,307             | 60,263                  |
| 121.15              | 12,482             | 23,901                  | 123.75              | 16,400             | 61,081                  |
| 121.20              | 12,549             | 24,527                  | 123.80              | 16,492             | 61,903                  |
| 121.25              | 12,615             | 25,156                  | 123.85              | 16,585             | 62,730                  |
| 121.30              | 12,682             | 25,788                  | 123.90              | 16,678             | 63,561                  |
| 121.35              | 12,748             | 26,424                  | 123.95              | 16,770             | 64,398                  |
| 121.40              | 12,815             | 27,063                  | 124.00              | <b>16,863</b>      | <b>65,239</b>           |
| 121.45              | 12,881             | 27,705                  |                     |                    |                         |
| 121.50              | 12,948             | 28,351                  |                     |                    |                         |
| 121.55              | 13,014             | 29,000                  |                     |                    |                         |

**2101ELK-STM Analysis POI-3**

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Prepared by Van Cleef Engineering Assoc

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- 60 Pond 4P: Proposed Pond Storage Volume POI-3

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**2101ELK-STM Analysis POI-3**

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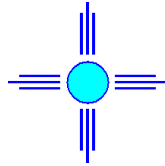
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## Soil Logs

VAN CLEEF ENGINEERING ASSOCIATES  
755 MEMORIAL PARKWAY  
TOWNSHIP OF LOPATCONG, WARREN COUNTY, NJ



# SUPPLEMENTAL STORMWATER SOIL TESTING RESULTS

---

FOR

RAJ BEDESHA

BLOCK 44, LOT 6

TOWNSHIP OF ELK  
GLOUCESTER COUNTY, NEW JERSEY

PREPARED BY:  
BAYER-RISSE ENGINEERING, INC.  
78 ROUTE 173 WEST, SUITE 6  
HAMPTON, NJ 08827

  
\_\_\_\_\_  
THEODORE H. BAYER, NJPE #33806

AUGUST 2, 2023



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block 44Lot 6

## Form 2b Soil Log and Interpretation

1. Log Number SL 0605-1 Method: ☒ Profile Pit ☐ Boring2. Soil Log: Date Recorded: June 5, 2023

| Depth (Inches)<br>Top - Bottom | Munsell Color Name and Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragment, If Present; Structure; Moist or Dry Consistence; Mottling Abundance, Size and Contrast, If Present |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0-8"                           | Topsoil with fine roots.                                                                                                                                                                        |
| 8-48"                          | 7.5YR5/6 Strong Brown sandy loam; subangular blocky, friable; 20% gravel; no mottling; no seepage.                                                                                              |
| 48-108"                        | 7.5YR6/8 Reddish Yellow sandy loam; subangular blocky, friable; 20% gravel; no mottling; no seepage.                                                                                            |
| 108-168"                       | 10YR7/6 Yellow loamy sand; subangular blocky, friable; 10-30% gravel; no mottling; moderate seepage at 156".                                                                                    |
| >168"                          | Stop Test.                                                                                                                                                                                      |

Tube Permeameter TP 4A performed at 72" (K= 8.6 in/hr)

Tube Permeameter TP 4B performed at 72" (K= 8.4 in/hr)

2a. If mottling give reason for mottling: \_\_\_\_\_

3. Ground Water Observations:

☒ Seepage - Indicate Depth: 156"☐ Pit/Boring Flooded Depth after \_\_\_\_\_ hours = \_\_\_\_\_

4. Soil Limiting Zones:

☐ Fractured Rock Substratum - Depth to Top: \_\_\_\_\_☐ Massive Rock Substratum - Depth to Top: \_\_\_\_\_☐ Excessively Coarse Horizon - Depth Top to Bottom: \_\_\_\_\_☐ Excessively Coarse Substratum - Depth to Top: \_\_\_\_\_☐ Hydraulically Restrictive Horizon - Depth Top to Bottom: \_\_\_\_\_☐ Hydraulically Restrictive Substratum - Depth to Top: \_\_\_\_\_☐ Perched Zone of Saturation - Depth Top to Bottom: \_\_\_\_\_☒ Regional Zone of Saturation - Depth to Top: 156"5. Soil Suitability Classification: **I**

6. I hereby certify that the information furnished on Form 2b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Soil Evaluator

Mark B. AndersonDate 08/02/2023

Signature of Professional Engineer

TDate 08/02/2023N.J. License No. 33806Theodore H. Bayer, PEBayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block 44

Lot 6

## Form 2b Soil Log and Interpretation

1. Log Number SL 0605-2 Method: ☒ Profile Pit ☐ Boring

2. Soil Log: Date Recorded: June 5, 2023

| Depth (Inches)<br>Top - Bottom | Munsell Color Name and Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragment, If Present; Structure; Moist or Dry Consistence; Mottling Abundance, Size and Contrast, If Present |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0-8"                           | Topsoil with fine roots.                                                                                                                                                                        |
| 8-47"                          | 7.5YR5/8 Strong Brown sandy loam; subangular blocky, friable; 10-20% gravel; no mottling; no seepage.                                                                                           |
| 47-91"                         | 10YR7/6 Yellow loamy sand; subangular blocky, friable; 30-40% gravel; no mottling; no seepage.                                                                                                  |
| 91-162"                        | 10YR7/6 Yellow sandy loam; subangular blocky, friable; <10% gravel; few, fine, faint mottling (10YR6/2 Light Brownish Gray) at 102"; no seepage.                                                |
| >162"                          | Stop Test.                                                                                                                                                                                      |

Tube Permeameter TP 11A performed at 98" (K= 15.1 in/hr)

Tube Permeameter TP 11B performed at 98" (K= 15.9 in/hr)

- 2a. If mottling give reason for mottling: Regional Groundwater Table
3. Ground Water Observations:  
☐ Seepage - Indicate Depth: \_\_\_\_\_  
☐ Pit/Boring Flooded Depth after \_\_\_\_\_ hours = \_\_\_\_\_
4. Soil Limiting Zones:  
☐ Fractured Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Massive Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Excessively Coarse Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Excessively Coarse Substratum - Depth to Top: \_\_\_\_\_  
☐ Hydraulically Restrictive Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Hydraulically Restrictive Substratum - Depth to Top: \_\_\_\_\_  
☐ Perched Zone of Saturation - Depth Top to Bottom: \_\_\_\_\_  
☒ Regional Zone of Saturation - Depth to Top: 102"
5. Soil Suitability Classification: **I**
6. I hereby certify that the information furnished on Form 2b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Soil Evaluator Mark B. Anderson Date 08/02/2023Signature of Professional Engineer [Signature] Date 08/02/2023

N.J. License No. 33806  
Theodore H. Bayer, PE  
Bayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block 44

Lot 6

## Form 2b Soil Log and Interpretation

1. Log Number SL 0605-3 Method: ☒ Profile Pit ☐ Boring

2. Soil Log: Date Recorded: June 5, 2023

Depth (Inches) | Munsell Color Name and Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragment, Top - Bottom | If Present; Structure; Moist or Dry Consistence; Mottling Abundance, Size and Contrast, If Present

0-8" Topsoil with fine roots.

8-48" 7.5YR5/8 Strong Brown sandy loam; subangular blocky, friable; 10-20% gravel; no mottling; no seepage.

48-162" 10YR7/6 Yellow loamy sand; subangular blocky, friable; 20-30% gravel; few, medium, faint mottling (10YR6/2 Light Brownish Gray) at 114"; moderate seepage at 150".

>162" Stop Test.

Tube Permeameter TP 2A performed at 72" (K= 11.8 in/hr)  
 Tube Permeameter TP 2B performed at 72" (K= 10.3 in/hr)

- 2a. If mottling give reason for mottling: Regional Groundwater Table
3. Ground Water Observations:  
☒ Seepage - Indicate Depth: 150"  
☐ Pit/Boring Flooded Depth after \_\_\_\_\_ hours = \_\_\_\_\_
4. Soil Limiting Zones:  
☐ Fractured Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Massive Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Excessively Coarse Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Excessively Coarse Substratum - Depth to Top: \_\_\_\_\_  
☐ Hydraulically Restrictive Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Hydraulically Restrictive Substratum - Depth to Top: \_\_\_\_\_  
☐ Perched Zone of Saturation - Depth Top to Bottom: \_\_\_\_\_  
☒ Regional Zone of Saturation - Depth to Top: 114"
5. Soil Suitability Classification: **I**
6. I hereby certify that the information furnished on Form 2b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Soil Evaluator *Mark B. Anderson* Date 08/02/2023

Signature of Professional Engineer *T* Date 08/02/2023

N.J. License No. 33806  
Theodore H. Bayer, PE  
Bayer-Risse Engineering, Inc.

Seal





## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block 44Lot 6

## Form 2b Soil Log and Interpretation

1. Log Number SL 0605-4 Method: ☒ Profile Pit ☐ Boring

2. Soil Log: Date Recorded: June 5, 2023

| Depth (Inches)<br>Top - Bottom | Munsell Color Name and Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragment, If Present; Structure; Moist or Dry Consistence; Mottling Abundance, Size and Contrast, If Present |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0-8"                           | Topsoil with fine roots.                                                                                                                                                                        |
| 8-44"                          | 7.5YR5/8 Strong Brown sandy loam; subangular blocky, friable; 10% gravel; no mottling; no seepage.                                                                                              |
| 48-162"                        | 10YR7/6 Yellow loamy sand; subangular blocky, friable; 20-30% gravel; few, medium, faint mottling (10YR7/2 Light Gray) at 102"; moderate seepage at 150".                                       |
| >162"                          | Stop Test.                                                                                                                                                                                      |

Tube Permeameter TP 10A performed at 72" (K= 8.4 in/hr)

Tube Permeameter TP 10B performed at 72" (K= 9.0 in/hr)

- 2a. If mottling give reason for mottling: Regional Groundwater Table
3. Ground Water Observations:  
☒ Seepage - Indicate Depth: 150"  
☐ Pit/Boring Flooded Depth after \_\_\_\_\_ hours = \_\_\_\_\_
4. Soil Limiting Zones:  
☐ Fractured Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Massive Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Excessively Coarse Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Excessively Coarse Substratum - Depth to Top: \_\_\_\_\_  
☐ Hydraulically Restrictive Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Hydraulically Restrictive Substratum - Depth to Top: \_\_\_\_\_  
☐ Perched Zone of Saturation - Depth Top to Bottom: \_\_\_\_\_  
☒ Regional Zone of Saturation - Depth to Top: 102"
5. Soil Suitability Classification: **I**
6. I hereby certify that the information furnished on Form 2b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Soil Evaluator Mark Anderson Date 08/02/2023Signature of Professional Engineer J Date 08/02/2023

N.J. License No. 33806  
Theodore H. Bayer, PE  
Bayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block **44**Lot **6**

## Form 2b Soil Log and Interpretation

1. Log Number **SL 0605-5** Method: ☒ Profile Pit ☐ Boring2. Soil Log: Date Recorded: **June 5, 2023**

| Depth (Inches)<br>Top - Bottom | Munsell Color Name and Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragment, If Present; Structure; Moist or Dry Consistence; Mottling Abundance, Size and Contrast, If Present |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0-8"                           | Topsoil with fine roots.                                                                                                                                                                        |
| 8-44"                          | 7.5YR5/8 Strong Brown sandy loam; subangular blocky, friable; 10% gravel; no mottling; no seepage.                                                                                              |
| 48-162"                        | 10YR7/6 Yellow loamy sand; subangular blocky, friable; 20-30% gravel; few, medium, faint mottling (10YR7/2 Light Gray) at 120"; moderate seepage at 138".                                       |
| >162"                          | Stop Test.                                                                                                                                                                                      |

Tube Permeameter TP 8A performed at 72" (K= 7.9 in/hr)

Tube Permeameter TP 8B performed at 72" (K= 9.4 in/hr)

2a. If mottling give reason for mottling: **Regional Groundwater Table**

3. Ground Water Observations:

☒ Seepage - Indicate Depth: **138"**☐ Pit/Boring Flooded Depth after \_\_\_\_\_ hours = \_\_\_\_\_

4. Soil Limiting Zones:

☐ Fractured Rock Substratum - Depth to Top: \_\_\_\_\_☐ Massive Rock Substratum - Depth to Top: \_\_\_\_\_☐ Excessively Coarse Horizon - Depth Top to Bottom: \_\_\_\_\_☐ Excessively Coarse Substratum - Depth to Top: \_\_\_\_\_☐ Hydraulically Restrictive Horizon - Depth Top to Bottom: \_\_\_\_\_☐ Hydraulically Restrictive Substratum - Depth to Top: \_\_\_\_\_☐ Perched Zone of Saturation - Depth Top to Bottom: \_\_\_\_\_☒ Regional Zone of Saturation - Depth to Top: **120"**5. Soil Suitability Classification: **I**

6. I hereby certify that the information furnished on Form 2b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Soil Evaluator



Date 08/02/2023

Signature of Professional Engineer



Date 08/02/2023

N.J. License No. **33806**

Theodore H. Bayer, PE

Bayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block **44**Lot **6**

## Form 2b Soil Log and Interpretation

1. Log Number **SL 0606-8** Method: ☒ Profile Pit ☐ Boring2. Soil Log: Date Recorded: **June 6, 2023**

| Depth (Inches)<br>Top - Bottom | Munsell Color Name and Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragment, If Present; Structure; Moist or Dry Consistence; Mottling Abundance, Size and Contrast, If Present |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0-8"                           | Topsoil with fine roots.                                                                                                                                                                        |
| 8-96"                          | 7.5YR5/6 Strong Brown sandy loam; subangular blocky, friable; 20-40% gravel; no mottling; no seepage.                                                                                           |
| 96-144"                        | 10YR6/8 Brownish Yellow loamy sand; subangular blocky, friable; <10% gravel; no mottling; moderate seepage at 126".                                                                             |
| >144"                          | Stop Test.                                                                                                                                                                                      |

Tube Permeameter TP 6A performed at 108" (K= 8.4 in/hr)

Tube Permeameter TP 6B performed at 108" (K= 8.6 in/hr)

2a. If mottling give reason for mottling: \_\_\_\_\_

3. Ground Water Observations:

☒ Seepage - Indicate Depth: **126"**☐ Pit/Boring Flooded Depth after \_\_\_\_\_ hours = \_\_\_\_\_

