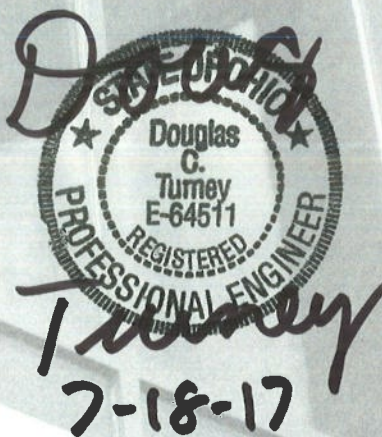




A legacy of **experience**. A reputation for **excellence**.



**Hyland-Croy Gateway East Preliminary Development Plan
Stormwater Management Plan**

5500 New Albany Road
Columbus, Ohio 43054
Phone: 614-775-4500
Fax: 614-775-4802
Toll Free: 1-888-775-EMHT

emht.com

2017-0464

**Schottenstein Real Estate Group
JMM Architects**

**May 19, 2017
Revised July 18, 2017**

Engineers

Surveyors

Planners

Scientists

1.0 INTRODUCTION

The following report summarizes the preliminary stormwater report for the Hyland-Croy Gateway East single family attached/detached units and adult congregate living facility development. The project is located along the east side of Hyland-Croy just north of Post Road. The site is mainly tributary to Tri-County Ditch, which is part of the South Fork Indian Run watershed number 2350. A small portion at the very north tip of the development is tributary to North Fork Indian Run watershed number 8360. At the very southern end of the development a small area is within South Fork Indian Run watershed number 2370, which is directly tributary to South Fork Indian Run.

2.0 PREDEVELOPED CONDITIONS

The site has been primarily used as agricultural land with three old homesteads. The soil type is Brookstone silty clay loam and Crosby silt loam. Both of these soils are hydrologic C/D soils. We will assume they are in a drained condition and use Type C soil as the predeveloped condition RCN = 78. Exhibit 1 shows the predeveloped tributary boundaries for the City of Dublin watershed overlain by the anticipated onsite tributary boundaries. We do not anticipate draining to North Fork Indian Run, therefore an allowable release rate for Subarea 8360 is not being calculated. Table 1 lists the predeveloped release rates to South Fork Indian Run watersheds 2350 and 2370.

Table 1
Predeveloped Release Rates

| Allowable Release Rates | | | | South Fork Indian Run | | | |
|-------------------------|------|------|------|-----------------------|-------|-------|--------|
| Sub-Basin | 1-yr | 2-yr | 5-yr | 10-yr | 25-yr | 50-yr | 100-yr |
| 2350 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.6 | 0.8 |
| 2370 | 0.2 | 0.2 | 0.3 | 0.5 | 0.7 | 1.2 | 1.7 |

| Sub-Basin | Area (ac) | 1-yr | 2-yr | 5-yr | 10-yr | 25-yr | 50-yr | 100-yr |
|-----------|-----------|------|------|------|-------|-------|-------|--------|
| 2350 | 28.94 | 5.79 | 5.79 | 8.68 | 8.68 | 11.58 | 17.36 | 23.15 |
| 2370 | 1.05 | 0.21 | 0.21 | 0.32 | 0.53 | 0.74 | 1.26 | 1.79 |

3.0 POST-DEVELOPED CONDITIONS

The site is proposing (4) stormwater management areas (SWMA) as shown on Exhibit 2. There are no offsite areas tributary to the SWMA. The Hyland-Croy road frontage will be intercepted by the existing ditch and/or supplemental grass ditch and convey the runoff directly to Tri-County Ditch or Post Road. Table 2 lists the subarea characteristics for each area. The proposed plan is for each SWMA to provide water quality and detention for its own area independent of the other facilities so that when the site is built in phases, each SWMA can provide compliance for its area on its own. The critical storm calculation is provided on Table 3 for each area. Table 4 calculates the allowable release rate for each area based on the critical storm and City of Dublin Master Plan release rates.

Table 2
Post-Developed Areas

| Subarea Identifier | Post Area (acres) | Land Usage | % Impervious | Runoff Curve Number | Runoff Volume (ac-ft) | Time of Concentration (min) | Tributary to: |
|--------------------|-------------------|----------------------------------|--------------|---------------------|-----------------------|-----------------------------|----------------|
| Subarea "B" North | 11.54 | Single-family residential | 65 | 90 | 1.218 | 10 | North SWMA |
| Subarea "B" Middle | 11.94 | Single-family residential | 65 | 90 | 1.260 | 10 | Middle SWMA |
| Subarea "B" South | 3.67 | Single-family residential | 65 | 90 | 0.387 | 5 | South SWMA |
| Subarea "A" | 9.33 | Adult Congregate Living Facility | 85 | 94 | 1.232 | 5 | Subarea A SWMA |
| Total | 36.48 | | | | | | |

Table 3
Post-Developed Areas

| Subarea Identifier | Pre Area (acres) | Pre RCN | Pre Runoff Volume (ac-ft) | Post Runoff Volume (ac-ft) | % Increase | Critical Storm |
|--------------------|------------------|---------|---------------------------|----------------------------|------------|----------------|
| Subarea "B" North | 6.25 | 76 | 0.271 | 1.218 | 349% | 50-year |
| Subarea "B" Middle | 11.94 | 77 | 0.557 | 1.260 | 126% | 25-year |
| Subarea "B" South | 3.67 | 78 | 0.184 | 0.387 | 110% | 25-year |
| Subarea "A" | 9.33 | 77 | 0.435 | 1.232 | 183% | 25-year |
| Total | 36.48 | | | | | |

Table 4 - Allowable and Proposed Release Rates

| Storm | Subarea "B" North SWMA | | | Subarea "B" Middle SWMA | | |
|-------|-------------------------|--------------------|-------------------|-------------------------|--------------------|-------------------|
| | Allowable (cfs/acre) | Allowable (cfs) | Proposed (cfs) | Allowable (cfs/acre) | Allowable (cfs) | Proposed (cfs) |
| 1 | 0.2 | 1.25 | 0.56 | 0.2 | 2.39 | 0.4 |
| 2 | 0.2 | 1.25 | 0.66 | 0.2 | 2.39 | 0.74 |
| 5 | 0.3 | 1.25 | 0.78 | 0.3 | 2.39 | 1.42 |
| 10 | 0.3 | 1.25 | 0.87 | 0.3 | 2.39 | 1.83 |
| 25 | 0.4 | 1.25 | 0.98 | 0.4 | 2.39 | 2.29 |
| 50 | 0.6 | 1.25 | 1.06 | 0.6 | 7.16 | 3.48 |
| 100 | 0.8 | 5 | 1.95 | 0.8 | 9.55 | 6.99 |

| Storm | Subarea "B" South SWMA | | | Subarea "A" SWMA | | |
|-------|-------------------------|--------------------|-------------------|-------------------------|--------------------|-------------------|
| | Allowable (cfs/acre) | Allowable (cfs) | Proposed (cfs) | Allowable (cfs/acre) | Allowable (cfs) | Proposed (cfs) |
| 1 | 0.2 | 0.73 | 0.22 | 0.2 | 1.87 | 0.49 |
| 2 | 0.2 | 0.73 | 0.34 | 0.2 | 1.87 | 0.84 |
| 5 | 0.3 | 0.73 | 0.47 | 0.3 | 1.87 | 1.25 |
| 10 | 0.3 | 0.73 | 0.55 | 0.3 | 1.87 | 1.49 |
| 25 | 0.4 | 0.73 | 0.64 | 0.4 | 1.87 | 1.76 |
| 50 | 0.6 | 2.2 | 0.84 | 0.6 | 7.46 | 2.65 |
| 100 | 0.8 | 2.94 | 2.21 | 0.8 | 7.46 | 5.36 |

The volumes needed in each SWMA were designed to provide water quality and peak flow rate control using the critical storm and Dublin Master Plan release rates are shown on Table 5. The volumes used are based on the preliminary grading of each SWMA. The resulting freeboard is shown from 100-year storm elevation to top of bank. Water quality calculations are provided at the end of the report.

Table 5
Volume Summary for 100-year Storm

| BMP | Volume Provided (cu-ft) | Volume Used (ac-ft) | 100-year Elevation (ft) | Freeboard (ft) |
|----------------------------|-------------------------------|---------------------------|-------------------------------|-------------------|
| Subarea "B" North SWMA | 157,610 | 135,264 | 927.55 | 0.45 |
| Subarea "B" Middle SWMA | 155,661 | 116,151 | 927.21 | 0.79 |
| Subarea "B" South SWMA | 60,527 | 35,856 | 928.65 | 1.35 |
| Subarea "A" SWMA | 159,374 | 103,312 | 932.76 | 1.24 |

4.0 STREAM CORRIDOR PROTECTION ZONE

The stream corridor protection zone for Tri-County ditch was determined by plotting the floodway that was produced with the original HEC-2 model for Tri-County ditch but wasn't published by FEMA. A 20-ft offset was then applied to the old floodway to get the SCPZ limits as shown on the development plan.

5.0 WATER QUALITY

Water quality calculations are provided with this report and are consistent with current Ohio EPA standards.

Water Quality Volume Calculation Spreadsheet

Project Name: Hyland-Croy Gateway East

Subarea "B" North SWMA

Area = 11.54 acres
% imp = 0.65
C = 0.45
WQv = 0.324 ac-ft
WQv = 14112 cu-ft

Normal Pool Elevation = ft

Water Quality Volume Elevation = ft

Subarea "B" Middle SWMA

Area = 11.94 acres
% imp = 0.65
C = 0.45
WQv = 0.335 ac-ft
WQv = 14601 cu-ft

Normal Pool Elevation = ft

Water Quality Volume Elevation = ft

Subarea "B" South SWMA

Area = 3.67 acres
% imp = 0.65
C = 0.45
WQv = 0.103 ac-ft
WQv = 4488 cu-ft

Normal Pool Elevation = ft

Water Quality Volume Elevation = ft

Subarea "A" Basin

Area = 9.33 acres
% imp = 0.85
C = 0.66
WQv = 0.386 ac-ft
WQv = 16797 cu-ft

Normal Pool Elevation = ft

Water Quality Volume Elevation = ft

The "C" coefficient was calculated using the ASCE method

$$C = 0.858i^3 - 0.778i^2 + 0.774i + 0.04$$

Ohio EPA formula

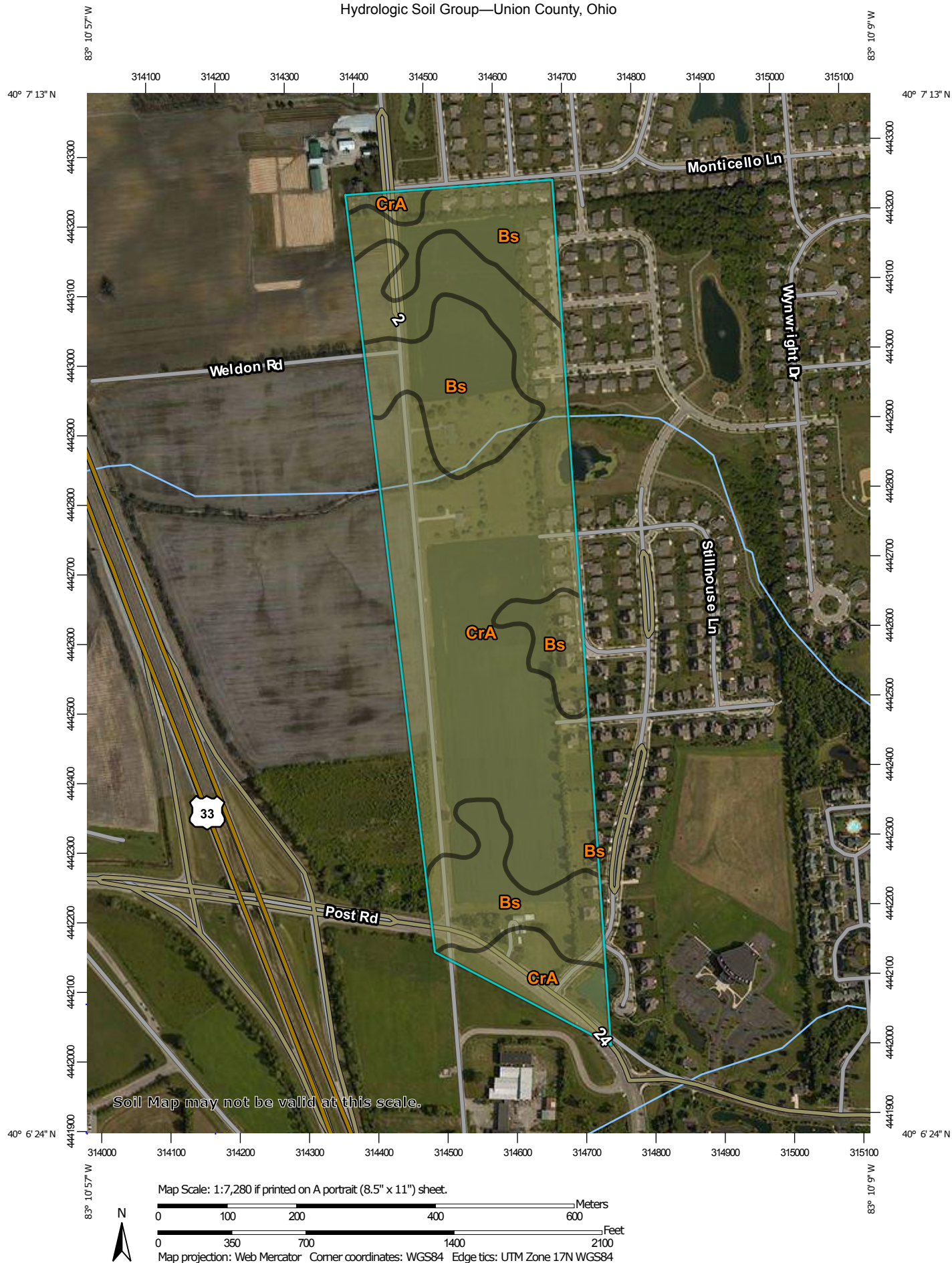
$$WQv = CPA/12$$

A = area (acres)

P = 0.75"

C = (see above)

Hydrologic Soil Group—Union County, Ohio



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

5/8/2017
Page 1 of 4

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 1:15,800.

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: Union County, Ohio
 Survey Area Data: Version 15, Sep 23, 2016

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

Date(s) aerial images were photographed: Feb 27, 2012—Aug 27, 2014

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

| Hydrologic Soil Group— Summary by Map Unit — Union County, Ohio (OH159) | | | | |
|---|---|--------|--------------|----------------|
| Map unit symbol | Map unit name | Rating | Acres in AOI | Percent of AOI |
| Bs | Brookston silty clay loam, fine texture, 0 to 2 percent slopes | C/D | 27.7 | 35.4% |
| CrA | Crosby silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes | C/D | 50.7 | 64.6% |
| Totals for Area of Interest | | | 78.4 | 100.0% |

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





pre north



post north



Subarea B north SWMA



pre middle



post middle



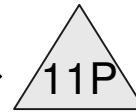
Subarea B middle
SWMA



pre south



post south



Subarea B south SWMA



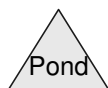
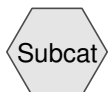
pre Subarea "A"



post Subarea "A"



Subarea "A" SWMA



Routing Diagram for 20170646 prelim 2017-07-18

Prepared by Symanetc, Printed 7/18/2017

HydroCAD® 10.00-13 s/n 07459 © 2014 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: pre north

Runoff = 2.59 cfs @ 12.24 hrs, Volume= 0.271 af, Depth= 0.52"

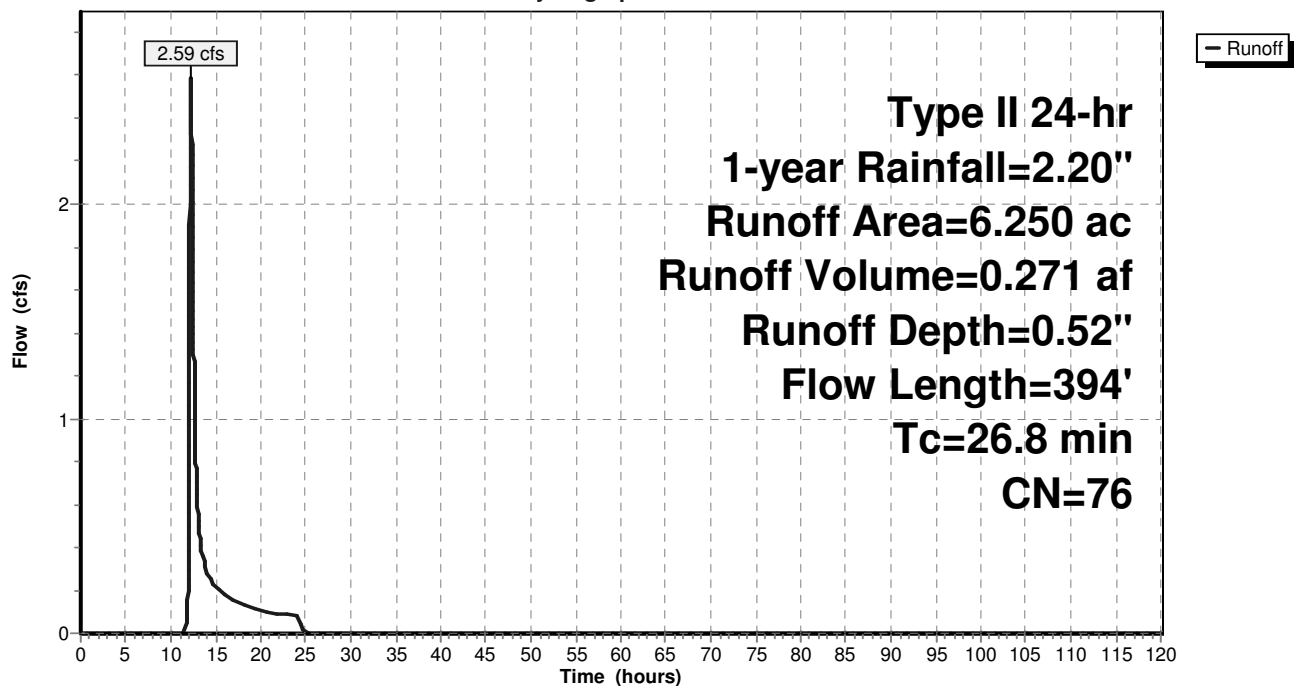
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.20"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.710 | 78 | |
| * 2.540 | 74 | |
| 6.250 | 76 | Weighted Average |
| 6.250 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, |
| | | | | | Grass: Dense n= 0.240 P2= 2.63" |
| 6.0 | 294 | 0.0136 | 0.82 | | Shallow Concentrated Flow, |
| | | | | | Short Grass Pasture Kv= 7.0 fps |
| 26.8 | 394 | Total | | | |

Subcatchment 1S: pre north

Hydrograph



Summary for Subcatchment 2S: pre middle

Runoff = 4.64 cfs @ 12.32 hrs, Volume= 0.557 af, Depth= 0.56"

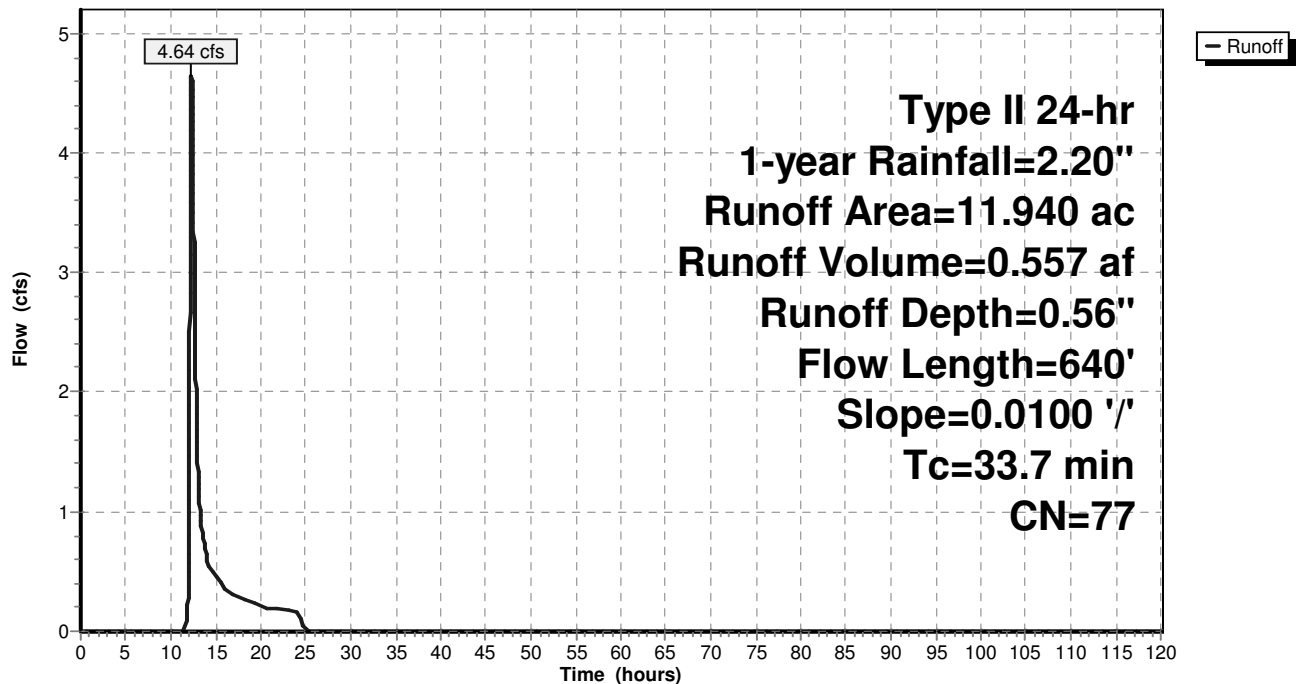
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.20"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 8.860 | 78 | |
| * 3.080 | 74 | |
| 11.940 | 77 | Weighted Average |
| 11.940 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |
| 12.9 | 540 | 0.0100 | 0.70 | | Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps |
| 33.7 | 640 | Total | | | |

Subcatchment 2S: pre middle

Hydrograph



Summary for Subcatchment 3S: pre south

Runoff = 2.18 cfs @ 12.16 hrs, Volume= 0.184 af, Depth= 0.60"

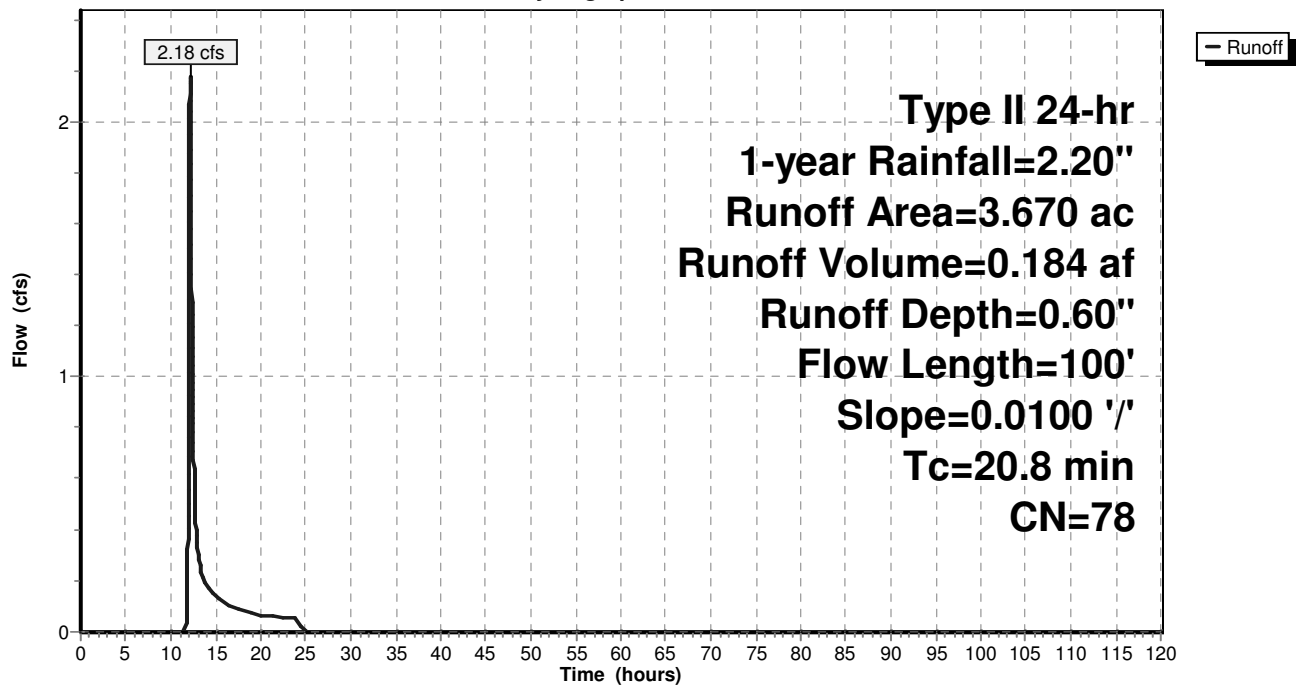
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.20"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.670 | 78 | |
| 3.670 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |

Subcatchment 3S: pre south

Hydrograph



Summary for Subcatchment 4S: pre Subarea "A"

Runoff = 3.50 cfs @ 12.35 hrs, Volume= 0.435 af, Depth= 0.56"

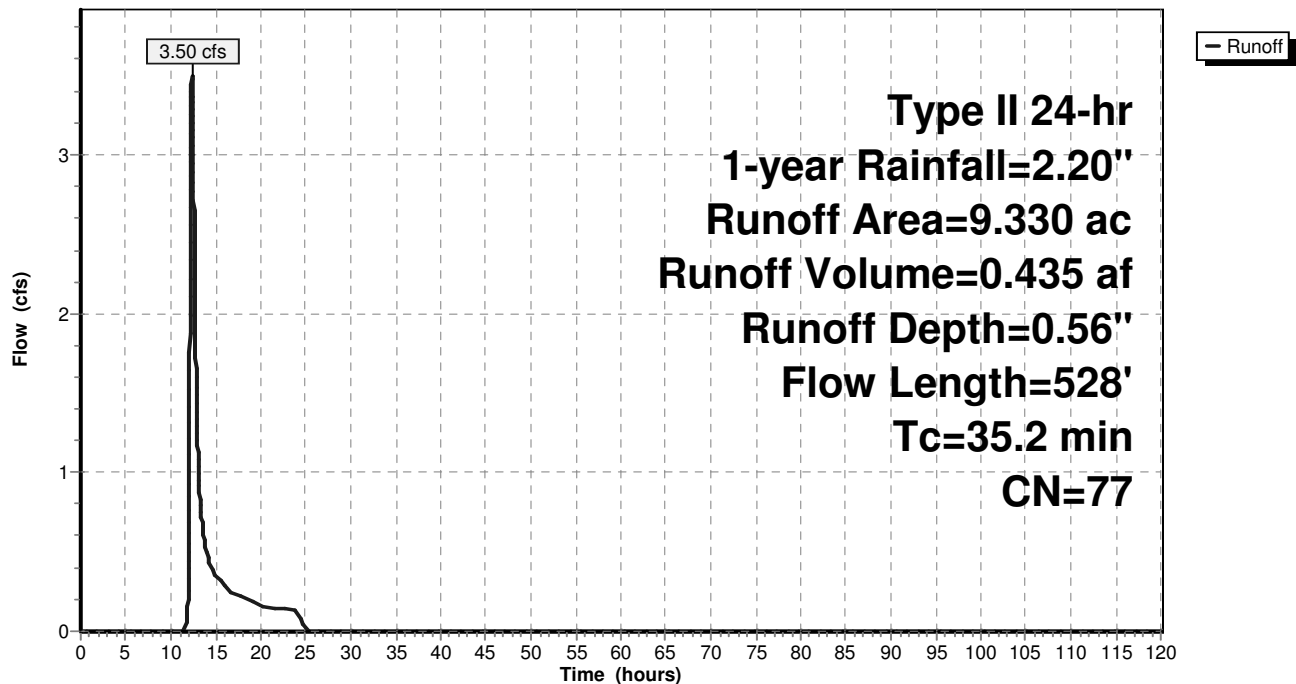
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.20"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 7.180 | 78 | |
| * 2.150 | 74 | |
| 9.330 | 77 | Weighted Average |
| 9.330 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |
| 14.4 | 428 | 0.0050 | 0.49 | | Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps |
| 35.2 | 528 | Total | | | |

Subcatchment 4S: pre Subarea "A"

Hydrograph



Summary for Subcatchment 5S: post north

Runoff = 22.40 cfs @ 12.02 hrs, Volume= 1.218 af, Depth= 1.27"

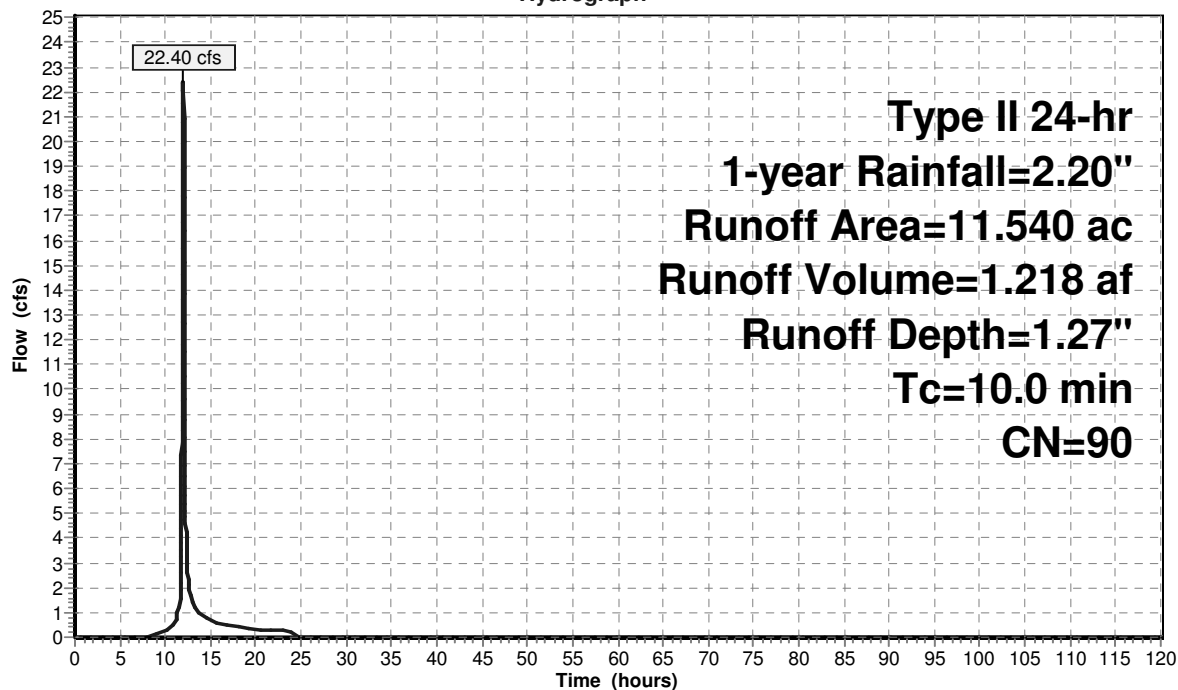
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.20"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 11.540 | 90 | |
| 11.540 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0 | | | | | Direct Entry, |

Subcatchment 5S: post north

Hydrograph



Summary for Subcatchment 6S: post middle

Runoff = 23.17 cfs @ 12.02 hrs, Volume= 1.260 af, Depth= 1.27"

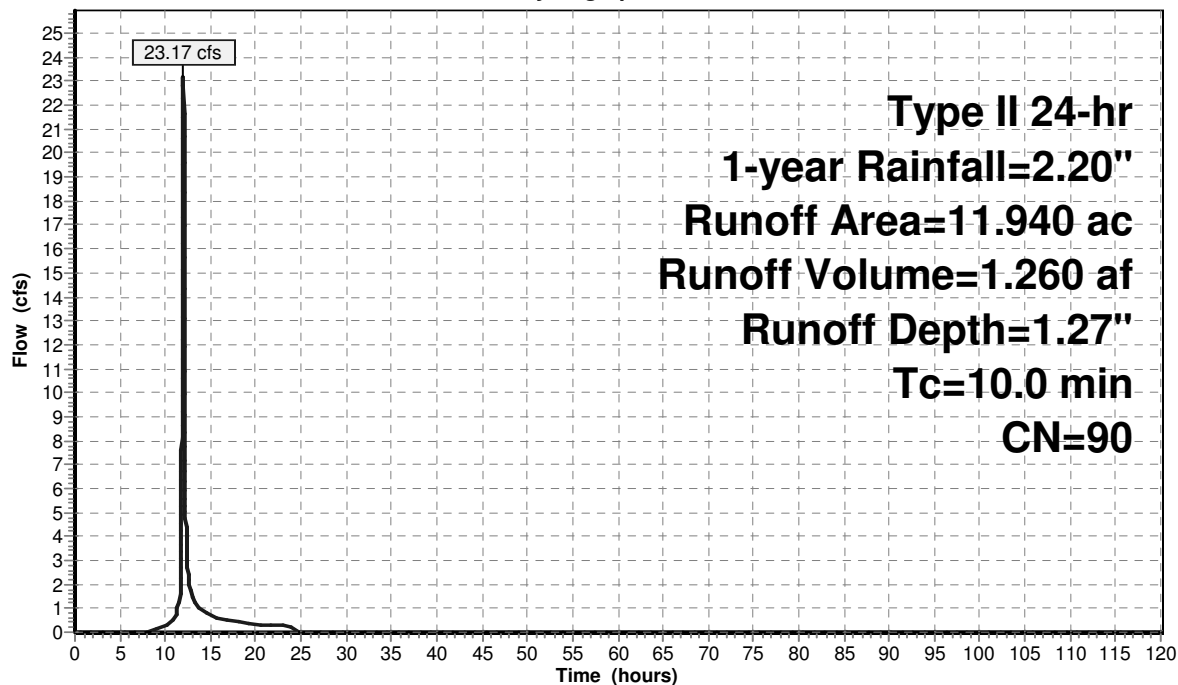
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.20"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 11.940 | 90 | |
| 11.940 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0 | | | | | Direct Entry, |

Subcatchment 6S: post middle

Hydrograph



Summary for Subcatchment 7S: post south

Runoff = 8.51 cfs @ 11.96 hrs, Volume= 0.387 af, Depth= 1.27"

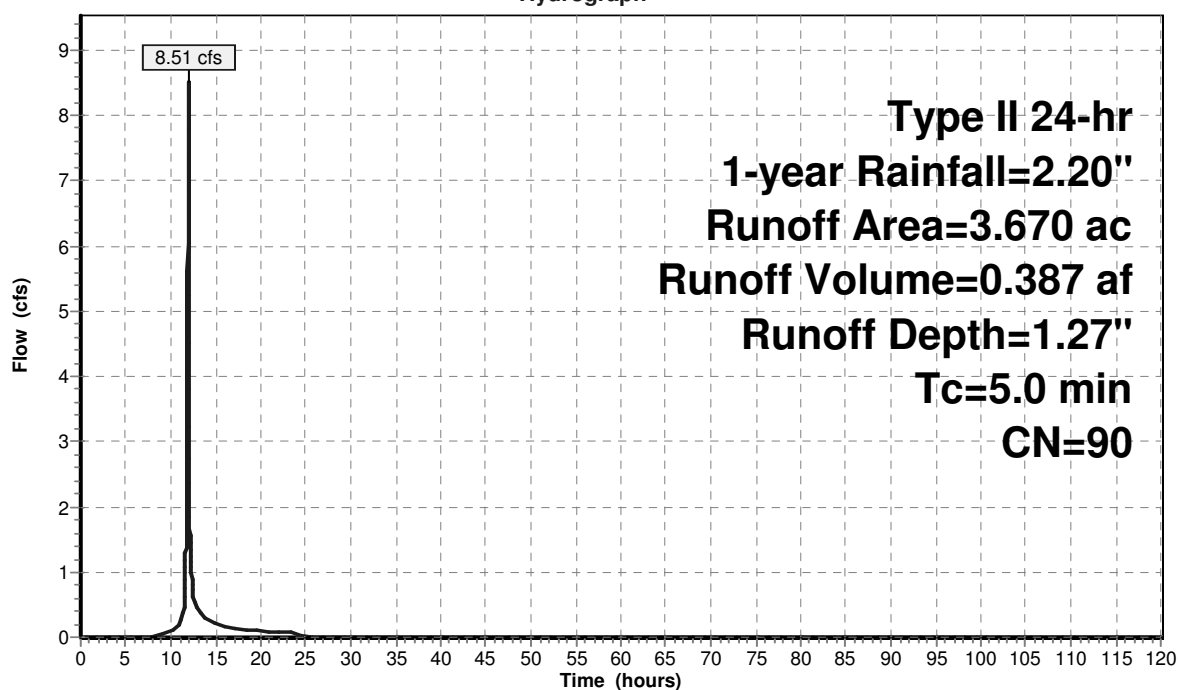
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.20"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.670 | 90 | |
| 3.670 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0 | | | | | Direct Entry, |