4. Soil Limiting Zones:

☐ Fractured Rock Substratum - Depth to Top: \_\_\_\_\_☐ Massive Rock Substratum - Depth to Top: \_\_\_\_\_☐ Excessively Coarse Horizon - Depth Top to Bottom: \_\_\_\_\_☐ Excessively Coarse Substratum - Depth to Top: \_\_\_\_\_☐ Hydraulically Restrictive Horizon - Depth Top to Bottom: \_\_\_\_\_☐ Hydraulically Restrictive Substratum - Depth to Top: \_\_\_\_\_☐ Perched Zone of Saturation - Depth Top to Bottom: \_\_\_\_\_☒ Regional Zone of Saturation - Depth to Top: **126"**5. Soil Suitability Classification: **I**

6. I hereby certify that the information furnished on Form 2b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Soil Evaluator

*Mark B. Anderson*

Date 08/02/2023

Signature of Professional Engineer

*T*

Date 08/02/2023

N.J. License No. **33806**

Theodore H. Bayer, PE

Bayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block 44

Lot 6

## Form 2b Soil Log and Interpretation

1. Log Number SL 0608-9 Method: ☒ Profile Pit ☐ Boring

2. Soil Log: Date Recorded: June 6, 2023

| Depth (Inches)<br>Top - Bottom | Munsell Color Name and Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragment, If Present; Structure; Moist or Dry Consistence; Mottling Abundance, Size and Contrast, If Present |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0-8"                           | Topsoil with fine roots.                                                                                                                                                                        |
| 8-96"                          | 7.5YR5/6 Strong Brown sandy loam; subangular blocky, friable; 20-40% gravel; no mottling; no seepage.                                                                                           |
| 96-144"                        | 10YR6/8 Brownish Yellow loamy sand; subangular blocky, friable; <10% gravel; common, medium, distinct mottling (10YR7/2 Light Gray) at 108"; moderate seepage at 138".                          |
| >144"                          | Stop Test.                                                                                                                                                                                      |

Tube Permeameter TP 14A performed at 72" (K= 7.5 in/hr)

Tube Permeameter TP 14B performed at 72" (K= 7.8 in/hr)

- 2a. If mottling give reason for mottling: Regional Groundwater Table
3. Ground Water Observations:  
☒ Seepage - Indicate Depth: 138"  
☐ Pit/Boring Flooded Depth after \_\_\_\_\_ hours = \_\_\_\_\_
4. Soil Limiting Zones:  
☐ Fractured Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Massive Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Excessively Coarse Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Excessively Coarse Substratum - Depth to Top: \_\_\_\_\_  
☐ Hydraulically Restrictive Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Hydraulically Restrictive Substratum - Depth to Top: \_\_\_\_\_  
☐ Perched Zone of Saturation - Depth Top to Bottom: \_\_\_\_\_  
☒ Regional Zone of Saturation - Depth to Top: 108"
5. Soil Suitability Classification: **I**
6. I hereby certify that the information furnished on Form 2b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Soil Evaluator Mark B. Anderson Date 08/02/2023Signature of Professional Engineer Theodore H. Bayer Date 08/02/2023

N.J. License No. 33806  
Theodore H. Bayer, PE  
Bayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block 44

Lot 6

## Form 2b Soil Log and Interpretation

1. Log Number SL 0606-10 Method: ☒ Profile Pit ☐ Boring

2. Soil Log: Date Recorded: June 6, 2023

Depth (Inches) | Munsell Color Name and Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragment, Top - Bottom | If Present; Structure; Moist or Dry Consistence; Mottling Abundance, Size and Contrast, If Present

0-8" Topsoil with fine roots.

8-48" 7.5YR5/6 Strong Brown sandy loam; subangular blocky, friable; 20-40% gravel; no mottling; no seepage.

48-90" 10YR7/6 Yellow loamy sand; subangular blocky, friable; 10-20% gravel; no mottling; no seepage.

90-144" 10YR7/6 Yellow sandy loam; subangular blocky, friable; <10% gravel; no mottling; no seepage.

>144" Stop Test.

Tube Permeameter TP 3A performed at 72" (K= 19.1 in/hr)  
 Tube Permeameter TP 3B performed at 72" (K= 14.3 in/hr)  
 Tube Permeameter TP 7A performed at 102" (K= 11.1 in/hr)  
 Tube Permeameter TP 7B performed at 102" (K= 13.4 in/hr)

2a. If mottling give reason for mottling: \_\_\_\_\_

3. Ground Water Observations:  
☐ Seepage - Indicate Depth: \_\_\_\_\_  
☐ Pit/Boring Flooded Depth after \_\_\_\_\_ hours = \_\_\_\_\_

4. Soil Limiting Zones:  
☐ Fractured Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Massive Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Excessively Coarse Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Excessively Coarse Substratum - Depth to Top: \_\_\_\_\_  
☐ Hydraulically Restrictive Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Hydraulically Restrictive Substratum - Depth to Top: \_\_\_\_\_  
☐ Perched Zone of Saturation - Depth Top to Bottom: \_\_\_\_\_  
☐ Regional Zone of Saturation - Depth to Top: \_\_\_\_\_

5. Soil Suitability Classification: **I**

6. I hereby certify that the information furnished on Form 2b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Soil Evaluator Mark B. Anderson Date 08/02/2023

Signature of Professional Engineer J Date 08/02/2023

N.J. License No. 33806  
Theodore H. Bayer, PE  
Bayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block 44

Lot 6

## Form 2b Soil Log and Interpretation

1. Log Number SL 0606-11 Method: ☒ Profile Pit ☐ Boring

2. Soil Log: Date Recorded: June 6, 2023

Depth (Inches) | Munsell Color Name and Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragment, Top - Bottom | If Present; Structure; Moist or Dry Consistence; Mottling Abundance, Size and Contrast, If Present

0-8" Topsoil with fine roots.

8-90" 7.5YR5/6 Strong Brown sandy loam; subangular blocky, friable; 20-30% gravel; no mottling; no seepage.

90-144" 10YR6/8 Brownish Yellow loamy sand; subangular blocky, friable; <10% gravel; no mottling; moderate seepage at 138".

>144" Stop Test.

Tube Permeameter TP 12A performed at 96" (K= 14.9 in/hr)

Tube Permeameter TP 12B performed at 96" (K= 13.4 in/hr)

- 2a. If mottling give reason for mottling: \_\_\_\_\_
3. Ground Water Observations:  
☒ Seepage - Indicate Depth: 138"  
☐ Pit/Boring Flooded Depth after \_\_\_\_\_ hours = \_\_\_\_\_
4. Soil Limiting Zones:  
☐ Fractured Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Massive Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Excessively Coarse Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Excessively Coarse Substratum - Depth to Top: \_\_\_\_\_  
☐ Hydraulically Restrictive Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Hydraulically Restrictive Substratum - Depth to Top: \_\_\_\_\_  
☐ Perched Zone of Saturation - Depth Top to Bottom: \_\_\_\_\_  
☒ Regional Zone of Saturation - Depth to Top: 138"
5. Soil Suitability Classification: **I**
6. I hereby certify that the information furnished on Form 2b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Soil Evaluator Mark B. Anderson Date 08/02/2023Signature of Professional Engineer [Signature] Date 08/02/2023

N.J. License No. 33806  
Theodore H. Bayer, PE  
Bayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block **44**Lot **6**

## Form 2b Soil Log and Interpretation

1. Log Number **SL 0606-12** Method: ☒ Profile Pit ☐ Boring

2. Soil Log: Date Recorded: **June 6, 2023**

Depth (Inches) | Munsell Color Name and Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragment, Top - Bottom | If Present; Structure; Moist or Dry Consistence; Mottling Abundance, Size and Contrast, If Present

**0-8"** Topsoil with fine roots.

**8-36"** 7.5YR5/6 Strong Brown sandy loam; subangular blocky, friable; 10-20% gravel; no mottling; no seepage.

**36-72"** 7.5YR5/6 Strong Brown loamy sand; subangular blocky, friable; 30-40% gravel; no mottling; no seepage.

**72-132"** 10YR6/8 Brownish Yellow sand; subangular blocky, friable; <10% gravel; few, fine, faint mottling (10YR7/2 Light Gray) at 72"; moderate seepage at 102".

**>132"** Stop Test.

Tube Permeameter TP 5A performed at 54" (K= 14.4 in/hr)  
 Tube Permeameter TP 5B performed at 54" (K= 16.9 in/hr)  
 Tube Permeameter TP 13A performed at 96" (K= 17.7 in/hr)  
 Tube Permeameter TP 13B performed at 96" (K= 18.5 in/hr)

2a. If mottling give reason for mottling: **Regional Groundwater Table**

3. Ground Water Observations:  
☒ Seepage - Indicate Depth: **102"**  
☐ Pit/Boring Flooded Depth after \_\_\_\_\_ hours = \_\_\_\_\_

4. Soil Limiting Zones:  
☐ Fractured Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Massive Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Excessively Coarse Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Excessively Coarse Substratum - Depth to Top: \_\_\_\_\_  
☐ Hydraulically Restrictive Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Hydraulically Restrictive Substratum - Depth to Top: \_\_\_\_\_  
☐ Perched Zone of Saturation - Depth Top to Bottom: \_\_\_\_\_  
☒ Regional Zone of Saturation - Depth to Top: **72"**

5. Soil Suitability Classification: **I**

6. I hereby certify that the information furnished on Form 2b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Soil Evaluator *Mark B. Anderson* Date **08/02/2023**

Signature of Professional Engineer *J.* Date **08/02/2023**

N.J. License No. **33806**  
Theodore H. Bayer, PE  
Bayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block **44**Lot **6**

## Form 2b Soil Log and Interpretation

1. Log Number **SL 0607-13** Method: ☒ Profile Pit ☐ Boring

2. Soil Log: Date Recorded: **June 7, 2023**

| Depth (Inches)<br>Top - Bottom | Munsell Color Name and Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragment, If Present; Structure; Moist or Dry Consistence; Mottling Abundance, Size and Contrast, If Present |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0-8"                           | Topsoil with fine roots.                                                                                                                                                                        |
| 8-60"                          | 7.5YR6/8 Reddish Yellow sandy loam; subangular blocky, friable; 20-30% gravel; few, fine, faint mottling (7.5YR6/2 Pinkish Gray) at 48"; no seepage.                                            |
| 60-144"                        | 5YR5/8 Yellowish Red loamy sand; subangular blocky, friable; <10% gravel; no mottling; moderate seepage at 96".                                                                                 |
| >144"                          | Stop Test.                                                                                                                                                                                      |

0-8" Topsoil with fine roots.

8-60" 7.5YR6/8 Reddish Yellow sandy loam; subangular blocky, friable; 20-30% gravel; few, fine, faint mottling (7.5YR6/2 Pinkish Gray) at 48"; no seepage.

60-144" 5YR5/8 Yellowish Red loamy sand; subangular blocky, friable; <10% gravel; no mottling; moderate seepage at 96".

>144" Stop Test.

2a. If mottling give reason for mottling: **Regional Groundwater Table**

3. Ground Water Observations:  
☒ Seepage - Indicate Depth: **96"**  
☐ Pit/Boring Flooded Depth after \_\_\_\_\_ hours = \_\_\_\_\_

4. Soil Limiting Zones:  
☐ Fractured Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Massive Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Excessively Coarse Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Excessively Coarse Substratum - Depth to Top: \_\_\_\_\_  
☐ Hydraulically Restrictive Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Hydraulically Restrictive Substratum - Depth to Top: \_\_\_\_\_  
☐ Perched Zone of Saturation - Depth Top to Bottom: \_\_\_\_\_  
☒ Regional Zone of Saturation - Depth to Top: **48"**

5. Soil Suitability Classification: **IIWr**

6. I hereby certify that the information furnished on Form 2b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Soil Evaluator *Mark B. Anderson* Date 08/02/2023

Signature of Professional Engineer *T* Date 08/02/2023

N.J. License No. 33806  
Theodore H. Bayer, PE  
Bayer-Risse Engineering, Inc.

Seal





## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block 44

Lot 6

## Form 2b Soil Log and Interpretation

1. Log Number SL 0607-14 Method: ☒ Profile Pit ☐ Boring
2. Soil Log: Date Recorded: June 7, 2023
- | Depth (Inches)<br>Top - Bottom | Munsell Color Name and Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragment, If Present; Structure; Moist or Dry Consistence; Mottling Abundance, Size and Contrast, If Present |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0-6"                           | Topsoil with fine roots.                                                                                                                                                                        |
| 6-60"                          | 7.5YR6/8 Reddish Yellow sandy loam; subangular blocky, friable; 20-30% gravel; no mottling; no seepage.                                                                                         |
| 60-132"                        | 5YR5/8 Yellowish Red loamy sand; subangular blocky, friable; <10% gravel; few, fine, faint mottling (7.5YR6/2 Pinkish Gray) at 72"; moderate seepage at 90".                                    |
| >132"                          | Stop Test.                                                                                                                                                                                      |
- 2a. If mottling give reason for mottling: Regional Groundwater Table
3. Ground Water Observations:  
☒ Seepage - Indicate Depth: 90"  
☐ Pit/Boring Flooded Depth after \_\_\_\_\_ hours = \_\_\_\_\_
4. Soil Limiting Zones:  
☐ Fractured Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Massive Rock Substratum - Depth to Top: \_\_\_\_\_  
☐ Excessively Coarse Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Excessively Coarse Substratum - Depth to Top: \_\_\_\_\_  
☐ Hydraulically Restrictive Horizon - Depth Top to Bottom: \_\_\_\_\_  
☐ Hydraulically Restrictive Substratum - Depth to Top: \_\_\_\_\_  
☐ Perched Zone of Saturation - Depth Top to Bottom: \_\_\_\_\_  
☒ Regional Zone of Saturation - Depth to Top: 72"
5. Soil Suitability Classification: **I**
6. I hereby certify that the information furnished on Form 2b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Soil Evaluator



Date 08/02/2023

Signature of Professional Engineer



Date 08/02/2023

N.J. License No. 33806

Theodore H. Bayer, PE

Bayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block 44Lot 6

## Form 2b Soil Log and Interpretation

1. Log Number SL 0607-15 Method: ☒ Profile Pit ☐ Boring

2. Soil Log: Date Recorded: June 7, 2023

| Depth (Inches)<br>Top - Bottom | Munsell Color Name and Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragment, If Present; Structure; Moist or Dry Consistence; Mottling Abundance, Size and Contrast, If Present |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0-4"                           | Topsoil with fine roots.                                                                                                                                                                        |
| 4-120"                         | 10YR6/8 Brownish Yellow loamy sand; subangular blocky, friable; <10% gravel; fine roots; common, medium, faint mottling (10YR7/2 Light Gray) at 66" and below; moderate seepage at 102".        |
| >120"                          | Stop Test.                                                                                                                                                                                      |

0-4" Topsoil with fine roots.

4-120" 10YR6/8 Brownish Yellow loamy sand; subangular blocky, friable; <10% gravel; fine roots; common, medium, faint mottling (10YR7/2 Light Gray) at 66" and below; moderate seepage at 102".