Subcatchment 7S: post south

Hydrograph



Summary for Subcatchment 8S: post Subarea "A"

Runoff = 26.01 cfs @ 11.96 hrs, Volume= 1.232 af, Depth= 1.58"

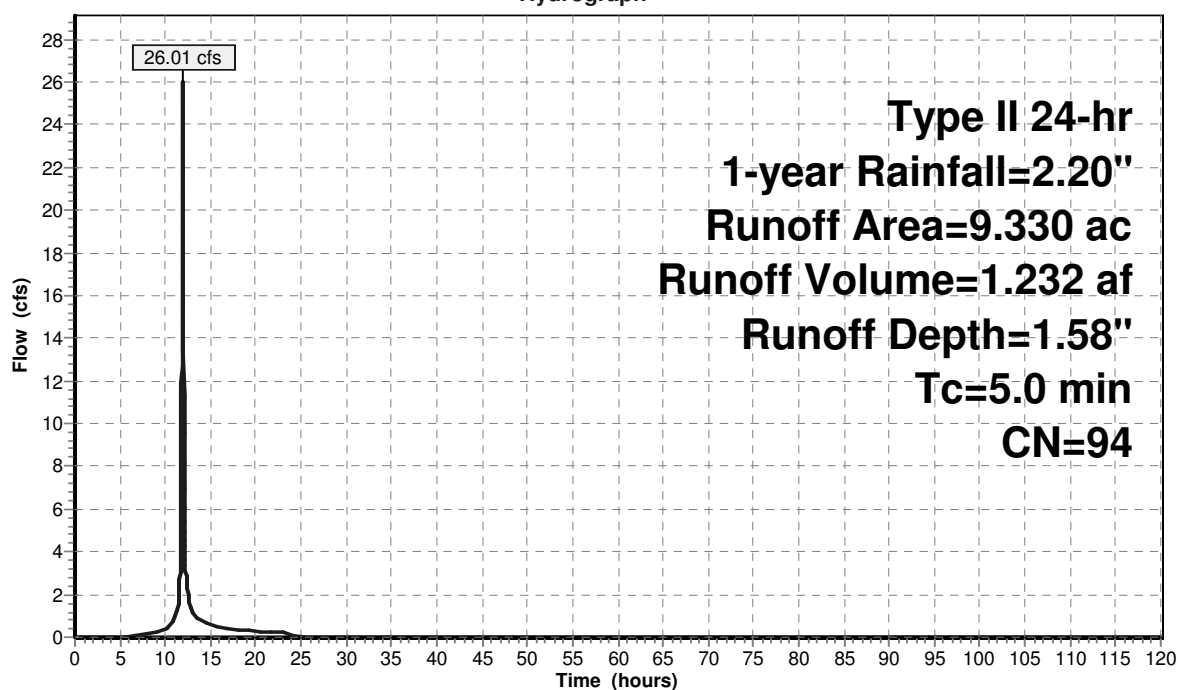
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.20"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 9.330 | 94 | |
| 9.330 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0 | | | | | Direct Entry, |

Subcatchment 8S: post Subarea "A"

Hydrograph



Summary for Pond 9P: Subarea B north SWMA

Inflow Area = 11.540 ac, 0.00% Impervious, Inflow Depth = 1.27" for 1-year event
 Inflow = 22.40 cfs @ 12.02 hrs, Volume= 1.218 af
 Outflow = 0.56 cfs @ 15.73 hrs, Volume= 1.198 af, Atten= 98%, Lag= 223.1 min
 Primary = 0.56 cfs @ 15.73 hrs, Volume= 1.198 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 925.30' @ 15.73 hrs Surf.Area= 40,575 sf Storage= 35,210 cf

Plug-Flow detention time= 924.9 min calculated for 1.198 af (98% of inflow)
 Center-of-Mass det. time= 914.9 min (1,737.8 - 822.8)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 924.40' | 157,610 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40 | 37,449 | 0 | 0 |
| 925.00 | 39,518 | 23,090 | 23,090 |
| 926.00 | 43,009 | 41,264 | 64,354 |
| 927.00 | 46,603 | 44,806 | 109,160 |
| 928.00 | 50,297 | 48,450 | 157,610 |

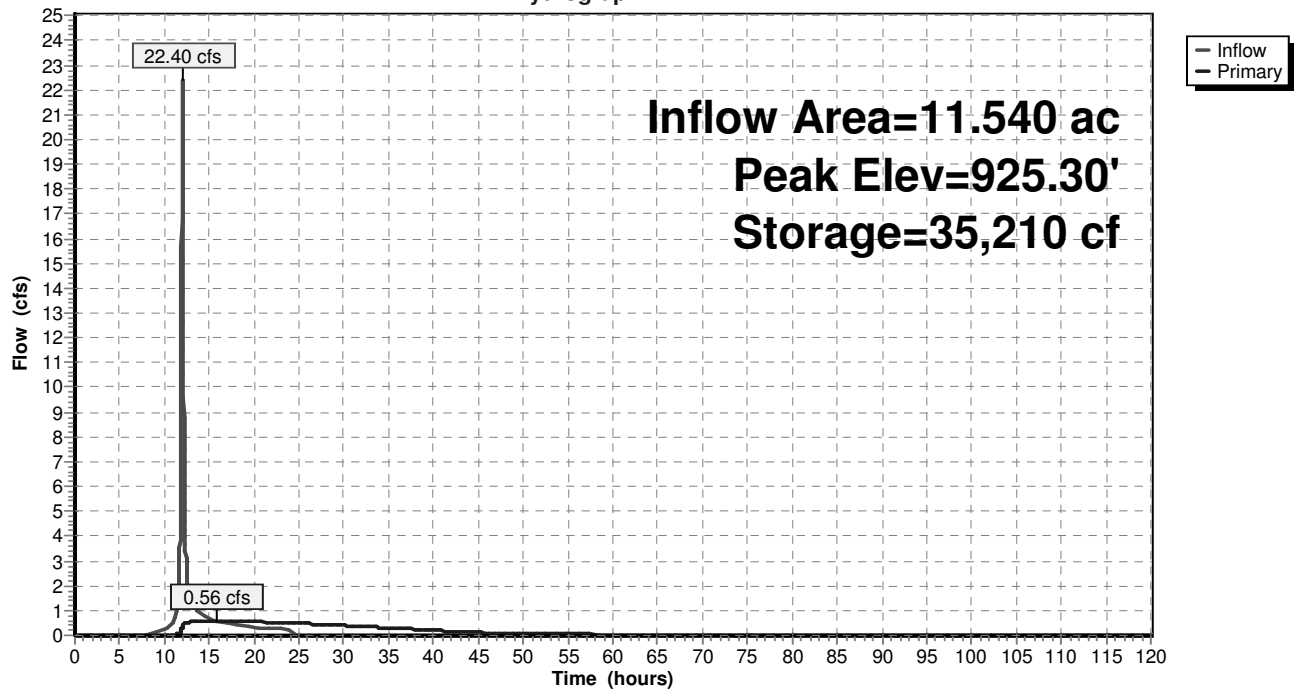
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|--|
| #1 | Primary | 924.40' | 3.5" Vert. Orifice/Grate X 2.00 C= 0.600 |
| #2 | Primary | 927.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |
| #3 | Primary | 927.50' | 20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

Primary OutFlow Max=0.56 cfs @ 15.73 hrs HW=925.30' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.56 cfs @ 4.19 fps)
 2=Orifice/Grate (Controls 0.00 cfs)
 3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 9P: Subarea B north SWMA

Hydrograph



Summary for Pond 10P: Subarea B middle SWMA

Inflow Area = 11.940 ac, 0.00% Impervious, Inflow Depth = 1.27" for 1-year event
 Inflow = 23.17 cfs @ 12.02 hrs, Volume= 1.260 af
 Outflow = 0.40 cfs @ 18.23 hrs, Volume= 1.234 af, Atten= 98%, Lag= 372.6 min
 Primary = 0.40 cfs @ 18.23 hrs, Volume= 1.234 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 925.49' @ 18.23 hrs Surf.Area= 41,168 sf Storage= 39,498 cf

Plug-Flow detention time= 1,293.2 min calculated for 1.234 af (98% of inflow)
 Center-of-Mass det. time= 1,281.0 min (2,103.9 - 822.8)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 924.40' | 155,661 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40 | 26,879 | 0 | 0 |
| 925.00 | 39,220 | 19,830 | 19,830 |
| 926.00 | 43,202 | 41,211 | 61,041 |
| 927.00 | 47,285 | 45,244 | 106,284 |
| 928.00 | 51,468 | 49,377 | 155,661 |

| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 924.40' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 925.50' | 10.0" W x 5.0" H Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 926.90' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=0.40 cfs @ 18.23 hrs HW=925.49' (Free Discharge)

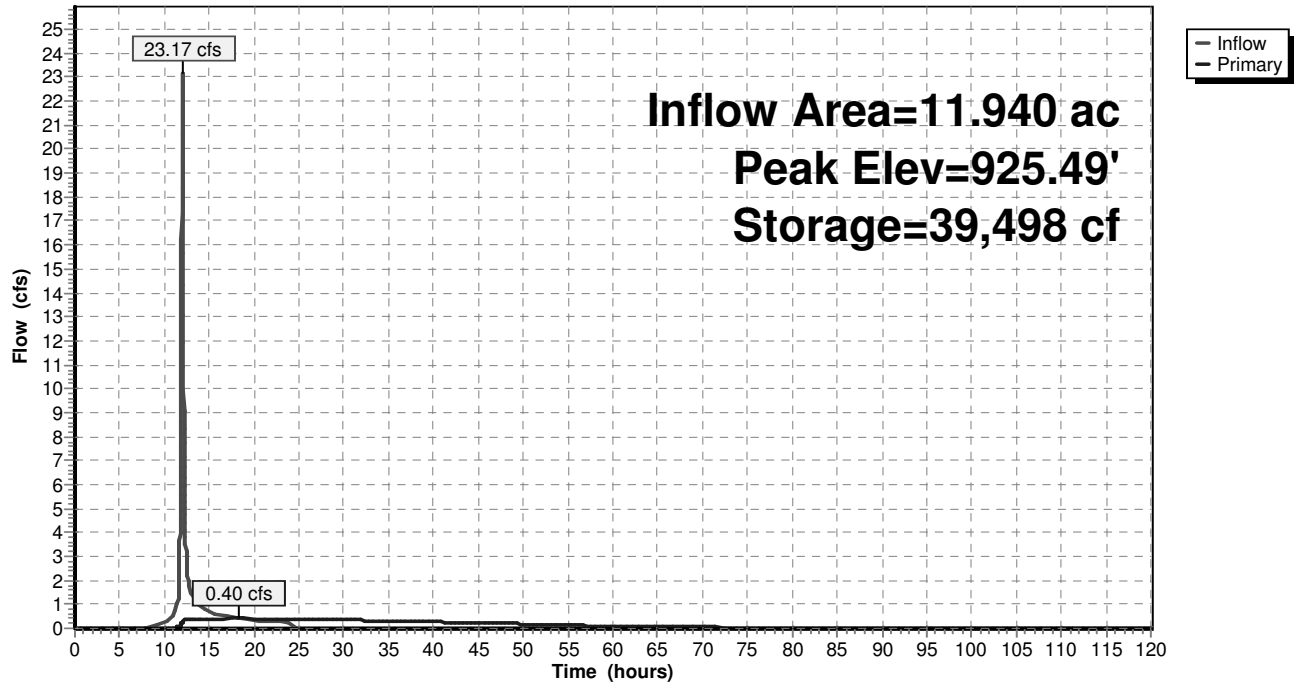
1=Orifice/Grate (Orifice Controls 0.40 cfs @ 4.63 fps)

2=Orifice/Grate (Controls 0.00 cfs)

3=Orifice/Grate (Controls 0.00 cfs)

Pond 10P: Subarea B middle SWMA

Hydrograph



Summary for Pond 11P: Subarea B south SWMA

Inflow Area = 3.670 ac, 0.00% Impervious, Inflow Depth = 1.27" for 1-year event
 Inflow = 8.51 cfs @ 11.96 hrs, Volume= 0.387 af
 Outflow = 0.22 cfs @ 14.80 hrs, Volume= 0.382 af, Atten= 97%, Lag= 170.3 min
 Primary = 0.22 cfs @ 14.80 hrs, Volume= 0.382 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 926.95' @ 14.80 hrs Surf.Area= 12,634 sf Storage= 11,007 cf

Plug-Flow detention time= 1,109.6 min calculated for 0.382 af (99% of inflow)
 Center-of-Mass det. time= 1,101.5 min (1,919.7 - 818.2)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 926.00' | 60,527 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 926.00 | 10,530 | 0 | 0 |
| 927.00 | 12,744 | 11,637 | 11,637 |
| 928.00 | 15,057 | 13,901 | 25,538 |
| 929.00 | 17,472 | 16,265 | 41,802 |
| 930.00 | 19,978 | 18,725 | 60,527 |

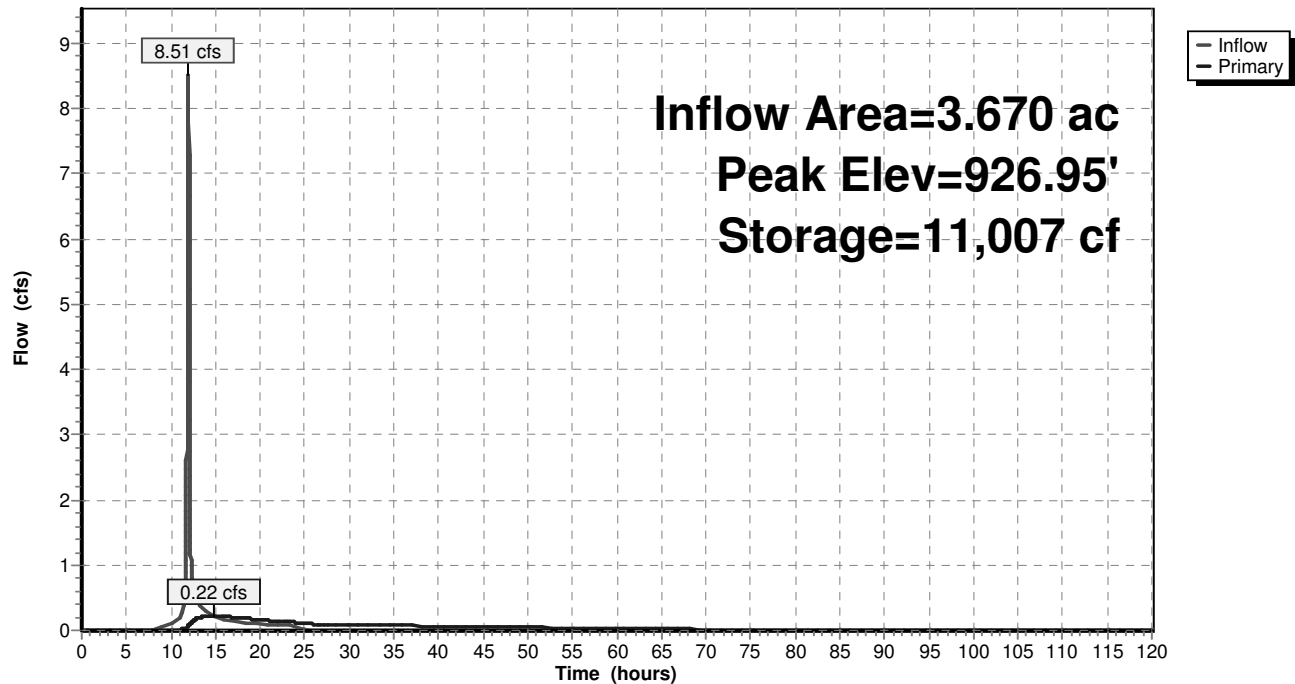
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 926.00' | 2.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 926.70' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 928.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=0.22 cfs @ 14.80 hrs HW=926.95' (Free Discharge)

↑
 —1=Orifice/Grate (Orifice Controls 0.10 cfs @ 4.48 fps)
 —2=Orifice/Grate (Orifice Controls 0.12 cfs @ 1.70 fps)
 —3=Orifice/Grate (Controls 0.00 cfs)

Pond 11P: Subarea B south SWMA

Hydrograph



Summary for Pond 12P: Subarea "A" SWMA

Inflow Area = 9.330 ac, 0.00% Impervious, Inflow Depth = 1.58" for 1-year event
 Inflow = 26.01 cfs @ 11.96 hrs, Volume= 1.232 af
 Outflow = 0.49 cfs @ 15.73 hrs, Volume= 1.199 af, Atten= 98%, Lag= 226.3 min
 Primary = 0.49 cfs @ 15.73 hrs, Volume= 1.199 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 931.11' @ 15.73 hrs Surf.Area= 36,373 sf Storage= 38,150 cf

Plug-Flow detention time= 1,222.5 min calculated for 1.199 af (97% of inflow)
 Center-of-Mass det. time= 1,206.2 min (2,002.3 - 796.1)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 930.00' | 159,374 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 930.00 | 32,218 | 0 | 0 |
| 931.00 | 35,943 | 34,081 | 34,081 |
| 932.00 | 39,768 | 37,856 | 71,936 |
| 933.00 | 43,694 | 41,731 | 113,667 |
| 934.00 | 47,719 | 45,707 | 159,374 |

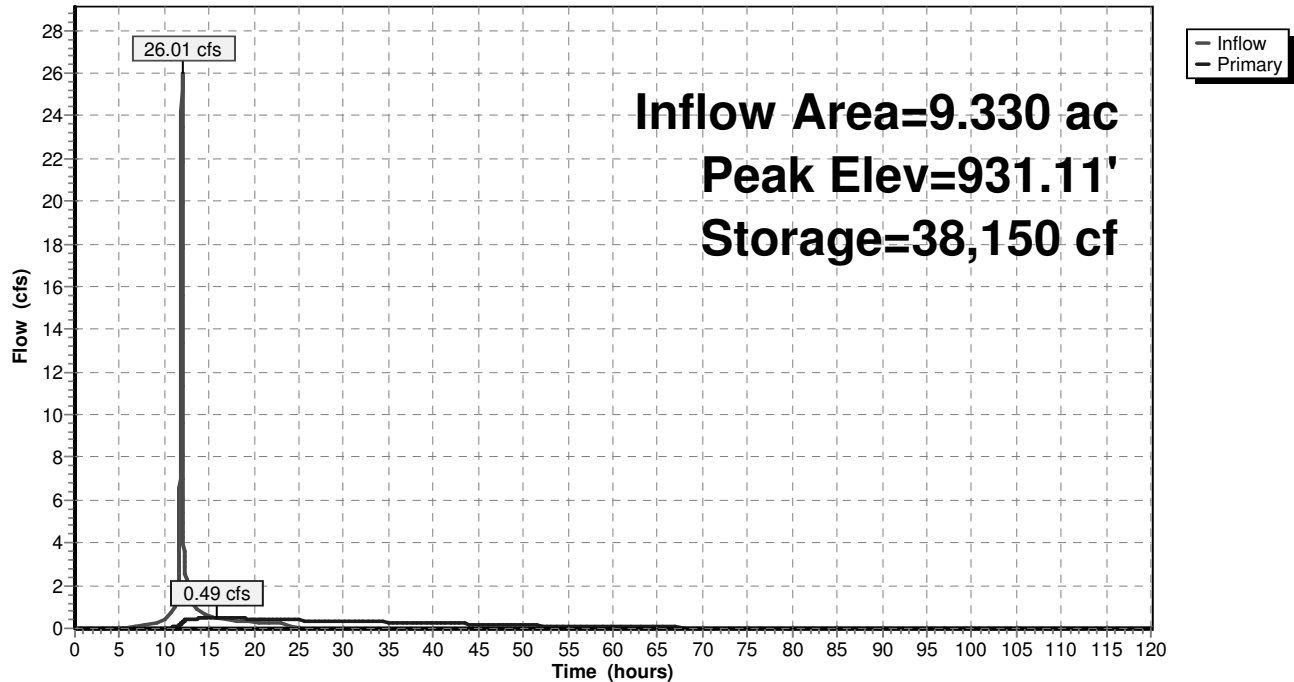
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 930.00' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 931.00' | 8.0" W x 4.0" H Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 932.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=0.49 cfs @ 15.73 hrs HW=931.11' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.41 cfs @ 4.68 fps)
 2=Orifice/Grate (Orifice Controls 0.08 cfs @ 1.08 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond 12P: Subarea "A" SWMA

Hydrograph



Summary for Subcatchment 1S: pre north

Runoff = 4.13 cfs @ 12.24 hrs, Volume= 0.403 af, Depth= 0.77"

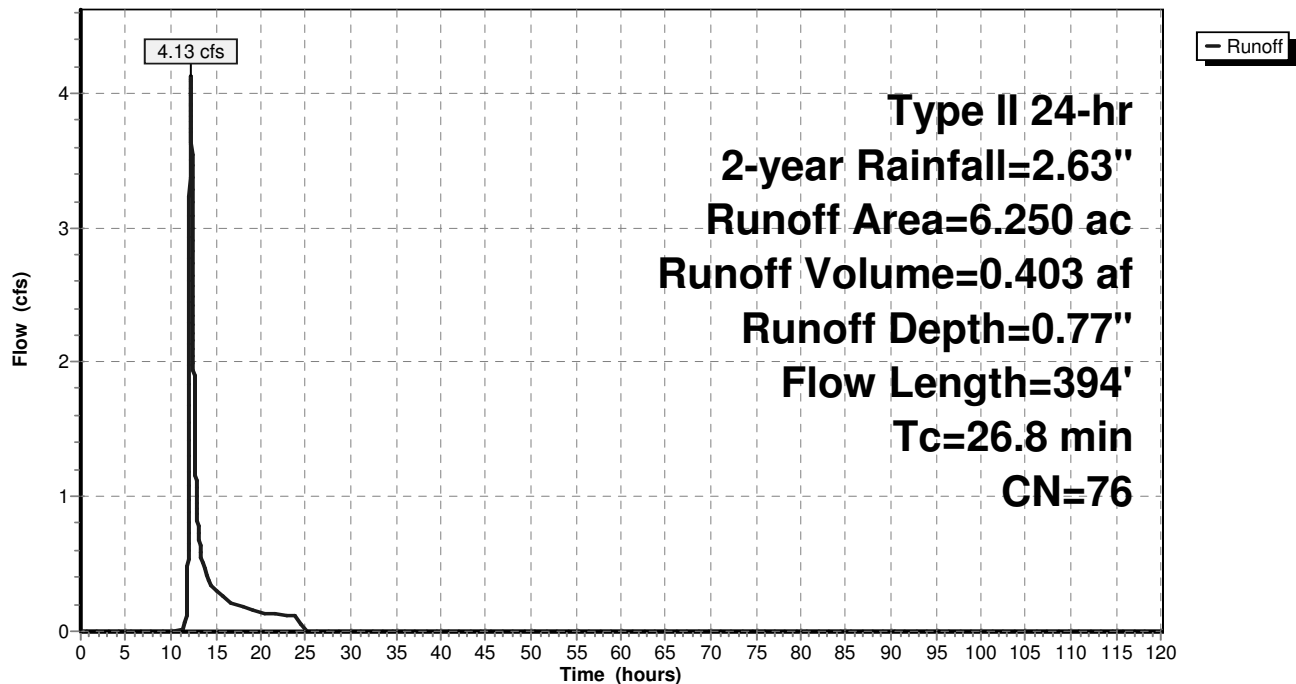
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=2.63"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.710 | 78 | |
| * 2.540 | 74 | |
| 6.250 | 76 | Weighted Average |
| 6.250 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, |
| | | | | | Grass: Dense n= 0.240 P2= 2.63" |
| 6.0 | 294 | 0.0136 | 0.82 | | Shallow Concentrated Flow, |
| | | | | | Short Grass Pasture Kv= 7.0 fps |
| 26.8 | 394 | Total | | | |

Subcatchment 1S: pre north

Hydrograph



Summary for Subcatchment 2S: pre middle

Runoff = 7.28 cfs @ 12.32 hrs, Volume= 0.819 af, Depth= 0.82"

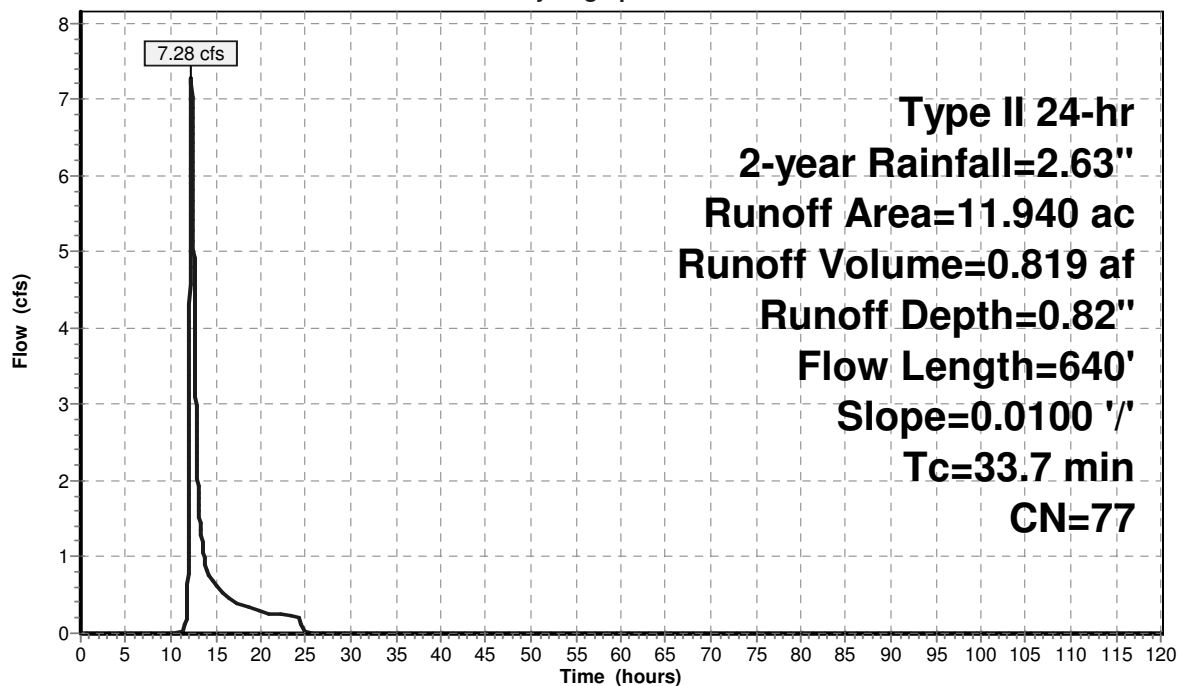
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=2.63"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 8.860 | 78 | |
| * 3.080 | 74 | |
| 11.940 | 77 | Weighted Average |
| 11.940 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, |
| | | | | | Grass: Dense n= 0.240 P2= 2.63" |
| 12.9 | 540 | 0.0100 | 0.70 | | Shallow Concentrated Flow, |
| | | | | | Short Grass Pasture Kv= 7.0 fps |
| 33.7 | 640 | Total | | | |

Subcatchment 2S: pre middle

Hydrograph



Summary for Subcatchment 3S: pre south

Runoff = 3.31 cfs @ 12.15 hrs, Volume= 0.267 af, Depth= 0.87"

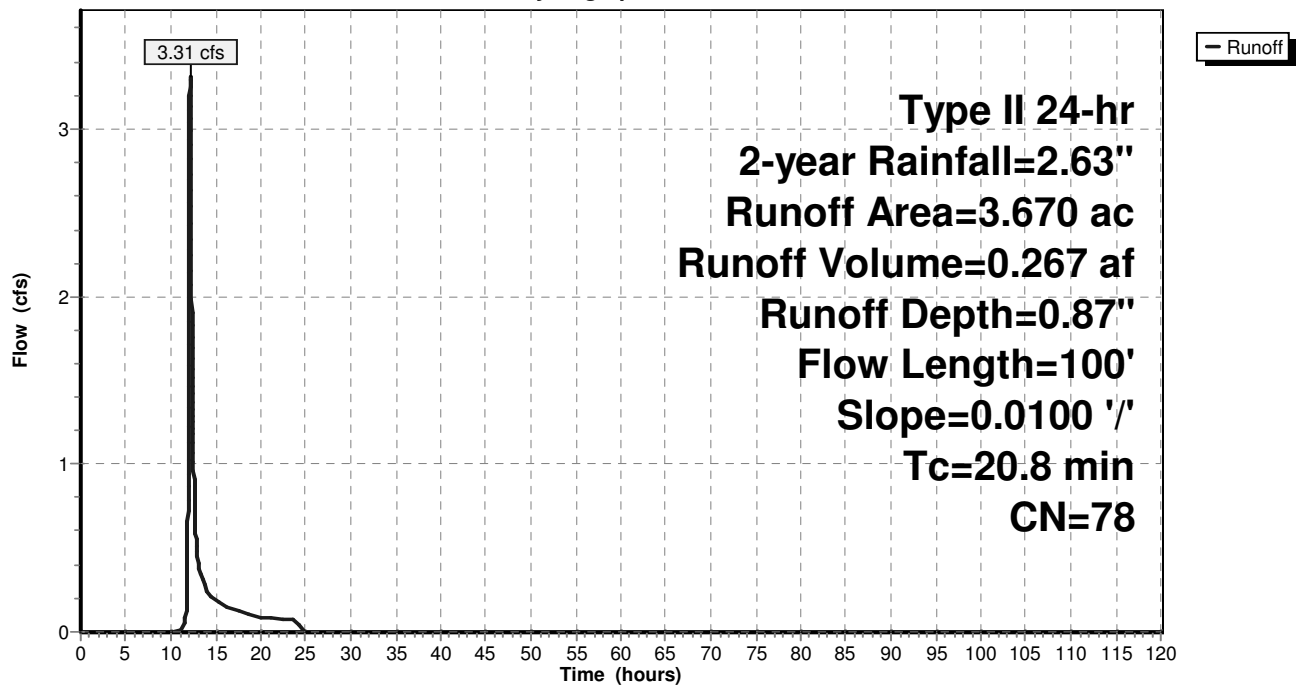
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=2.63"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.670 | 78 | |
| 3.670 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |

Subcatchment 3S: pre south

Hydrograph



Summary for Subcatchment 4S: pre Subarea "A"

Runoff = 5.51 cfs @ 12.32 hrs, Volume= 0.640 af, Depth= 0.82"

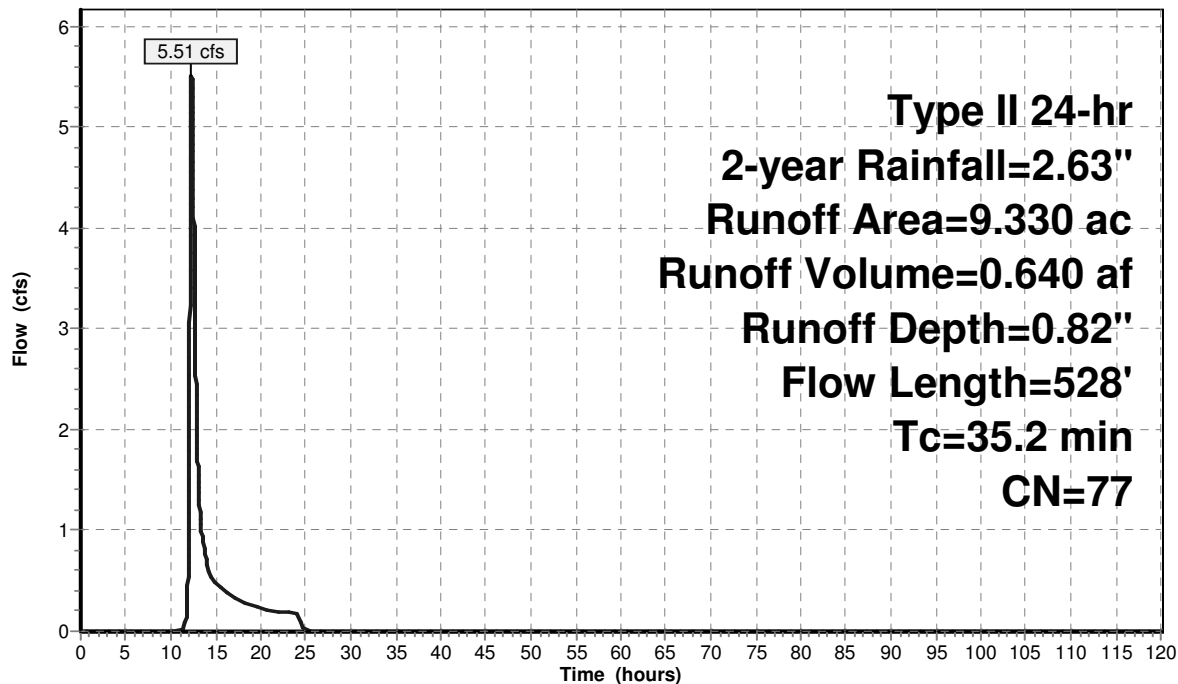
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=2.63"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 7.180 | 78 | |
| * 2.150 | 74 | |
| 9.330 | 77 | Weighted Average |
| 9.330 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |
| 14.4 | 428 | 0.0050 | 0.49 | | Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps |
| 35.2 | 528 | Total | | | |

Subcatchment 4S: pre Subarea "A"

Hydrograph



Summary for Subcatchment 5S: post north

Runoff = 28.93 cfs @ 12.01 hrs, Volume= 1.584 af, Depth= 1.65"

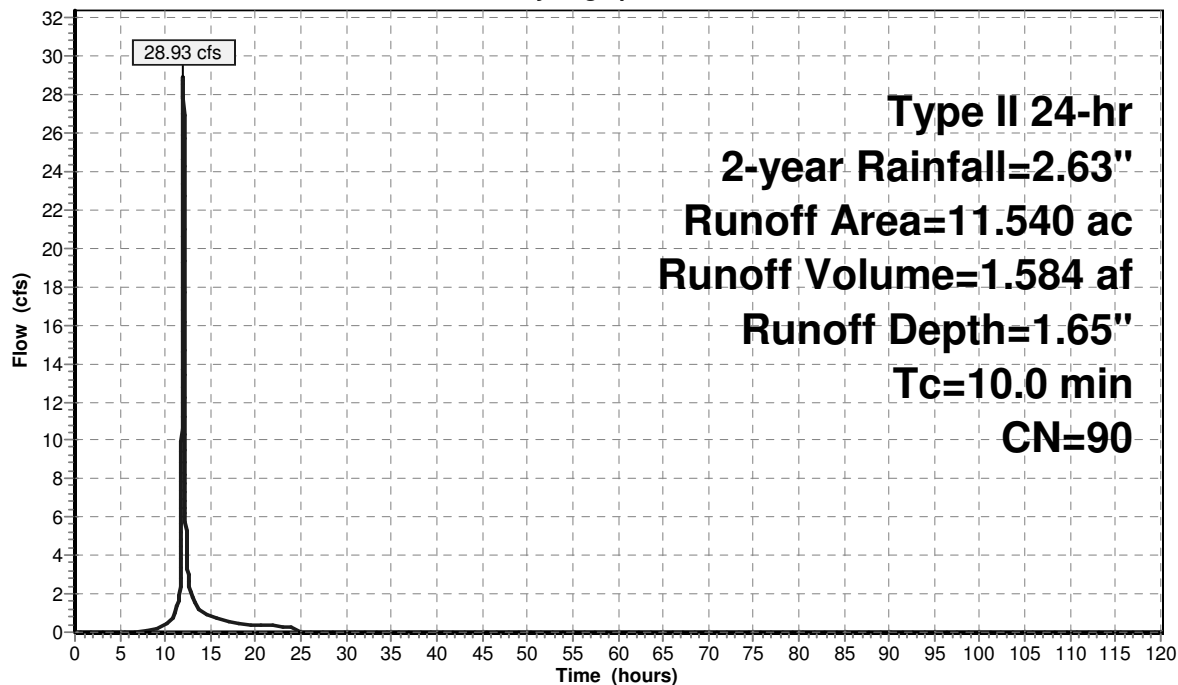
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=2.63"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 11.540 | 90 | |
| 11.540 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0 | | | | | Direct Entry, |

Subcatchment 5S: post north

Hydrograph



Summary for Subcatchment 6S: post middle

Runoff = 29.93 cfs @ 12.01 hrs, Volume= 1.639 af, Depth= 1.65"

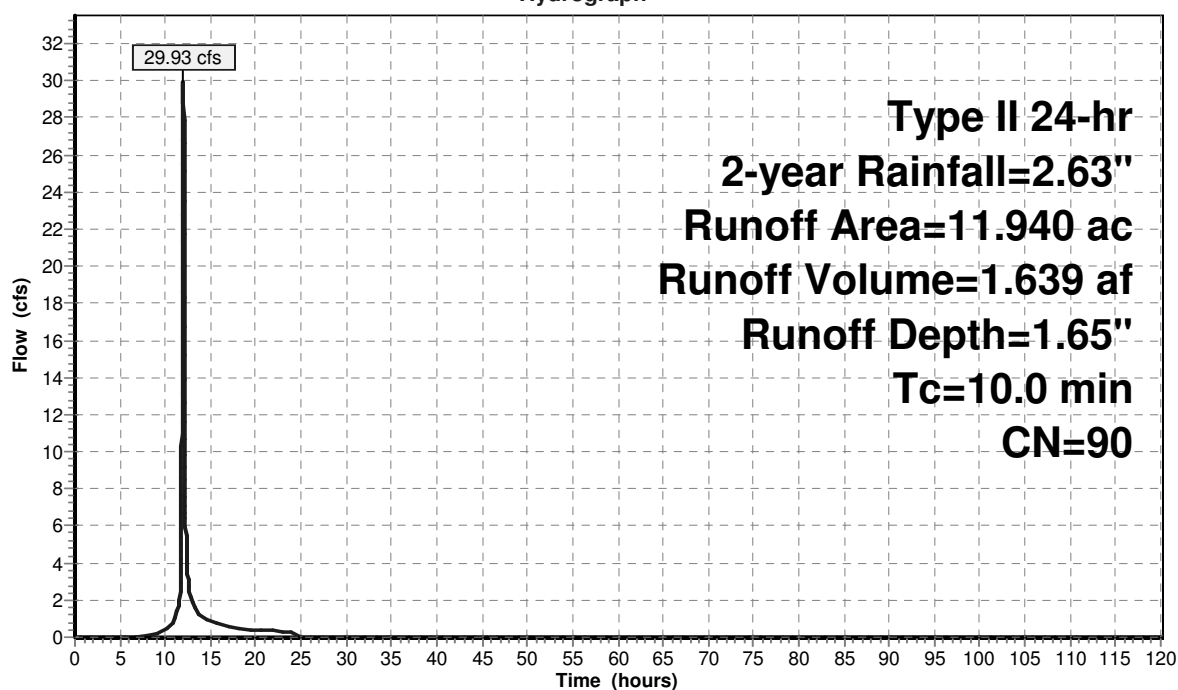
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=2.63"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 11.940 | 90 | |
| 11.940 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0 | | | | | Direct Entry, |

Subcatchment 6S: post middle

Hydrograph



Summary for Subcatchment 7S: post south

Runoff = 10.95 cfs @ 11.96 hrs, Volume= 0.504 af, Depth= 1.65"

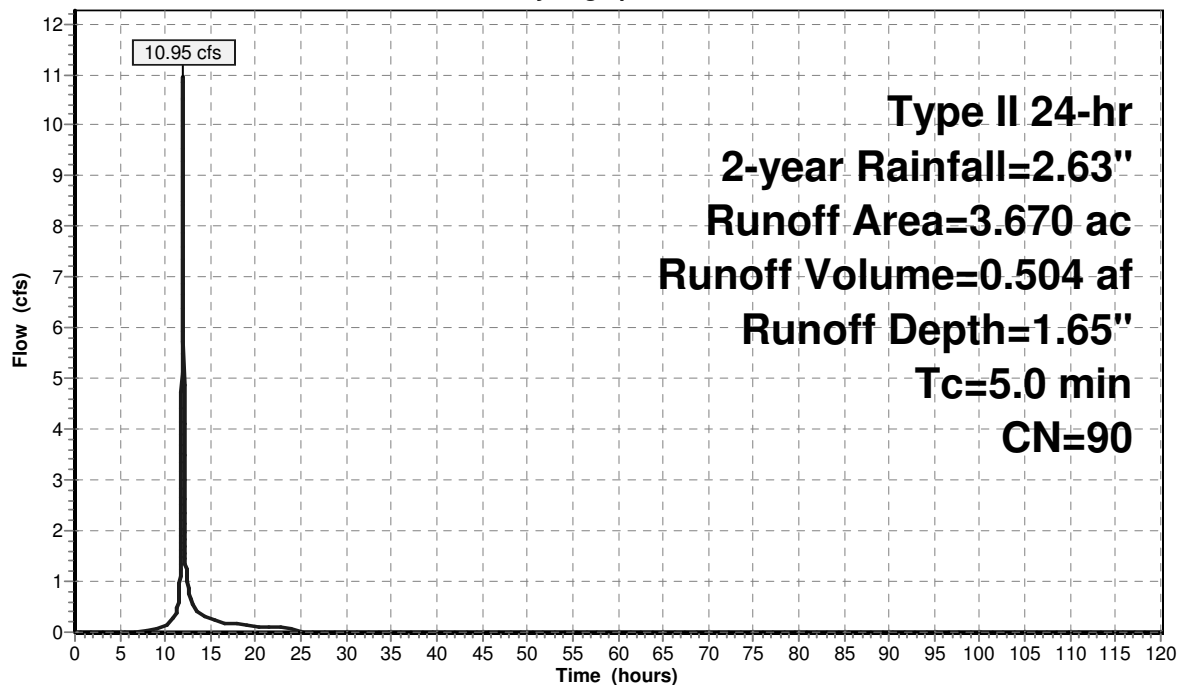
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=2.63"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.670 | 90 | |
| 3.670 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0 | | | | | Direct Entry, |

Subcatchment 7S: post south

Hydrograph



Summary for Subcatchment 8S: post Subarea "A"

Runoff = 32.25 cfs @ 11.96 hrs, Volume= 1.550 af, Depth= 1.99"

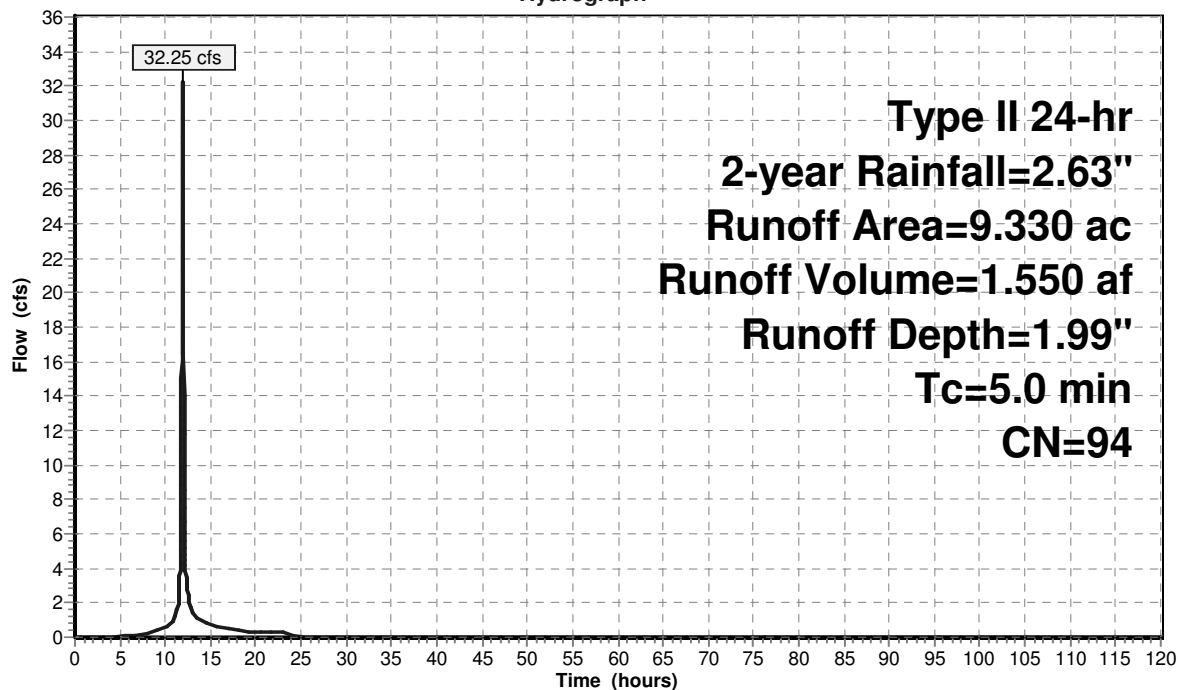
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=2.63"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 9.330 | 94 | |
| 9.330 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0 | | | | | Direct Entry, |

Subcatchment 8S: post Subarea "A"

Hydrograph



Summary for Pond 9P: Subarea B north SWMA

Inflow Area = 11.540 ac, 0.00% Impervious, Inflow Depth = 1.65" for 2-year event
 Inflow = 28.93 cfs @ 12.01 hrs, Volume= 1.584 af
 Outflow = 0.66 cfs @ 15.94 hrs, Volume= 1.562 af, Atten= 98%, Lag= 235.7 min
 Primary = 0.66 cfs @ 15.94 hrs, Volume= 1.562 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 925.59' @ 15.94 hrs Surf.Area= 41,589 sf Storage= 47,147 cf

Plug-Flow detention time= 998.8 min calculated for 1.562 af (99% of inflow)
 Center-of-Mass det. time= 990.6 min (1,805.9 - 815.3)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 924.40' | 157,610 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40 | 37,449 | 0 | 0 |
| 925.00 | 39,518 | 23,090 | 23,090 |
| 926.00 | 43,009 | 41,264 | 64,354 |
| 927.00 | 46,603 | 44,806 | 109,160 |
| 928.00 | 50,297 | 48,450 | 157,610 |

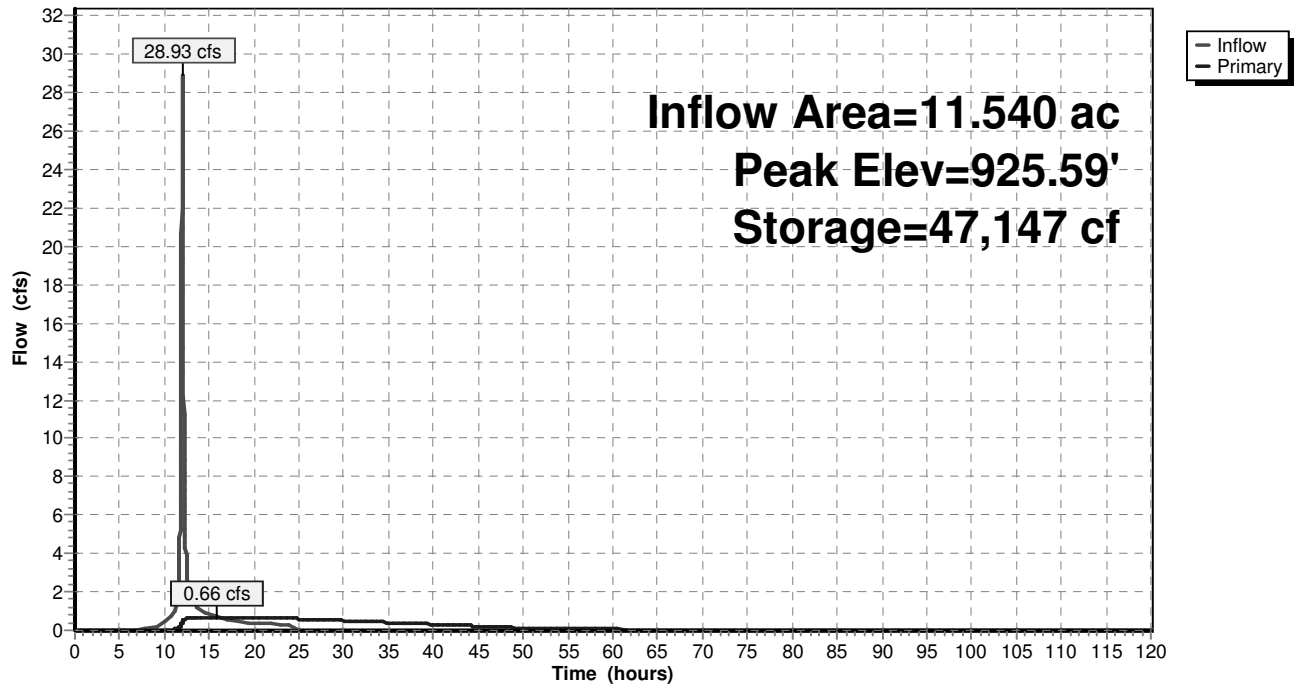
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|--|
| #1 | Primary | 924.40' | 3.5" Vert. Orifice/Grate X 2.00 C= 0.600 |
| #2 | Primary | 927.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |
| #3 | Primary | 927.50' | 20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

Primary OutFlow Max=0.66 cfs @ 15.94 hrs HW=925.59' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.66 cfs @ 4.93 fps)
 2=Orifice/Grate (Controls 0.00 cfs)
 3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 9P: Subarea B north SWMA

Hydrograph



Summary for Pond 10P: Subarea B middle SWMA

Inflow Area = 11.940 ac, 0.00% Impervious, Inflow Depth = 1.65" for 2-year event
 Inflow = 29.93 cfs @ 12.01 hrs, Volume= 1.639 af
 Outflow = 0.74 cfs @ 15.65 hrs, Volume= 1.611 af, Atten= 98%, Lag= 218.4 min
 Primary = 0.74 cfs @ 15.65 hrs, Volume= 1.611 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 925.72' @ 15.65 hrs Surf.Area= 42,103 sf Storage= 49,272 cf

Plug-Flow detention time= 1,217.5 min calculated for 1.611 af (98% of inflow)
 Center-of-Mass det. time= 1,207.0 min (2,022.4 - 815.3)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 924.40' | 155,661 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40 | 26,879 | 0 | 0 |
| 925.00 | 39,220 | 19,830 | 19,830 |
| 926.00 | 43,202 | 41,211 | 61,041 |
| 927.00 | 47,285 | 45,244 | 106,284 |
| 928.00 | 51,468 | 49,377 | 155,661 |

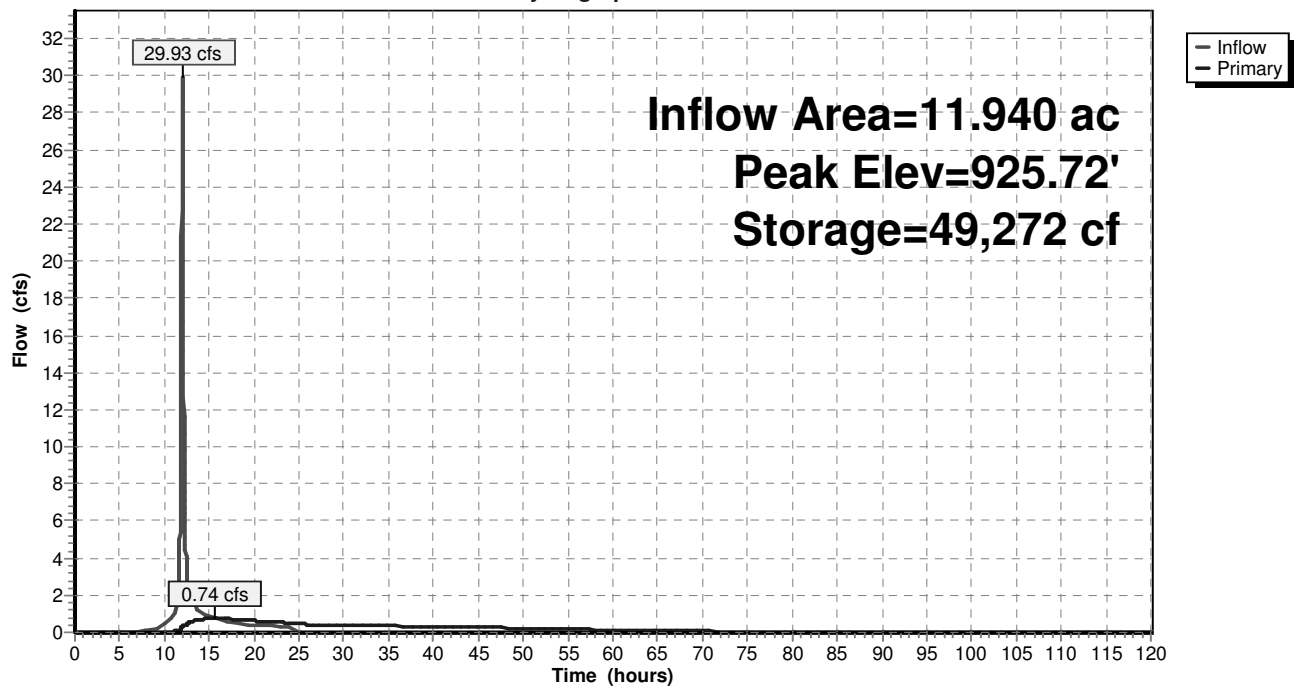
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 924.40' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 925.50' | 10.0" W x 5.0" H Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 926.90' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=0.74 cfs @ 15.65 hrs HW=925.72' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.45 cfs @ 5.18 fps)
 2=Orifice/Grate (Orifice Controls 0.28 cfs @ 1.52 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond 10P: Subarea B middle SWMA

Hydrograph



Summary for Pond 11P: Subarea B south SWMA

Inflow Area = 3.670 ac, 0.00% Impervious, Inflow Depth = 1.65" for 2-year event
 Inflow = 10.95 cfs @ 11.96 hrs, Volume= 0.504 af
 Outflow = 0.34 cfs @ 13.91 hrs, Volume= 0.498 af, Atten= 97%, Lag= 117.0 min
 Primary = 0.34 cfs @ 13.91 hrs, Volume= 0.498 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 927.17' @ 13.91 hrs Surf.Area= 13,132 sf Storage= 13,807 cf

Plug-Flow detention time= 958.0 min calculated for 0.498 af (99% of inflow)
 Center-of-Mass det. time= 951.4 min (1,762.1 - 810.7)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 926.00' | 60,527 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 926.00 | 10,530 | 0 | 0 |
| 927.00 | 12,744 | 11,637 | 11,637 |
| 928.00 | 15,057 | 13,901 | 25,538 |
| 929.00 | 17,472 | 16,265 | 41,802 |
| 930.00 | 19,978 | 18,725 | 60,527 |

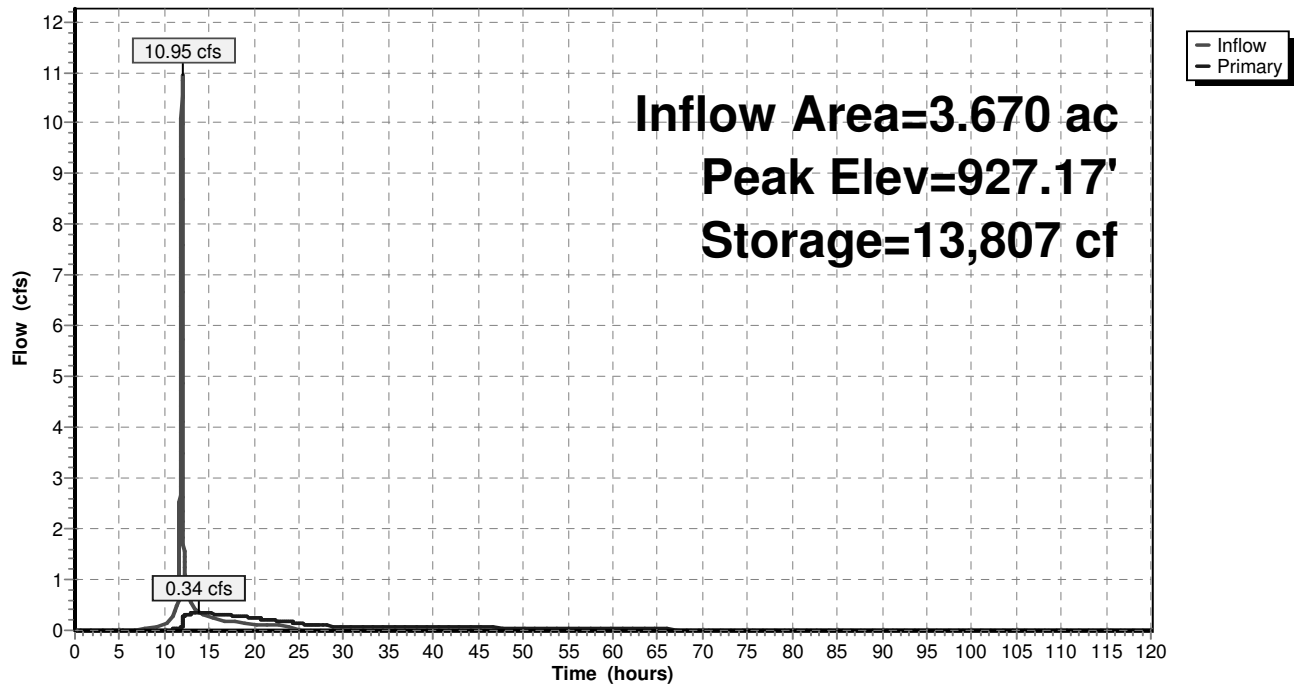
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 926.00' | 2.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 926.70' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 928.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=0.34 cfs @ 13.91 hrs HW=927.17' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.11 cfs @ 5.01 fps)
 2=Orifice/Grate (Orifice Controls 0.23 cfs @ 2.64 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond 11P: Subarea B south SWMA

Hydrograph



Summary for Pond 12P: Subarea "A" SWMA

Inflow Area = 9.330 ac, 0.00% Impervious, Inflow Depth = 1.99" for 2-year event
 Inflow = 32.25 cfs @ 11.96 hrs, Volume= 1.550 af
 Outflow = 0.84 cfs @ 14.21 hrs, Volume= 1.516 af, Atten= 97%, Lag= 135.3 min
 Primary = 0.84 cfs @ 14.21 hrs, Volume= 1.516 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 931.32' @ 14.21 hrs Surf.Area= 37,173 sf Storage= 45,832 cf

Plug-Flow detention time= 1,107.2 min calculated for 1.516 af (98% of inflow)
 Center-of-Mass det. time= 1,093.6 min (1,883.2 - 789.6)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 930.00' | 159,374 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 930.00 | 32,218 | 0 | 0 |
| 931.00 | 35,943 | 34,081 | 34,081 |
| 932.00 | 39,768 | 37,856 | 71,936 |
| 933.00 | 43,694 | 41,731 | 113,667 |
| 934.00 | 47,719 | 45,707 | 159,374 |

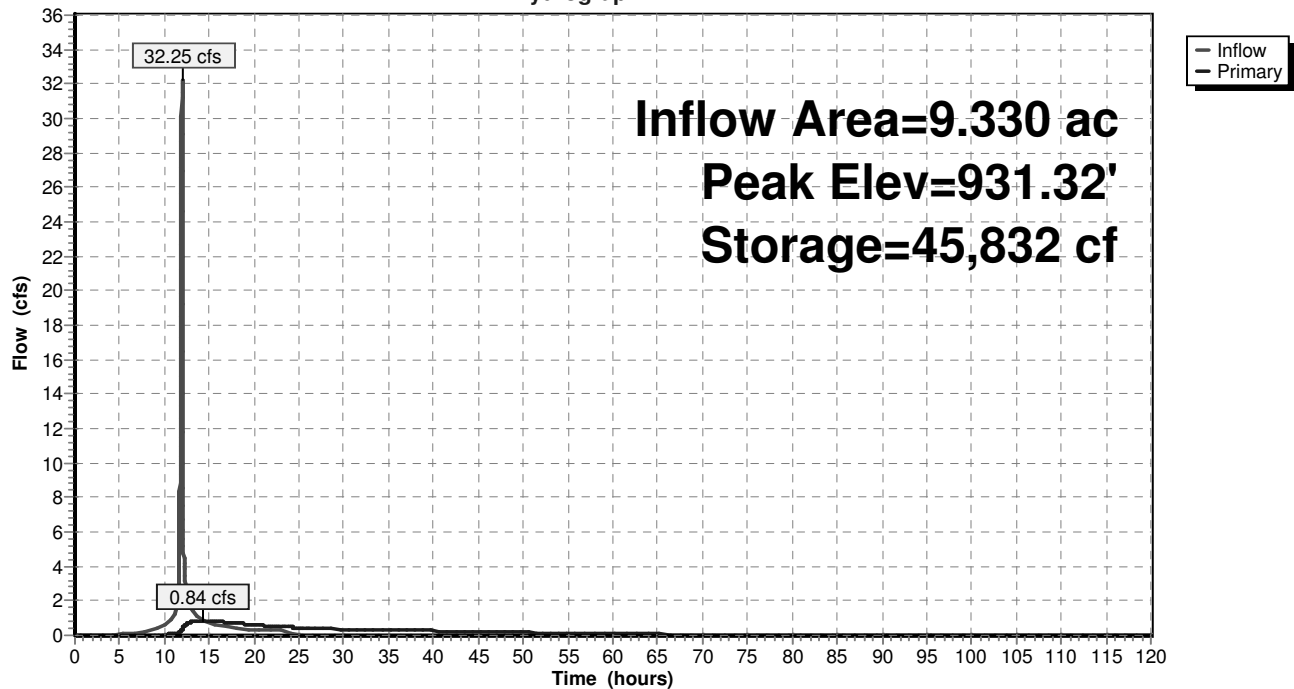
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 930.00' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 931.00' | 8.0" W x 4.0" H Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 932.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=0.84 cfs @ 14.21 hrs HW=931.32' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.45 cfs @ 5.17 fps)
 2=Orifice/Grate (Orifice Controls 0.39 cfs @ 1.82 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond 12P: Subarea "A" SWMA

Hydrograph



Summary for Subcatchment 1S: pre north

Runoff = 6.58 cfs @ 12.22 hrs, Volume= 0.615 af, Depth= 1.18"

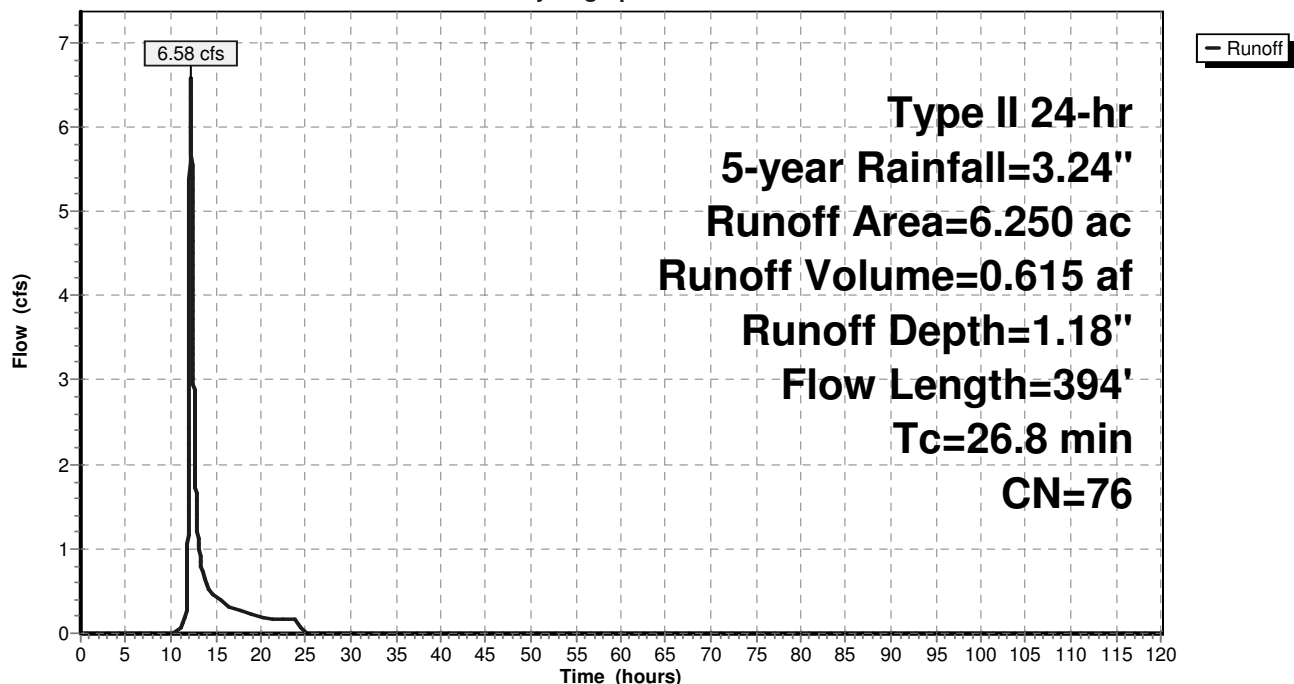
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=3.24"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.710 | 78 | |
| * 2.540 | 74 | |
| 6.250 | 76 | Weighted Average |
| 6.250 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, |
| | | | | | Grass: Dense n= 0.240 P2= 2.63" |
| 6.0 | 294 | 0.0136 | 0.82 | | Shallow Concentrated Flow, |
| | | | | | Short Grass Pasture Kv= 7.0 fps |
| 26.8 | 394 | Total | | | |

Subcatchment 1S: pre north

Hydrograph



Summary for Subcatchment 2S: pre middle

Runoff = 11.44 cfs @ 12.32 hrs, Volume= 1.234 af, Depth= 1.24"

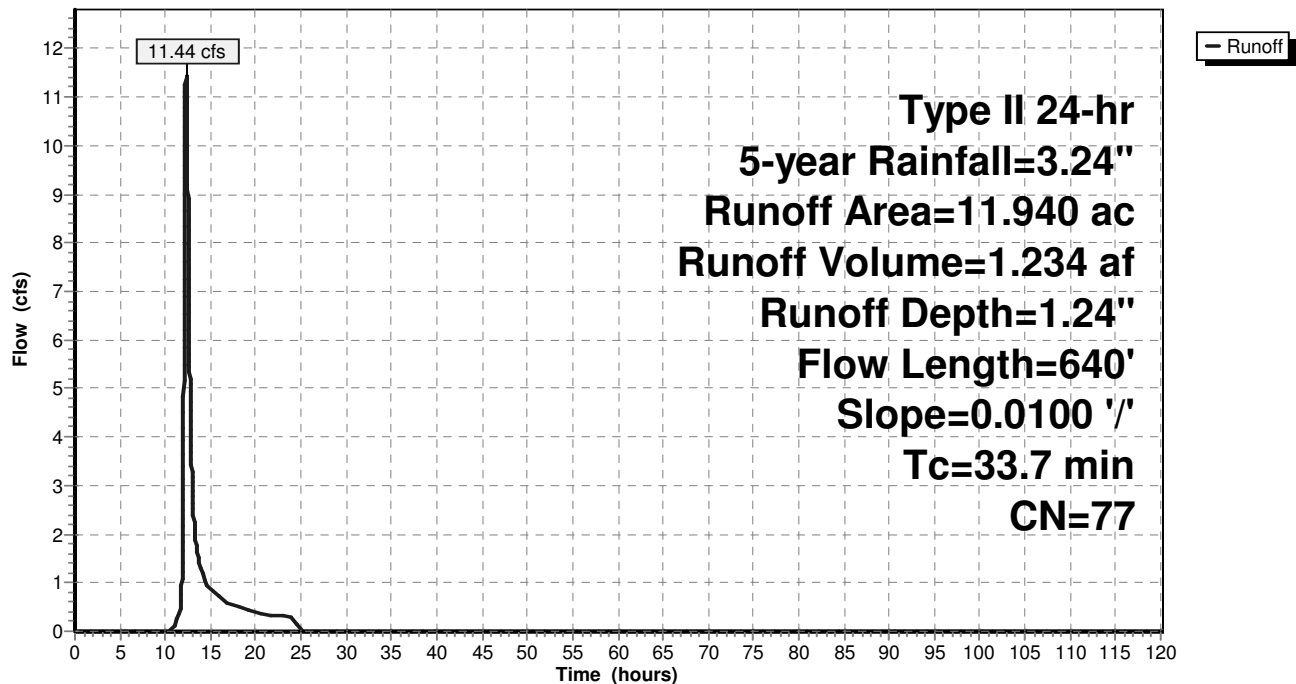
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=3.24"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 8.860 | 78 | |
| * 3.080 | 74 | |
| 11.940 | 77 | Weighted Average |
| 11.940 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |
| 12.9 | 540 | 0.0100 | 0.70 | | Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps |
| 33.7 | 640 | Total | | | |

Subcatchment 2S: pre middle

Hydrograph



Summary for Subcatchment 3S: pre south

Runoff = 5.09 cfs @ 12.14 hrs, Volume= 0.398 af, Depth= 1.30"

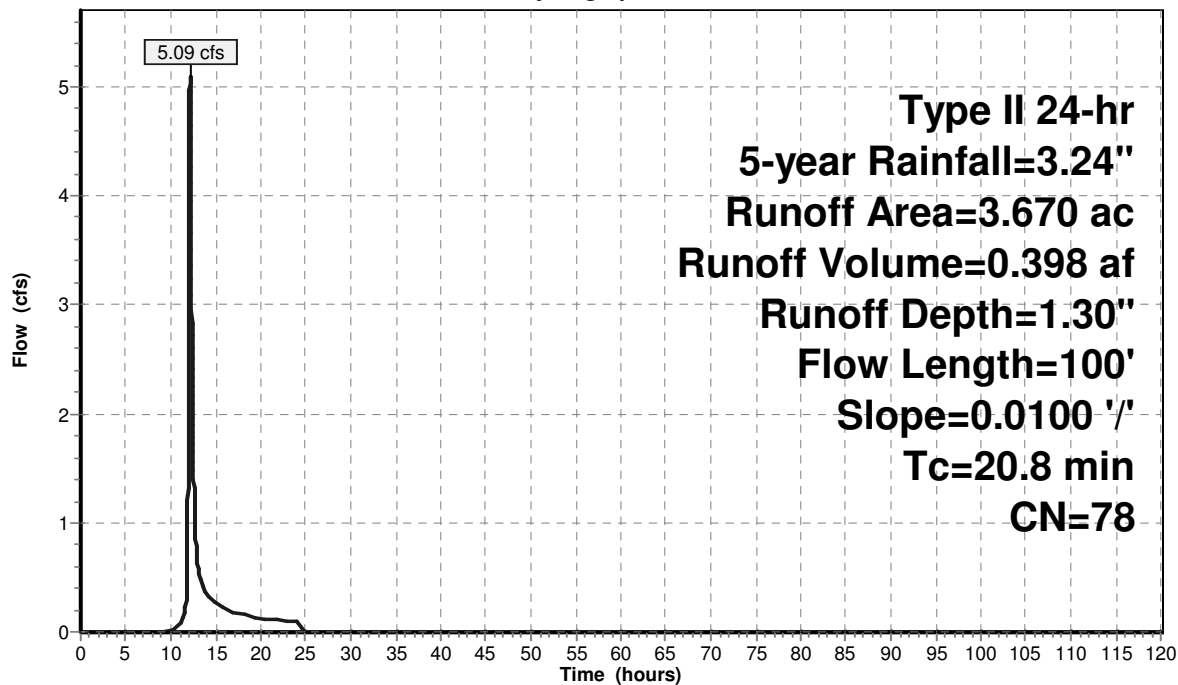
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=3.24"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.670 | 78 | |
| 3.670 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |

Subcatchment 3S: pre south

Hydrograph



Summary for Subcatchment 4S: pre Subarea "A"

Runoff = 8.68 cfs @ 12.32 hrs, Volume= 0.964 af, Depth= 1.24"

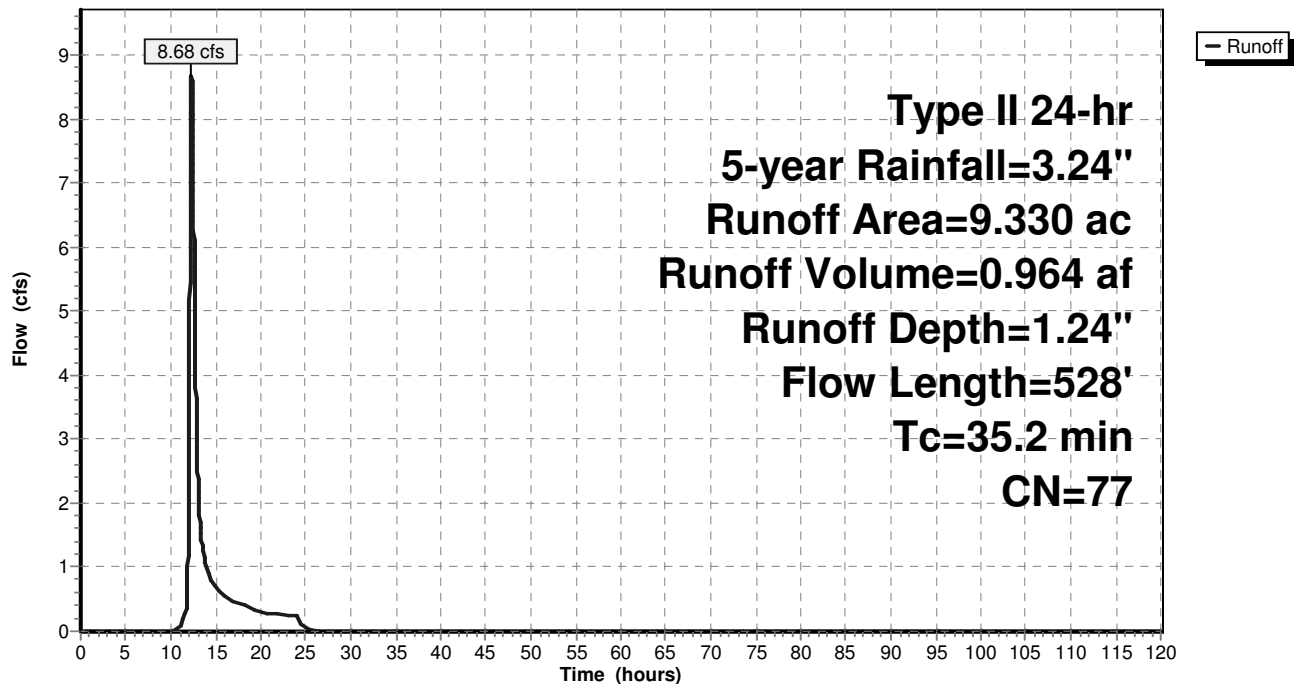
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=3.24"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 7.180 | 78 | |
| * 2.150 | 74 | |
| 9.330 | 77 | Weighted Average |
| 9.330 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |
| 14.4 | 428 | 0.0050 | 0.49 | | Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps |
| 35.2 | 528 | Total | | | |