>120" Stop Test.

2a. If mottling give reason for mottling: Regional Groundwater Table

3. Ground Water Observations:

☒ Seepage - Indicate Depth: 102"

☐ Pit/Boring Flooded Depth after \_\_\_\_\_ hours = \_\_\_\_\_

4. Soil Limiting Zones:

☐ Fractured Rock Substratum - Depth to Top: \_\_\_\_\_

☐ Massive Rock Substratum - Depth to Top: \_\_\_\_\_

☐ Excessively Coarse Horizon - Depth Top to Bottom: \_\_\_\_\_

☐ Excessively Coarse Substratum - Depth to Top: \_\_\_\_\_

☐ Hydraulically Restrictive Horizon - Depth Top to Bottom: \_\_\_\_\_

☐ Hydraulically Restrictive Substratum - Depth to Top: \_\_\_\_\_

☐ Perched Zone of Saturation - Depth Top to Bottom: \_\_\_\_\_

☒ Regional Zone of Saturation - Depth to Top: 66"

5. Soil Suitability Classification: I

6. I hereby certify that the information furnished on Form 2b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Soil Evaluator

Mark B. Anderson

Date 08/02/2023

Signature of Professional Engineer

Theodore H. Bayer

Date 08/02/2023

N.J. License No. 33806

Theodore H. Bayer, PE

Bayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block 44

Lot 6

## Form 2b Soil Log and Interpretation

1. Log Number SL 0607-16 Method: ☒ Profile Pit ☐ Boring

2. Soil Log: Date Recorded: June 7, 2023

| Depth (Inches)<br>Top - Bottom | Munsell Color Name and Symbol; Estimated Textural Class; Estimated Volume % Coarse Fragment, If Present; Structure; Moist or Dry Consistence; Mottling Abundance, Size and Contrast, If Present    |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0-4"                           | Topsoil with fine roots.                                                                                                                                                                           |
| 4-24"                          | 10YR7/4 Very Pale Brown loamy sand; subangular blocky, friable; <10% gravel; fine roots; no mottling; no seepage.                                                                                  |
| 24-120"                        | 10YR6/8 Brownish Yellow loamy sand; subangular blocky, friable; <10% gravel; fine roots; common, medium, distinct mottling (10YR7/2 Light Gray and 10YR8/1 White) at 52"; moderate seepage at 90". |
| >120"                          | Stop Test.                                                                                                                                                                                         |

Tube Permeameter TP 15A performed at 48" (K= 16.4 in/hr)

Tube Permeameter TP 15B performed at 48" (K= 18.8 in/hr)

Tube Permeameter TP 17A performed at 78" (K= 11.4 in/hr)

Tube Permeameter TP 17B performed at 78" (K= 13.9 in/hr)

2a. If mottling give reason for mottling: Regional Groundwater Table

3. Ground Water Observations:

☒ Seepage - Indicate Depth: 90"

☐ Pit/Boring Flooded Depth after \_\_\_\_\_ hours = \_\_\_\_\_

4. Soil Limiting Zones:

☐ Fractured Rock Substratum - Depth to Top: \_\_\_\_\_

☐ Massive Rock Substratum - Depth to Top: \_\_\_\_\_

☐ Excessively Coarse Horizon - Depth Top to Bottom: \_\_\_\_\_

☐ Excessively Coarse Substratum - Depth to Top: \_\_\_\_\_

☐ Hydraulically Restrictive Horizon - Depth Top to Bottom: \_\_\_\_\_

☐ Hydraulically Restrictive Substratum - Depth to Top: \_\_\_\_\_

☐ Perched Zone of Saturation - Depth Top to Bottom: \_\_\_\_\_

☒ Regional Zone of Saturation - Depth to Top: 52"

5. Soil Suitability Classification: **I**

6. I hereby certify that the information furnished on Form 2b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Soil Evaluator

Mark B. Anderson

Date 08/02/2023

Signature of Professional Engineer

T

Date 08/02/2023

N.J. License No. 33806

Theodore H. Bayer, PE

Bayer-Risse Engineering, Inc.

Seal



**STORMWATER PERMEABILITY TEST****TOWNSHIP OF ELK / GLOUCESTER COUNTY**      **Block 44**      **Lot 6****Form 3a. Soil Permeability Data (Page 1 of 2)**

Assign a number for each test and a letter for each test replicate. Show test data and calculations on Form 3b, 3c, 3d, 3e, 3f, or 3g. Use one sheet for each separate test or test replicate.

1. Summary of Data - Enter data for each test replicate on a separate line.

| Type of Test     | Test (Number) | Replicate (Letter) | Depth (Inches) | Result*    |
|------------------|---------------|--------------------|----------------|------------|
| Tube Permeameter | TP 4          | A                  | 72"            | 8.6 in/hr  |
| Tube Permeameter | TP 4          | B                  | 72"            | 8.4 in/hr  |
| Tube Permeameter | TP 11         | A                  | 98"            | 15.1 in/hr |
| Tube Permeameter | TP 11         | B                  | 98"            | 15.9 in/hr |
| Tube Permeameter | TP 2          | A                  | 72"            | 11.8 in/hr |
| Tube Permeameter | TP 2          | B                  | 72"            | 10.3 in/hr |
| Tube Permeameter | TP 10         | A                  | 72"            | 8.4 in/hr  |
| Tube Permeameter | TP 10         | B                  | 72"            | 9.0 in/hr  |
| Tube Permeameter | TP 8          | A                  | 72"            | 7.9 in/hr  |
| Tube Permeameter | TP 8          | B                  | 72"            | 9.4 in/hr  |
| Tube Permeameter | TP 6          | A                  | 102"           | 8.4 in/hr  |
| Tube Permeameter | TP 6          | B                  | 102"           | 8.6 in/hr  |
| Tube Permeameter | TP 14         | A                  | 72"            | 7.5 in/hr  |
| Tube Permeameter | TP 14         | B                  | 72"            | 7.8 in/hr  |
| Tube Permeameter | TP 3          | A                  | 72"            | 19.1 in/hr |
| Tube Permeameter | TP 3          | B                  | 72"            | 14.3 in/hr |
| Tube Permeameter | TP 7          | A                  | 102"           | 11.1 in/hr |
| Tube Permeameter | TP 7          | B                  | 102"           | 13.4 in/hr |
| Tube Permeameter | TP 12         | A                  | 96"            | 14.9 in/hr |
| Tube Permeameter | TP 12         | B                  | 96"            | 13.4 in/hr |
| Tube Permeameter | TP 5          | A                  | 54"            | 14.4 in/hr |
| Tube Permeameter | TP 5          | B                  | 54"            | 16.9 in/hr |
| Tube Permeameter | TP 13         | A                  | 96"            | 17.7 in/hr |
| Tube Permeameter | TP 13         | B                  | 96"            | 18.5 in/hr |
| Tube Permeameter | TP 15         | A                  | 48"            | 16.4 in/hr |
| Tube Permeameter | TP 15         | B                  | 48"            | 18.8 in/hr |
| Tube Permeameter | TP 17         | A                  | 78"            | 11.4 in/hr |
| Tube Permeameter | TP 17         | B                  | 78"            | 13.9 in/hr |

\*For tube permeameter, pit bailing, and piezometer tests, report results in inches per hour. For Soil permeability class rating, give soil permeability class number. For percolation test report result in minutes per inch. For basin flooding test report result as positive if basin drains completely within 24 hours of second filling, negative otherwise.

2. Design Permeability/Percolation Rate: Specify Test Number: \_\_\_\_\_  
☐ Average of Test Replicates      ☐ Single Replicate  
☐ Slowest Replicate
3. Type of Limiting Zone Identified Test Number \_\_\_\_\_

## STORMWATER PERMEABILITY TEST

**TOWNSHIP OF ELK / GLOUCESTER COUNTY**      **Block 44**      **Lot 6**  
**Form 3a. Soil Permeability Data (Page 2 of 2)**

## 4. Attachments (Check items included):

- ☒ Form 3b - Tube Permeameter Test Data - Number of Sheets: **28**  
☐ Form 3c - Soil Permeability Class Rating Test Data - Number of Sheets: \_\_\_\_\_  
☐ Form 3d - Percolation Test Data - Number of Sheets: \_\_\_\_\_  
☐ Form 3e - Piezometer Test Data - Number of Sheets: \_\_\_\_\_  
☐ Form 3f - Pit Bailing Test Data - Number of Sheets: \_\_\_\_\_  
☐ Form 3g - Basin Flooding Test Data - Number of Sheets: \_\_\_\_\_

## 5. I hereby certify that the information furnished on Form 3a of this application (and the attachments thereto) is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator \_\_\_\_\_ Date 08/02/2023

Signature of Professional Engineer \_\_\_\_\_ Date 08/02/2023

Seal

N.J. License No. 33806  
Theodore H. Bayer, PE  
Bayer-Risse Engineering, Inc.



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block **44**Lot **6**

## Form 3b. Tube Permeameter Test Data:

I. Test Number: **TP 4** Replicate (Letter): **A** Date Tested: **06/05/2023**II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: **72"**III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: **2.54**Length of Sample, L, in inches: **3.0**

V. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VI. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: **0.635**

VII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : **10**At the end of each test interval,  $H_2$ : **8**

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| <b>0:00:00</b>                        | <b>0:00:17</b>                      | <b>0.29</b>                            |
| <b>0:00:00</b>                        | <b>0:00:17</b>                      | <b>0.29</b>                            |
| <b>0:00:00</b>                        | <b>0:00:17</b>                      | <b>0.29</b>                            |
| <b>0:00:00</b>                        | <b>0:00:17</b>                      | <b>0.29</b>                            |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{3.0/0.29} \times \ln(10/8) = \underline{8.6 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator

Date **08/02/2023**

Signature of Professional Engineer

Date **08/02/2023**N.J. License No. **33806**

Seal

**Theodore H. Bayer, PE****Bayer-Risse Engineering, Inc.**

## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block **44**Lot **6**

## Form 3b. Tube Permeameter Test Data:

I. Test Number: **TP 4** Replicate (Letter): **B** Date Tested: **06/05/2023**II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: **72"**III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: **2.54**Length of Sample, L, in inches: **3.0**

V. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VI. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: **0.635**

VII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : **10**At the end of each test interval,  $H_2$ : **8**

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| <b>0:00:00</b>                        | <b>0:00:18</b>                      | <b>0.3</b>                             |
| <b>0:00:00</b>                        | <b>0:00:18</b>                      | <b>0.3</b>                             |
| <b>0:00:00</b>                        | <b>0:00:18</b>                      | <b>0.3</b>                             |
| <b>0:00:00</b>                        | <b>0:00:18</b>                      | <b>0.3</b>                             |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \frac{0.635^2}{2.54^2} \times \frac{3.0}{0.3} \times \ln(10/8) = \underline{\underline{8.4 \text{ in/hr}}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator

Date **08/02/2023**

Signature of Professional Engineer

Date **08/02/2023**N.J. License No. **33806**

Seal

**Theodore H. Bayer, PE****Bayer-Risse Engineering, Inc.**

## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

I. Test Number: TP 11 Replicate (Letter): A Date Tested: 06/05/2023II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 98"III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 3.0

V. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VI. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

VII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 10At the end of each test interval,  $H_2$ : 8

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:10                             | 0.17                                   |
| 0:00:00                               | 0:00:10                             | 0.17                                   |
| 0:00:00                               | 0:00:10                             | 0.17                                   |
| 0:00:00                               | 0:00:10                             | 0.17                                   |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{3.0/0.17} \times \ln(\underline{10/8}) = \underline{15.1 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator

Mark AndersonDate 08/02/2023

Signature of Professional Engineer

Theodore H. BayerDate 08/02/2023N.J. License No. 33806

Seal

Theodore H. Bayer, PEBayer-Risse Engineering, Inc.



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

I. Test Number: TP 11 Replicate (Letter): B Date Tested: 06/05/2023II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 98"III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 3.0

V. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VI. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

VII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 10At the end of each test interval,  $H_2$ : 8

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:09                             | 0.16                                   |
| 0:00:00                               | 0:00:09                             | 0.16                                   |
| 0:00:00                               | 0:00:09                             | 0.16                                   |
| 0:00:00                               | 0:00:09                             | 0.16                                   |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times 0.635^2/2.54^2 \times 3.0/0.16 \times \ln(10/8) = 15.9 \text{ in/hr}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator Mark B. Anderson Date 08/02/2023Signature of Professional Engineer Theodore H. Bayer Date 08/02/2023N.J. License No. 33806Theodore H. Bayer, PEBayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

I. Test Number: TP 2 Replicate (Letter): A Date Tested: 06/05/2023II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 72"III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 4.0

V. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VI. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

VII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 10At the end of each test interval,  $H_2$ : 8

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:17                             | 0.28                                   |
| 0:00:00                               | 0:00:17                             | 0.28                                   |
| 0:00:00                               | 0:00:17                             | 0.28                                   |
| 0:00:00                               | 0:00:17                             | 0.28                                   |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{4.0/0.28} \times \ln(\underline{10/8}) = \underline{11.8 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator Mark B. Anderson Date 08/02/2023Signature of Professional Engineer Theodore H. Bayer Date 08/02/2023N.J. License No. 33806Theodore H. Bayer, PEBayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

I. Test Number: TP 2 Replicate (Letter): B Date Tested: 06/05/2023II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 72"III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 3.5

V. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VI. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

VII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 10At the end of each test interval,  $H_2$ : 8

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:17                             | 0.28                                   |
| 0:00:00                               | 0:00:17                             | 0.28                                   |
| 0:00:00                               | 0:00:17                             | 0.28                                   |
| 0:00:00                               | 0:00:17                             | 0.28                                   |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{3.5/0.28} \times \ln(\underline{10/8}) = \underline{10.3 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator Mark Anderson Date 08/02/2023Signature of Professional Engineer Theodore H. Bayer Date 08/02/2023N.J. License No. 33806Theodore H. Bayer, PEBayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

I. Test Number: TP 10 Replicate (Letter): A Date Tested: 06/05/2023II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 72"III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 2.5

V. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VI. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

VII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 10At the end of each test interval,  $H_2$ : 8

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:15                             | 0.25                                   |
| 0:00:00                               | 0:00:15                             | 0.25                                   |
| 0:00:00                               | 0:00:15                             | 0.25                                   |
| 0:00:00                               | 0:00:15                             | 0.25                                   |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{2.5/0.25} \times \ln(\underline{10/8}) = \underline{8.4 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator Mark B. Anderson Date 08/02/2023Signature of Professional Engineer [Signature] Date 08/02/2023N.J. License No. 33806Theodore H. Bayer, PEBayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

I. Test Number: TP 10 Replicate (Letter): B Date Tested: 06/05/2023II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 72"III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 2.5

V. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VI. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

VII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 10At the end of each test interval,  $H_2$ : 8

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:14                             | 0.23                                   |
| 0:00:00                               | 0:00:14                             | 0.23                                   |
| 0:00:00                               | 0:00:14                             | 0.23                                   |
| 0:00:00                               | 0:00:14                             | 0.23                                   |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times 0.635^2/2.54^2 \times 2.5/0.23 \times \ln(10/8) = 9.0 \text{ in/hr}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator Mark B. Anderson Date 08/02/2023Signature of Professional Engineer [Signature] Date 08/02/2023N.J. License No. 33806

Theodore H. Bayer, PE

Bayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

I. Test Number: TP 8 Replicate (Letter): A Date Tested: 06/05/2023II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 72"III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 3.0

V. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VI. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

VII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 10At the end of each test interval,  $H_2$ : 8

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:19                             | 0.32                                   |
| 0:00:00                               | 0:00:19                             | 0.32                                   |
| 0:00:00                               | 0:00:19                             | 0.32                                   |
| 0:00:00                               | 0:00:19                             | 0.32                                   |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{3.0/0.32} \times \ln(\underline{10/8}) = \underline{7.9 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator Mark B. Anderson Date 08/02/2023Signature of Professional Engineer [Signature] Date 08/02/2023N.J. License No. 33806Theodore H. Bayer, PEBayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

I. Test Number: TP 8 Replicate (Letter): B Date Tested: 06/05/2023II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 72"III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 3.0

V. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VI. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

VII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 10At the end of each test interval,  $H_2$ : 8

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:16                             | 0.27                                   |
| 0:00:00                               | 0:00:16                             | 0.27                                   |
| 0:00:00                               | 0:00:16                             | 0.27                                   |
| 0:00:00                               | 0:00:16                             | 0.27                                   |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{3.0/0.27} \times \ln(\underline{10/8}) = \underline{9.4 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator Mark B. Anderson Date 08/02/2023Signature of Professional Engineer [Signature] Date 08/02/2023N.J. License No. 33806Theodore H. Bayer, PEBayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block **44**Lot **6**

## Form 3b. Tube Permeameter Test Data:

I. Test Number: **TP 6** Replicate (Letter): **A** Date Tested: **06/05/2023**II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: **108"**III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: **2.54**Length of Sample, L, in inches: **3.0**

V. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VI. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: **0.635**

VII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : **10**At the end of each test interval,  $H_2$ : **8**

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| <b>0:00:00</b>                        | <b>0:00:18</b>                      | <b>0.30</b>                            |
| <b>0:00:00</b>                        | <b>0:00:18</b>                      | <b>0.30</b>                            |
| <b>0:00:00</b>                        | <b>0:00:18</b>                      | <b>0.30</b>                            |
| <b>0:00:00</b>                        | <b>0:00:18</b>                      | <b>0.30</b>                            |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

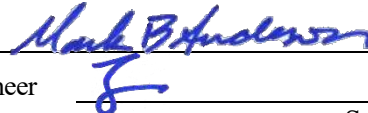
$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{3.0/0.30} \times \ln(\underline{10/8}) = \underline{8.4 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator


Date **08/02/2023**

Signature of Professional Engineer


Date **08/02/2023**N.J. License No. **33806**

Seal

Theodore H. Bayer, PEBayer-Risse Engineering, Inc.



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

I. Test Number: TP 6 Replicate (Letter): B Date Tested: 06/05/2023II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 108"III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 3.0

V. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VI. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

VII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 10At the end of each test interval,  $H_2$ : 8

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:17                             | 0.29                                   |
| 0:00:00                               | 0:00:17                             | 0.29                                   |
| 0:00:00                               | 0:00:17                             | 0.29                                   |
| 0:00:00                               | 0:00:17                             | 0.29                                   |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{3.0/0.29} \times \ln(\underline{10/8}) = \underline{8.6 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator Mark B. Anderson Date 08/02/2023Signature of Professional Engineer [Signature] Date 08/02/2023N.J. License No. 33806Theodore H. Bayer, PEBayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

I. Test Number: TP 14 Replicate (Letter): A Date Tested: 06/05/2023II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 72"III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 3.0

V. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VI. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

VII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 10At the end of each test interval,  $H_2$ : 8

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:20                             | 0.33                                   |
| 0:00:00                               | 0:00:20                             | 0.33                                   |
| 0:00:00                               | 0:00:20                             | 0.33                                   |
| 0:00:00                               | 0:00:20                             | 0.33                                   |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times 0.635^2/2.54^2 \times 3.0/0.33 \times \ln(10/8) = 7.5 \text{ in/hr}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator Mark B. Anderson Date 08/02/2023Signature of Professional Engineer [Signature] Date 08/02/2023N.J. License No. 33806

Theodore H. Bayer, PE

Bayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

I. Test Number: TP 14 Replicate (Letter): B Date Tested: 06/05/2023II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 72"III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 3.0

V. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VI. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

VII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 10At the end of each test interval,  $H_2$ : 8

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:19                             | 0.32                                   |
| 0:00:00                               | 0:00:19                             | 0.32                                   |
| 0:00:00                               | 0:00:19                             | 0.32                                   |
| 0:00:00                               | 0:00:19                             | 0.32                                   |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

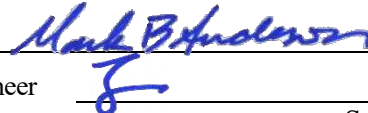
$$K (\text{in/hr}) = 60 \text{ min/hr} \times 0.635^2/2.54^2 \times 3.0/0.32 \times \ln(10/8) = 7.8 \text{ in/hr}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator


Date 08/02/2023

Signature of Professional Engineer


Date 08/02/2023N.J. License No. 33806

Seal

Theodore H. Bayer, PEBayer-Risse Engineering, Inc.

## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

I. Test Number: TP 3 Replicate (Letter): A Date Tested: 06/05/2023II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 72"III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 4.0

V. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VI. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

VII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 10At the end of each test interval,  $H_2$ : 8

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:10                             | 0.18                                   |
| 0:00:00                               | 0:00:10                             | 0.18                                   |
| 0:00:00                               | 0:00:10                             | 0.18                                   |
| 0:00:00                               | 0:00:10                             | 0.18                                   |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times 0.635^2/2.54^2 \times 4.0/0.18 \times \ln(10/8) = 19.1 \text{ in/hr}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator Mark B. Anderson Date 08/02/2023Signature of Professional Engineer [Signature] Date 08/02/2023N.J. License No. 33806

Theodore H. Bayer, PE

Bayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block **44**Lot **6**

## Form 3b. Tube Permeameter Test Data:

I. Test Number: **TP 3** Replicate (Letter): **B** Date Tested: **06/05/2023**II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: **72"**III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: **2.54**Length of Sample, L, in inches: **3.0**

V. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VI. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: **0.635**

VII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : **10**At the end of each test interval,  $H_2$ : **8**

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| <b>0:00:00</b>                        | <b>0:00:10</b>                      | <b>0.18</b>                            |
| <b>0:00:00</b>                        | <b>0:00:10</b>                      | <b>0.18</b>                            |
| <b>0:00:00</b>                        | <b>0:00:10</b>                      | <b>0.18</b>                            |
| <b>0:00:00</b>                        | <b>0:00:10</b>                      | <b>0.18</b>                            |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{3.0/0.18} \times \ln(10/8) = \underline{14.3 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator

Date **08/02/2023**

Signature of Professional Engineer

Date **08/02/2023**N.J. License No. **33806**

Seal

**Theodore H. Bayer, PE****Bayer-Risse Engineering, Inc.**

## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block **44**Lot **6**

## Form 3b. Tube Permeameter Test Data:

I. Test Number: **TP 7** Replicate (Letter): **A** Date Tested: **06/05/2023**II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: **102"**III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: **2.54**Length of Sample, L, in inches: **3.0**

VI. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VII. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: **0.635**

VIII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : **8**At the end of each test interval,  $H_2$ : **6**

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| <b>0:00:00</b>                        | <b>0:00:17</b>                      | <b>0.29</b>                            |
| <b>0:00:00</b>                        | <b>0:00:17</b>                      | <b>0.29</b>                            |
| <b>0:00:00</b>                        | <b>0:00:17</b>                      | <b>0.29</b>                            |
| <b>0:00:00</b>                        | <b>0:00:17</b>                      | <b>0.29</b>                            |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{3.0/0.29} \times \ln(8/6) = \underline{11.1 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator

Date **08/02/2023**

Signature of Professional Engineer

Date **08/02/2023**N.J. License No. **33806**

Seal

**Theodore H. Bayer, PE****Bayer-Risse Engineering, Inc.**

## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

I. Test Number: TP 7 Replicate (Letter): B Date Tested: 06/05/2023II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 102"III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 3.0

VI. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VII. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

VIII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 8At the end of each test interval,  $H_2$ : 6

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:14                             | 0.24                                   |
| 0:00:00                               | 0:00:14                             | 0.24                                   |
| 0:00:00                               | 0:00:14                             | 0.24                                   |
| 0:00:00                               | 0:00:14                             | 0.24                                   |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times 0.635^2/2.54^2 \times 3.0/0.24 \times \ln(8/6) = 13.4 \text{ in/hr}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator Mark B. Anderson Date 08/02/2023Signature of Professional Engineer Theodore H. Bayer Date 08/02/2023N.J. License No. 33806

Theodore H. Bayer, PE

Bayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

I. Test Number: TP 12 Replicate (Letter): A Date Tested: 06/05/2023II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 96"III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 3.0

VI. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VII. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

VIII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 8At the end of each test interval,  $H_2$ : 6

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:13                             | 0.22                                   |
| 0:00:00                               | 0:00:13                             | 0.22                                   |
| 0:00:00                               | 0:00:13                             | 0.22                                   |
| 0:00:00                               | 0:00:13                             | 0.22                                   |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{3.0/0.22} \times \ln(\underline{8/6}) = \underline{14.9 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator Mark B. Anderson Date 08/02/2023Signature of Professional Engineer [Signature] Date 08/02/2023N.J. License No. 33806Theodore H. Bayer, PEBayer-Risse Engineering, Inc.

Seal





## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

I. Test Number: TP 12 Replicate (Letter): B Date Tested: 06/05/2023II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 96"III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 3.0

VI. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VII. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

VIII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 8At the end of each test interval,  $H_2$ : 6

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:14                             | 0.24                                   |
| 0:00:00                               | 0:00:14                             | 0.24                                   |
| 0:00:00                               | 0:00:14                             | 0.24                                   |
| 0:00:00                               | 0:00:14                             | 0.24                                   |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{3.0/0.24} \times \ln(8/6) = \underline{13.4 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator Mark B. Anderson Date 08/02/2023Signature of Professional Engineer [Signature] Date 08/02/2023N.J. License No. 33806

Theodore H. Bayer, PE

Bayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

I. Test Number: TP 5 Replicate (Letter): A Date Tested: 06/05/2023II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 54"III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 2.0

VI. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VII. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

VIII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 8At the end of each test interval,  $H_2$ : 6

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:09                             | 0.15                                   |
| 0:00:00                               | 0:00:09                             | 0.15                                   |
| 0:00:00                               | 0:00:09                             | 0.15                                   |
| 0:00:00                               | 0:00:09                             | 0.15                                   |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{2.0/0.32} \times \ln(\underline{8/6}) = \underline{14.4 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator Mark B. Anderson Date 08/02/2023Signature of Professional Engineer [Signature] Date 08/02/2023N.J. License No. 33806Theodore H. Bayer, PEBayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block **44**Lot **6**

## Form 3b. Tube Permeameter Test Data:

I. Test Number: **TP 5** Replicate (Letter): **B** Date Tested: **06/05/2023**II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: **54"**III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: **2.54**Length of Sample, L, in inches: **3.0**

VI. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VII. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: **0.635**

VIII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : **8**At the end of each test interval,  $H_2$ : **6**

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| <b>0:00:00</b>                        | <b>0:00:11</b>                      | <b>0.19</b>                            |
| <b>0:00:00</b>                        | <b>0:00:11</b>                      | <b>0.19</b>                            |
| <b>0:00:00</b>                        | <b>0:00:11</b>                      | <b>0.19</b>                            |
| <b>0:00:00</b>                        | <b>0:00:11</b>                      | <b>0.19</b>                            |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{3.0/0.19} \times \ln(8/6) = \underline{16.9 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator

Date **08/02/2023**

Signature of Professional Engineer

Date **08/02/2023**N.J. License No. **33806**

Seal

**Theodore H. Bayer, PE****Bayer-Risse Engineering, Inc.**

## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

V. Test Number: TP 13 Replicate (Letter): A Date Tested: 06/06/2023VI. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 54"VII. Sample: ☒ Undisturbed ☐ DisturbedVIII. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 3.0

IX. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

X. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

XI. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 8At the end of each test interval,  $H_2$ : 6

IX. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:11                             | 0.18                                   |
| 0:00:00                               | 0:00:11                             | 0.18                                   |
| 0:00:00                               | 0:00:11                             | 0.18                                   |
| 0:00:00                               | 0:00:11                             | 0.18                                   |

X. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{3.0/0.18} \times \ln(8/6) = \underline{17.7 \text{ in/hr}}$$

XI. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XII. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator Mark Anderson Date 08/02/2023Signature of Professional Engineer Theodore H. Bayer Date 08/02/2023N.J. License No. 33806Theodore H. Bayer, PEBayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

IX. Test Number: TP 13 Replicate (Letter): B Date Tested: 06/06/2023X. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 54"XI. Sample: ☒ Undisturbed ☐ DisturbedXII. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 3.0

XII. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

XIII. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

XIV. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 8At the end of each test interval,  $H_2$ : 6

X. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| 0:00:00                               | 0:00:10                             | 0.18                                   |
| 0:00:00                               | 0:00:10                             | 0.18                                   |
| 0:00:00                               | 0:00:10                             | 0.18                                   |
| 0:00:00                               | 0:00:10                             | 0.18                                   |

XI. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times 0.635^2/2.54^2 \times 3.0/0.18 \times \ln(8/6) = 18.5 \text{ in/hr}$$

XII. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XIII. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator Mark B. Anderson Date 08/02/2023Signature of Professional Engineer [Signature] Date 08/02/2023N.J. License No. 33806

Theodore H. Bayer, PE

Bayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY Block 44 Lot 6

## Form 3b. Tube Permeameter Test Data:

I. Test Number: TP 15 Replicate (Letter): A Date Tested: 06/05/2023II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: 48"III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: 2.54Length of Sample, L, in inches: 3.0

VI. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VII. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: 0.635

VIII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : 10At the end of each test interval,  $H_2$ : 8

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>$T$ (minutes) |
|---------------------------------------|-------------------------------------|------------------------------------------|
| <u>0:00:00</u>                        | <u>0:00:09</u>                      | <u>0.15</u>                              |
| <u>0:00:00</u>                        | <u>0:00:09</u>                      | <u>0.15</u>                              |
| <u>0:00:00</u>                        | <u>0:00:09</u>                      | <u>0.15</u>                              |
| <u>0:00:00</u>                        | <u>0:00:09</u>                      | <u>0.15</u>                              |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{3.0/0.15} \times \ln(\underline{10/8}) = \underline{16.4 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator Mark Anderson Date 08/02/2023Signature of Professional Engineer Theodore H. Bayer Date 08/02/2023N.J. License No. 33806Theodore H. Bayer, PEBayer-Risse Engineering, Inc.