Subcatchment 4S: pre Subarea "A"

Hydrograph



Summary for Subcatchment 5S: post north

Runoff = 38.27 cfs @ 12.01 hrs, Volume= 2.121 af, Depth= 2.21"

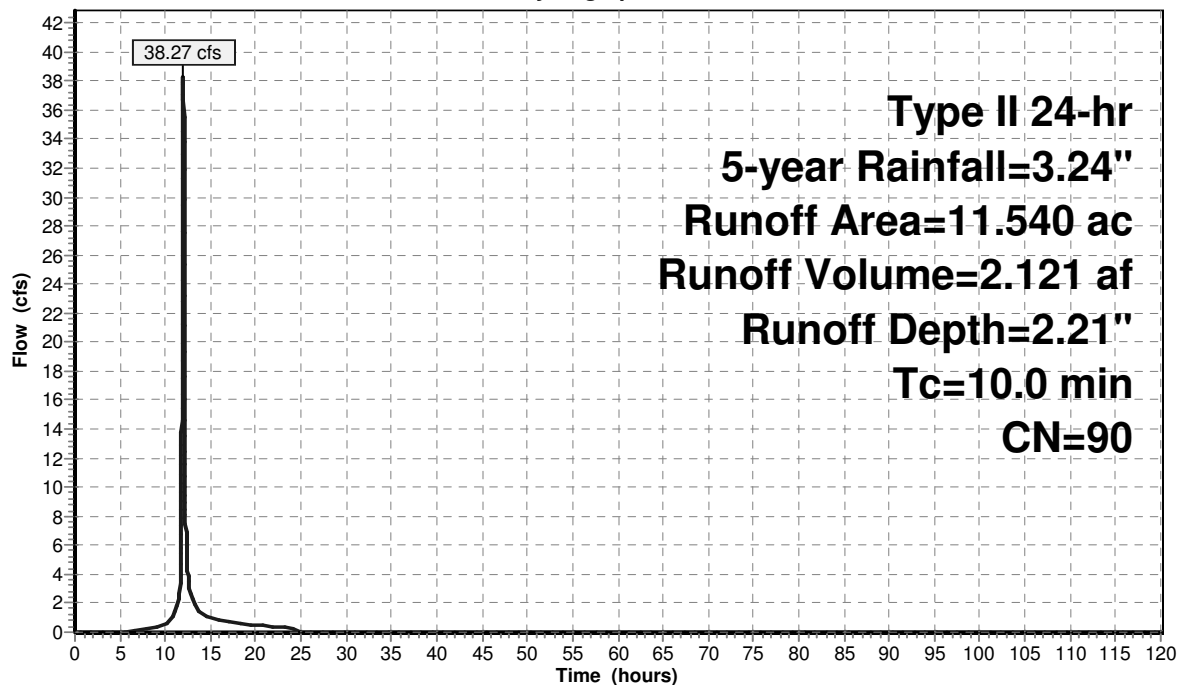
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=3.24"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 11.540 | 90 | |
| 11.540 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0 | | | | | Direct Entry, |

Subcatchment 5S: post north

Hydrograph



Summary for Subcatchment 6S: post middle

Runoff = 39.60 cfs @ 12.01 hrs, Volume= 2.195 af, Depth= 2.21"

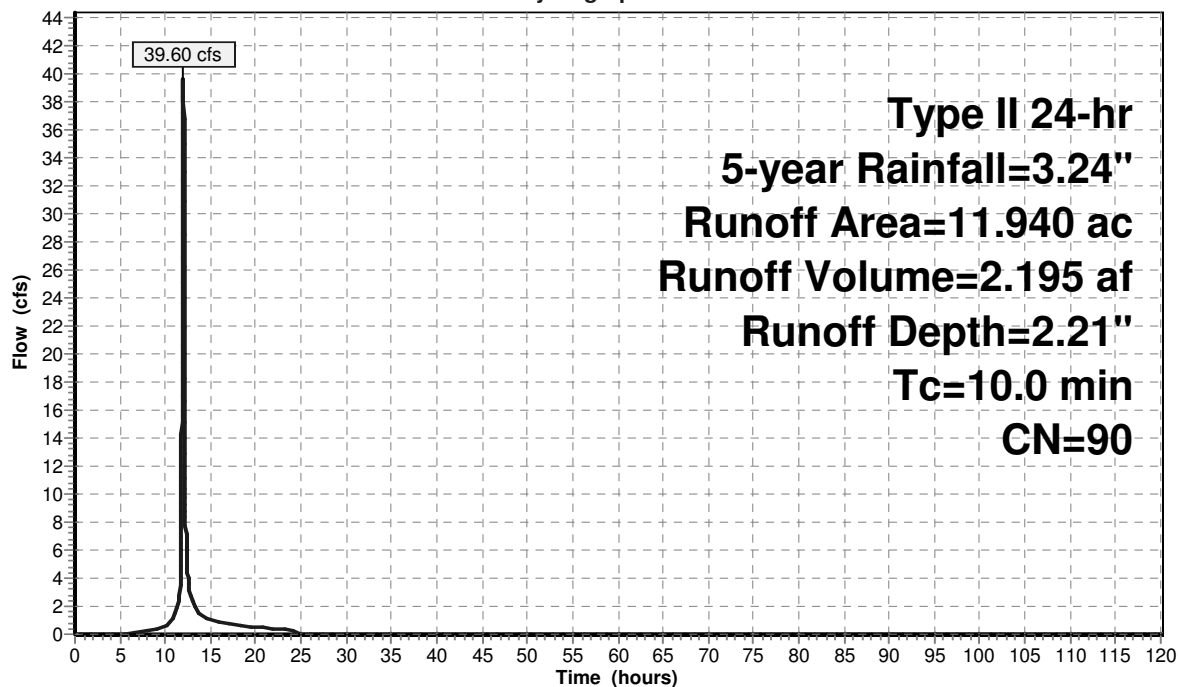
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=3.24"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 11.940 | 90 | |
| 11.940 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0 | | | | | Direct Entry, |

Subcatchment 6S: post middle

Hydrograph



Summary for Subcatchment 7S: post south

Runoff = 14.43 cfs @ 11.96 hrs, Volume= 0.675 af, Depth= 2.21"

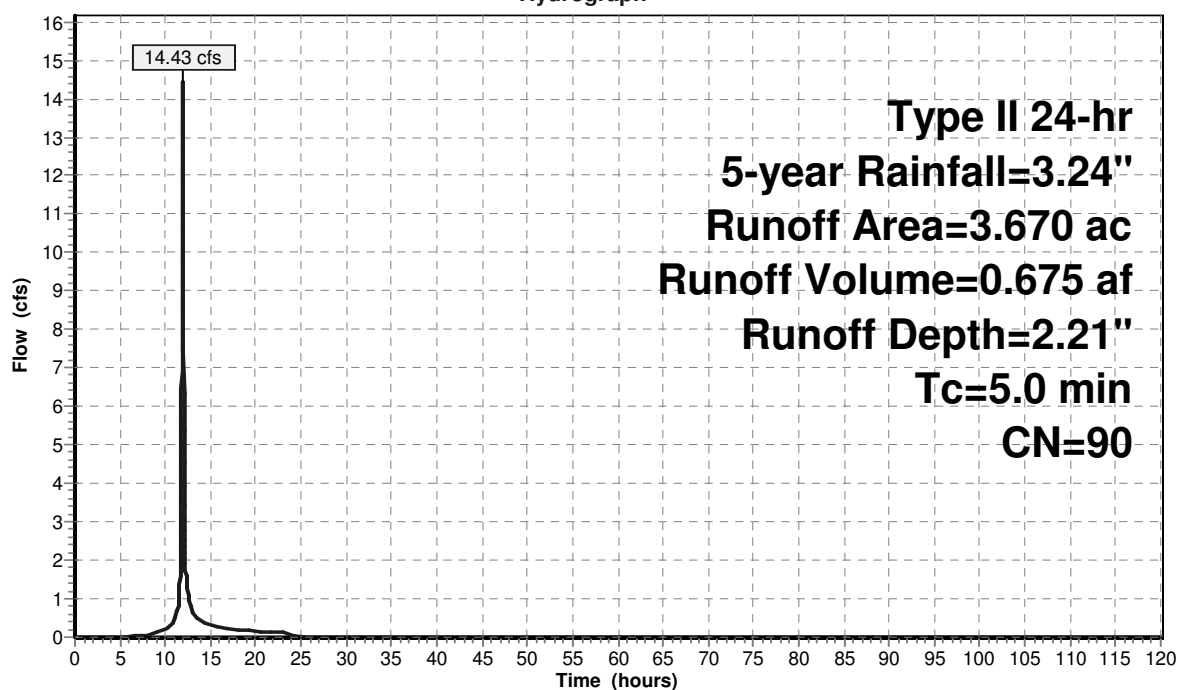
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=3.24"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.670 | 90 | |
| 3.670 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0 | | | | | Direct Entry, |

Subcatchment 7S: post south

Hydrograph



Summary for Subcatchment 8S: post Subarea "A"

Runoff = 41.05 cfs @ 11.96 hrs, Volume= 2.008 af, Depth= 2.58"

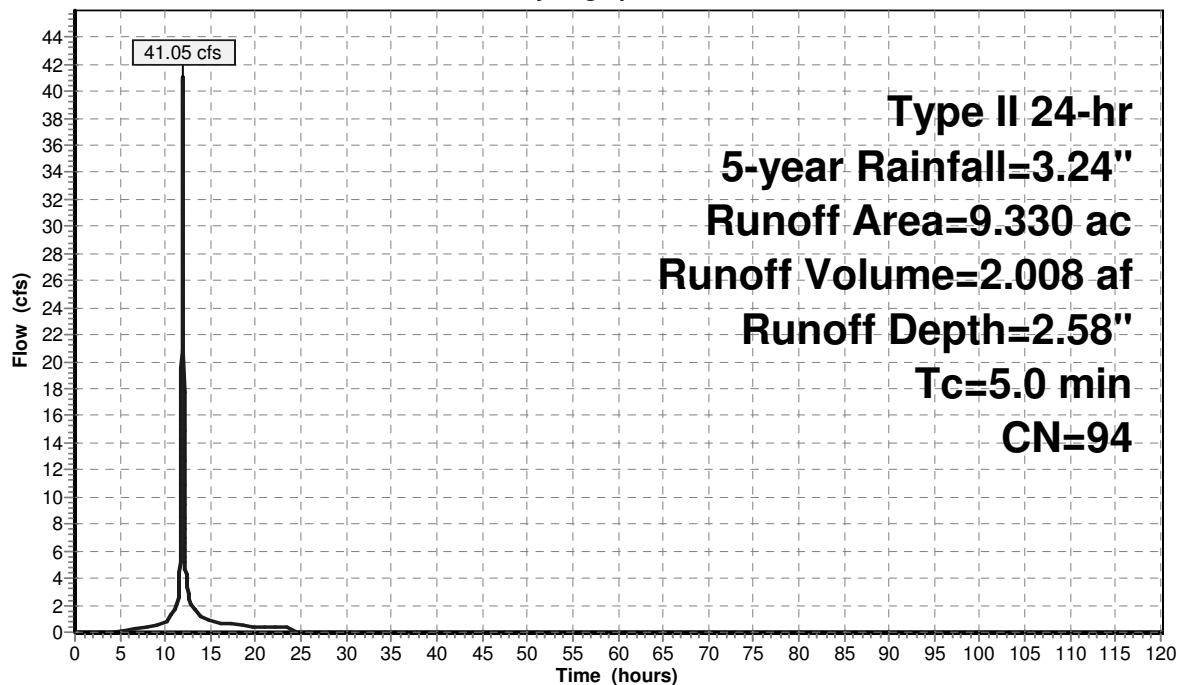
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=3.24"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 9.330 | 94 | |
| 9.330 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0 | | | | | Direct Entry, |

Subcatchment 8S: post Subarea "A"

Hydrograph



Summary for Pond 9P: Subarea B north SWMA

Inflow Area = 11.540 ac, 0.00% Impervious, Inflow Depth = 2.21" for 5-year event
 Inflow = 38.27 cfs @ 12.01 hrs, Volume= 2.121 af
 Outflow = 0.78 cfs @ 16.29 hrs, Volume= 2.096 af, Atten= 98%, Lag= 256.7 min
 Primary = 0.78 cfs @ 16.29 hrs, Volume= 2.096 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 926.01' @ 16.29 hrs Surf.Area= 43,062 sf Storage= 64,985 cf

Plug-Flow detention time= 1,109.5 min calculated for 2.096 af (99% of inflow)
 Center-of-Mass det. time= 1,102.2 min (1,909.3 - 807.0)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 924.40' | 157,610 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40 | 37,449 | 0 | 0 |
| 925.00 | 39,518 | 23,090 | 23,090 |
| 926.00 | 43,009 | 41,264 | 64,354 |
| 927.00 | 46,603 | 44,806 | 109,160 |
| 928.00 | 50,297 | 48,450 | 157,610 |

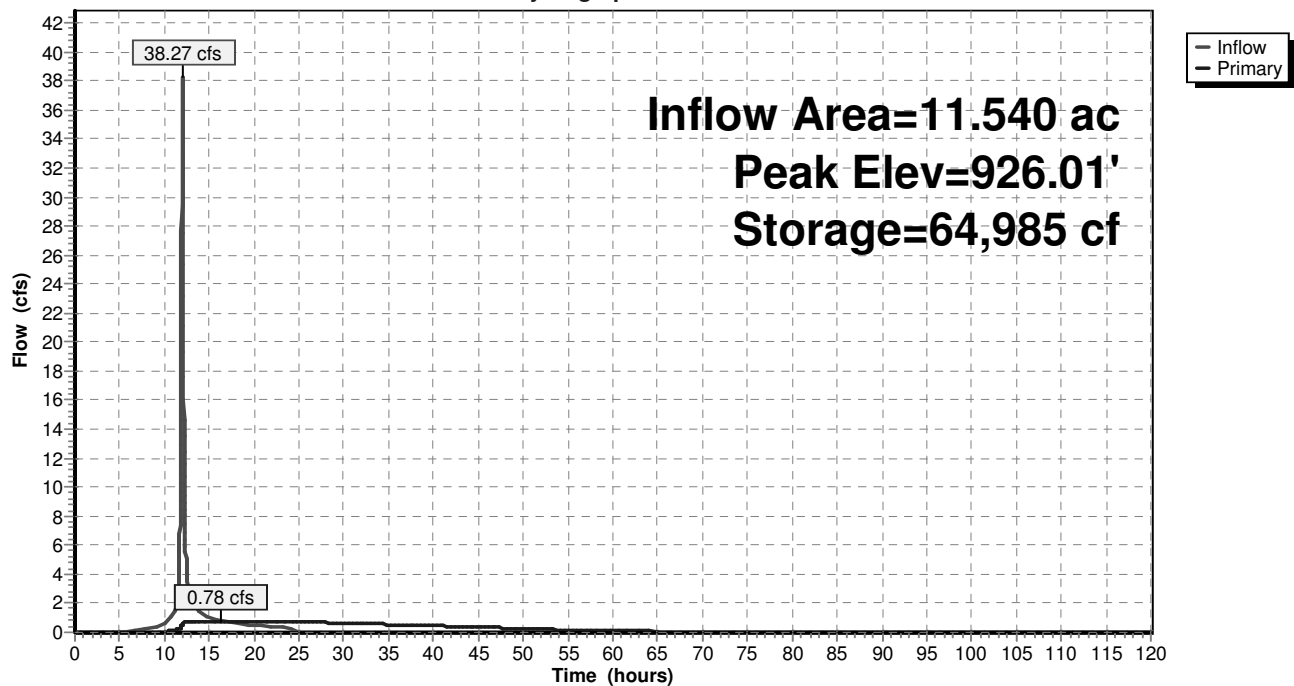
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|--|
| #1 | Primary | 924.40' | 3.5" Vert. Orifice/Grate X 2.00 C= 0.600 |
| #2 | Primary | 927.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |
| #3 | Primary | 927.50' | 20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

Primary OutFlow Max=0.78 cfs @ 16.29 hrs HW=926.01' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.78 cfs @ 5.84 fps)
 2=Orifice/Grate (Controls 0.00 cfs)
 3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 9P: Subarea B north SWMA

Hydrograph



Summary for Pond 10P: Subarea B middle SWMA

Inflow Area = 11.940 ac, 0.00% Impervious, Inflow Depth = 2.21" for 5-year event
 Inflow = 39.60 cfs @ 12.01 hrs, Volume= 2.195 af
 Outflow = 1.42 cfs @ 13.99 hrs, Volume= 2.166 af, Atten= 96%, Lag= 118.5 min
 Primary = 1.42 cfs @ 13.99 hrs, Volume= 2.166 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 926.02' @ 13.99 hrs Surf.Area= 43,275 sf Storage= 61,817 cf

Plug-Flow detention time= 1,032.5 min calculated for 2.166 af (99% of inflow)
 Center-of-Mass det. time= 1,024.6 min (1,831.7 - 807.0)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 924.40' | 155,661 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40 | 26,879 | 0 | 0 |
| 925.00 | 39,220 | 19,830 | 19,830 |
| 926.00 | 43,202 | 41,211 | 61,041 |
| 927.00 | 47,285 | 45,244 | 106,284 |
| 928.00 | 51,468 | 49,377 | 155,661 |

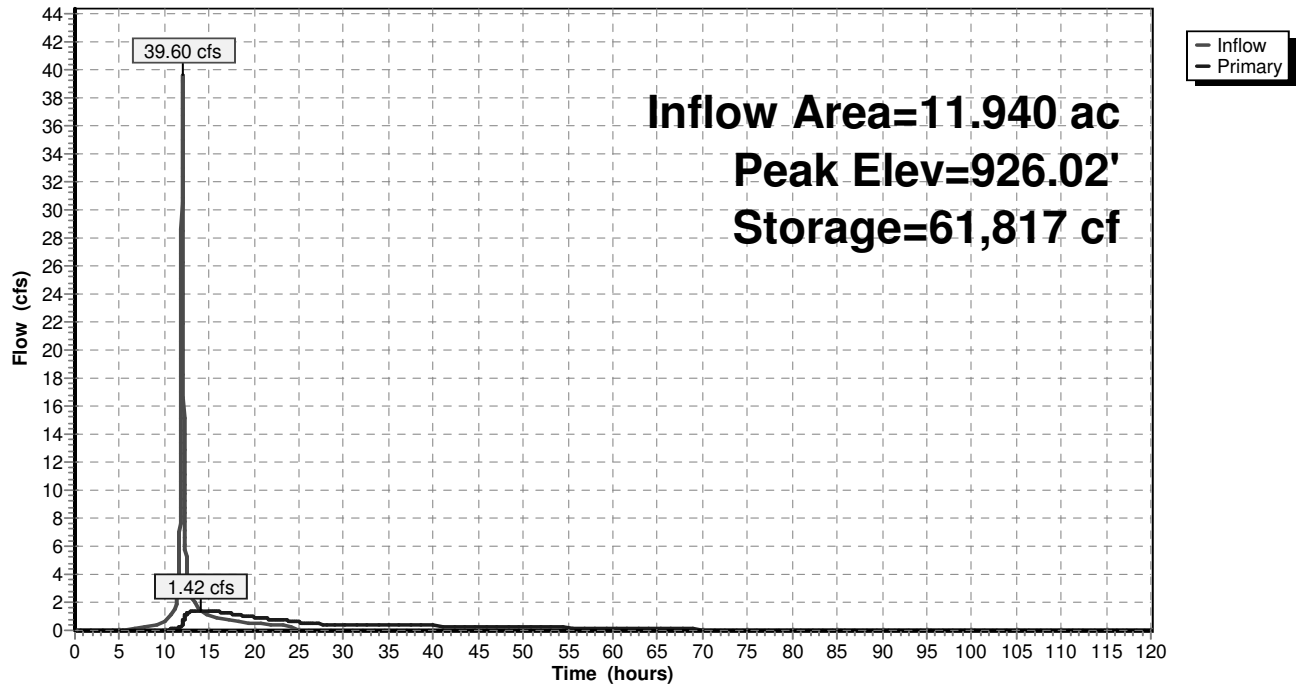
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 924.40' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 925.50' | 10.0" W x 5.0" H Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 926.90' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=1.42 cfs @ 13.99 hrs HW=926.02' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.51 cfs @ 5.80 fps)
 2=Orifice/Grate (Orifice Controls 0.91 cfs @ 2.62 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond 10P: Subarea B middle SWMA

Hydrograph



Summary for Pond 11P: Subarea B south SWMA

Inflow Area = 3.670 ac, 0.00% Impervious, Inflow Depth = 2.21" for 5-year event
 Inflow = 14.43 cfs @ 11.96 hrs, Volume= 0.675 af
 Outflow = 0.47 cfs @ 13.77 hrs, Volume= 0.669 af, Atten= 97%, Lag= 108.7 min
 Primary = 0.47 cfs @ 13.77 hrs, Volume= 0.669 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 927.52' @ 13.77 hrs Surf.Area= 13,945 sf Storage= 18,566 cf

Plug-Flow detention time= 862.2 min calculated for 0.669 af (99% of inflow)
 Center-of-Mass det. time= 856.9 min (1,659.3 - 802.4)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 926.00' | 60,527 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 926.00 | 10,530 | 0 | 0 |
| 927.00 | 12,744 | 11,637 | 11,637 |
| 928.00 | 15,057 | 13,901 | 25,538 |
| 929.00 | 17,472 | 16,265 | 41,802 |
| 930.00 | 19,978 | 18,725 | 60,527 |

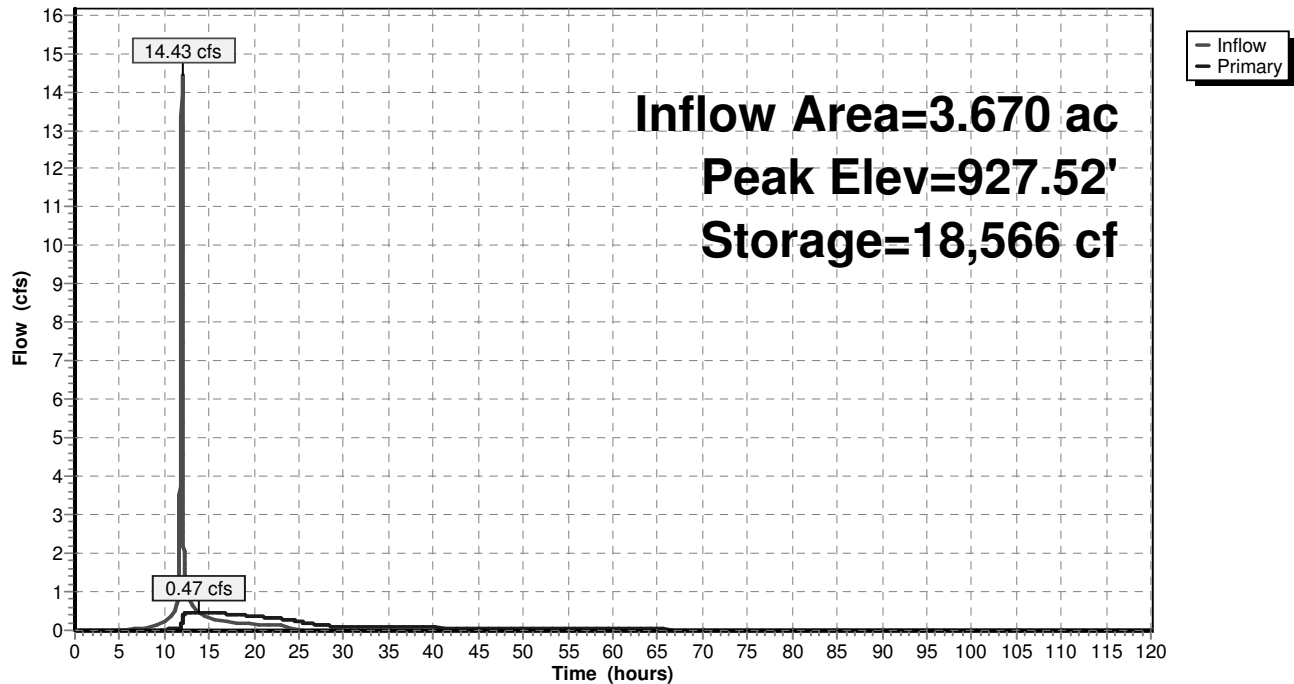
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 926.00' | 2.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 926.70' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 928.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=0.47 cfs @ 13.77 hrs HW=927.52' (Free Discharge)

↑
 —1=Orifice/Grate (Orifice Controls 0.13 cfs @ 5.77 fps)
 —2=Orifice/Grate (Orifice Controls 0.34 cfs @ 3.89 fps)
 —3=Orifice/Grate (Controls 0.00 cfs)

Pond 11P: Subarea B south SWMA

Hydrograph



Summary for Pond 12P: Subarea "A" SWMA

Inflow Area = 9.330 ac, 0.00% Impervious, Inflow Depth = 2.58" for 5-year event
 Inflow = 41.05 cfs @ 11.96 hrs, Volume= 2.008 af
 Outflow = 1.25 cfs @ 13.79 hrs, Volume= 1.973 af, Atten= 97%, Lag= 110.3 min
 Primary = 1.25 cfs @ 13.79 hrs, Volume= 1.973 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 931.64' @ 13.79 hrs Surf.Area= 38,405 sf Storage= 58,010 cf

Plug-Flow detention time= 987.1 min calculated for 1.973 af (98% of inflow)
 Center-of-Mass det. time= 976.5 min (1,759.0 - 782.5)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 930.00' | 159,374 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 930.00 | 32,218 | 0 | 0 |
| 931.00 | 35,943 | 34,081 | 34,081 |
| 932.00 | 39,768 | 37,856 | 71,936 |
| 933.00 | 43,694 | 41,731 | 113,667 |
| 934.00 | 47,719 | 45,707 | 159,374 |

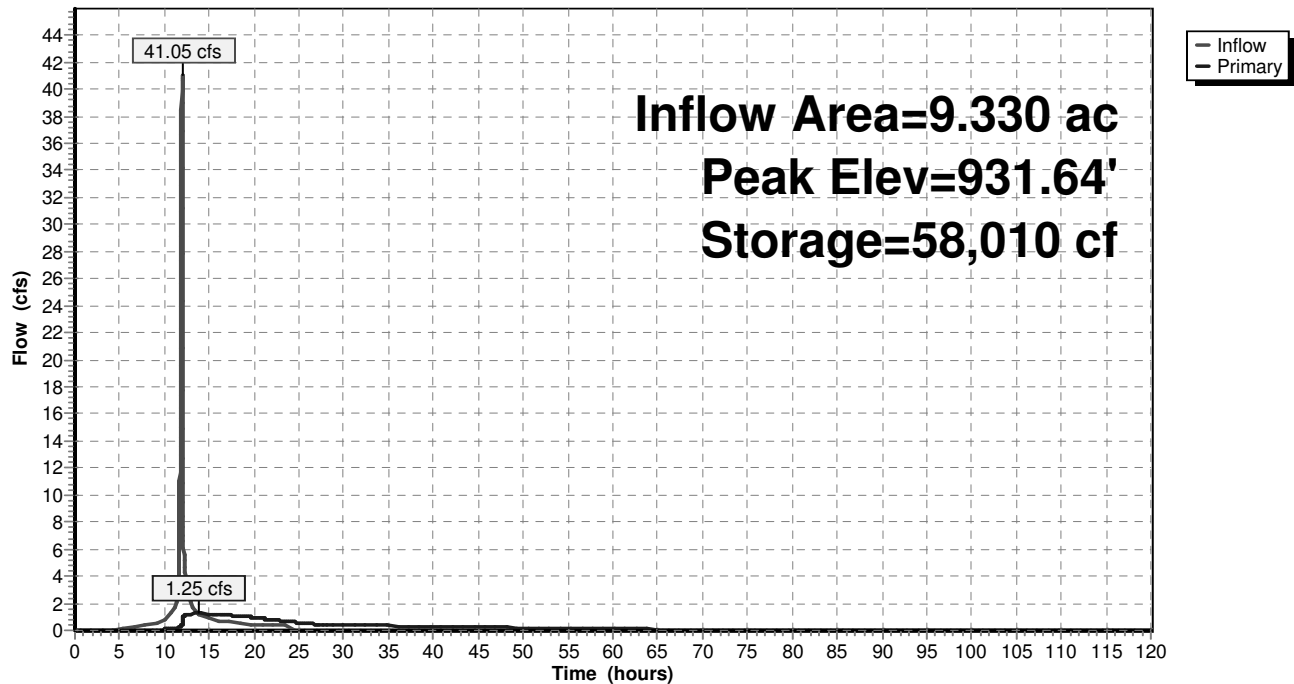
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 930.00' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 931.00' | 8.0" W x 4.0" H Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 932.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=1.25 cfs @ 13.79 hrs HW=931.64' (Free Discharge)

↑
 —1=Orifice/Grate (Orifice Controls 0.51 cfs @ 5.85 fps)
 —2=Orifice/Grate (Orifice Controls 0.74 cfs @ 3.31 fps)
 —3=Orifice/Grate (Controls 0.00 cfs)

Pond 12P: Subarea "A" SWMA

Hydrograph



Summary for Subcatchment 1S: pre north

Runoff = 8.77 cfs @ 12.21 hrs, Volume= 0.803 af, Depth= 1.54"

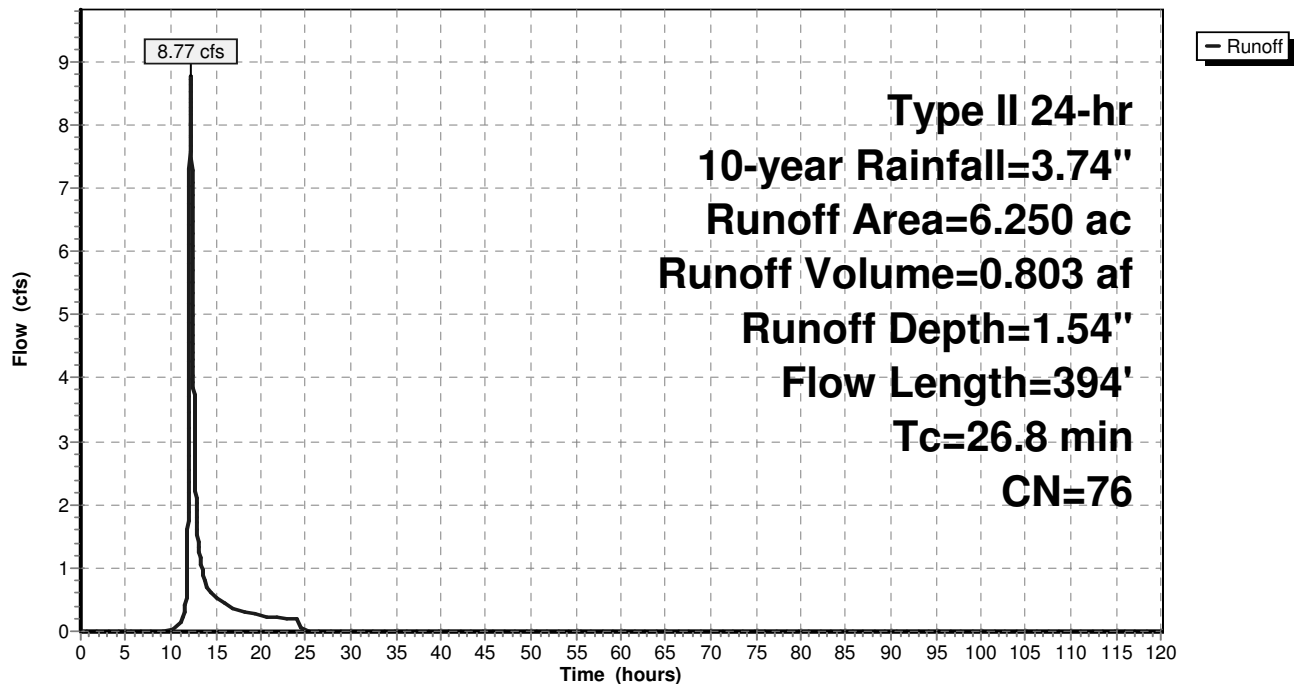
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=3.74"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.710 | 78 | |
| * 2.540 | 74 | |
| 6.250 | 76 | Weighted Average |
| 6.250 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |
| 6.0 | 294 | 0.0136 | 0.82 | | Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps |
| 26.8 | 394 | Total | | | |

Subcatchment 1S: pre north

Hydrograph



Summary for Subcatchment 2S: pre middle

Runoff = 15.10 cfs @ 12.31 hrs, Volume= 1.603 af, Depth= 1.61"

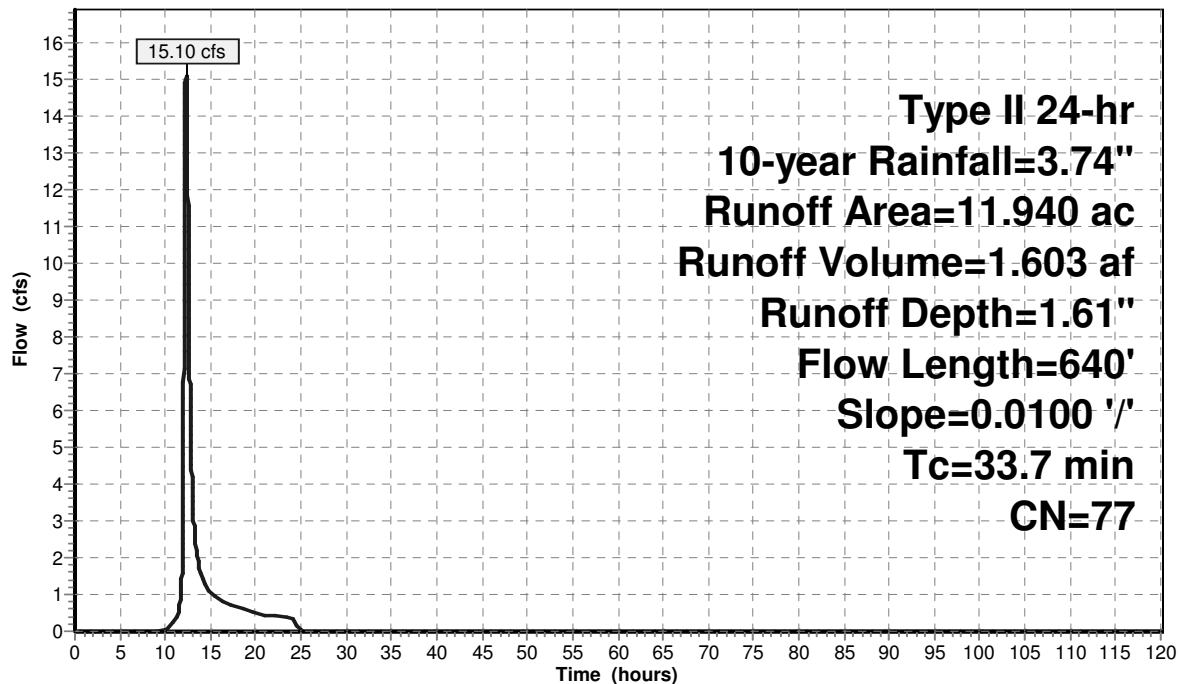
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=3.74"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 8.860 | 78 | |
| * 3.080 | 74 | |
| 11.940 | 77 | Weighted Average |
| 11.940 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, |
| | | | | | Grass: Dense n= 0.240 P2= 2.63" |
| 12.9 | 540 | 0.0100 | 0.70 | | Shallow Concentrated Flow, |
| | | | | | Short Grass Pasture Kv= 7.0 fps |
| 33.7 | 640 | Total | | | |