Seal



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block **44**Lot **6**

## Form 3b. Tube Permeameter Test Data:

I. Test Number: **TP 15** Replicate (Letter): **B** Date Tested: **06/05/2023**II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: **48"**III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: **2.54**Length of Sample, L, in inches: **3.0**

VI. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VII. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: **0.635**

VIII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : **10**At the end of each test interval,  $H_2$ : **8**

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| <b>0:00:00</b>                        | <b>0:00:08</b>                      | <b>0.13</b>                            |
| <b>0:00:00</b>                        | <b>0:00:08</b>                      | <b>0.13</b>                            |
| <b>0:00:00</b>                        | <b>0:00:08</b>                      | <b>0.13</b>                            |
| <b>0:00:00</b>                        | <b>0:00:08</b>                      | <b>0.13</b>                            |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

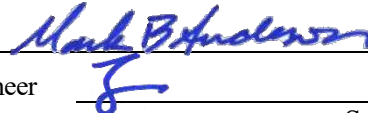
$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{3.0/0.13} \times \ln(10/8) = \underline{18.8 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator


Date **08/02/2023**

Signature of Professional Engineer


Date **08/02/2023**N.J. License No. **33806**

Seal

Theodore H. Bayer, PE

Bayer-Risse Engineering, Inc.



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block **44**Lot **6**

## Form 3b. Tube Permeameter Test Data:

I. Test Number: **TP 17** Replicate (Letter): **A** Date Tested: **06/05/2023**II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: **78"**III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: **2.54**Length of Sample, L, in inches: **3.0**

VI. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VII. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: **0.635**

VIII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : **10**At the end of each test interval,  $H_2$ : **8**

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| <b>0:00:00</b>                        | <b>0:00:11</b>                      | <b>0.18</b>                            |
| <b>0:00:00</b>                        | <b>0:00:11</b>                      | <b>0.18</b>                            |
| <b>0:00:00</b>                        | <b>0:00:11</b>                      | <b>0.18</b>                            |
| <b>0:00:00</b>                        | <b>0:00:11</b>                      | <b>0.18</b>                            |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{3.0/0.18} \times \ln(10/8) = \underline{11.4 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator

Date **08/02/2023**

Signature of Professional Engineer

Date **08/02/2023**N.J. License No. **33806**

Seal

**Theodore H. Bayer, PE****Bayer-Risse Engineering, Inc.**



## STORMWATER PERMEABILITY TEST

TOWNSHIP OF ELK / GLOUCESTER COUNTY

Block **44**Lot **6**

## Form 3b. Tube Permeameter Test Data:

I. Test Number: **TP 17** Replicate (Letter): **B** Date Tested: **06/05/2023**II. Material Tested: ☐ Fill ☒ Test in Native Soil - Indicate Depth: **78"**III. Sample: ☒ Undisturbed ☐ DisturbedIV. Sample Dimensions: Inside Radius of Sample Tube, R, in cm.: **2.54**Length of Sample, L, in inches: **3.0**

VI. Bulk Density Determination (Disturbed Samples Only):

Sample Weight (Wt. Tube Containing Sample - Wt. of Empty Tube), grams: \_\_\_\_\_

Sample Volume ( $L \times 2.54 \text{ cm./inch} \times 3.14R^2$ ), cc.: \_\_\_\_\_

Bulk Density (Sample Wt./Sample Volume), grams/cc.: \_\_\_\_\_

VII. Standpipe Used: ☐ No ☒ Yes - Indicate Internal Radius, cm.: **0.635**

VIII. Height of Water Level Above Rim of Test Basin, in inches:

At the beginning of each test interval,  $H_1$ : **10**At the end of each test interval,  $H_2$ : **8**

VIII. Rate of Water Level Drop (Add additional lines if needed):

| Time, Start of Test Interval<br>$T_1$ | Time, End of Test Interval<br>$T_2$ | Length of Test Interval<br>T (minutes) |
|---------------------------------------|-------------------------------------|----------------------------------------|
| <b>0:00:00</b>                        | <b>0:00:09</b>                      | <b>0.15</b>                            |
| <b>0:00:00</b>                        | <b>0:00:09</b>                      | <b>0.15</b>                            |
| <b>0:00:00</b>                        | <b>0:00:09</b>                      | <b>0.15</b>                            |
| <b>0:00:00</b>                        | <b>0:00:09</b>                      | <b>0.15</b>                            |

IX. Calculation of Permeability:

$$K (\text{in/hr}) = 60 \text{ min/hr} \times r^2/R^2 \times L(\text{in})/T(\text{min}) \times \ln(H_1/H_2)$$

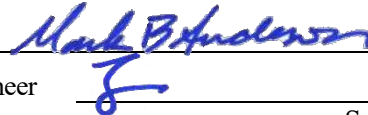
$$K (\text{in/hr}) = 60 \text{ min/hr} \times \underline{0.635^2/2.54^2} \times \underline{3.0/0.15} \times \ln(10/8) = \underline{13.9 \text{ in/hr}}$$

X. Defects in the Sample (Check appropriate items):

☒ None ☐ Cracks ☐ Worm Channels ☐ Root Channels☐ Soil/Tube Contact ☐ Large Gravel ☐ Large Roots☐ Dry Soil ☐ Smearing ☐ Compaction☐ Other - Specify: \_\_\_\_\_

XI. I hereby certify that the information furnished on Form 3b of this application is true and accurate. I am aware that falsification of data is a violation of the Water Pollution Control Act (N.J.S.A. 58:10A-1 et seq.) and is subject to penalties as prescribed in N.J.A.C. 7:14-8.

Signature of Site Evaluator


Date **08/02/2023**

Signature of Professional Engineer


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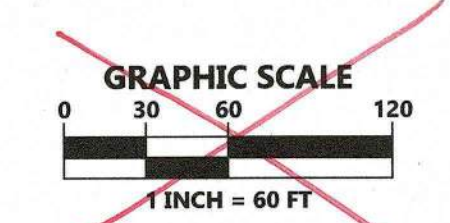
Seal

Theodore H. Bayer, PE

Bayer-Risse Engineering, Inc.







Soil Log Location  
Map NOT TO SCALE  
All Dimensions are  
approximate and subject  
to survey



## **Groundwater Recharge Spreadsheet**

## Annual Groundwater Recharge Analysis (based on GSR-32)

| Select Township ↓       | Average Annual P (in) | Climatic Factor |
|-------------------------|-----------------------|-----------------|
| GLOUCESTER CO., ELK TWP | 43.8                  | 1.35            |

**Project Name:** Elk Fueling Station

**Description:** 2101ELK

**Analysis Date:** 11/18/24

### Pre-Developed Conditions

| Land Segment | Area (acres) | TR-55 Land Cover | Soil      | Annual Recharge (in)       | Annual Recharge (cu.ft)       |
|--------------|--------------|------------------|-----------|----------------------------|-------------------------------|
| 1            | 3.73         | Woods            | Downer    | 12.1                       | 163,196                       |
| 2            | 2.23         | Woods            | Hammonton | 11.6                       | 94,087                        |
| 3            | 5.89         | Row Crop         | Downer    | 11.5                       | 245,044                       |
| 4            | 3.58         | Row Crop         | Aura      | 10.5                       | 136,842                       |
| 5            | 0            |                  |           |                            |                               |
| 6            | 0            |                  |           |                            |                               |
| 7            | 0            |                  |           |                            |                               |
| 8            | 0            |                  |           |                            |                               |
| 9            | 0            |                  |           |                            |                               |
| 10           | 0            |                  |           |                            |                               |
| 11           | 0            |                  |           |                            |                               |
| 12           | 0            |                  |           |                            |                               |
| 13           | 0            |                  |           |                            |                               |
| 14           | 0            |                  |           |                            |                               |
| 15           | 0            |                  |           |                            |                               |
| Total =      | 15.4         |                  |           | Total Annual Recharge (in) | Total Annual Recharge (cu-ft) |
|              |              |                  |           | 11.4                       | 639,169                       |

### Post-Developed Conditions

| Land Segment | Area (acres) | TR-55 Land Cover | Soil      | Annual Recharge (in)       | Annual Recharge (cu.ft)       |
|--------------|--------------|------------------|-----------|----------------------------|-------------------------------|
| 1            | 5.95         | Impervious areas | Downer    | 0.0                        | -                             |
| 2            | 1.79         | Woods            | Downer    | 12.1                       | 78,317                        |
| 3            | 0.39         | Woods            | Hammonton | 11.6                       | 16,455                        |
| 4            | 4.89         | Open space       | Aura      | 11.9                       | 210,763                       |
| 5            | 2.41         | Open space       | Hammonton | 12.5                       | 109,148                       |
| 6            | 0            |                  |           |                            |                               |
| 7            | 0            |                  |           |                            |                               |
| 8            | 0            |                  |           |                            |                               |
| 9            | 0            |                  |           |                            |                               |
| 10           | 0            |                  |           |                            |                               |
| 11           | 0            |                  |           |                            |                               |
| 12           | 0            |                  |           |                            |                               |
| 13           | 0            |                  |           |                            |                               |
| 14           | 0            |                  |           |                            |                               |
| 15           | 0            |                  |           |                            |                               |
| Total =      | 15.4         |                  |           | Total Annual Recharge (in) | Total Annual Recharge (cu.ft) |
|              |              |                  |           | 7.4                        | 414,683                       |

### Procedure to fill the Pre-Development and Post-Development Conditions Tables

For each land segment, first enter the area, then select TR-55 Land Cover, then select Soil. Start from the top of the table and proceed downward. Don't leave blank rows (with A=0) in between your segment entries. Rows with A=0 will not be displayed or used in calculations. For impervious areas outside of standard lots select "Impervious Areas" as the Land Cover. Soil type for impervious areas are only required if an infiltration facility will be built within these areas.

| Annual Recharge Requirements Calculation ↓                  |                |                               |      |         |
|-------------------------------------------------------------|----------------|-------------------------------|------|---------|
| % of Pre-Developed Annual Recharge to Preserve =            | 100%           | Total Impervious Area (sq.ft) |      | 259,182 |
| <b>Post-Development Annual Recharge Deficit=</b>            | <b>224,487</b> | (cubic feet)                  |      |         |
| Recharge Efficiency Parameters Calculations (area averages) |                |                               |      |         |
| RWC= 3.74                                                   | (in)           | DRWC= 3.74                    | (in) |         |
| ERWC = 1.21                                                 | (in)           | EDRWC= 1.21                   | (in) |         |

| Project Name        | Description | Analysis Date | BMP or LID Type |
|---------------------|-------------|---------------|-----------------|
| Elk Fueling Station | 2101ELK     | 11/18/24      | GI-1            |

| Recharge BMP Input Parameters                                                                        |        |        |          | Root Zone Water capacity Calculated Parameters     |        |       |      | Recharge Design Parameters            |         |       |      |
|------------------------------------------------------------------------------------------------------|--------|--------|----------|----------------------------------------------------|--------|-------|------|---------------------------------------|---------|-------|------|
| Parameter                                                                                            | Symbol | Value  | Unit     | Parameter                                          | Symbol | Value | Unit | Parameter                             | Symbol  | Value | Unit |
| BMP Area                                                                                             | ABMP   | 7982.0 | sq.ft    | Empty Portion of RWC under Post-D Natural Recharge | ERWC   | 1.49  | in   | Inches of Runoff to capture           | Qdesign | 1.00  | in   |
| BMP Effective Depth, this is the design variable                                                     | dBMP   | 3.0    | in       | ERWC Modified to consider dEXC                     | EDRWC  | 1.49  | in   | Inches of Rainfall to capture         | Pdesign | 1.21  | in   |
| Upper level of the BMP surface (negative if above ground)                                            | dBMPu  | -48.0  | in       | Empty Portion of RWC under Infil. BMP              | RERWC  | 1.30  | in   | Recharge Provided Avg. over Imp. Area |         | 8.6   | in   |
| Depth of lower surface of BMP, must be >= dBMPu                                                      | dEXC   | 0.0    | in       |                                                    |        |       |      | Runoff Captured Avg. over imp. Area   |         | 29.5  | in   |
| Post-development Land Segment Location of BMP, Input Zero if Location is distributed or undetermined | SegBMP | 4      | unitless |                                                    |        |       |      |                                       |         |       |      |

| BMP Calculated Size Parameters |        |       |          | CALCULATION CHECK MESSAGES                                                                                                                           |
|--------------------------------|--------|-------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| ABMP/Aimp                      | Aratio | 0.32  | unitless | Volume Balance--> <b>Solve Problem to satisfy Annual Recharge</b><br>dBMP Check--> <b>OK</b><br>dEXC Check--> <b>OK</b><br>BMP Location--> <b>OK</b> |
| BMP Volume                     | VBMP   | 1,996 | cu.ft    |                                                                                                                                                      |
|                                |        |       |          |                                                                                                                                                      |

| Parameters from Annual Recharge Worksheet            |          |         |          | System Performance Calculated Parameters |  |        |                                     |
|------------------------------------------------------|----------|---------|----------|------------------------------------------|--|--------|-------------------------------------|
| Post-D Deficit Recharge (or desired recharge volume) | Vdef     | 224,487 | cu.ft    | Annual BMP Recharge Volume               |  | 17,853 | cu.ft                               |
| Post-D Impervious Area (or target Impervious Area)   | Aimp     | 24,783  | sq.ft    | Avg BMP Recharge Efficiency              |  | 29.3%  | Represents % Infiltration Recharged |
| Root Zone Water Capacity                             | RWC      | 4.59    | in       | %Rainfall became Runoff                  |  | 77.5%  | %                                   |
| RWC Modified to consider dEXC                        | DRWC     | 4.59    | in       | %Runoff Infiltrated                      |  | 86.9%  | %                                   |
| Climatic Factor                                      | C-factor | 1.35    | no units | %Runoff Recharged                        |  | 2.4%   | %                                   |
| Average Annual P                                     | Pavg     | 43.8    | in       | %Rainfall Recharged                      |  | 1.9%   | %                                   |
| Recharge Requirement over Imp. Area                  | dr       | 10.4    | in       |                                          |  |        |                                     |

**OTHER NOTES**

Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensitive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses.

**How to solve for different recharge volumes:** By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP. To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration click the "Default Vdef & Aimp" button.

| Project Name        | Description | Analysis Date | BMP or LID Type |
|---------------------|-------------|---------------|-----------------|
| Elk Fueling Station | 2101ELK     | 04/01/24      | GI-2            |

| Recharge BMP Input Parameters                                                                        |        |        |          | Root Zone Water capacity Calculated Parameters     |        |       |      | Recharge Design Parameters            |         |       |      |
|------------------------------------------------------------------------------------------------------|--------|--------|----------|----------------------------------------------------|--------|-------|------|---------------------------------------|---------|-------|------|
| Parameter                                                                                            | Symbol | Value  | Unit     | Parameter                                          | Symbol | Value | Unit | Parameter                             | Symbol  | Value | Unit |
| BMP Area                                                                                             | ABMP   | 7126.0 | sq.ft    | Empty Portion of RWC under Post-D Natural Recharge | ERWC   | 1.49  | in   | Inches of Runoff to capture           | Qdesign | 1.16  | in   |
| BMP Effective Depth, this is the design variable                                                     | dBMP   | 2.0    | in       | ERWC Modified to consider dEXC                     | EDRWC  | 1.49  | in   | Inches of Rainfall to capture         | Pdesign | 1.38  | in   |
| Upper level of the BMP surface (negative if above ground)                                            | dBMPu  | -48.0  | in       | Empty Portion of RWC under Infil. BMP              | RERWC  | 1.35  | in   | Recharge Provided Avg. over Imp. Area |         | 3.3   | in   |
| Depth of lower surface of BMP, must be >= dBMPu                                                      | dEXC   | 0.0    | in       |                                                    |        |       |      | Runoff Captured Avg. over imp. Area   |         | 30.4  | in   |
| Post-development Land Segment Location of BMP, Input Zero if Location is distributed or undetermined | SegBMP | 4      | unitless |                                                    |        |       |      |                                       |         |       |      |

| BMP Calculated Size Parameters |        |       |          | CALCULATION CHECK MESSAGES                                                                                                                           |  |
|--------------------------------|--------|-------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| ABMP/Aimp                      | Aratio | 0.54  | unitless | Volume Balance--> <b>Solve Problem to satisfy Annual Recharge</b><br>dBMP Check--> <b>OK</b><br>dEXC Check--> <b>OK</b><br>BMP Location--> <b>OK</b> |  |
| BMP Volume                     | VBMP   | 1,188 | cu.ft    |                                                                                                                                                      |  |
|                                |        |       |          |                                                                                                                                                      |  |

| Parameters from Annual Recharge Worksheet            |          |         |          | System Performance Calculated Parameters |  |       |                                     |
|------------------------------------------------------|----------|---------|----------|------------------------------------------|--|-------|-------------------------------------|
| Post-D Deficit Recharge (or desired recharge volume) | Vdef     | 224,487 | cu.ft    | Annual BMP Recharge Volume               |  | 3,591 | cu.ft                               |
| Post-D Impervious Area (or target Impervious Area)   | Aimp     | 13,121  | sq.ft    | Avg BMP Recharge Efficiency              |  | 10.8% | Represents % Infiltration Recharged |
| Root Zone Water Capacity                             | RWC      | 4.59    | in       | %Rainfall became Runoff                  |  | 77.5% | %                                   |
| RWC Modified to consider dEXC                        | DRWC     | 4.59    | in       | %Runoff Infiltrated                      |  | 89.4% | %                                   |
| Climatic Factor                                      | C-factor | 1.35    | no units | %Runoff Recharged                        |  | 0.5%  | %                                   |
| Average Annual P                                     | Pavg     | 43.8    | in       | %Rainfall Recharged                      |  | 0.4%  | %                                   |
| Recharge Requirement over Imp. Area                  | dr       | 10.4    | in       |                                          |  |       |                                     |

**OTHER NOTES**

Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensitive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses.

**How to solve for different recharge volumes:** By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP.

To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration click the "Default Vdef & Aimp" button.

| Project Name        | Description | Analysis Date | BMP or LID Type |
|---------------------|-------------|---------------|-----------------|
| Elk Fueling Station | 2101ELK     | 04/01/24      | GI-3            |

| Recharge BMP Input Parameters                                                                         |        |         |          | Root Zone Water capacity Calculated Parameters     |        |       |      | Recharge Design Parameters            |         |       |      |
|-------------------------------------------------------------------------------------------------------|--------|---------|----------|----------------------------------------------------|--------|-------|------|---------------------------------------|---------|-------|------|
| Parameter                                                                                             | Symbol | Value   | Unit     | Parameter                                          | Symbol | Value | Unit | Parameter                             | Symbol  | Value | Unit |
| BMP Area                                                                                              | ABMP   | 11000.0 | sq.ft    | Empty Portion of RWC under Post-D Natural Recharge | ERWC   | 1.49  | in   | Inches of Runoff to capture           | Qdesign | 2.70  | in   |
| BMP Effective Depth, this is the design variable                                                      | dBMP   | 12.0    | in       | ERWC Modified to consider dEXC                     | EDRWC  | 1.49  | in   | Inches of Rainfall to capture         | Pdesign | 2.93  | in   |
| Upper level of the BMP surface (negative if above ground)                                             | dBMPu  | -48.0   | in       | Empty Portion of RWC under Infil. BMP              | RERWC  | 1.25  | in   | Recharge Provided Avg. over Imp. Area |         | 19.3  | in   |
| Depth of lower surface of BMP, must be >= dBMPu                                                       | dEXC   | 0.0     | in       |                                                    |        |       |      | Runoff Captured Avg. over imp. Area   |         | 33.4  | in   |
| Post-development Land Segment Location of BMP , Input Zero if Location is distributed or undetermined | SegBMP | 4       | unitless |                                                    |        |       |      |                                       |         |       |      |

| BMP Calculated Size Parameters |        |        |          | CALCULATION CHECK MESSAGES                                                                                                                           |
|--------------------------------|--------|--------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| ABMP/Aimp                      | Aratio | 0.18   | unitless | Volume Balance--> <b>Solve Problem to satisfy Annual Recharge</b><br>dBMP Check--> <b>OK</b><br>dEXC Check--> <b>OK</b><br>BMP Location--> <b>OK</b> |
| BMP Volume                     | VBMP   | 11,000 | cu.ft    |                                                                                                                                                      |
|                                |        |        |          |                                                                                                                                                      |

| Parameters from Annual Recharge Worksheet            |          |         |          | System Performance Calculated Parameters |  |        |                                     |
|------------------------------------------------------|----------|---------|----------|------------------------------------------|--|--------|-------------------------------------|
| Post-D Deficit Recharge (or desired recharge volume) | Vdef     | 224,487 | cu.ft    | Annual BMP Recharge Volume               |  | 97,662 | cu.ft                               |
| Post-D Impervious Area (or target Impervious Area)   | Aimp     | 60,594  | sq.ft    | Avg BMP Recharge Efficiency              |  | 57.9%  | Represents % Infiltration Recharged |
| Root Zone Water Capacity                             | RWC      | 4.59    | in       | %Rainfall became Runoff                  |  | 77.5%  | %                                   |
| RWC Modified to consider dEXC                        | DRWC     | 4.59    | in       | %Runoff Infiltrated                      |  | 98.5%  | %                                   |
| Climatic Factor                                      | C-factor | 1.35    | no units | %Runoff Recharged                        |  | 13.3%  | %                                   |
| Average Annual P                                     | Pavg     | 43.8    | in       | %Rainfall Recharged                      |  | 10.3%  | %                                   |
| Recharge Requirement over Imp. Area                  | dr       | 10.4    | in       |                                          |  |        |                                     |

**OTHER NOTES**

Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensitive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses.

**How to solve for different recharge volumes:** By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP.

To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration click the "Default Vdef & Aimp" button.

| Project Name        | Description | Analysis Date | BMP or LID Type |
|---------------------|-------------|---------------|-----------------|
| Elk Fueling Station | 2101ELK     | 04/01/24      | GI-6            |

| Recharge BMP Input Parameters                                                                         |        |         |          | Root Zone Water capacity Calculated Parameters     |        |       |      | Recharge Design Parameters            |         |       |      |
|-------------------------------------------------------------------------------------------------------|--------|---------|----------|----------------------------------------------------|--------|-------|------|---------------------------------------|---------|-------|------|
| Parameter                                                                                             | Symbol | Value   | Unit     | Parameter                                          | Symbol | Value | Unit | Parameter                             | Symbol  | Value | Unit |
| BMP Area                                                                                              | ABMP   | 20000.0 | sq.ft    | Empty Portion of RWC under Post-D Natural Recharge | ERWC   | 1.49  | in   | Inches of Runoff to capture           | Qdesign | 1.94  | in   |
| BMP Effective Depth, this is the design variable                                                      | dBMP   | 5.0     | in       | ERWC Modified to consider dEXC                     | EDRWC  | 1.49  | in   | Inches of Rainfall to capture         | Pdesign | 2.16  | in   |
| Upper level of the BMP surface (negative if above ground)                                             | dBMPu  | -48.0   | in       | Empty Portion of RWC under Infil. BMP              | RERWC  | 1.31  | in   | Recharge Provided Avg. over Imp. Area |         | 11.0  | in   |
| Depth of lower surface of BMP, must be >= dBMPu                                                       | dEXC   | 0.0     | in       |                                                    |        |       |      | Runoff Captured Avg. over imp. Area   |         | 32.8  | in   |
| Post-development Land Segment Location of BMP , Input Zero if Location is distributed or undetermined | SegBMP | 4       | unitless |                                                    |        |       |      |                                       |         |       |      |

| BMP Calculated Size Parameters |        |       |          | CALCULATION CHECK MESSAGES                                                                                                                           |
|--------------------------------|--------|-------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| ABMP/Aimp                      | Aratio | 0.35  | unitless | Volume Balance--> <b>Solve Problem to satisfy Annual Recharge</b><br>dBMP Check--> <b>OK</b><br>dEXC Check--> <b>OK</b><br>BMP Location--> <b>OK</b> |
| BMP Volume                     | VBMP   | 8,333 | cu.ft    |                                                                                                                                                      |
|                                |        |       |          |                                                                                                                                                      |

| Parameters from Annual Recharge Worksheet            |          |         |          | System Performance Calculated Parameters |  |        |                                     |
|------------------------------------------------------|----------|---------|----------|------------------------------------------|--|--------|-------------------------------------|
| Post-D Deficit Recharge (or desired recharge volume) | Vdef     | 224,487 | cu.ft    | Annual BMP Recharge Volume               |  | 52,847 | cu.ft                               |
| Post-D Impervious Area (or target Impervious Area)   | Aimp     | 57,688  | sq.ft    | Avg BMP Recharge Efficiency              |  | 33.5%  | Represents % Infiltration Recharged |
| Root Zone Water Capacity                             | RWC      | 4.59    | in       | %Rainfall became Runoff                  |  | 77.5%  | %                                   |
| RWC Modified to consider dEXC                        | DRWC     | 4.59    | in       | %Runoff Infiltrated                      |  | 96.6%  | %                                   |
| Climatic Factor                                      | C-factor | 1.35    | no units | %Runoff Recharged                        |  | 7.2%   | %                                   |
| Average Annual P                                     | Pavg     | 43.8    | in       | %Rainfall Recharged                      |  | 5.6%   | %                                   |
| Recharge Requirement over Imp. Area                  | dr       | 10.4    | in       |                                          |  |        |                                     |

| OTHER NOTES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensitive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses. |

**How to solve for different recharge volumes:** By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP. To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration click the "Default Vdef & Aimp" button.



| Project Name        | Description | Analysis Date | BMP or LID Type |
|---------------------|-------------|---------------|-----------------|
| Elk Fueling Station | 2101ELK     | 04/01/24      | GI-8            |

| Recharge BMP Input Parameters                                                                        |        |        |          | Root Zone Water capacity Calculated Parameters     |        |       |      | Recharge Design Parameters            |         |       |      |
|------------------------------------------------------------------------------------------------------|--------|--------|----------|----------------------------------------------------|--------|-------|------|---------------------------------------|---------|-------|------|
| Parameter                                                                                            | Symbol | Value  | Unit     | Parameter                                          | Symbol | Value | Unit | Parameter                             | Symbol  | Value | Unit |
| BMP Area                                                                                             | ABMP   | 3092.0 | sq.ft    | Empty Portion of RWC under Post-D Natural Recharge | ERWC   | 0.92  | in   | Inches of Runoff to capture           | Qdesign | 1.63  | in   |
| BMP Effective Depth, this is the design variable                                                     | dBMP   | 8.5    | in       | ERWC Modified to consider dEXC                     | EDRWC  | 0.92  | in   | Inches of Rainfall to capture         | Pdesign | 1.85  | in   |
| Upper level of the BMP surface (negative if above ground)                                            | dBMPu  | -48.0  | in       | Empty Portion of RWC under Infil. BMP              | RERWC  | 0.75  | in   | Recharge Provided Avg. over Imp. Area |         | 22.7  | in   |
| Depth of lower surface of BMP, must be >= dBMPu                                                      | dEXC   | 0.0    | in       |                                                    |        |       |      | Runoff Captured Avg. over imp. Area   |         | 32.5  | in   |
| Post-development Land Segment Location of BMP, Input Zero if Location is distributed or undetermined | SegBMP | 0      | unitless |                                                    |        |       |      |                                       |         |       |      |

| BMP Calculated Size Parameters |        |       |          | CALCULATION CHECK MESSAGES                                                  |  |
|--------------------------------|--------|-------|----------|-----------------------------------------------------------------------------|--|
| ABMP/Aimp                      | Aratio | 0.19  | unitless | Volume Balance--> <b>Solve Problem to satisfy Annual Recharge</b>           |  |
| BMP Volume                     | VBMP   | 2,190 | cu.ft    | dBMP Check---> <b>OK</b>                                                    |  |
|                                |        |       |          | dEXC Check---> <b>OK</b>                                                    |  |
|                                |        |       |          | BMP Location---> <b>Location is selected as distributed or undetermined</b> |  |

| Parameters from Annual Recharge Worksheet            |          |         |          | System Performance Calculated Parameters |  |        |                                     |
|------------------------------------------------------|----------|---------|----------|------------------------------------------|--|--------|-------------------------------------|
| Post-D Deficit Recharge (or desired recharge volume) | Vdef     | 383,443 | cu.ft    | Annual BMP Recharge Volume               |  | 30,813 | cu.ft                               |
| Post-D Impervious Area (or target Impervious Area)   | Aimp     | 16,304  | sq.ft    | Avg BMP Recharge Efficiency              |  | 69.7%  | Represents % Infiltration Recharged |
| Root Zone Water Capacity                             | RWC      | 2.82    | in       | %Rainfall became Runoff                  |  | 77.5%  | %                                   |
| RWC Modified to consider dEXC                        | DRWC     | 2.82    | in       | %Runoff Infiltrated                      |  | 95.8%  | %                                   |
| Climatic Factor                                      | C-factor | 1.35    | no units | %Runoff Recharged                        |  | 2.5%   | %                                   |
| Average Annual P                                     | Pavg     | 43.8    | in       | %Rainfall Recharged                      |  | 1.9%   | %                                   |
| Recharge Requirement over Imp. Area                  | dr       | 10.5    | in       |                                          |  |        |                                     |