Subcatchment 2S: pre middle

Hydrograph



Summary for Subcatchment 3S: pre south

Runoff = 6.66 cfs @ 12.14 hrs, Volume= 0.514 af, Depth= 1.68"

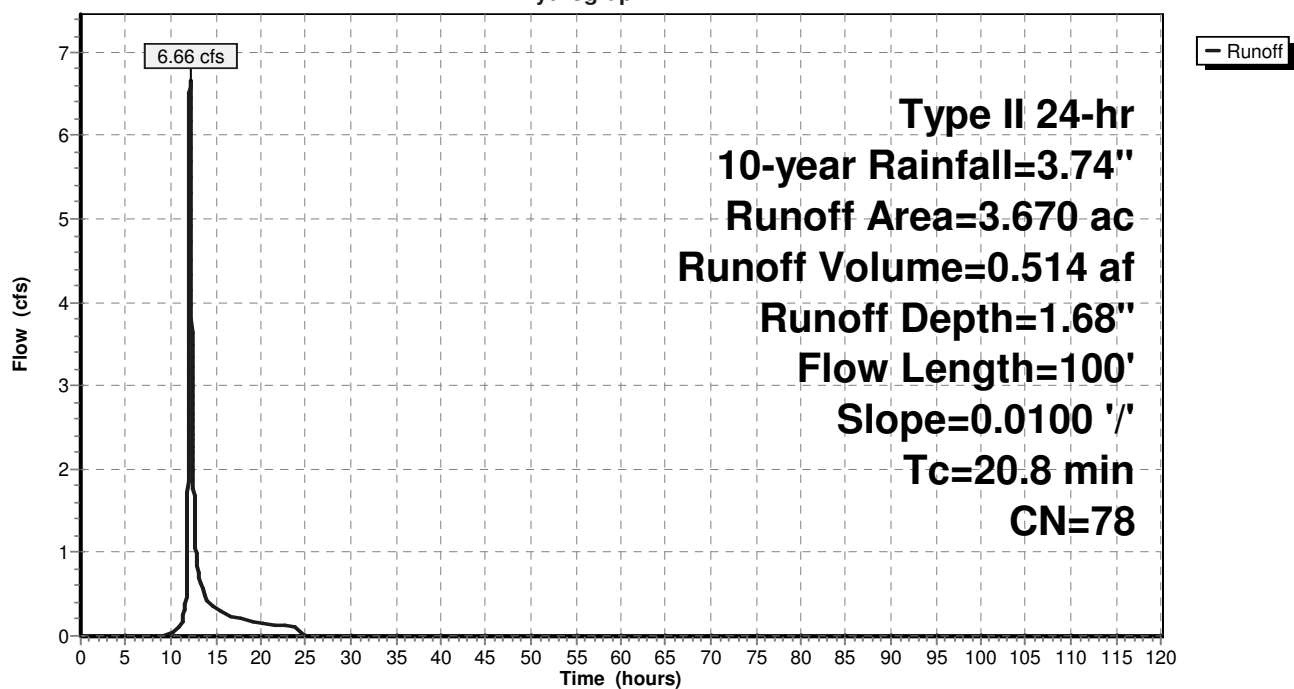
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=3.74"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.670 | 78 | |
| 3.670 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |

Subcatchment 3S: pre south

Hydrograph



Summary for Subcatchment 4S: pre Subarea "A"

Runoff = 11.48 cfs @ 12.32 hrs, Volume= 1.253 af, Depth= 1.61"

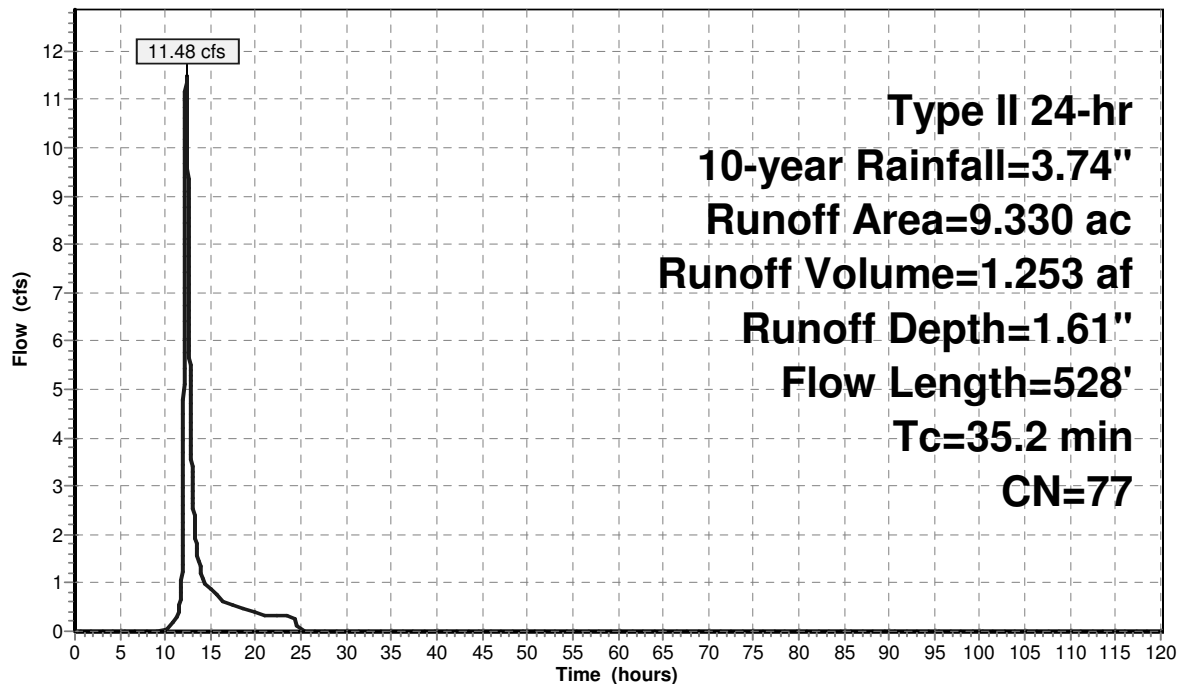
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=3.74"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 7.180 | 78 | |
| * 2.150 | 74 | |
| 9.330 | 77 | Weighted Average |
| 9.330 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |
| 14.4 | 428 | 0.0050 | 0.49 | | Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps |
| 35.2 | 528 | Total | | | |

Subcatchment 4S: pre Subarea "A"

Hydrograph



Summary for Subcatchment 5S: post north

Runoff = 45.96 cfs @ 12.01 hrs, Volume= 2.571 af, Depth= 2.67"

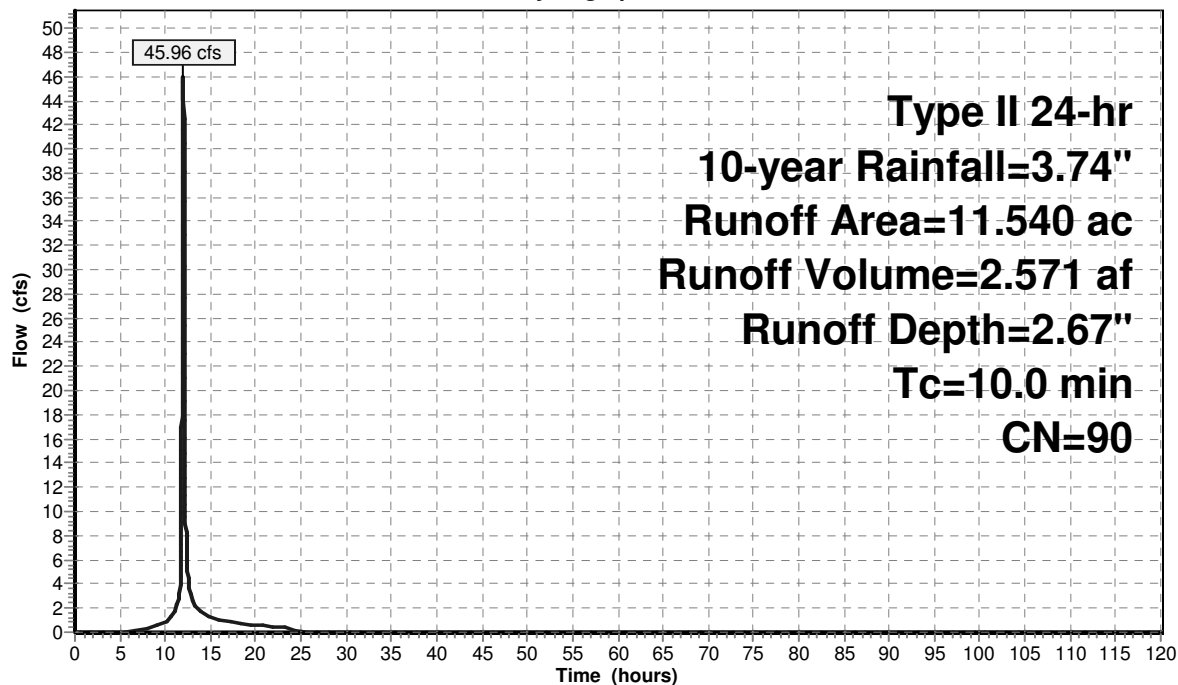
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=3.74"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 11.540 | 90 | |
| 11.540 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0 | | | | | Direct Entry, |

Subcatchment 5S: post north

Hydrograph



— Runoff

Summary for Subcatchment 6S: post middle

Runoff = 47.55 cfs @ 12.01 hrs, Volume= 2.660 af, Depth= 2.67"

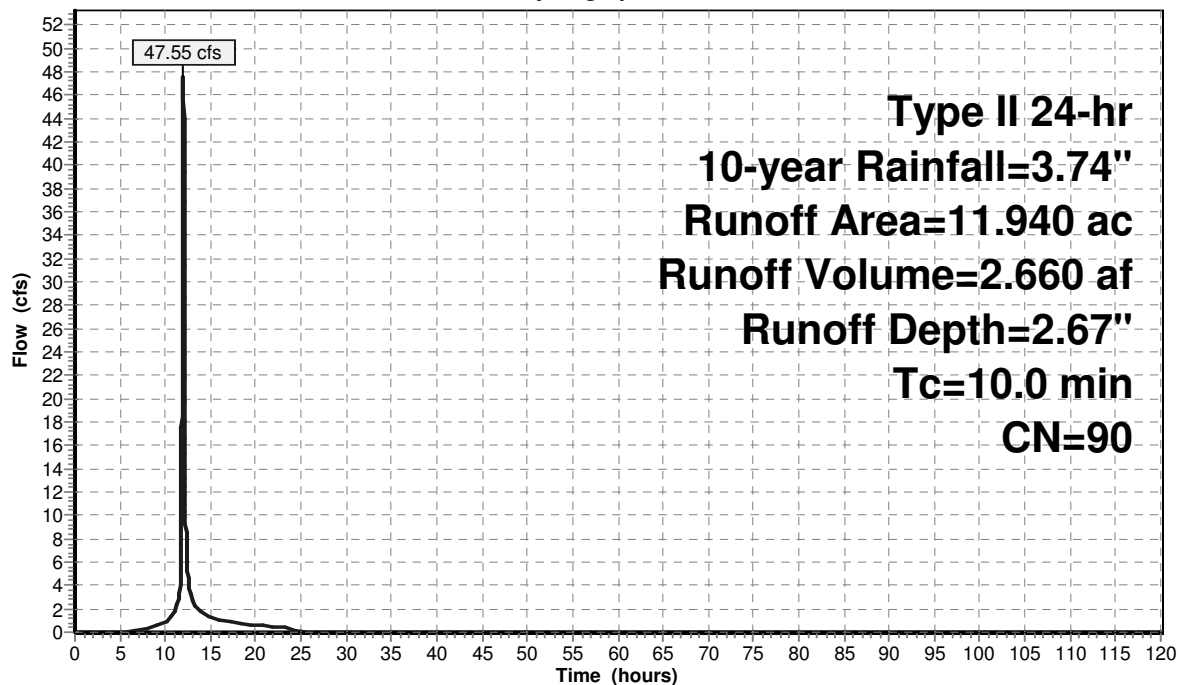
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=3.74"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 11.940 | 90 | |
| 11.940 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0 | | | | | Direct Entry, |

Subcatchment 6S: post middle

Hydrograph



Summary for Subcatchment 7S: post south

Runoff = 17.29 cfs @ 11.96 hrs, Volume= 0.818 af, Depth= 2.67"

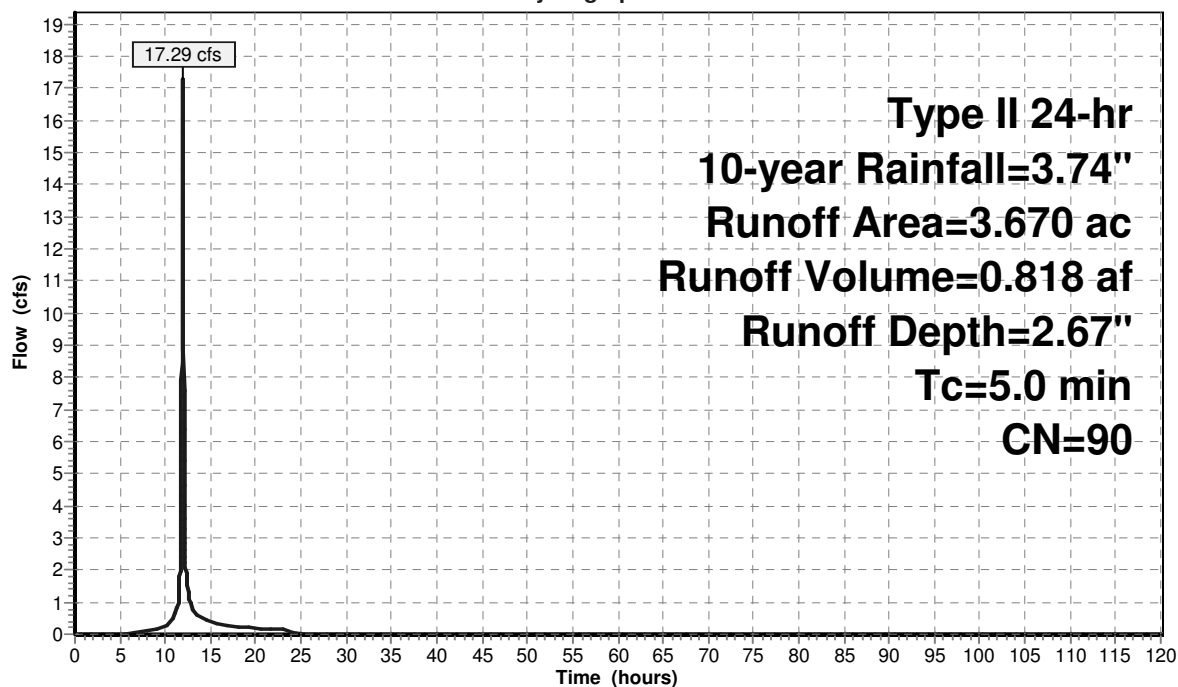
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=3.74"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.670 | 90 | |
| 3.670 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0 | | | | | Direct Entry, |

Subcatchment 7S: post south

Hydrograph



Summary for Subcatchment 8S: post Subarea "A"

Runoff = 48.21 cfs @ 11.96 hrs, Volume= 2.387 af, Depth= 3.07"

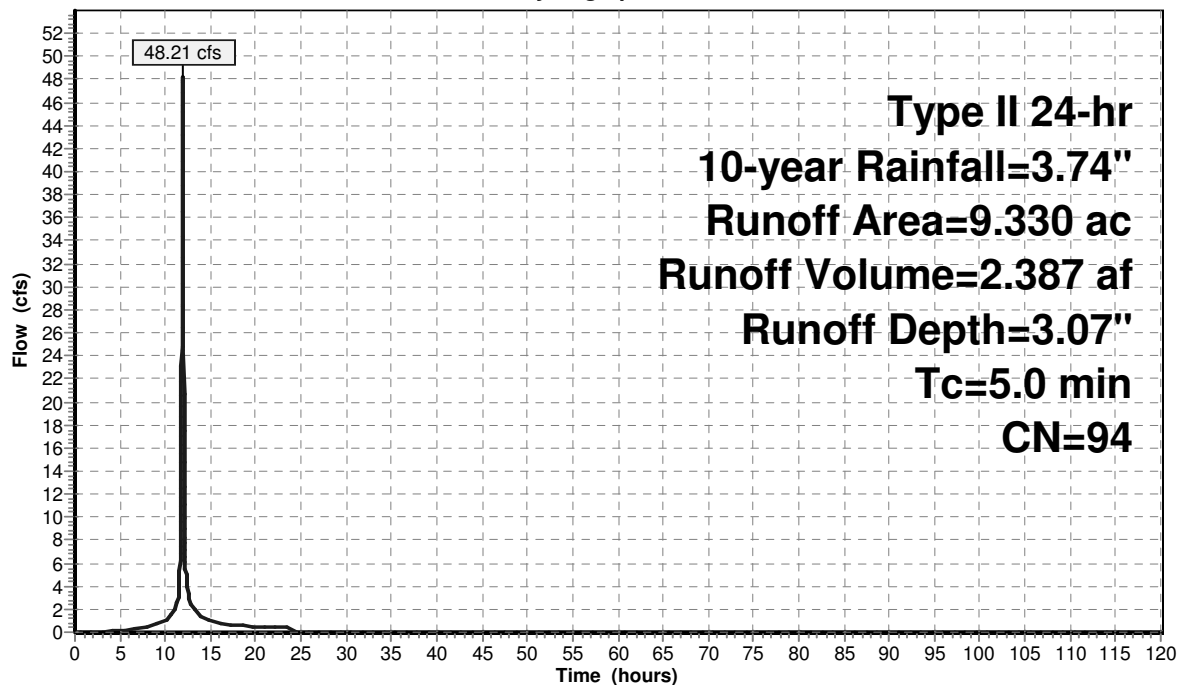
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=3.74"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 9.330 | 94 | |
| 9.330 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0 | | | | | Direct Entry, |

Subcatchment 8S: post Subarea "A"

Hydrograph



Summary for Pond 9P: Subarea B north SWMA

Inflow Area = 11.540 ac, 0.00% Impervious, Inflow Depth = 2.67" for 10-year event
 Inflow = 45.96 cfs @ 12.01 hrs, Volume= 2.571 af
 Outflow = 0.87 cfs @ 16.79 hrs, Volume= 2.544 af, Atten= 98%, Lag= 286.8 min
 Primary = 0.87 cfs @ 16.79 hrs, Volume= 2.544 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 926.36' @ 16.79 hrs Surf.Area= 44,314 sf Storage= 80,202 cf

Plug-Flow detention time= 1,199.2 min calculated for 2.544 af (99% of inflow)
 Center-of-Mass det. time= 1,192.5 min (1,994.1 - 801.6)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 924.40' | 157,610 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40 | 37,449 | 0 | 0 |
| 925.00 | 39,518 | 23,090 | 23,090 |
| 926.00 | 43,009 | 41,264 | 64,354 |
| 927.00 | 46,603 | 44,806 | 109,160 |
| 928.00 | 50,297 | 48,450 | 157,610 |

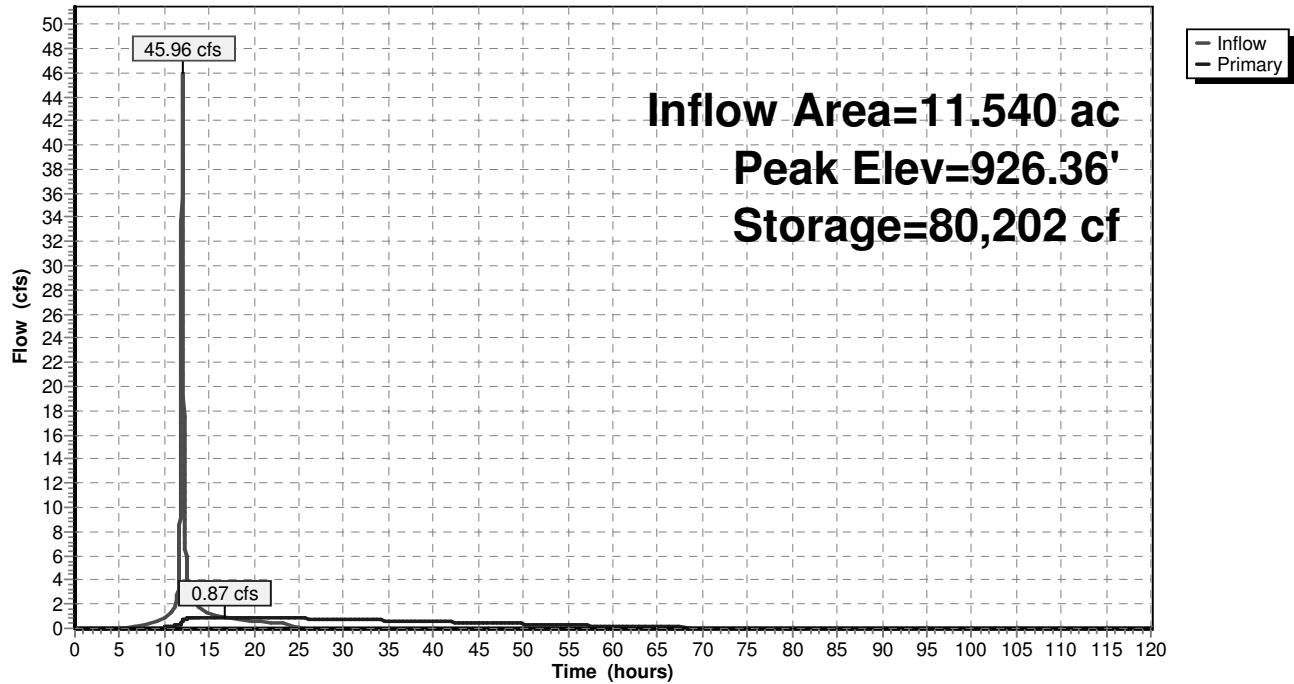
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|--|
| #1 | Primary | 924.40' | 3.5" Vert. Orifice/Grate X 2.00 C= 0.600 |
| #2 | Primary | 927.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |
| #3 | Primary | 927.50' | 20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

Primary OutFlow Max=0.87 cfs @ 16.79 hrs HW=926.36' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.87 cfs @ 6.49 fps)
 2=Orifice/Grate (Controls 0.00 cfs)
 3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 9P: Subarea B north SWMA

Hydrograph



Summary for Pond 10P: Subarea B middle SWMA

Inflow Area = 11.940 ac, 0.00% Impervious, Inflow Depth = 2.67" for 10-year event
 Inflow = 47.55 cfs @ 12.01 hrs, Volume= 2.660 af
 Outflow = 1.83 cfs @ 13.79 hrs, Volume= 2.630 af, Atten= 96%, Lag= 106.8 min
 Primary = 1.83 cfs @ 13.79 hrs, Volume= 2.630 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 926.30' @ 13.79 hrs Surf.Area= 44,426 sf Storage= 74,175 cf

Plug-Flow detention time= 941.4 min calculated for 2.630 af (99% of inflow)
 Center-of-Mass det. time= 934.8 min (1,736.4 - 801.6)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 924.40' | 155,661 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40 | 26,879 | 0 | 0 |
| 925.00 | 39,220 | 19,830 | 19,830 |
| 926.00 | 43,202 | 41,211 | 61,041 |
| 927.00 | 47,285 | 45,244 | 106,284 |
| 928.00 | 51,468 | 49,377 | 155,661 |

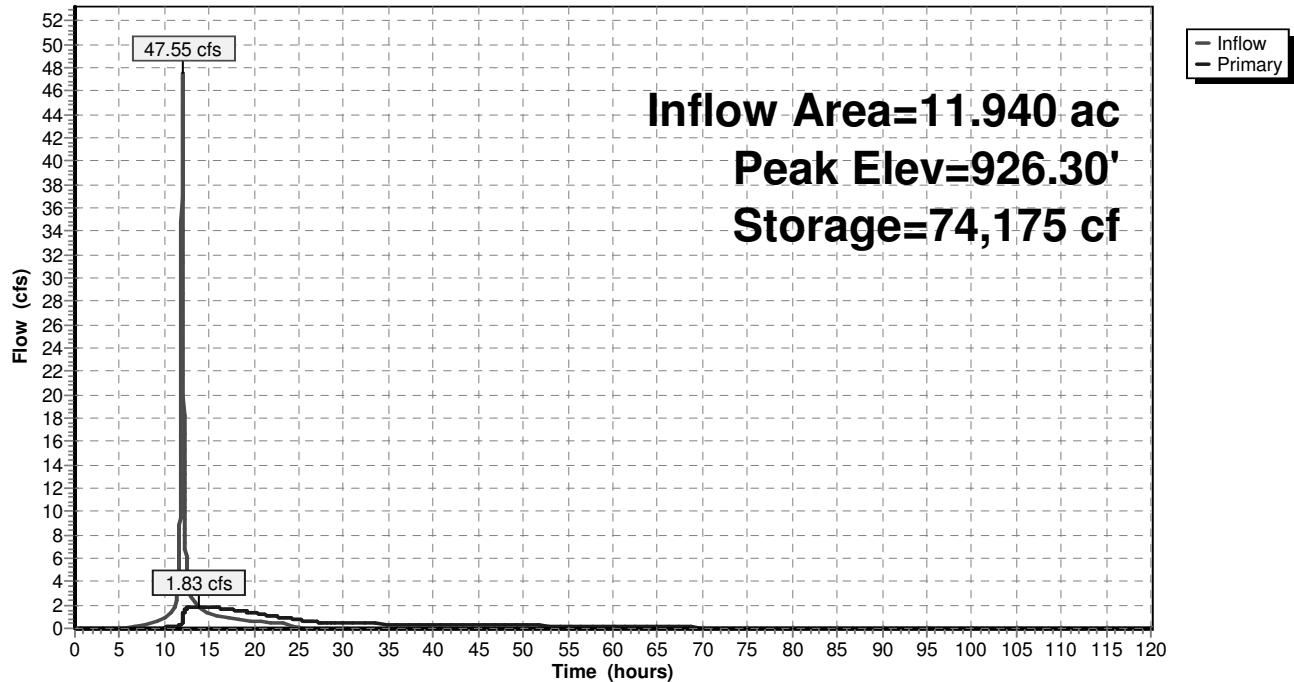
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 924.40' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 925.50' | 10.0" W x 5.0" H Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 926.90' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=1.83 cfs @ 13.79 hrs HW=926.30' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.55 cfs @ 6.34 fps)
 2=Orifice/Grate (Orifice Controls 1.28 cfs @ 3.68 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond 10P: Subarea B middle SWMA

Hydrograph



Summary for Pond 11P: Subarea B south SWMA

Inflow Area = 3.670 ac, 0.00% Impervious, Inflow Depth = 2.67" for 10-year event
 Inflow = 17.29 cfs @ 11.96 hrs, Volume= 0.818 af
 Outflow = 0.55 cfs @ 13.78 hrs, Volume= 0.812 af, Atten= 97%, Lag= 109.2 min
 Primary = 0.55 cfs @ 13.78 hrs, Volume= 0.812 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 927.81' @ 13.78 hrs Surf.Area= 14,624 sf Storage= 22,757 cf

Plug-Flow detention time= 831.5 min calculated for 0.812 af (99% of inflow)
 Center-of-Mass det. time= 827.3 min (1,624.3 - 797.0)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 926.00' | 60,527 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 926.00 | 10,530 | 0 | 0 |
| 927.00 | 12,744 | 11,637 | 11,637 |
| 928.00 | 15,057 | 13,901 | 25,538 |
| 929.00 | 17,472 | 16,265 | 41,802 |
| 930.00 | 19,978 | 18,725 | 60,527 |

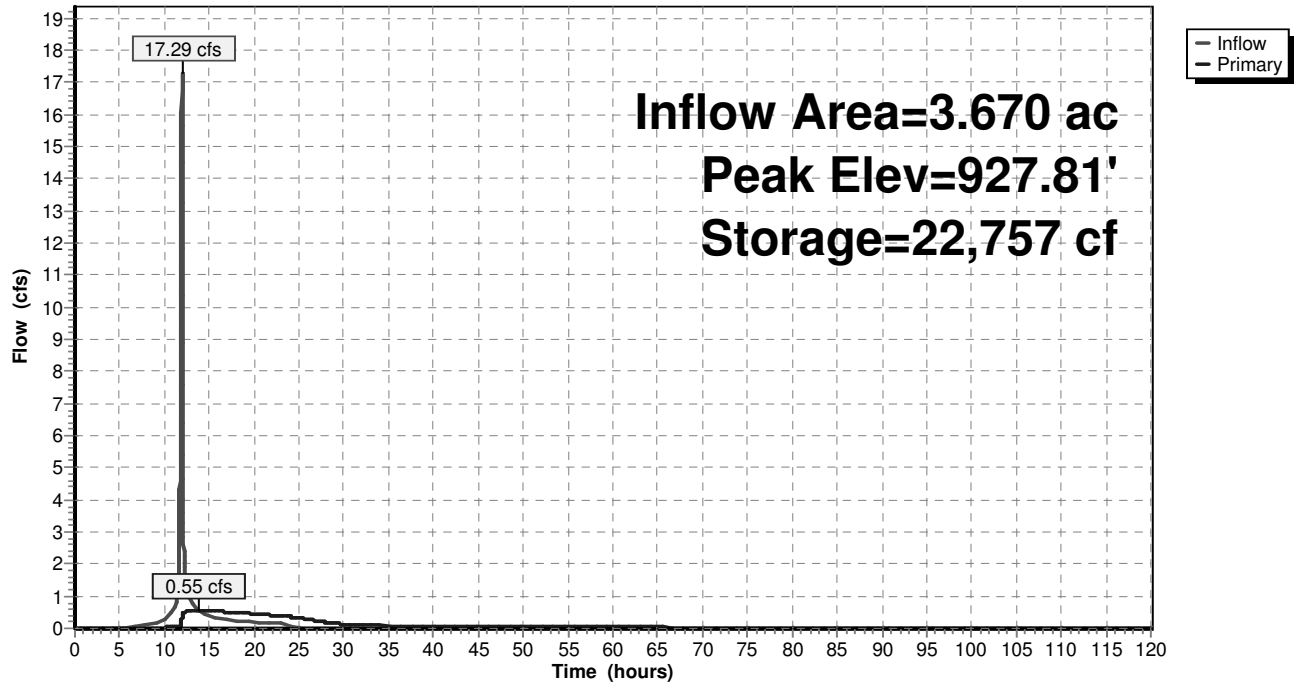
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 926.00' | 2.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 926.70' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 928.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=0.55 cfs @ 13.78 hrs HW=927.81' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.14 cfs @ 6.33 fps)
 2=Orifice/Grate (Orifice Controls 0.41 cfs @ 4.68 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Pond 11P: Subarea B south SWMA

Hydrograph



Summary for Pond 12P: Subarea "A" SWMA

Inflow Area = 9.330 ac, 0.00% Impervious, Inflow Depth = 3.07" for 10-year event
 Inflow = 48.21 cfs @ 11.96 hrs, Volume= 2.387 af
 Outflow = 1.49 cfs @ 13.74 hrs, Volume= 2.351 af, Atten= 97%, Lag= 107.1 min
 Primary = 1.49 cfs @ 13.74 hrs, Volume= 2.351 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 931.92' @ 13.74 hrs Surf.Area= 39,481 sf Storage= 68,962 cf

Plug-Flow detention time= 940.1 min calculated for 2.351 af (98% of inflow)
 Center-of-Mass det. time= 930.4 min (1,708.2 - 777.8)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 930.00' | 159,374 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 930.00 | 32,218 | 0 | 0 |
| 931.00 | 35,943 | 34,081 | 34,081 |
| 932.00 | 39,768 | 37,856 | 71,936 |
| 933.00 | 43,694 | 41,731 | 113,667 |
| 934.00 | 47,719 | 45,707 | 159,374 |

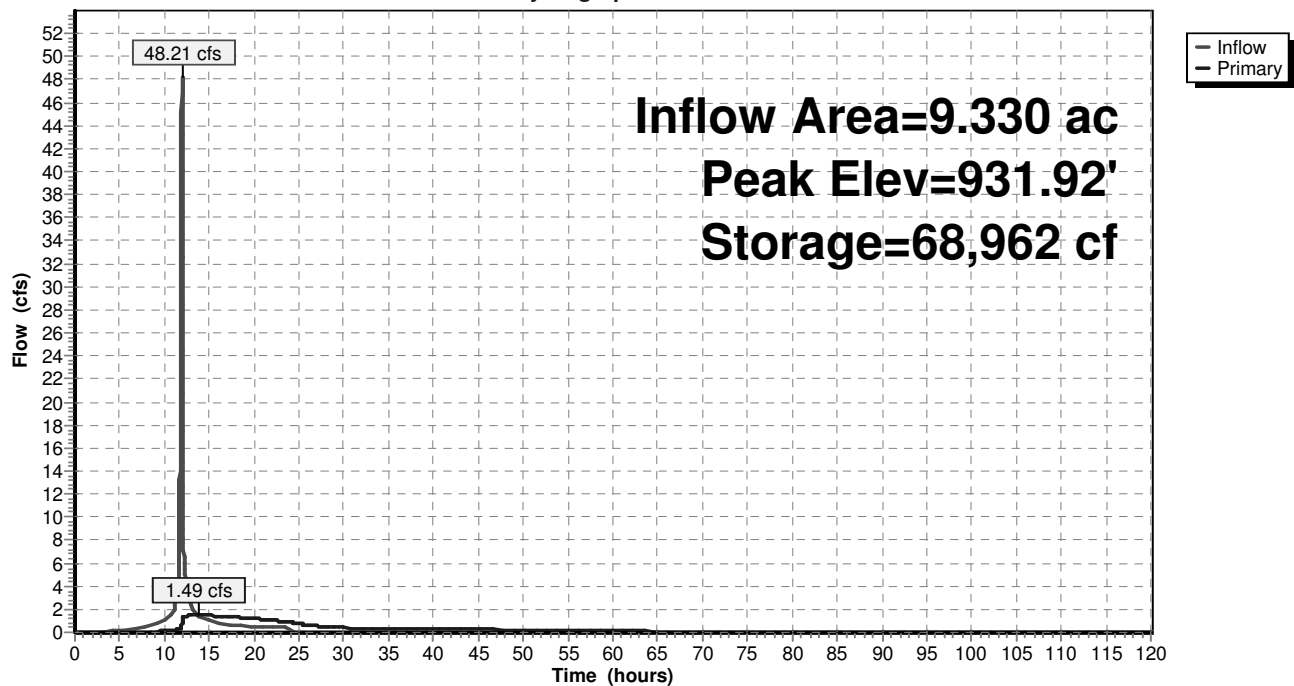
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 930.00' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 931.00' | 8.0" W x 4.0" H Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 932.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=1.49 cfs @ 13.74 hrs HW=931.92' (Free Discharge)

↑
 —1=Orifice/Grate (Orifice Controls 0.56 cfs @ 6.38 fps)
 —2=Orifice/Grate (Orifice Controls 0.93 cfs @ 4.18 fps)
 —3=Orifice/Grate (Controls 0.00 cfs)

Pond 12P: Subarea "A" SWMA

Hydrograph



Summary for Subcatchment 1S: pre north

Runoff = 12.01 cfs @ 12.21 hrs, Volume= 1.084 af, Depth= 2.08"

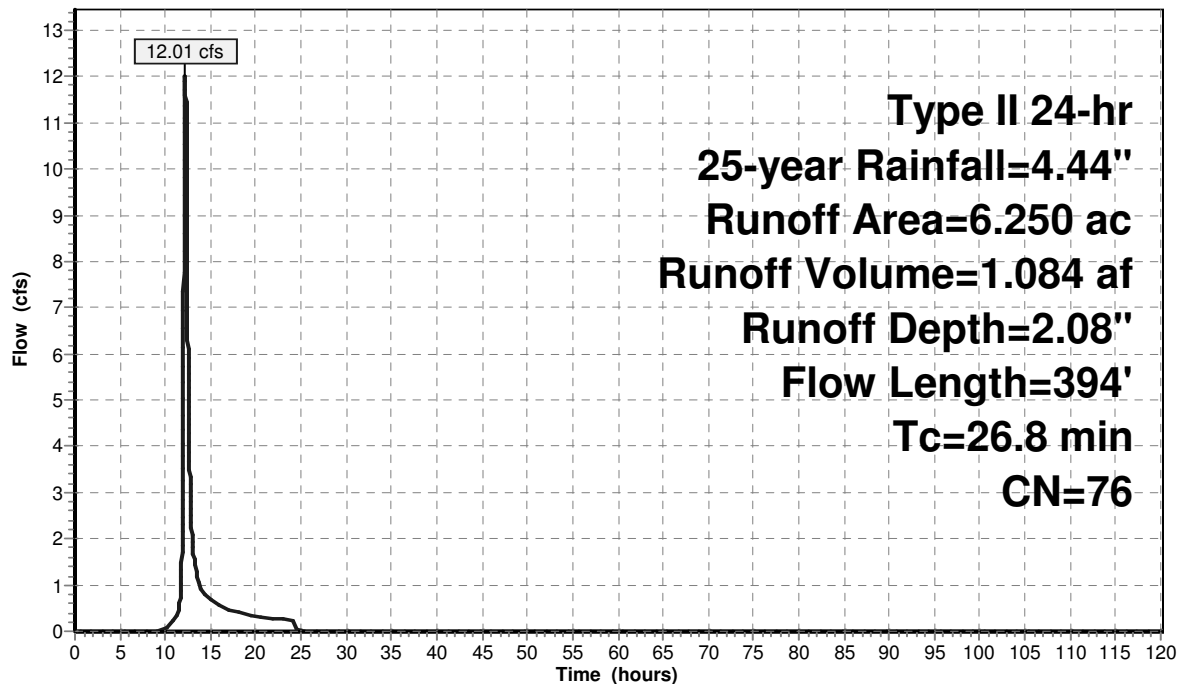
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=4.44"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.710 | 78 | |
| * 2.540 | 74 | |
| 6.250 | 76 | Weighted Average |
| 6.250 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |
| 6.0 | 294 | 0.0136 | 0.82 | | Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps |
| 26.8 | 394 | Total | | | |