**OTHER NOTES**

Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensitive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses

**How to solve for different recharge volumes:** By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP. To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration click the "Default Vdef & Aimp" button.

| Project Name        | Description | Analysis Date | BMP or LID Type |
|---------------------|-------------|---------------|-----------------|
| Elk Fueling Station | 2101ELK     | 04/01/24      | GI-9            |

| Recharge BMP Input Parameters                                                                        |        |        |          | Root Zone Water capacity Calculated Parameters     |        |       |      | Recharge Design Parameters            |         |       |      |
|------------------------------------------------------------------------------------------------------|--------|--------|----------|----------------------------------------------------|--------|-------|------|---------------------------------------|---------|-------|------|
| Parameter                                                                                            | Symbol | Value  | Unit     | Parameter                                          | Symbol | Value | Unit | Parameter                             | Symbol  | Value | Unit |
| BMP Area                                                                                             | ABMP   | 3471.0 | sq.ft    | Empty Portion of RWC under Post-D Natural Recharge | ERWC   | 1.09  | in   | Inches of Runoff to capture           | Qdesign | 0.84  | in   |
| BMP Effective Depth, this is the design variable                                                     | dBMP   | 12.0   | in       | ERWC Modified to consider dEXC                     | EDRWC  | 1.09  | in   | Inches of Rainfall to capture         | Pdesign | 1.03  | in   |
| Upper level of the BMP surface (negative if above ground)                                            | dBMPu  | -48.0  | in       | Empty Portion of RWC under Infil. BMP              | RERWC  | 0.87  | in   | Recharge Provided Avg. over Imp. Area |         | 23.7  | in   |
| Depth of lower surface of BMP, must be >= dBMPu                                                      | dEXC   | 0.0    | in       |                                                    |        |       |      | Runoff Captured Avg. over imp. Area   |         | 28.4  | in   |
| Post-development Land Segment Location of BMP, Input Zero if Location is distributed or undetermined | SegBMP | 4      | unitless |                                                    |        |       |      |                                       |         |       |      |

| BMP Calculated Size Parameters |        |       |          | CALCULATION CHECK MESSAGES                                        |  |
|--------------------------------|--------|-------|----------|-------------------------------------------------------------------|--|
| ABMP/Aimp                      | Aratio | 0.07  | unitless | Volume Balance--> <b>Solve Problem to satisfy Annual Recharge</b> |  |
| BMP Volume                     | VBMP   | 3,471 | cu.ft    | dBMP Check--> <b>OK</b>                                           |  |
|                                |        |       |          | dEXC Check--> <b>OK</b>                                           |  |

| Parameters from Annual Recharge Worksheet            |          |         |          | System Performance Calculated Parameters |  |        |                                     |
|------------------------------------------------------|----------|---------|----------|------------------------------------------|--|--------|-------------------------------------|
| Post-D Deficit Recharge (or desired recharge volume) | Vdef     | 383,443 | cu.ft    | Annual BMP Recharge Volume               |  | 97,575 | cu.ft                               |
| Post-D Impervious Area (or target Impervious Area)   | Aimp     | 49,483  | sq.ft    | Avg BMP Recharge Efficiency              |  | 83.4%  | Represents % Infiltration Recharged |
| Root Zone Water Capacity                             | RWC      | 3.37    | in       | %Rainfall became Runoff                  |  | 77.5%  | %                                   |
| RWC Modified to consider dEXC                        | DRWC     | 3.37    | in       | %Runoff Infiltrated                      |  | 83.6%  | %                                   |
| Climatic Factor                                      | C-factor | 1.35    | no units | %Runoff Recharged                        |  | 7.9%   | %                                   |
| Average Annual P                                     | Pavg     | 43.8    | in       | %Rainfall Recharged                      |  | 6.1%   | %                                   |
| Recharge Requirement over Imp. Area                  | dr       | 10.5    | in       |                                          |  |        |                                     |

**OTHER NOTES**

Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensitive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses

**How to solve for different recharge volumes:** By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP. To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration click the "Default Vdef & Aimp" button.

| Project Name        | Description | Analysis Date | BMP or LID Type |
|---------------------|-------------|---------------|-----------------|
| Elk Fueling Station | 2101ELK     | 04/01/24      | GI-10           |

| Recharge BMP Input Parameters                                                                        |        |        |          | Root Zone Water capacity Calculated Parameters     |        |       |      | Recharge Design Parameters            |         |       |      |
|------------------------------------------------------------------------------------------------------|--------|--------|----------|----------------------------------------------------|--------|-------|------|---------------------------------------|---------|-------|------|
| Parameter                                                                                            | Symbol | Value  | Unit     | Parameter                                          | Symbol | Value | Unit | Parameter                             | Symbol  | Value | Unit |
| BMP Area                                                                                             | ABMP   | 2638.0 | sq.ft    | Empty Portion of RWC under Post-D Natural Recharge | ERWC   | 0.85  | in   | Inches of Runoff to capture           | Qdesign | 2.70  | in   |
| BMP Effective Depth, this is the design variable                                                     | dBMP   | 18.0   | in       | ERWC Modified to consider dEXC                     | EDRWC  | 0.85  | in   | Inches of Rainfall to capture         | Pdesign | 2.93  | in   |
| Upper level of the BMP surface (negative if above ground)                                            | dBMPu  | -48.0  | in       | Empty Portion of RWC under Infil. BMP              | RERWC  | 0.69  | in   | Recharge Provided Avg. over Imp. Area |         | 26.8  | in   |
| Depth of lower surface of BMP, must be >= dBMPu                                                      | dEXC   | 0.0    | in       |                                                    |        |       |      | Runoff Captured Avg. over imp. Area   |         | 33.7  | in   |
| Post-development Land Segment Location of BMP, Input Zero if Location is distributed or undetermined | SegBMP | 3      | unitless |                                                    |        |       |      |                                       |         |       |      |

| BMP Calculated Size Parameters |        |       |          | CALCULATION CHECK MESSAGES                                                                                                                              |  |
|--------------------------------|--------|-------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| ABMP/Aimp                      | Aratio | 0.13  | unitless | Volume Balance--> <b>Solve Problem to satisfy Annual Recharge</b><br>dBMP Check---> <b>OK</b><br>dEXC Check---> <b>OK</b><br>BMP Location---> <b>OK</b> |  |
| BMP Volume                     | VBMP   | 3,957 | cu.ft    |                                                                                                                                                         |  |
|                                |        |       |          |                                                                                                                                                         |  |

| Parameters from Annual Recharge Worksheet            |          |         |          | System Performance Calculated Parameters |  |        |                                     |
|------------------------------------------------------|----------|---------|----------|------------------------------------------|--|--------|-------------------------------------|
| Post-D Deficit Recharge (or desired recharge volume) | Vdef     | 383,443 | cu.ft    | Annual BMP Recharge Volume               |  | 44,056 | cu.ft                               |
| Post-D Impervious Area (or target Impervious Area)   | Aimp     | 19,702  | sq.ft    | Avg BMP Recharge Efficiency              |  | 79.7%  | Represents % Infiltration Recharged |
| Root Zone Water Capacity                             | RWC      | 2.63    | in       | %Rainfall became Runoff                  |  | 77.5%  | %                                   |
| RWC Modified to consider dEXC                        | DRWC     | 2.63    | in       | %Runoff Infiltrated                      |  | 99.1%  | %                                   |
| Climatic Factor                                      | C-factor | 1.35    | no units | %Runoff Recharged                        |  | 3.5%   | %                                   |
| Average Annual P                                     | Pavg     | 43.8    | in       | %Rainfall Recharged                      |  | 2.8%   | %                                   |
| Recharge Requirement over Imp. Area                  | dr       | 10.5    | in       |                                          |  |        |                                     |

**OTHER NOTES**

Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensitive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses

**How to solve for different recharge volumes:** By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP. To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration click the "Default Vdef & Aimp" button.

| Project Name        | Description | Analysis Date | BMP or LID Type |
|---------------------|-------------|---------------|-----------------|
| Elk Fueling Station | 2101ELK     | 04/01/24      | GI-11           |

| Recharge BMP Input Parameters                                                                        |        |        |          | Root Zone Water capacity Calculated Parameters     |        |       |      | Recharge Design Parameters            |         |       |      |
|------------------------------------------------------------------------------------------------------|--------|--------|----------|----------------------------------------------------|--------|-------|------|---------------------------------------|---------|-------|------|
| Parameter                                                                                            | Symbol | Value  | Unit     | Parameter                                          | Symbol | Value | Unit | Parameter                             | Symbol  | Value | Unit |
| BMP Area                                                                                             | ABMP   | 1135.0 | sq.ft    | Empty Portion of RWC under Post-D Natural Recharge | ERWC   | 1.49  | in   | Inches of Runoff to capture           | Qdesign | 0.29  | in   |
| BMP Effective Depth, this is the design variable                                                     | dBMP   | 12.0   | in       | ERWC Modified to consider dEXC                     | EDRWC  | 1.49  | in   | Inches of Rainfall to capture         | Pdesign | 0.39  | in   |
| Upper level of the BMP surface (negative if above ground)                                            | dBMPu  | -48.0  | in       | Empty Portion of RWC under Infil. BMP              | RERWC  | 1.17  | in   | Recharge Provided Avg. over Imp. Area |         | 14.3  | in   |
| Depth of lower surface of BMP, must be >= dBMPu                                                      | dEXC   | 0.0    | in       |                                                    |        |       |      | Runoff Captured Avg. over imp. Area   |         | 16.5  | in   |
| Post-development Land Segment Location of BMP, Input Zero if Location is distributed or undetermined | SegBMP | 5      | unitless |                                                    |        |       |      |                                       |         |       |      |

| BMP Calculated Size Parameters |        |       |          | CALCULATION CHECK MESSAGES                                                                                                                           |  |
|--------------------------------|--------|-------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| ABMP/Aimp                      | Aratio | 0.02  | unitless | Volume Balance--> <b>Solve Problem to satisfy Annual Recharge</b><br>dBMP Check--> <b>OK</b><br>dEXC Check--> <b>OK</b><br>BMP Location--> <b>OK</b> |  |
| BMP Volume                     | VBMP   | 1,135 | cu.ft    |                                                                                                                                                      |  |
|                                |        |       |          |                                                                                                                                                      |  |

| Parameters from Annual Recharge Worksheet            |          |         |          | System Performance Calculated Parameters |  |        |                                     |
|------------------------------------------------------|----------|---------|----------|------------------------------------------|--|--------|-------------------------------------|
| Post-D Deficit Recharge (or desired recharge volume) | Vdef     | 383,443 | cu.ft    | Annual BMP Recharge Volume               |  | 56,914 | cu.ft                               |
| Post-D Impervious Area (or target Impervious Area)   | Aimp     | 47,814  | sq.ft    | Avg BMP Recharge Efficiency              |  | 86.7%  | Represents % Infiltration Recharged |
| Root Zone Water Capacity                             | RWC      | 4.59    | in       | %Rainfall became Runoff                  |  | 77.5%  | %                                   |
| RWC Modified to consider dEXC                        | DRWC     | 4.59    | in       | %Runoff Infiltrated                      |  | 48.5%  | %                                   |
| Climatic Factor                                      | C-factor | 1.35    | no units | %Runoff Recharged                        |  | 4.6%   | %                                   |
| Average Annual P                                     | Pavg     | 43.8    | in       | %Rainfall Recharged                      |  | 3.6%   | %                                   |
| Recharge Requirement over Imp. Area                  | dr       | 10.5    | in       |                                          |  |        |                                     |

**OTHER NOTES**

Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensitive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses

**How to solve for different recharge volumes:** By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP. To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration click the "Default Vdef & Aimp" button.

| Project Name        | Description | Analysis Date | BMP or LID Type |
|---------------------|-------------|---------------|-----------------|
| Elk Fueling Station | 2101ELK     | 04/01/24      | GI-12           |

| Recharge BMP Input Parameters                                                                        |        |         |          | Root Zone Water capacity Calculated Parameters     |        |       |      | Recharge Design Parameters            |         |       |      |
|------------------------------------------------------------------------------------------------------|--------|---------|----------|----------------------------------------------------|--------|-------|------|---------------------------------------|---------|-------|------|
| Parameter                                                                                            | Symbol | Value   | Unit     | Parameter                                          | Symbol | Value | Unit | Parameter                             | Symbol  | Value | Unit |
| BMP Area                                                                                             | ABMP   | 13291.0 | sq.ft    | Empty Portion of RWC under Post-D Natural Recharge | ERWC   | 0.92  | in   | Inches of Runoff to capture           | Qdesign | 2.70  | in   |
| BMP Effective Depth, this is the design variable                                                     | dBMP   | 12.0    | in       | ERWC Modified to consider dEXC                     | EDRWC  | 0.92  | in   | Inches of Rainfall to capture         | Pdesign | 2.93  | in   |
| Upper level of the BMP surface (negative if above ground)                                            | dBMPu  | -48.0   | in       | Empty Portion of RWC under Infil. BMP              | RERWC  | 0.76  | in   | Recharge Provided Avg. over Imp. Area |         | 20.5  | in   |
| Depth of lower surface of BMP, must be >= dBMPu                                                      | dEXC   | 0.0     | in       |                                                    |        |       |      | Runoff Captured Avg. over imp. Area   |         | 34.0  | in   |
| Post-development Land Segment Location of BMP, Input Zero if Location is distributed or undetermined | SegBMP | 0       | unitless |                                                    |        |       |      |                                       |         |       |      |

| BMP Calculated Size Parameters |        |        |          | CALCULATION CHECK MESSAGES                                                  |  |
|--------------------------------|--------|--------|----------|-----------------------------------------------------------------------------|--|
| ABMP/Aimp                      | Aratio | 0.28   | unitless | Volume Balance--> <b>Solve Problem to satisfy Annual Recharge</b>           |  |
| BMP Volume                     | VBMP   | 13,291 | cu.ft    | dBMP Check---> <b>OK</b>                                                    |  |
|                                |        |        |          | dEXC Check---> <b>OK</b>                                                    |  |
|                                |        |        |          | BMP Location---> <b>Location is selected as distributed or undetermined</b> |  |

| Parameters from Annual Recharge Worksheet            |          |         |          | System Performance Calculated Parameters |  |        |                                     |
|------------------------------------------------------|----------|---------|----------|------------------------------------------|--|--------|-------------------------------------|
| Post-D Deficit Recharge (or desired recharge volume) | Vdef     | 383,443 | cu.ft    | Annual BMP Recharge Volume               |  | 81,766 | cu.ft                               |
| Post-D Impervious Area (or target Impervious Area)   | Aimp     | 47,814  | sq.ft    | Avg BMP Recharge Efficiency              |  | 60.4%  | Represents % Infiltration Recharged |
| Root Zone Water Capacity                             | RWC      | 2.82    | in       | %Rainfall became Runoff                  |  | 77.5%  | %                                   |
| RWC Modified to consider dEXC                        | DRWC     | 2.82    | in       | %Runoff Infiltrated                      |  | 100.0% | %                                   |
| Climatic Factor                                      | C-factor | 1.35    | no units | %Runoff Recharged                        |  | 6.6%   | %                                   |
| Average Annual P                                     | Pavg     | 43.8    | in       | %Rainfall Recharged                      |  | 5.1%   | %                                   |
| Recharge Requirement over Imp. Area                  | dr       | 10.5    | in       |                                          |  |        |                                     |

**OTHER NOTES**

Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensitive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses

**How to solve for different recharge volumes:** By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP. To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration click the "Default Vdef & Aimp" button.

| Project Name        | Description | Analysis Date | BMP or LID Type |
|---------------------|-------------|---------------|-----------------|
| Elk Fueling Station | 2101ELK     | 04/01/24      | GI-13           |

| Recharge BMP Input Parameters                                                                        |        |        |          | Root Zone Water capacity Calculated Parameters     |        |         |      | Recharge Design Parameters            |         |         |      |
|------------------------------------------------------------------------------------------------------|--------|--------|----------|----------------------------------------------------|--------|---------|------|---------------------------------------|---------|---------|------|
| Parameter                                                                                            | Symbol | Value  | Unit     | Parameter                                          | Symbol | Value   | Unit | Parameter                             | Symbol  | Value   | Unit |
| BMP Area                                                                                             | ABMP   | 4028.0 | sq.ft    | Empty Portion of RWC under Post-D Natural Recharge | ERWC   | 0.85    | in   | Inches of Runoff to capture           | Qdesign | #DIV/0! | in   |
| BMP Effective Depth, this is the design variable                                                     | dBMP   | 24.0   | in       | ERWC Modified to consider dEXC                     | EDRWC  | 0.85    | in   | Inches of Rainfall to capture         | Pdesign | #DIV/0! | in   |
| Upper level of the BMP surface (negative if above ground)                                            | dBMPu  | -48.0  | in       | Empty Portion of RWC under Infil. BMP              | RERWC  | #DIV/0! | in   | Recharge Provided Avg. over Imp. Area |         | #DIV/0! | in   |
| Depth of lower surface of BMP, must be >= dBMPu                                                      | dEXC   | 0.0    | in       |                                                    |        |         |      | Runoff Captured Avg. over imp. Area   |         | #DIV/0! | in   |
| Post-development Land Segment Location of BMP, Input Zero if Location is distributed or undetermined | SegBMP | 3      | unitless |                                                    |        |         |      |                                       |         |         |      |

| BMP Calculated Size Parameters |        |         |          | CALCULATION CHECK MESSAGES |         |
|--------------------------------|--------|---------|----------|----------------------------|---------|
| ABMP/Aimp                      | Aratio | #DIV/0! | unitless | Volume Balance-->          | #DIV/0! |
| BMP Volume                     | VBMP   | 8,056   | cu.ft    | dBMP Check-->              | OK      |
|                                |        |         |          | dEXC Check-->              | OK      |
|                                |        |         |          | BMP Location-->            | OK      |

| Parameters from Annual Recharge Worksheet            |          |         |          | System Performance Calculated Parameters |  |         |                                     |
|------------------------------------------------------|----------|---------|----------|------------------------------------------|--|---------|-------------------------------------|
| Post-D Deficit Recharge (or desired recharge volume) | Vdef     | 383,443 | cu.ft    | Annual BMP Recharge Volume               |  | #DIV/0! | cu.ft                               |
| Post-D Impervious Area (or target Impervious Area)   | Aimp     | 0       | sq.ft    | Avg BMP Recharge Efficiency              |  | #DIV/0! | Represents % Infiltration Recharged |
| Root Zone Water Capacity                             | RWC      | 2.63    | in       | %Rainfall became Runoff                  |  | 77.5%   | %                                   |
| RWC Modified to consider dEXC                        | DRWC     | 2.63    | in       | %Runoff Infiltrated                      |  | #DIV/0! | %                                   |
| Climatic Factor                                      | C-factor | 1.35    | no units | %Runoff Recharged                        |  | #DIV/0! | %                                   |
| Average Annual P                                     | Pavg     | 43.8    | in       | %Rainfall Recharged                      |  | #DIV/0! | %                                   |
| Recharge Requirement over Imp. Area                  | dr       | 10.5    | in       |                                          |  |         |                                     |

**OTHER NOTES**

Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensitive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses

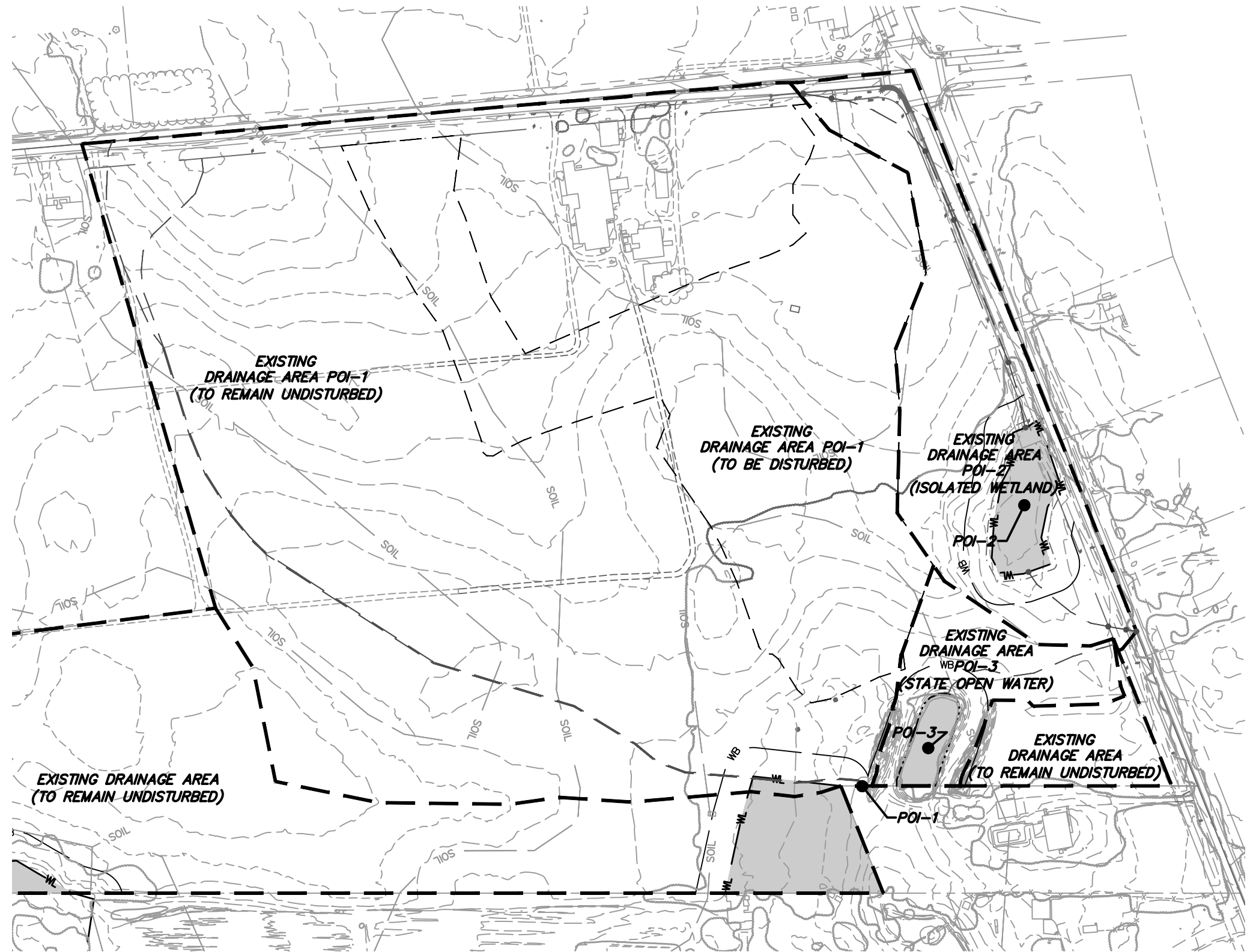
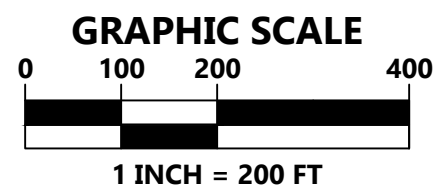
  

**How to solve for different recharge volumes:** By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP. To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration click the "Default Vdef & Aimp" button.

## **Drainage Area Maps**



----- EXISTING DRAINAGE AREA  
----- PERVIOUS TIME OF CONCENTRATION

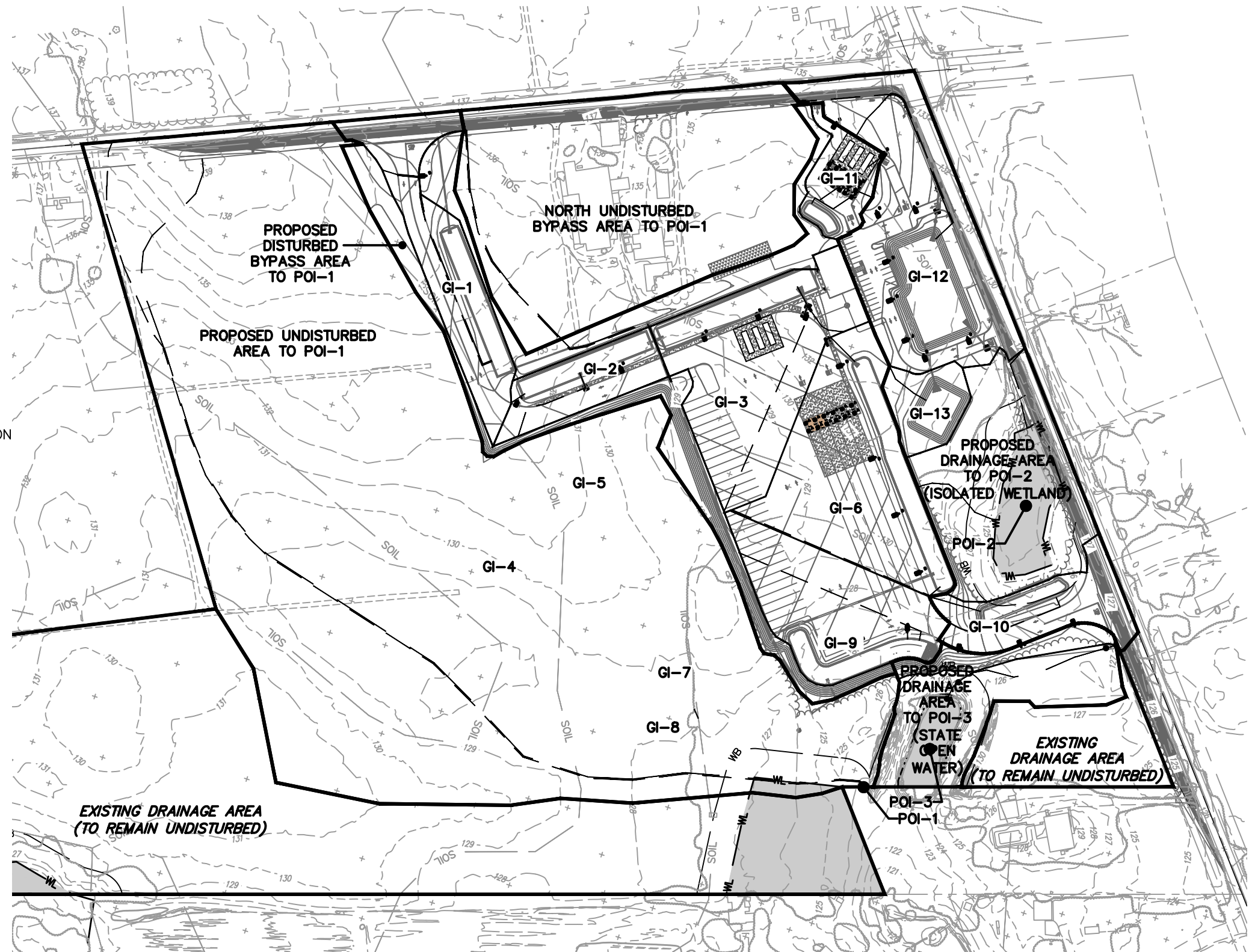
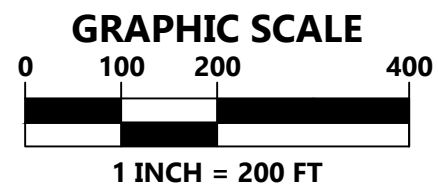


## EXISTING DRAINAGE AREA MAP





- PROPOSED DRAINAGE AREA
- - - IMPERVIOUS TIME OF CONCENTRATION
- - - PERVIOUS TIME OF CONCENTRATION



## PROPOSED DRAINAGE AREA MAP