Subcatchment 1S: pre north

Hydrograph



Summary for Subcatchment 2S: pre middle

Runoff = 20.53 cfs @ 12.29 hrs, Volume= 2.151 af, Depth= 2.16"

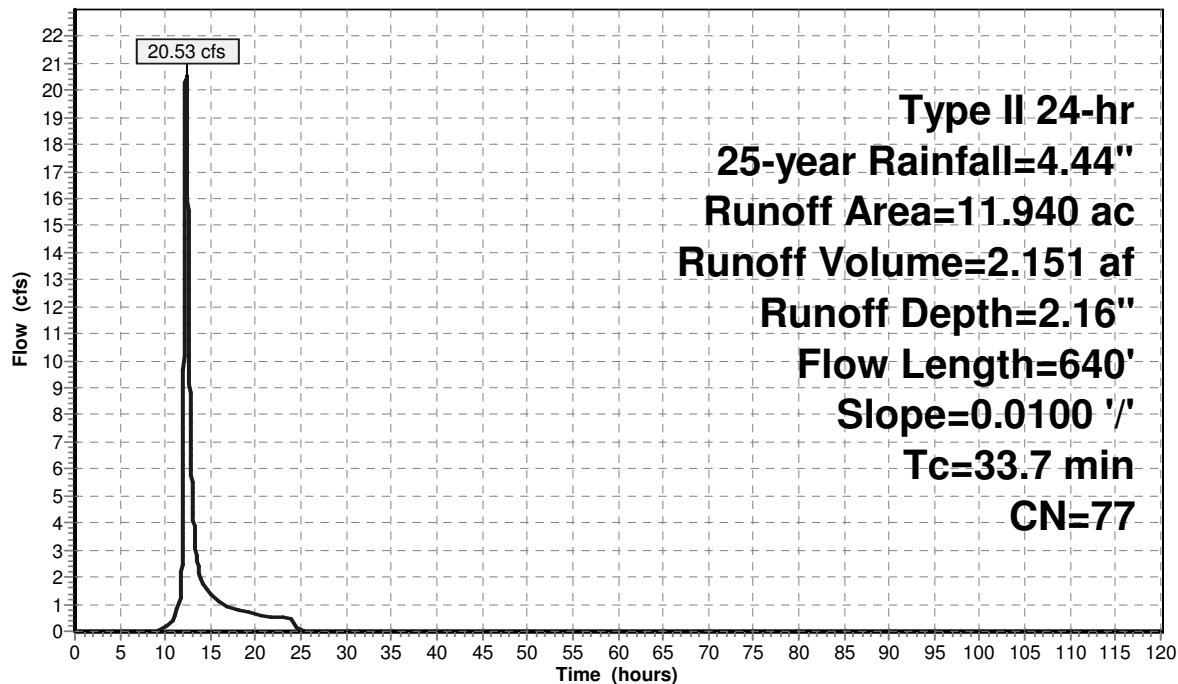
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=4.44"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 8.860 | 78 | |
| * 3.080 | 74 | |
| 11.940 | 77 | Weighted Average |
| 11.940 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |
| 12.9 | 540 | 0.0100 | 0.70 | | Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps |
| 33.7 | 640 | Total | | | |

Subcatchment 2S: pre middle

Hydrograph



Summary for Subcatchment 3S: pre south

Runoff = 8.95 cfs @ 12.13 hrs, Volume= 0.686 af, Depth= 2.24"

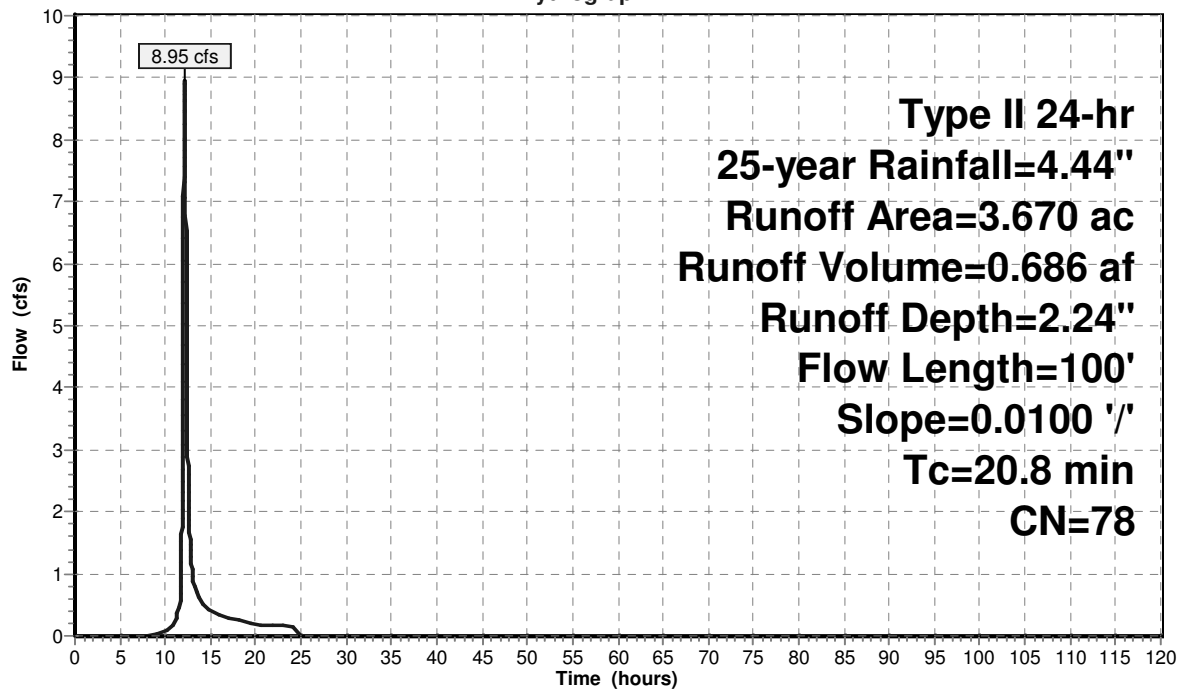
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=4.44"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.670 | 78 | |
| 3.670 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |

Subcatchment 3S: pre south

Hydrograph



Summary for Subcatchment 4S: pre Subarea "A"

Runoff = 15.62 cfs @ 12.32 hrs, Volume= 1.681 af, Depth= 2.16"

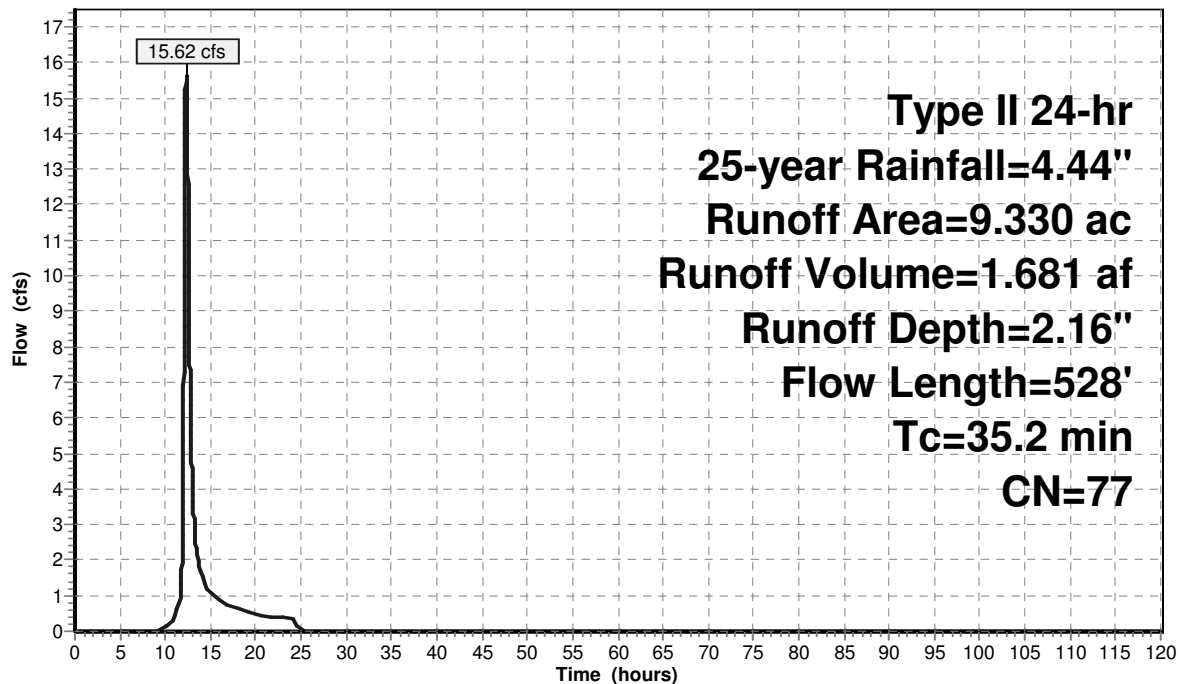
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=4.44"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 7.180 | 78 | |
| * 2.150 | 74 | |
| 9.330 | 77 | Weighted Average |
| 9.330 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |
| 14.4 | 428 | 0.0050 | 0.49 | | Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps |
| 35.2 | 528 | Total | | | |

Subcatchment 4S: pre Subarea "A"

Hydrograph



Summary for Subcatchment 5S: post north

Runoff = 56.70 cfs @ 12.01 hrs, Volume= 3.210 af, Depth= 3.34"

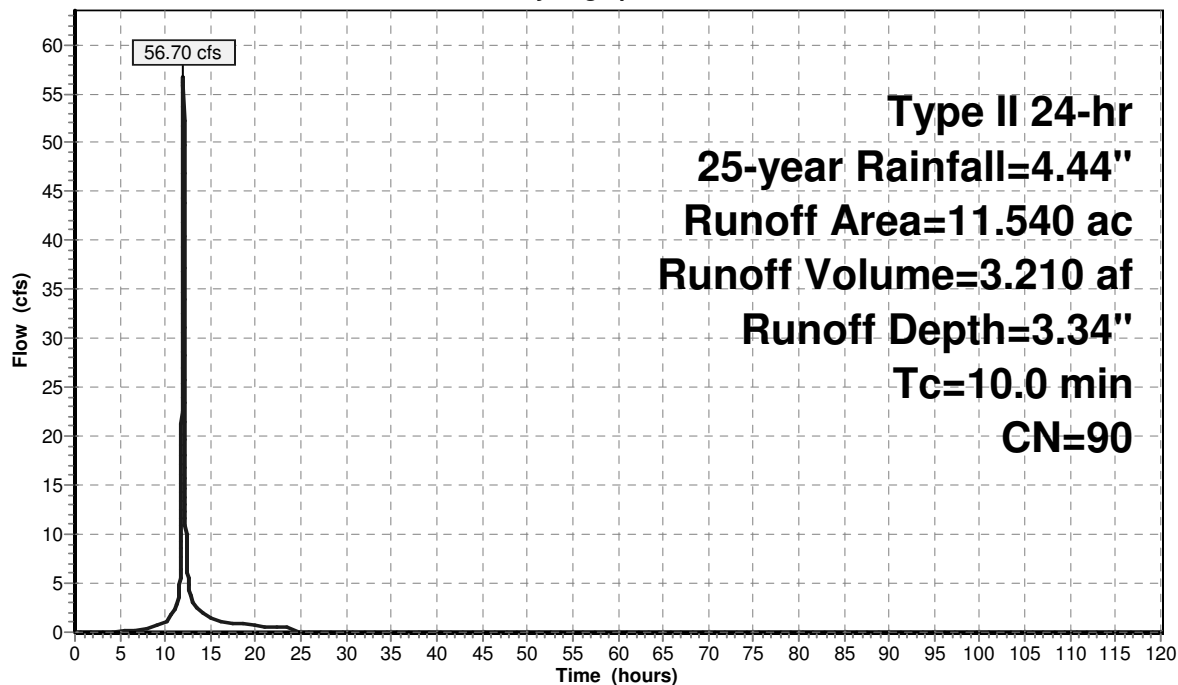
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=4.44"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 11.540 | 90 | |
| 11.540 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0 | | | | | Direct Entry, |

Subcatchment 5S: post north

Hydrograph



Summary for Subcatchment 6S: post middle

Runoff = 58.67 cfs @ 12.01 hrs, Volume= 3.322 af, Depth= 3.34"

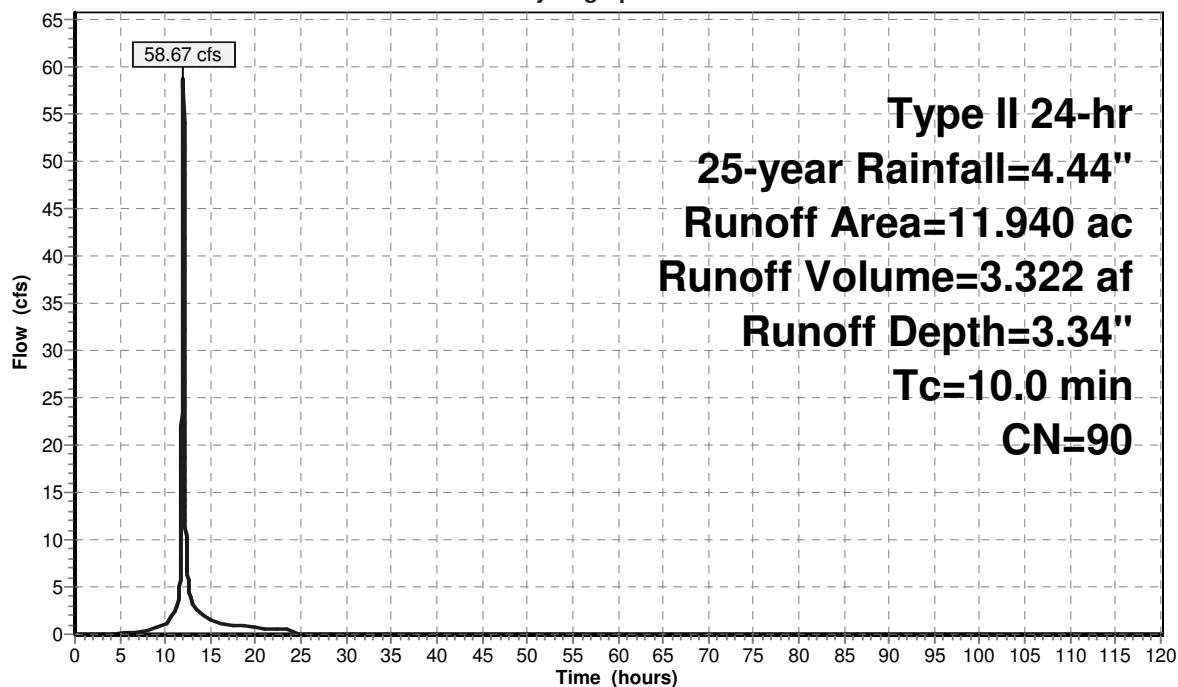
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=4.44"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 11.940 | 90 | |
| 11.940 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|---------------|
| 10.0 | | | | | Direct Entry, |

Subcatchment 6S: post middle

Hydrograph



Summary for Subcatchment 7S: post south

Runoff = 21.29 cfs @ 11.96 hrs, Volume= 1.021 af, Depth= 3.34"

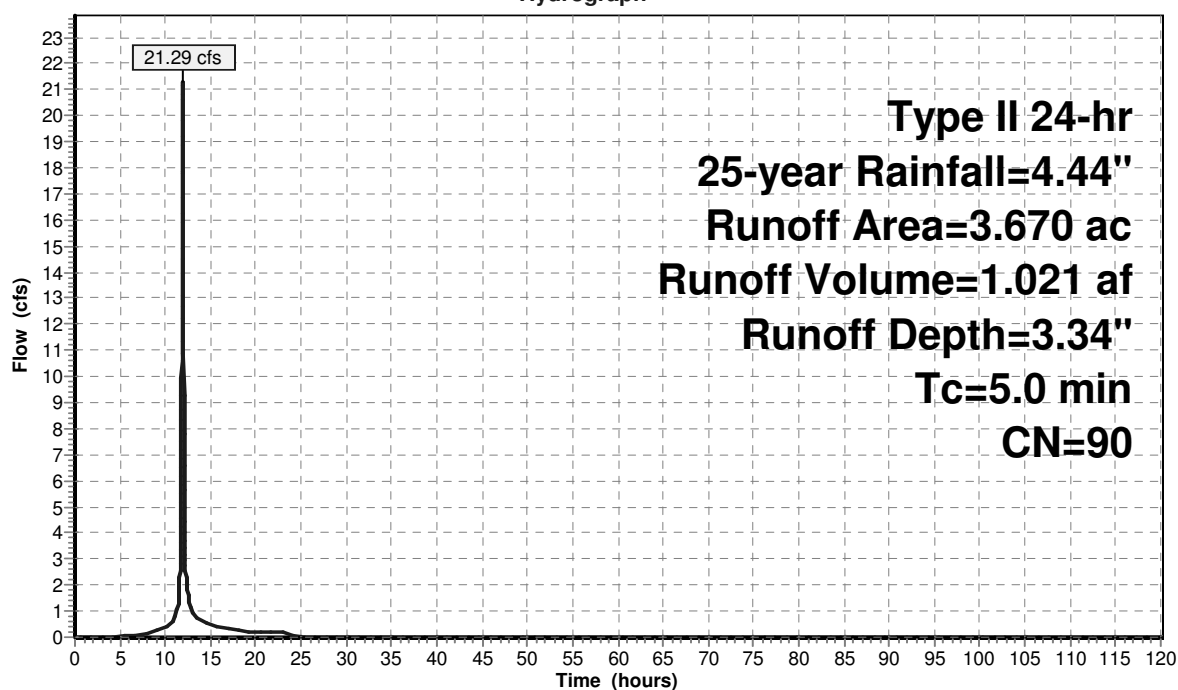
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=4.44"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.670 | 90 | |
| 3.670 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0 | | | | | Direct Entry, |

Subcatchment 7S: post south

Hydrograph



Summary for Subcatchment 8S: post Subarea "A"

Runoff = 58.19 cfs @ 11.96 hrs, Volume= 2.921 af, Depth= 3.76"

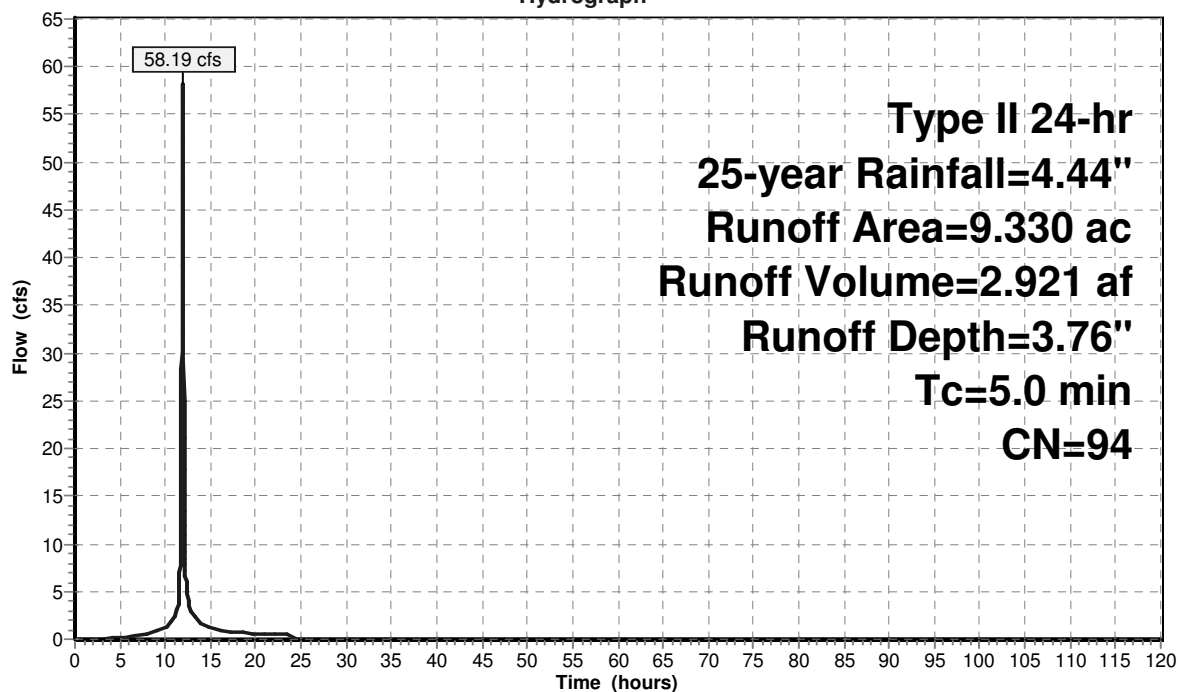
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=4.44"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 9.330 | 94 | |
| 9.330 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0 | | | | | Direct Entry, |

Subcatchment 8S: post Subarea "A"

Hydrograph



Summary for Pond 9P: Subarea B north SWMA

Inflow Area = 11.540 ac, 0.00% Impervious, Inflow Depth = 3.34" for 25-year event
 Inflow = 56.70 cfs @ 12.01 hrs, Volume= 3.210 af
 Outflow = 0.98 cfs @ 17.39 hrs, Volume= 3.180 af, Atten= 98%, Lag= 322.4 min
 Primary = 0.98 cfs @ 17.39 hrs, Volume= 3.180 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 926.85' @ 17.39 hrs Surf.Area= 46,064 sf Storage= 102,217 cf

Plug-Flow detention time= 1,320.7 min calculated for 3.180 af (99% of inflow)
 Center-of-Mass det. time= 1,315.0 min (2,110.3 - 795.4)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 924.40' | 157,610 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40 | 37,449 | 0 | 0 |
| 925.00 | 39,518 | 23,090 | 23,090 |
| 926.00 | 43,009 | 41,264 | 64,354 |
| 927.00 | 46,603 | 44,806 | 109,160 |
| 928.00 | 50,297 | 48,450 | 157,610 |

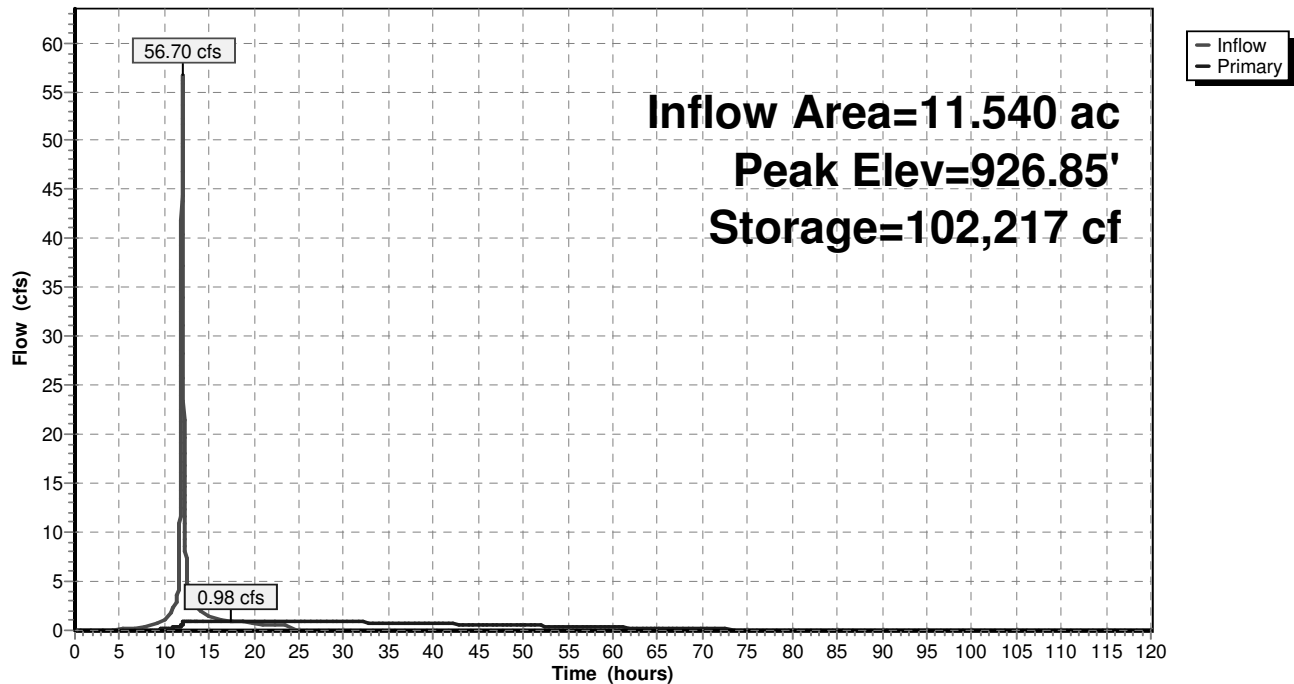
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|--|
| #1 | Primary | 924.40' | 3.5" Vert. Orifice/Grate X 2.00 C= 0.600 |
| #2 | Primary | 927.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |
| #3 | Primary | 927.50' | 20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

Primary OutFlow Max=0.98 cfs @ 17.39 hrs HW=926.85' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.98 cfs @ 7.31 fps)
 2=Orifice/Grate (Controls 0.00 cfs)
 3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 9P: Subarea B north SWMA

Hydrograph



Summary for Pond 10P: Subarea B middle SWMA

Inflow Area = 11.940 ac, 0.00% Impervious, Inflow Depth = 3.34" for 25-year event
 Inflow = 58.67 cfs @ 12.01 hrs, Volume= 3.322 af
 Outflow = 2.29 cfs @ 13.72 hrs, Volume= 3.291 af, Atten= 96%, Lag= 102.7 min
 Primary = 2.29 cfs @ 13.72 hrs, Volume= 3.291 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 926.72' @ 13.72 hrs Surf.Area= 46,124 sf Storage= 93,000 cf

Plug-Flow detention time= 874.7 min calculated for 3.291 af (99% of inflow)
 Center-of-Mass det. time= 869.2 min (1,664.6 - 795.4)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 924.40' | 155,661 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40 | 26,879 | 0 | 0 |
| 925.00 | 39,220 | 19,830 | 19,830 |
| 926.00 | 43,202 | 41,211 | 61,041 |
| 927.00 | 47,285 | 45,244 | 106,284 |
| 928.00 | 51,468 | 49,377 | 155,661 |

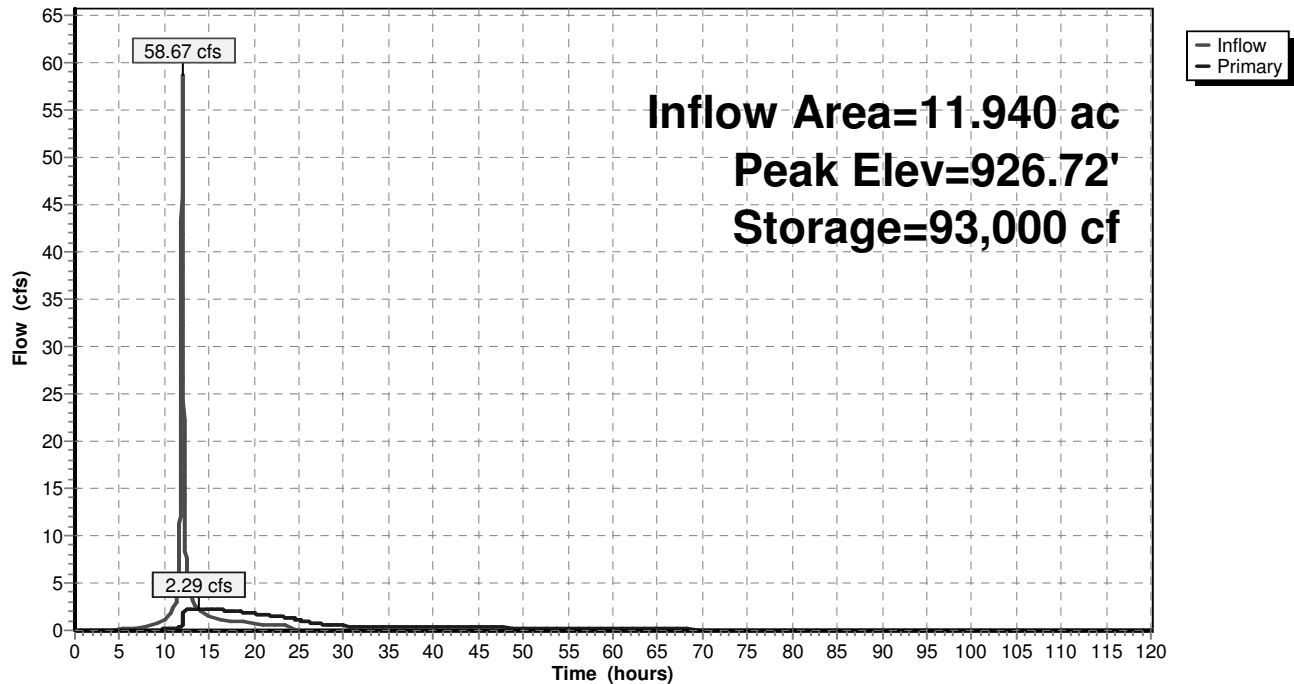
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 924.40' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 925.50' | 10.0" W x 5.0" H Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 926.90' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=2.29 cfs @ 13.72 hrs HW=926.72' (Free Discharge)

↑
 —1=Orifice/Grate (Orifice Controls 0.62 cfs @ 7.06 fps)
 —2=Orifice/Grate (Orifice Controls 1.67 cfs @ 4.82 fps)
 —3=Orifice/Grate (Controls 0.00 cfs)

Pond 10P: Subarea B middle SWMA

Hydrograph



Summary for Pond 11P: Subarea B south SWMA

Inflow Area = 3.670 ac, 0.00% Impervious, Inflow Depth = 3.34" for 25-year event
 Inflow = 21.29 cfs @ 11.96 hrs, Volume= 1.021 af
 Outflow = 0.64 cfs @ 13.85 hrs, Volume= 1.015 af, Atten= 97%, Lag= 113.3 min
 Primary = 0.64 cfs @ 13.85 hrs, Volume= 1.015 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 928.22' @ 13.85 hrs Surf.Area= 15,584 sf Storage= 28,883 cf

Plug-Flow detention time= 821.1 min calculated for 1.015 af (99% of inflow)
 Center-of-Mass det. time= 817.1 min (1,607.8 - 790.7)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 926.00' | 60,527 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 926.00 | 10,530 | 0 | 0 |
| 927.00 | 12,744 | 11,637 | 11,637 |
| 928.00 | 15,057 | 13,901 | 25,538 |
| 929.00 | 17,472 | 16,265 | 41,802 |
| 930.00 | 19,978 | 18,725 | 60,527 |

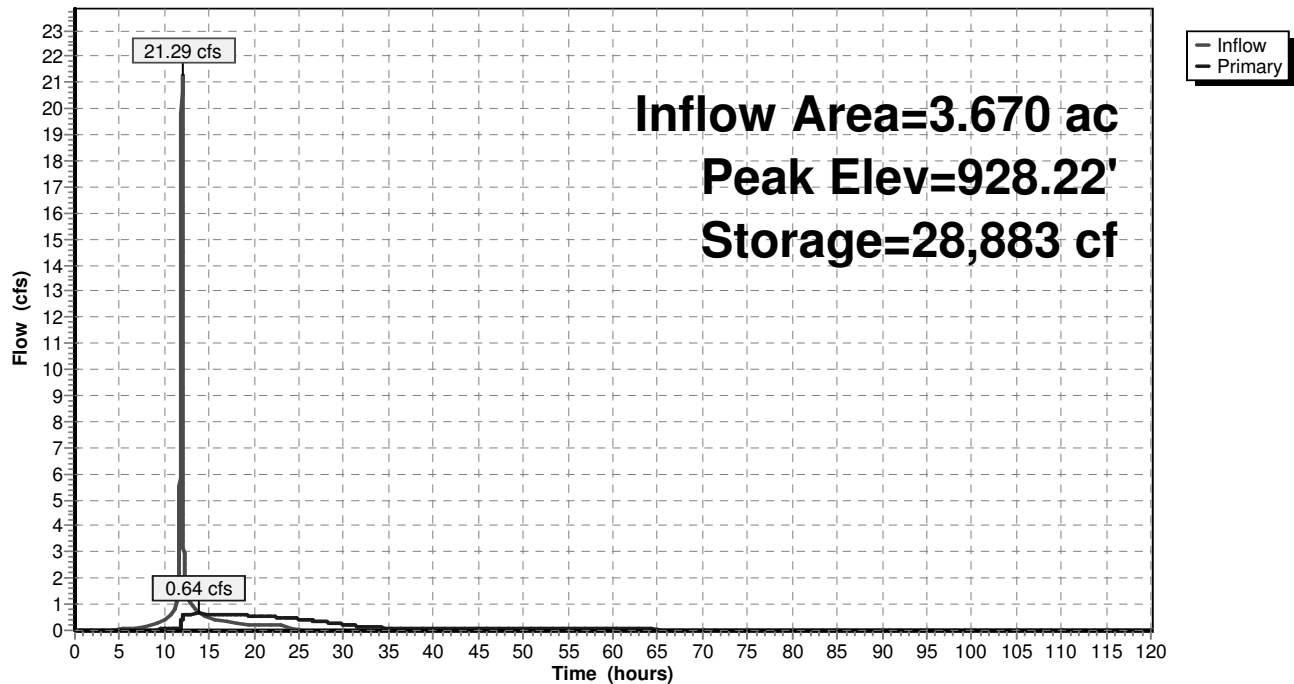
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 926.00' | 2.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 926.70' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 928.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=0.64 cfs @ 13.85 hrs HW=928.22' (Free Discharge)

↑
 —1=Orifice/Grate (Orifice Controls 0.15 cfs @ 7.04 fps)
 —2=Orifice/Grate (Orifice Controls 0.49 cfs @ 5.60 fps)
 —3=Orifice/Grate (Controls 0.00 cfs)

Pond 11P: Subarea B south SWMA

Hydrograph



Summary for Pond 12P: Subarea "A" SWMA

Inflow Area = 9.330 ac, 0.00% Impervious, Inflow Depth = 3.76" for 25-year event
 Inflow = 58.19 cfs @ 11.96 hrs, Volume= 2.921 af
 Outflow = 1.76 cfs @ 13.76 hrs, Volume= 2.883 af, Atten= 97%, Lag= 108.3 min
 Primary = 1.76 cfs @ 13.76 hrs, Volume= 2.883 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 932.32' @ 13.76 hrs Surf.Area= 41,023 sf Storage= 84,852 cf

Plug-Flow detention time= 911.4 min calculated for 2.883 af (99% of inflow)
 Center-of-Mass det. time= 903.1 min (1,675.6 - 772.5)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 930.00' | 159,374 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 930.00 | 32,218 | 0 | 0 |
| 931.00 | 35,943 | 34,081 | 34,081 |
| 932.00 | 39,768 | 37,856 | 71,936 |
| 933.00 | 43,694 | 41,731 | 113,667 |
| 934.00 | 47,719 | 45,707 | 159,374 |

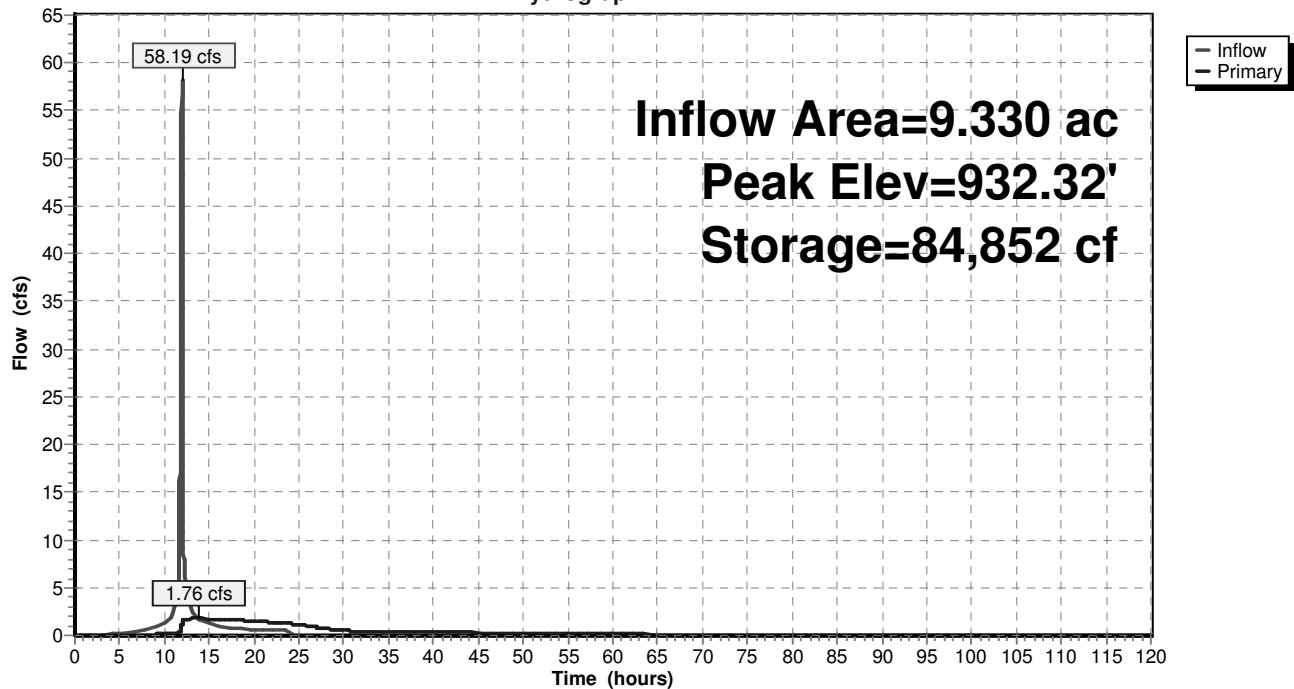
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 930.00' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 931.00' | 8.0" W x 4.0" H Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 932.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=1.76 cfs @ 13.76 hrs HW=932.32' (Free Discharge)

↑
 —1=Orifice/Grate (Orifice Controls 0.62 cfs @ 7.07 fps)
 —2=Orifice/Grate (Orifice Controls 1.15 cfs @ 5.17 fps)
 —3=Orifice/Grate (Controls 0.00 cfs)

Pond 12P: Subarea "A" SWMA

Hydrograph



Summary for Subcatchment 1S: pre north

Runoff = 14.81 cfs @ 12.21 hrs, Volume= 1.329 af, Depth= 2.55"

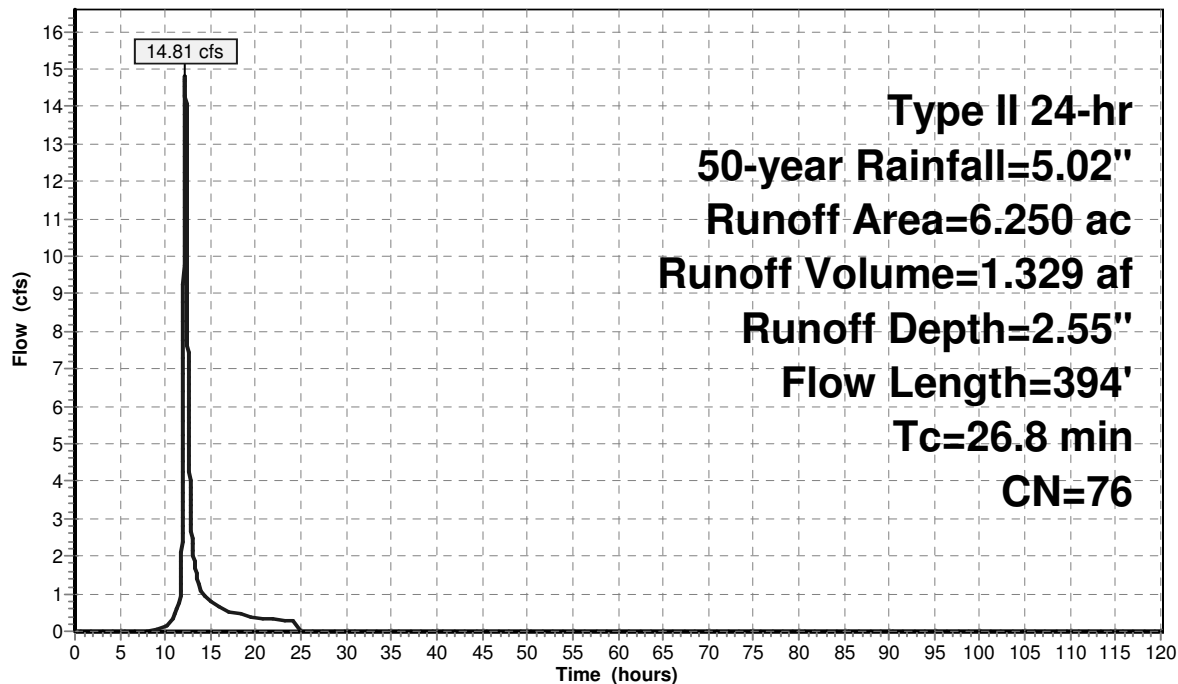
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=5.02"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.710 | 78 | |
| * 2.540 | 74 | |
| 6.250 | 76 | Weighted Average |
| 6.250 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |
| 6.0 | 294 | 0.0136 | 0.82 | | Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps |
| 26.8 | 394 | Total | | | |

Subcatchment 1S: pre north

Hydrograph



Summary for Subcatchment 2S: pre middle

Runoff = 25.22 cfs @ 12.29 hrs, Volume= 2.627 af, Depth= 2.64"

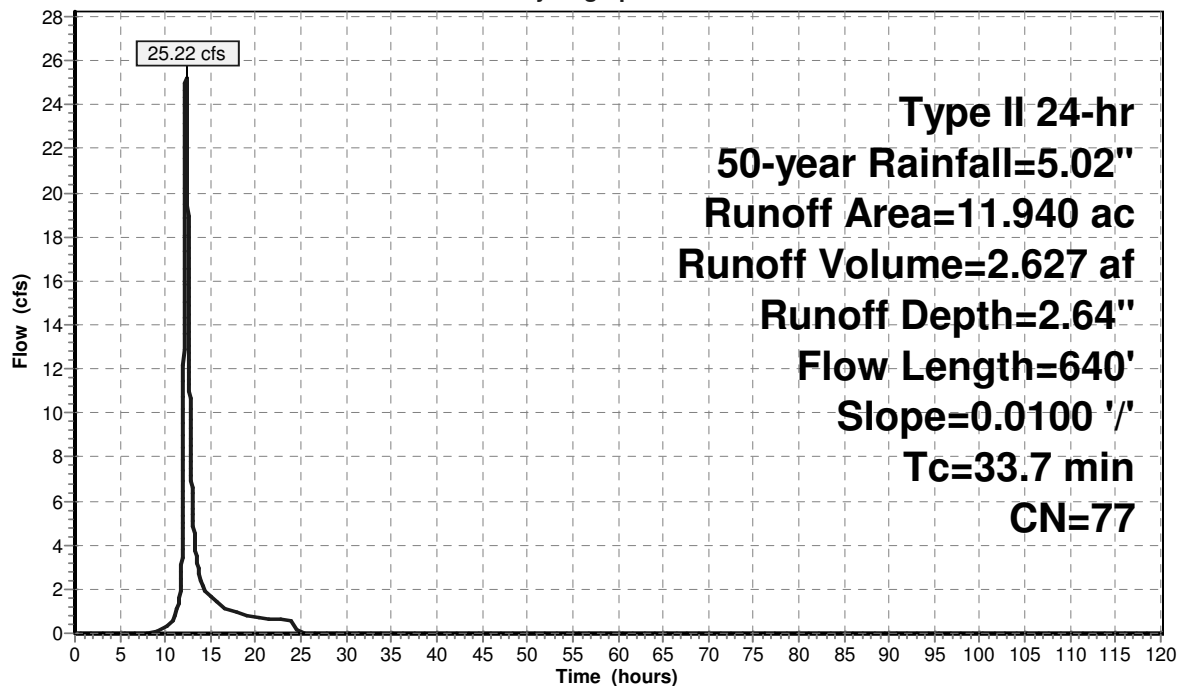
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=5.02"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 8.860 | 78 | |
| * 3.080 | 74 | |
| 11.940 | 77 | Weighted Average |
| 11.940 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |
| 12.9 | 540 | 0.0100 | 0.70 | | Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps |
| 33.7 | 640 | Total | | | |

Subcatchment 2S: pre middle

Hydrograph



Summary for Subcatchment 3S: pre south

Runoff = 10.91 cfs @ 12.13 hrs, Volume= 0.835 af, Depth= 2.73"

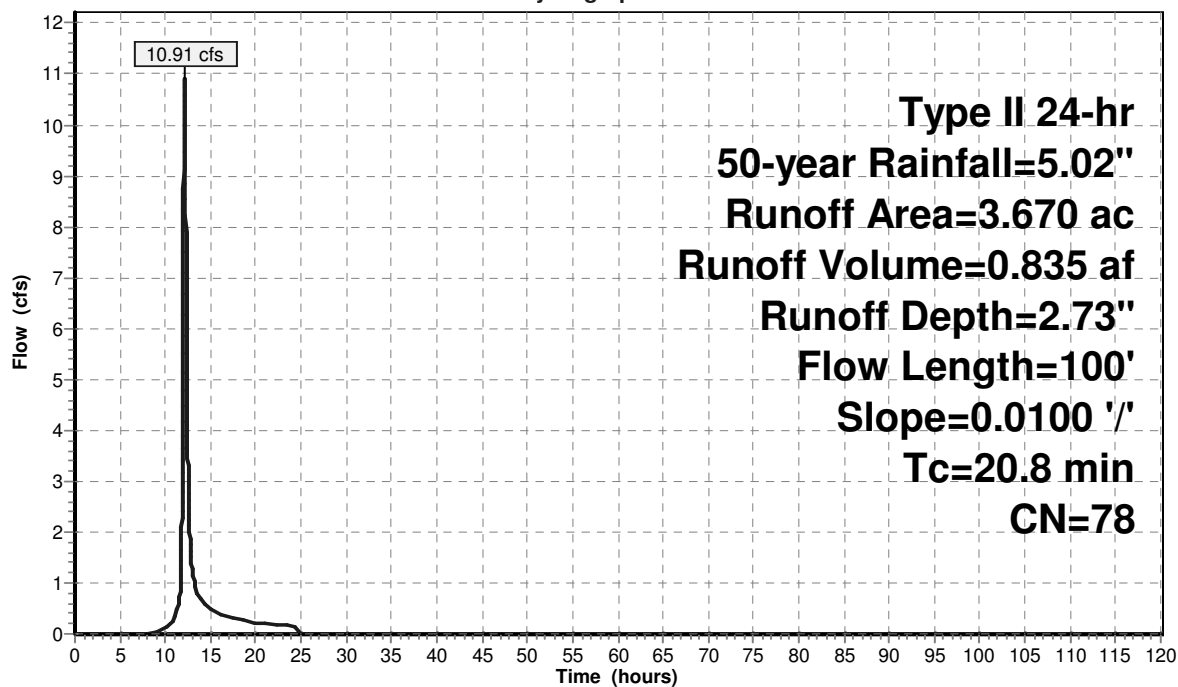
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=5.02"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.670 | 78 | |
| 3.670 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |

Subcatchment 3S: pre south

Hydrograph



Summary for Subcatchment 4S: pre Subarea "A"

Runoff = 19.17 cfs @ 12.32 hrs, Volume= 2.052 af, Depth= 2.64"

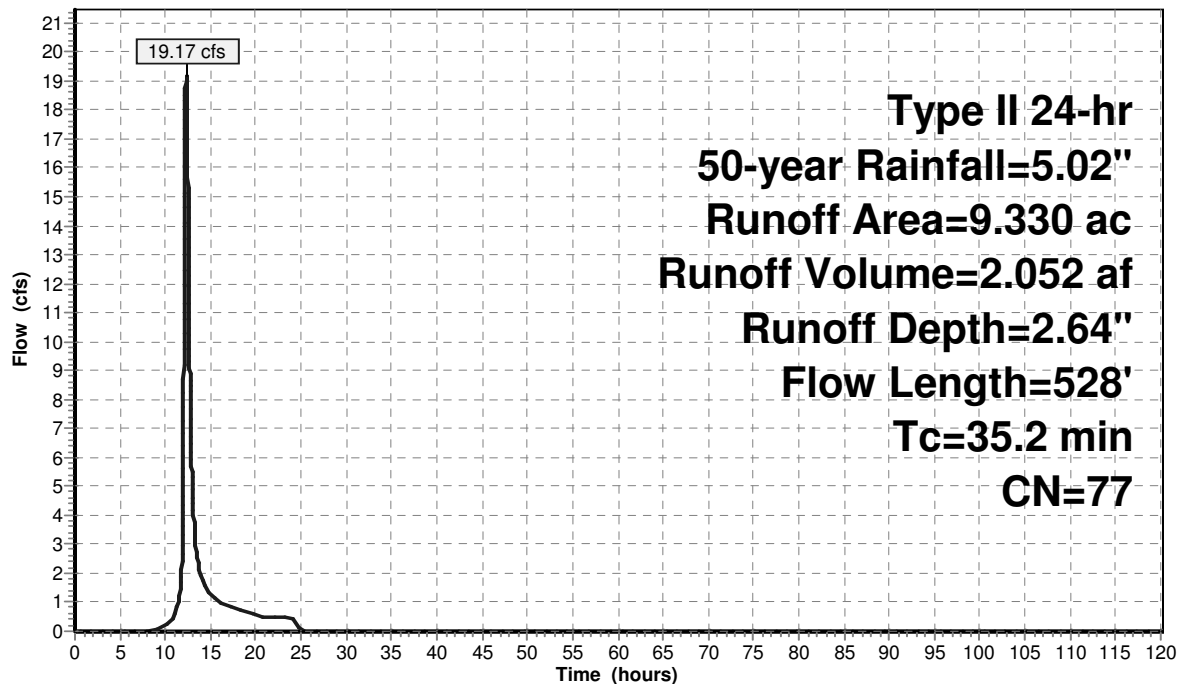
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=5.02"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 7.180 | 78 | |
| * 2.150 | 74 | |
| 9.330 | 77 | Weighted Average |
| 9.330 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |
| 14.4 | 428 | 0.0050 | 0.49 | | Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps |
| 35.2 | 528 | Total | | | |

Subcatchment 4S: pre Subarea "A"

Hydrograph



Summary for Subcatchment 5S: post north

Runoff = 65.57 cfs @ 12.01 hrs, Volume= 3.746 af, Depth= 3.90"

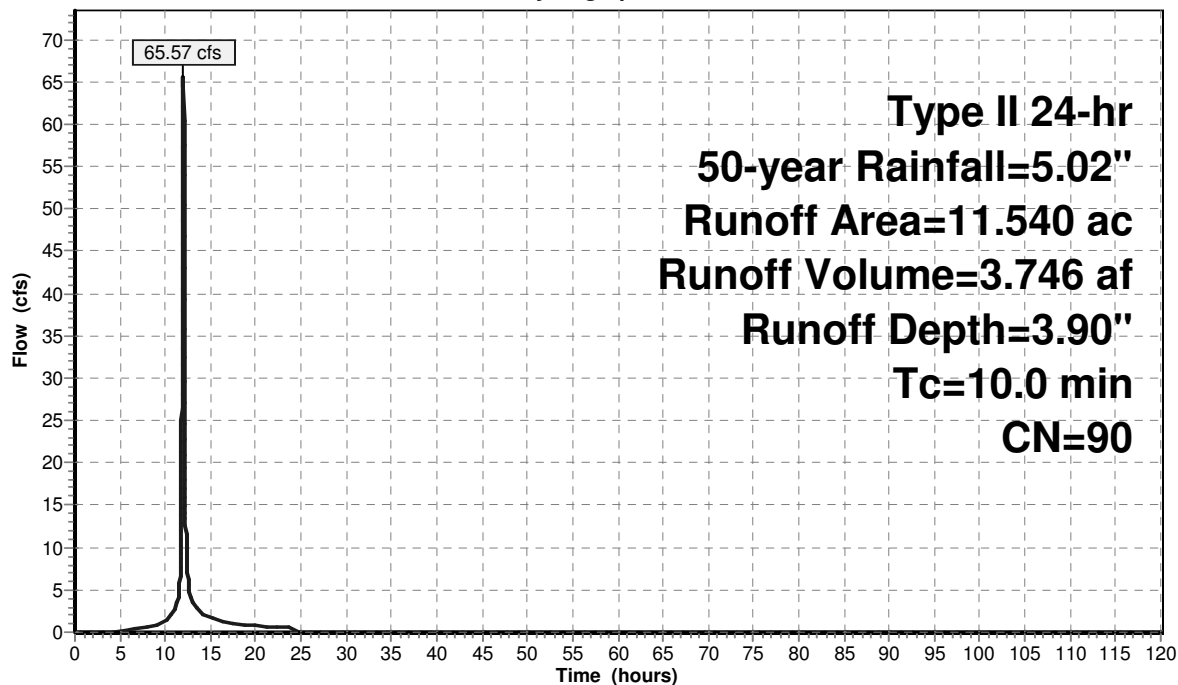
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=5.02"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 11.540 | 90 | |
| 11.540 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0 | | | | | Direct Entry, |

Subcatchment 5S: post north

Hydrograph



— Runoff

Summary for Subcatchment 6S: post middle

Runoff = 67.85 cfs @ 12.01 hrs, Volume= 3.876 af, Depth= 3.90"

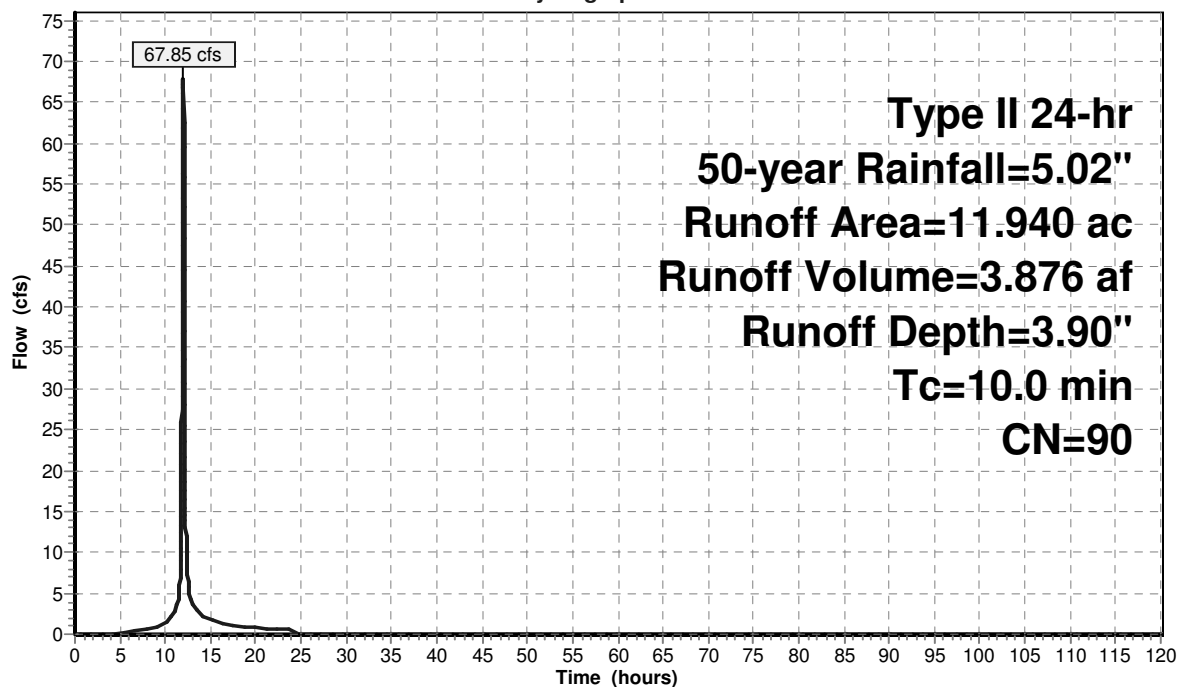
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=5.02"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 11.940 | 90 | |
| 11.940 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0 | | | | | Direct Entry, |

Subcatchment 6S: post middle

Hydrograph



Summary for Subcatchment 7S: post south

Runoff = 24.59 cfs @ 11.96 hrs, Volume= 1.191 af, Depth= 3.90"

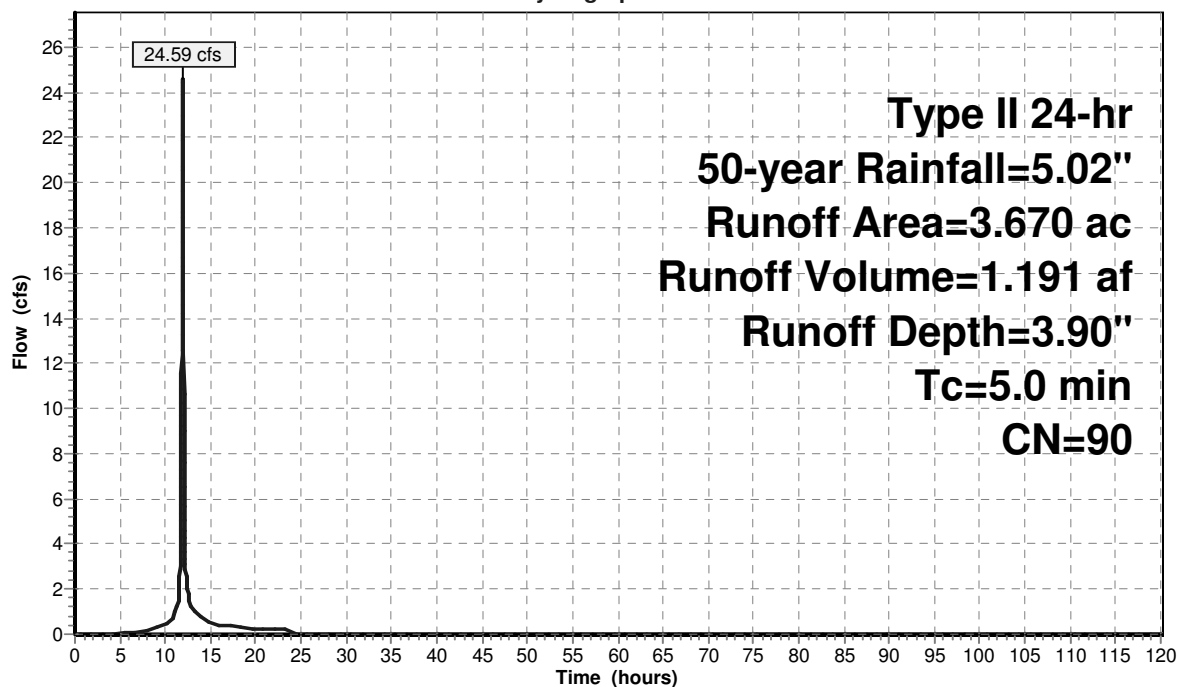
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=5.02"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.670 | 90 | |
| 3.670 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0 | | | | | Direct Entry, |

Subcatchment 7S: post south

Hydrograph



Summary for Subcatchment 8S: post Subarea "A"

Runoff = 66.41 cfs @ 11.96 hrs, Volume= 3.365 af, Depth= 4.33"

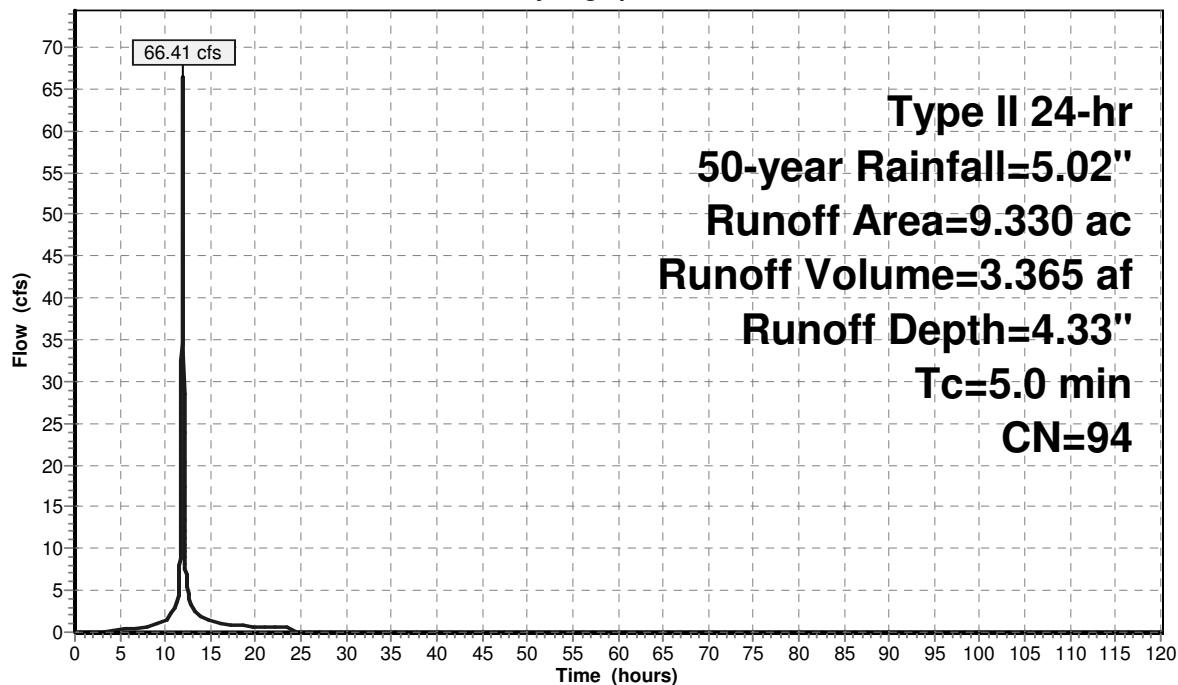
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=5.02"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 9.330 | 94 | |
| 9.330 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0 | | | | | Direct Entry, |

Subcatchment 8S: post Subarea "A"

Hydrograph



Summary for Pond 9P: Subarea B north SWMA

Inflow Area = 11.540 ac, 0.00% Impervious, Inflow Depth = 3.90" for 50-year event
 Inflow = 65.57 cfs @ 12.01 hrs, Volume= 3.746 af
 Outflow = 1.06 cfs @ 17.80 hrs, Volume= 3.713 af, Atten= 98%, Lag= 347.2 min
 Primary = 1.06 cfs @ 17.80 hrs, Volume= 3.713 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 927.25' @ 17.80 hrs Surf.Area= 47,529 sf Storage= 120,956 cf

Plug-Flow detention time= 1,418.3 min calculated for 3.713 af (99% of inflow)
 Center-of-Mass det. time= 1,412.6 min (2,203.7 - 791.1)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 924.40' | 157,610 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40 | 37,449 | 0 | 0 |
| 925.00 | 39,518 | 23,090 | 23,090 |
| 926.00 | 43,009 | 41,264 | 64,354 |
| 927.00 | 46,603 | 44,806 | 109,160 |
| 928.00 | 50,297 | 48,450 | 157,610 |

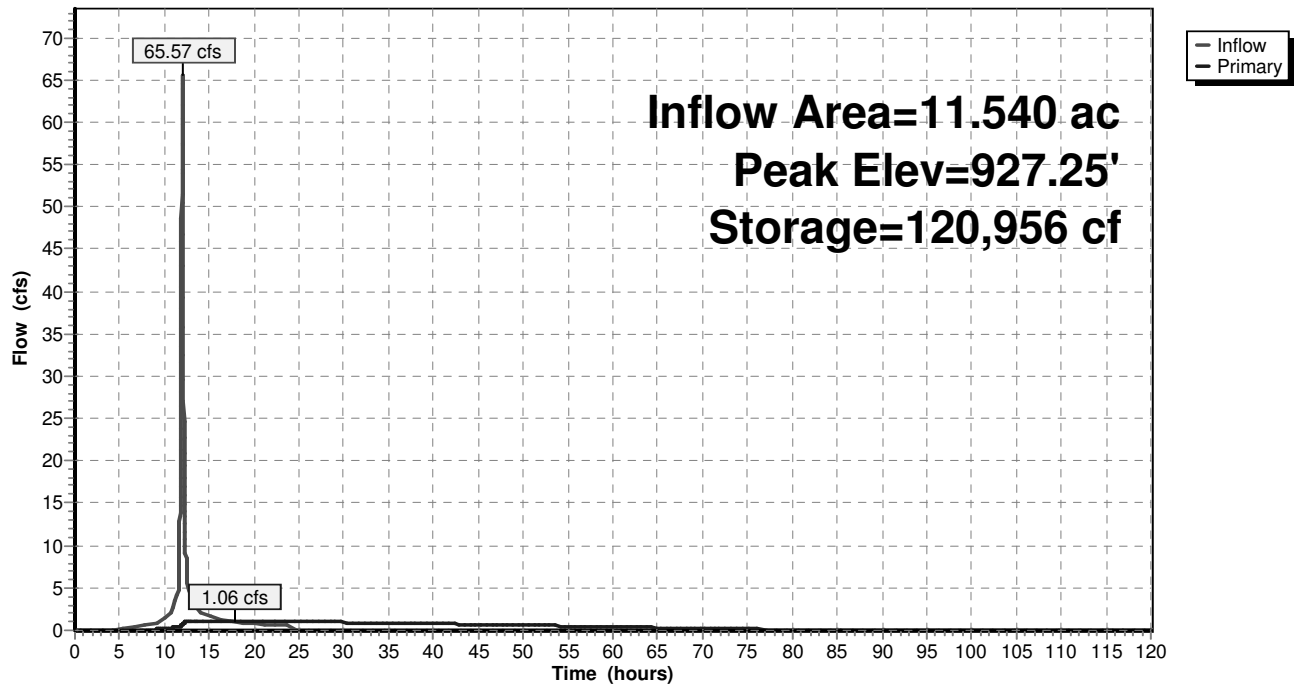
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|--|
| #1 | Primary | 924.40' | 3.5" Vert. Orifice/Grate X 2.00 C= 0.600 |
| #2 | Primary | 927.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |
| #3 | Primary | 927.50' | 20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

Primary OutFlow Max=1.06 cfs @ 17.80 hrs HW=927.25' (Free Discharge)

1=Orifice/Grate (Orifice Controls 1.06 cfs @ 7.92 fps)
 2=Orifice/Grate (Controls 0.00 cfs)
 3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 9P: Subarea B north SWMA

Hydrograph



Summary for Pond 10P: Subarea B middle SWMA

Inflow Area = 11.940 ac, 0.00% Impervious, Inflow Depth = 3.90" for 50-year event
 Inflow = 67.85 cfs @ 12.01 hrs, Volume= 3.876 af
 Outflow = 3.48 cfs @ 13.17 hrs, Volume= 3.845 af, Atten= 95%, Lag= 69.8 min
 Primary = 3.48 cfs @ 13.17 hrs, Volume= 3.845 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 927.01' @ 13.17 hrs Surf.Area= 47,327 sf Storage= 106,762 cf

Plug-Flow detention time= 827.7 min calculated for 3.845 af (99% of inflow)
 Center-of-Mass det. time= 822.5 min (1,613.6 - 791.1)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 924.40' | 155,661 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40 | 26,879 | 0 | 0 |
| 925.00 | 39,220 | 19,830 | 19,830 |
| 926.00 | 43,202 | 41,211 | 61,041 |
| 927.00 | 47,285 | 45,244 | 106,284 |
| 928.00 | 51,468 | 49,377 | 155,661 |

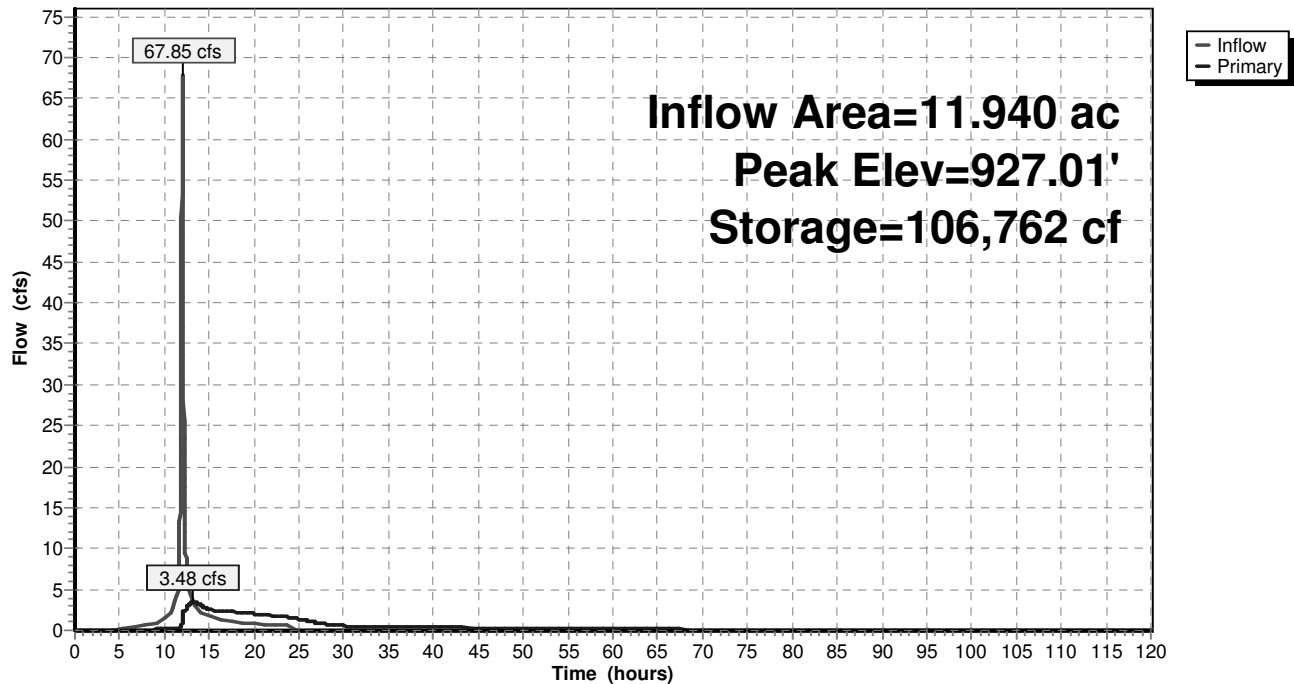
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 924.40' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 925.50' | 10.0" W x 5.0" H Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 926.90' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=3.48 cfs @ 13.17 hrs HW=927.01' (Free Discharge)

↑
 —1=Orifice/Grate (Orifice Controls 0.66 cfs @ 7.53 fps)
 —2=Orifice/Grate (Orifice Controls 1.91 cfs @ 5.49 fps)
 —3=Orifice/Grate (Weir Controls 0.92 cfs @ 1.09 fps)

Pond 10P: Subarea B middle SWMA

Hydrograph



Summary for Pond 11P: Subarea B south SWMA

Inflow Area = 3.670 ac, 0.00% Impervious, Inflow Depth = 3.90" for 50-year event
 Inflow = 24.59 cfs @ 11.96 hrs, Volume= 1.191 af
 Outflow = 0.84 cfs @ 13.55 hrs, Volume= 1.185 af, Atten= 97%, Lag= 95.3 min
 Primary = 0.84 cfs @ 13.55 hrs, Volume= 1.185 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 928.53' @ 13.55 hrs Surf.Area= 16,335 sf Storage= 33,841 cf

Plug-Flow detention time= 817.9 min calculated for 1.185 af (99% of inflow)
 Center-of-Mass det. time= 814.7 min (1,601.1 - 786.4)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 926.00' | 60,527 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 926.00 | 10,530 | 0 | 0 |
| 927.00 | 12,744 | 11,637 | 11,637 |
| 928.00 | 15,057 | 13,901 | 25,538 |
| 929.00 | 17,472 | 16,265 | 41,802 |
| 930.00 | 19,978 | 18,725 | 60,527 |

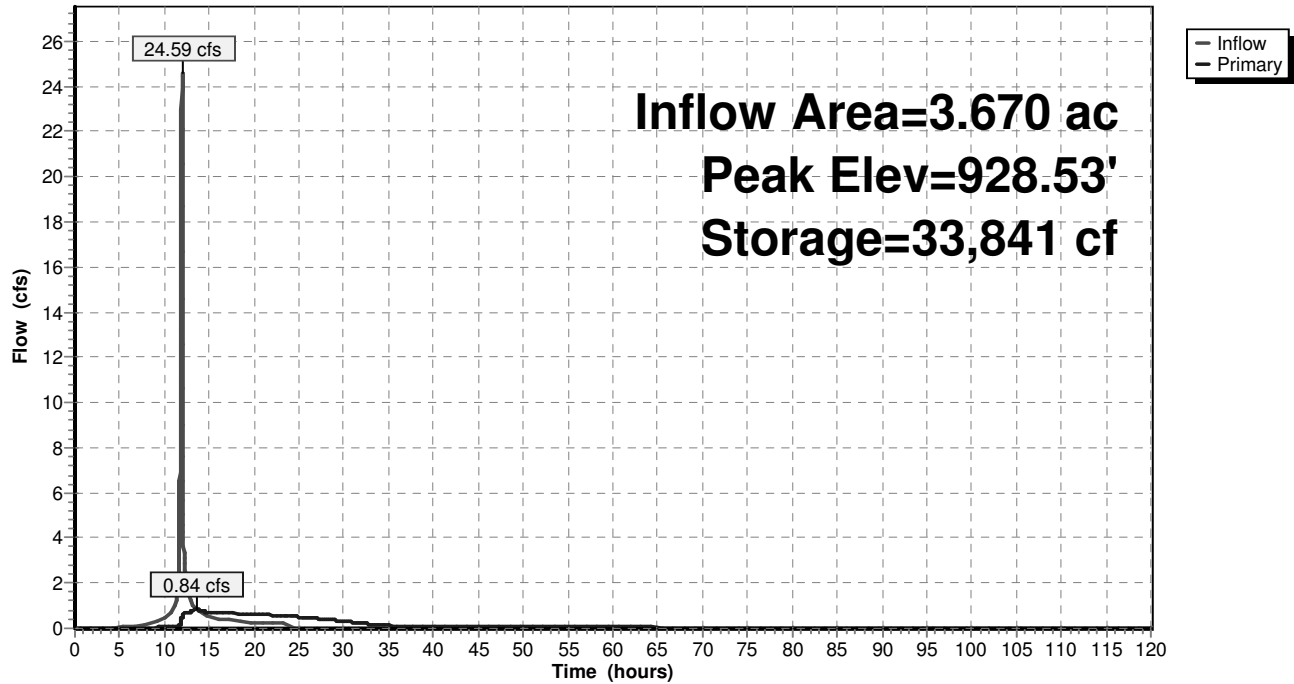
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 926.00' | 2.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 926.70' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 928.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=0.83 cfs @ 13.55 hrs HW=928.53' (Free Discharge)

↑
 —1=Orifice/Grate (Orifice Controls 0.16 cfs @ 7.53 fps)
 —2=Orifice/Grate (Orifice Controls 0.54 cfs @ 6.21 fps)
 —3=Orifice/Grate (Weir Controls 0.12 cfs @ 0.56 fps)

Pond 11P: Subarea B south SWMA

Hydrograph



Summary for Pond 12P: Subarea "A" SWMA

Inflow Area = 9.330 ac, 0.00% Impervious, Inflow Depth = 4.33" for 50-year event
 Inflow = 66.41 cfs @ 11.96 hrs, Volume= 3.365 af
 Outflow = 2.65 cfs @ 13.21 hrs, Volume= 3.327 af, Atten= 96%, Lag= 75.2 min
 Primary = 2.65 cfs @ 13.21 hrs, Volume= 3.327 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 932.59' @ 13.21 hrs Surf.Area= 42,096 sf Storage= 96,205 cf

Plug-Flow detention time= 878.9 min calculated for 3.326 af (99% of inflow)
 Center-of-Mass det. time= 871.9 min (1,640.8 - 768.9)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 930.00' | 159,374 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 930.00 | 32,218 | 0 | 0 |
| 931.00 | 35,943 | 34,081 | 34,081 |
| 932.00 | 39,768 | 37,856 | 71,936 |
| 933.00 | 43,694 | 41,731 | 113,667 |
| 934.00 | 47,719 | 45,707 | 159,374 |

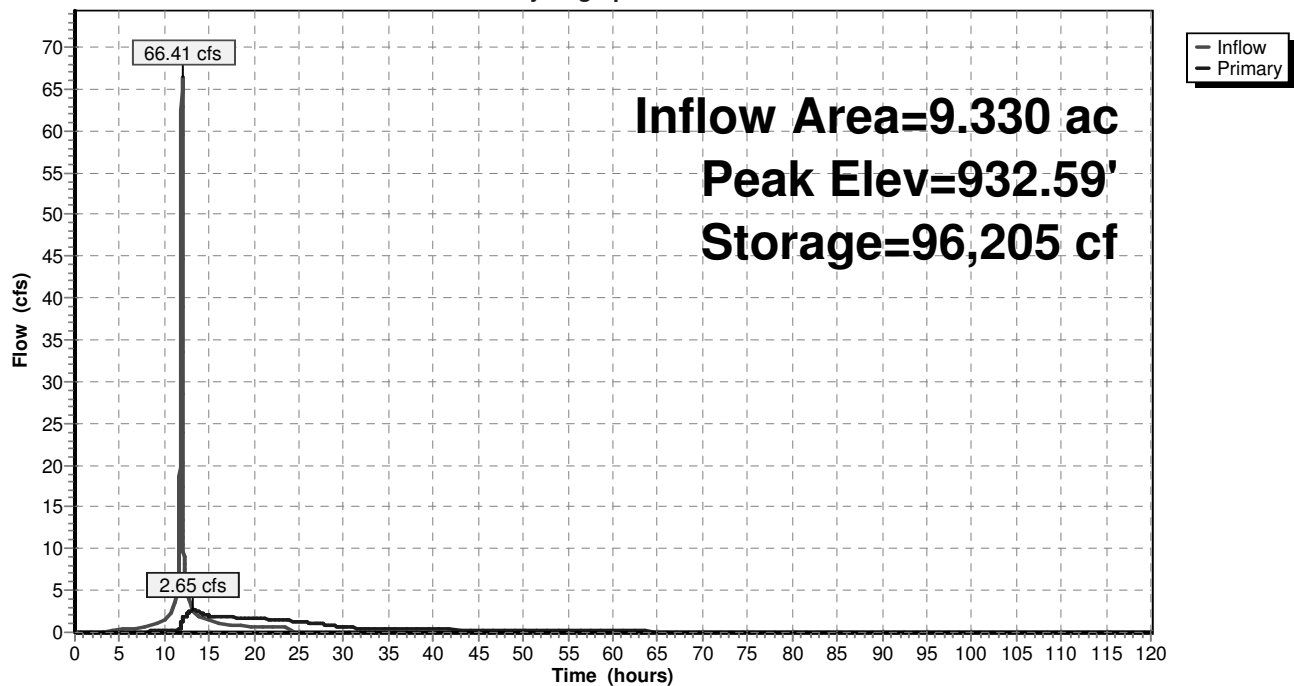
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 930.00' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 931.00' | 8.0" W x 4.0" H Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 932.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=2.64 cfs @ 13.21 hrs HW=932.59' (Free Discharge)

↑
 —1=Orifice/Grate (Orifice Controls 0.65 cfs @ 7.50 fps)
 —2=Orifice/Grate (Orifice Controls 1.28 cfs @ 5.75 fps)
 —3=Orifice/Grate (Weir Controls 0.71 cfs @ 1.00 fps)

Pond 12P: Subarea "A" SWMA

Hydrograph



Summary for Subcatchment 1S: pre north

Runoff = 17.84 cfs @ 12.21 hrs, Volume= 1.595 af, Depth= 3.06"

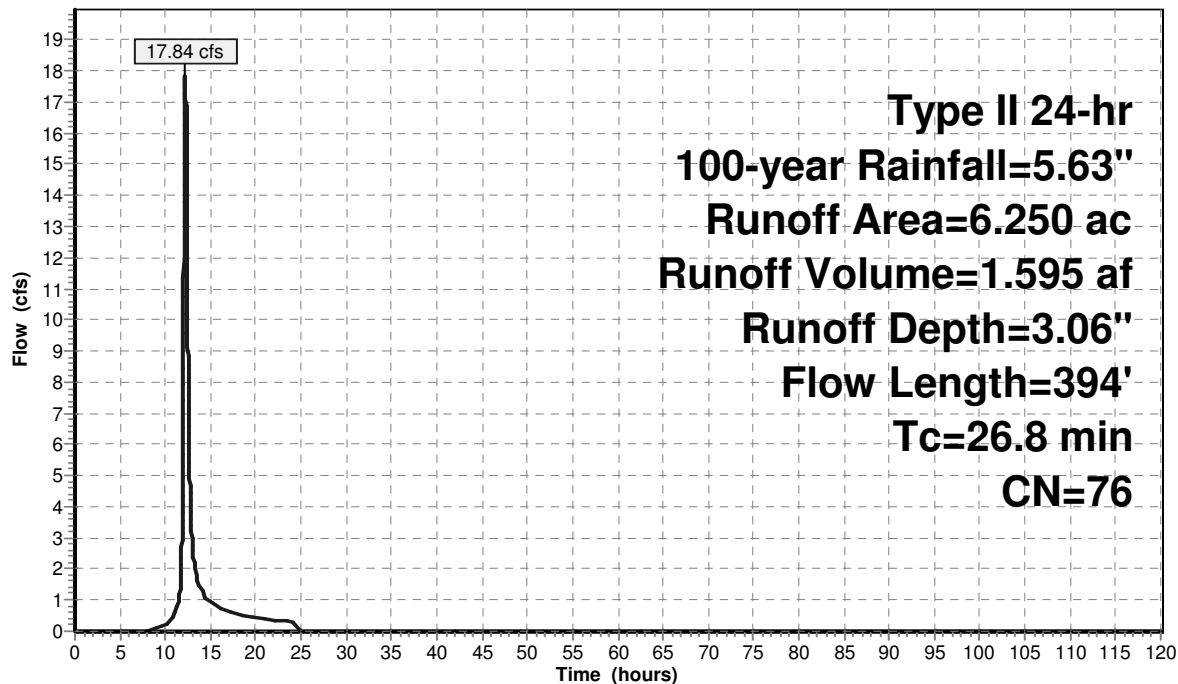
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=5.63"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.710 | 78 | |
| * 2.540 | 74 | |
| 6.250 | 76 | Weighted Average |
| 6.250 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, |
| | | | | | Grass: Dense n= 0.240 P2= 2.63" |
| 6.0 | 294 | 0.0136 | 0.82 | | Shallow Concentrated Flow, |
| | | | | | Short Grass Pasture Kv= 7.0 fps |
| 26.8 | 394 | Total | | | |

Subcatchment 1S: pre north

Hydrograph



Summary for Subcatchment 2S: pre middle

Runoff = 30.28 cfs @ 12.28 hrs, Volume= 3.142 af, Depth= 3.16"

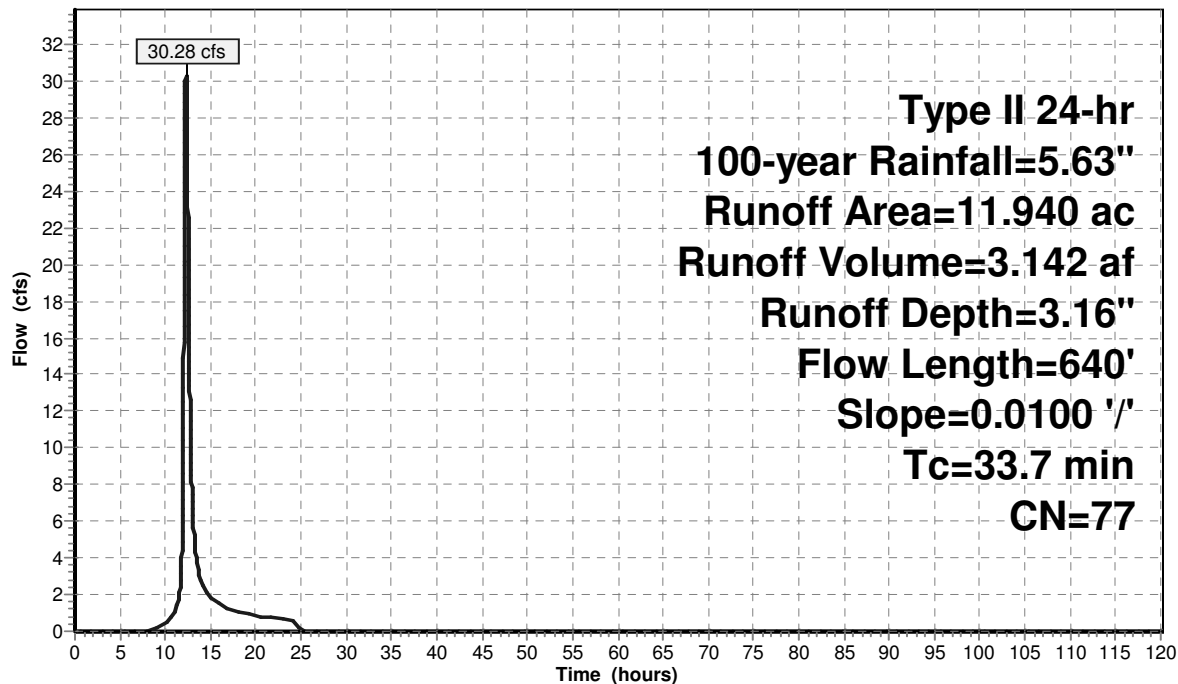
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=5.63"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 8.860 | 78 | |
| * 3.080 | 74 | |
| 11.940 | 77 | Weighted Average |
| 11.940 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |
| 12.9 | 540 | 0.0100 | 0.70 | | Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps |
| 33.7 | 640 | Total | | | |

Subcatchment 2S: pre middle

Hydrograph



Summary for Subcatchment 3S: pre south

Runoff = 13.02 cfs @ 12.13 hrs, Volume= 0.995 af, Depth= 3.25"

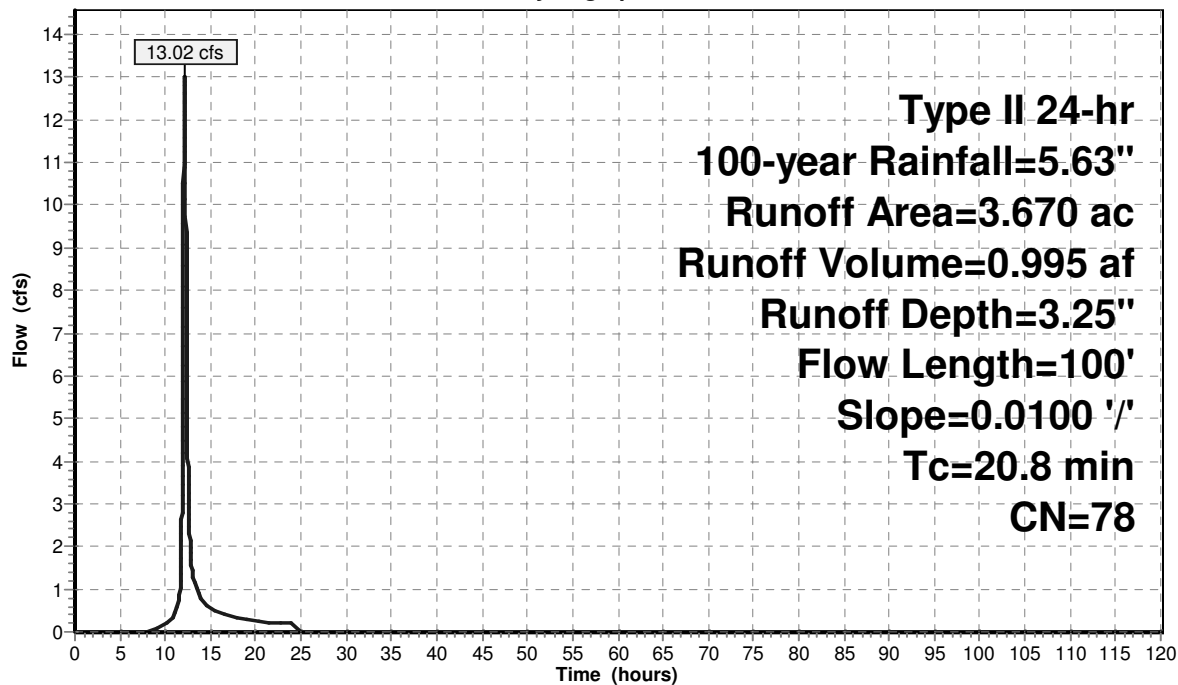
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=5.63"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.670 | 78 | |
| 3.670 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |

Subcatchment 3S: pre south

Hydrograph



Summary for Subcatchment 4S: pre Subarea "A"

Runoff = 23.00 cfs @ 12.32 hrs, Volume= 2.455 af, Depth= 3.16"

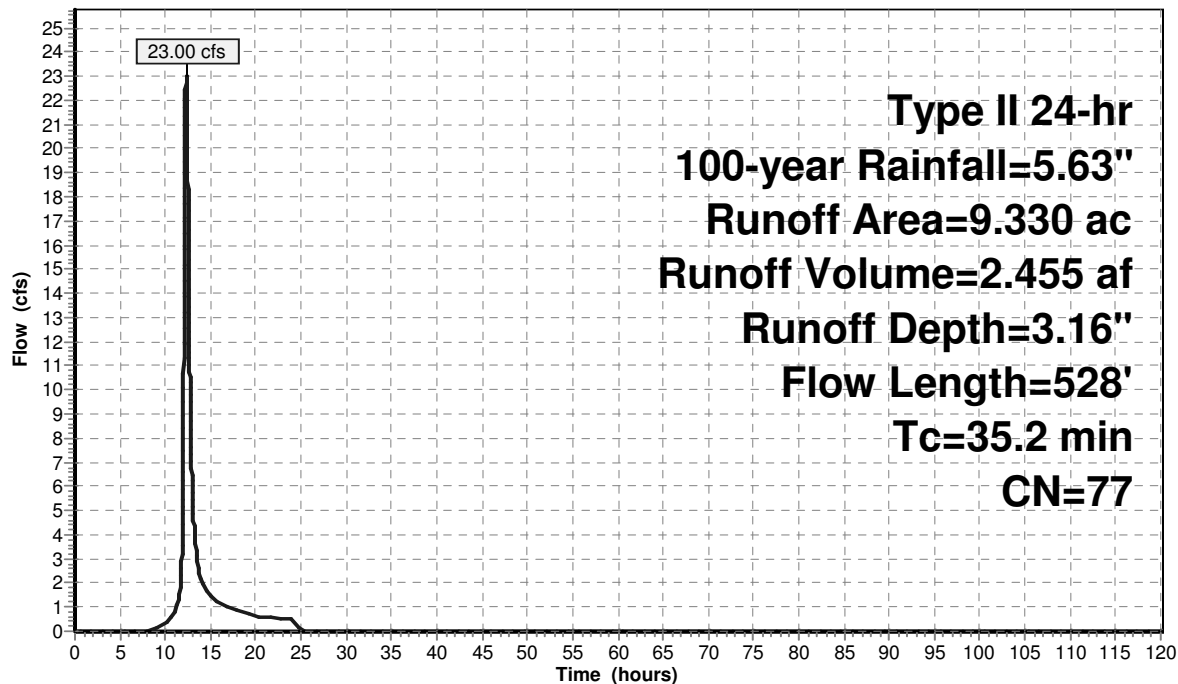
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=5.63"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 7.180 | 78 | |
| * 2.150 | 74 | |
| 9.330 | 77 | Weighted Average |
| 9.330 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 20.8 | 100 | 0.0100 | 0.08 | | Sheet Flow, Grass: Dense n= 0.240 P2= 2.63" |
| 14.4 | 428 | 0.0050 | 0.49 | | Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps |
| 35.2 | 528 | Total | | | |

Subcatchment 4S: pre Subarea "A"

Hydrograph



Summary for Subcatchment 5S: post north

Runoff = 74.87 cfs @ 12.01 hrs, Volume= 4.314 af, Depth= 4.49"

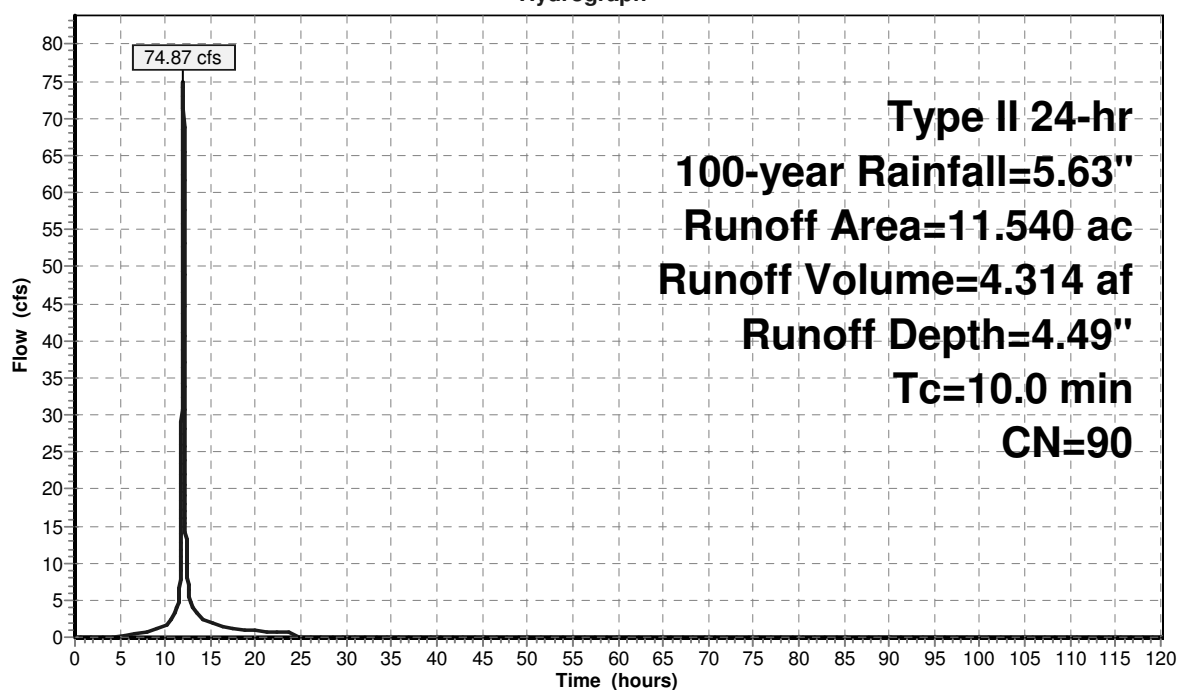
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=5.63"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 11.540 | 90 | |
| 11.540 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0 | | | | | Direct Entry, |

Subcatchment 5S: post north

Hydrograph



Summary for Subcatchment 6S: post middle

Runoff = 77.47 cfs @ 12.01 hrs, Volume= 4.464 af, Depth= 4.49"

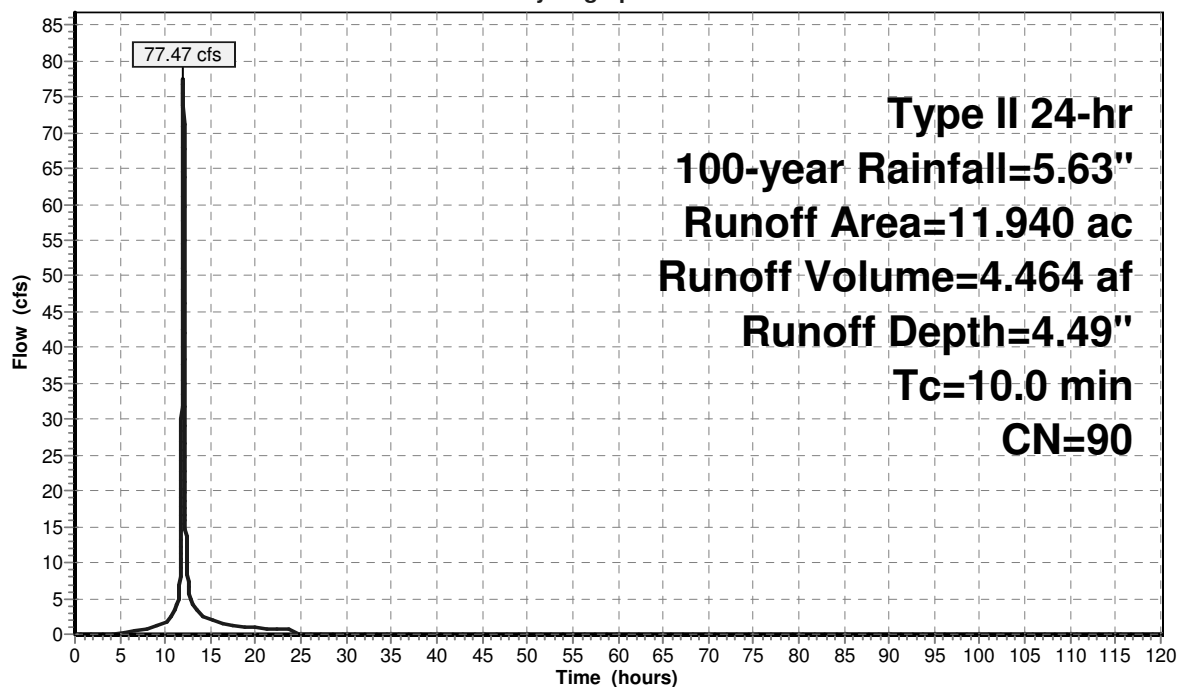
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=5.63"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 11.940 | 90 | |
| 11.940 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 10.0 | | | | | Direct Entry, |

Subcatchment 6S: post middle

Hydrograph



Summary for Subcatchment 7S: post south

Runoff = 28.05 cfs @ 11.96 hrs, Volume= 1.372 af, Depth= 4.49"

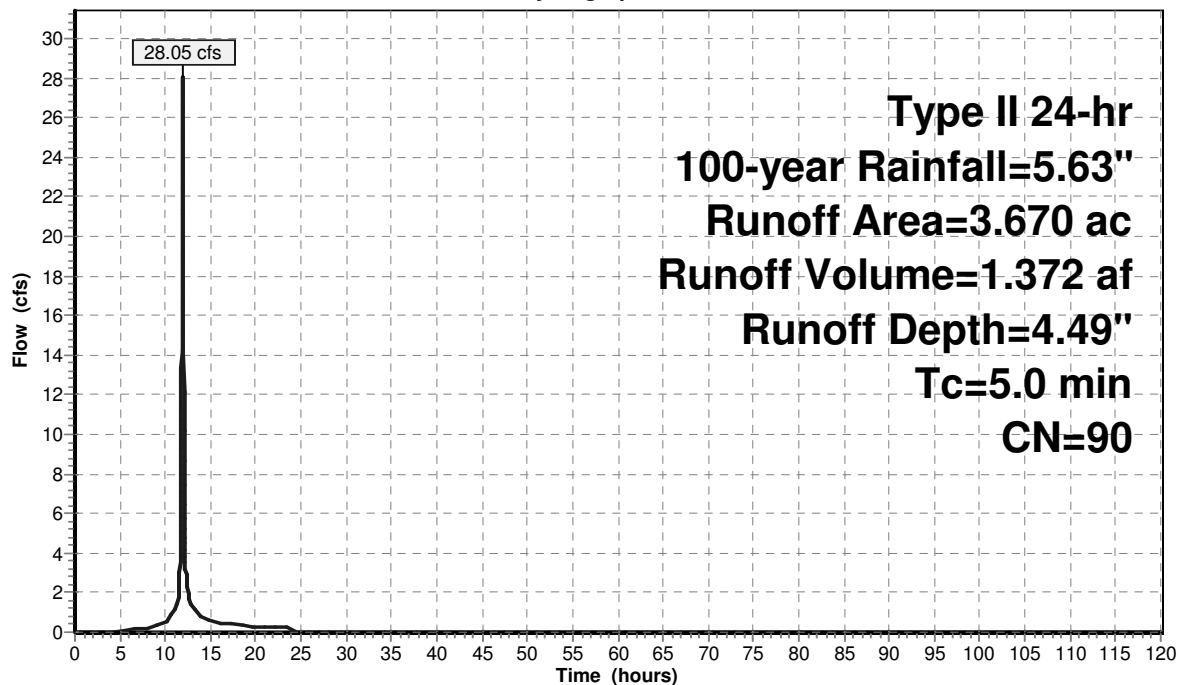
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=5.63"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 3.670 | 90 | |
| 3.670 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0 | | | | | Direct Entry, |

Subcatchment 7S: post south

Hydrograph



Summary for Subcatchment 8S: post Subarea "A"

Runoff = 75.03 cfs @ 11.96 hrs, Volume= 3.833 af, Depth= 4.93"

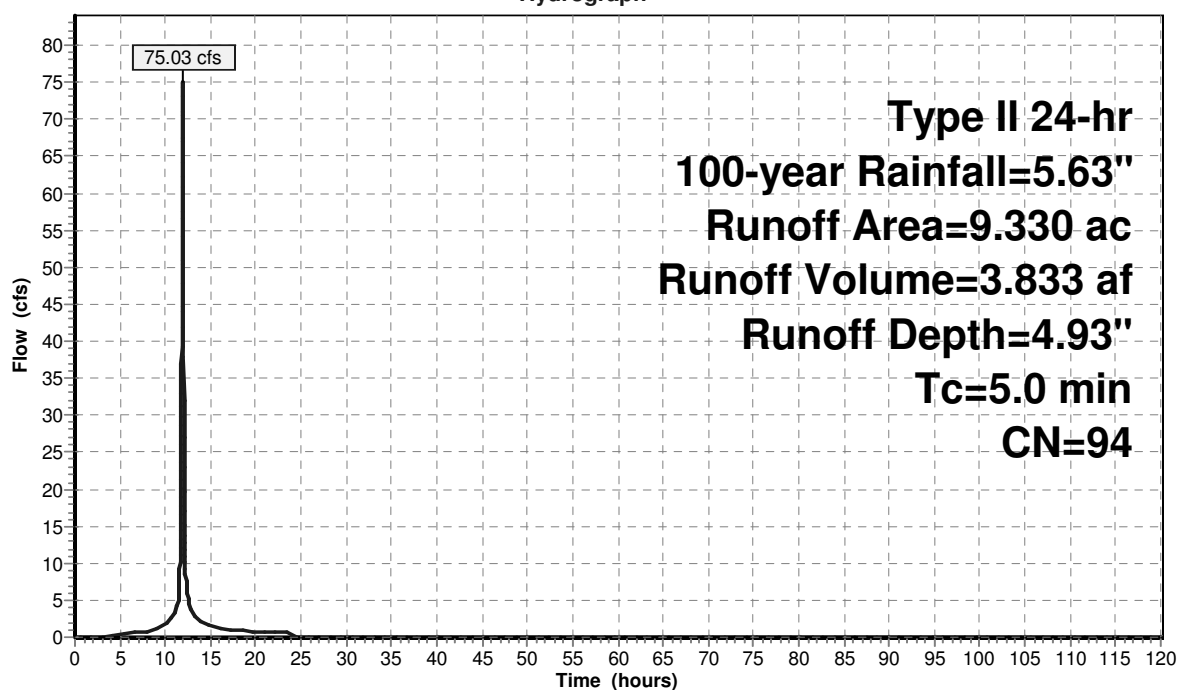
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=5.63"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| * 9.330 | 94 | |
| 9.330 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|-------------|------------------|------------------|----------------------|-------------------|---------------|
| 5.0 | | | | | Direct Entry, |

Subcatchment 8S: post Subarea "A"

Hydrograph



Summary for Pond 9P: Subarea B north SWMA

Inflow Area = 11.540 ac, 0.00% Impervious, Inflow Depth = 4.49" for 100-year event
 Inflow = 74.87 cfs @ 12.01 hrs, Volume= 4.314 af
 Outflow = 1.95 cfs @ 15.02 hrs, Volume= 4.279 af, Atten= 97%, Lag= 180.6 min
 Primary = 1.95 cfs @ 15.02 hrs, Volume= 4.279 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 927.55' @ 15.02 hrs Surf.Area= 48,628 sf Storage= 135,264 cf

Plug-Flow detention time= 1,421.0 min calculated for 4.278 af (99% of inflow)
 Center-of-Mass det. time= 1,416.1 min (2,203.3 - 787.2)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 924.40' | 157,610 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40 | 37,449 | 0 | 0 |
| 925.00 | 39,518 | 23,090 | 23,090 |
| 926.00 | 43,009 | 41,264 | 64,354 |
| 927.00 | 46,603 | 44,806 | 109,160 |
| 928.00 | 50,297 | 48,450 | 157,610 |

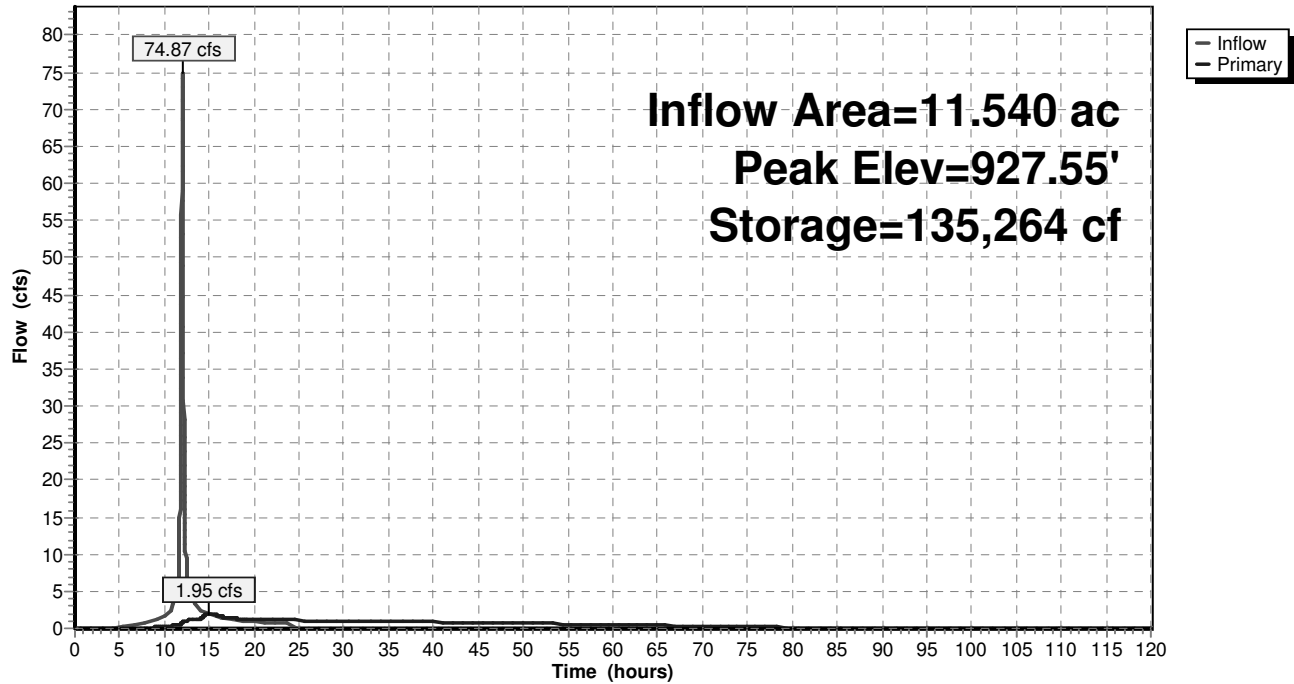
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|--|
| #1 | Primary | 924.40' | 3.5" Vert. Orifice/Grate X 2.00 C= 0.600 |
| #2 | Primary | 927.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |
| #3 | Primary | 927.50' | 20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

Primary OutFlow Max=1.91 cfs @ 15.02 hrs HW=927.55' (Free Discharge)

1=Orifice/Grate (Orifice Controls 1.11 cfs @ 8.34 fps)
 2=Orifice/Grate (Weir Controls 0.27 cfs @ 0.72 fps)
 3=Broad-Crested Rectangular Weir (Weir Controls 0.53 cfs @ 0.55 fps)

Pond 9P: Subarea B north SWMA

Hydrograph



Summary for Pond 10P: Subarea B middle SWMA

Inflow Area = 11.940 ac, 0.00% Impervious, Inflow Depth = 4.49" for 100-year event
 Inflow = 77.47 cfs @ 12.01 hrs, Volume= 4.464 af
 Outflow = 6.99 cfs @ 12.56 hrs, Volume= 4.432 af, Atten= 91%, Lag= 33.0 min
 Primary = 6.99 cfs @ 12.56 hrs, Volume= 4.432 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 927.21' @ 12.56 hrs Surf.Area= 48,150 sf Storage= 116,151 cf

Plug-Flow detention time= 747.8 min calculated for 4.432 af (99% of inflow)
 Center-of-Mass det. time= 743.2 min (1,530.4 - 787.2)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 924.40' | 155,661 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 924.40 | 26,879 | 0 | 0 |
| 925.00 | 39,220 | 19,830 | 19,830 |
| 926.00 | 43,202 | 41,211 | 61,041 |
| 927.00 | 47,285 | 45,244 | 106,284 |
| 928.00 | 51,468 | 49,377 | 155,661 |

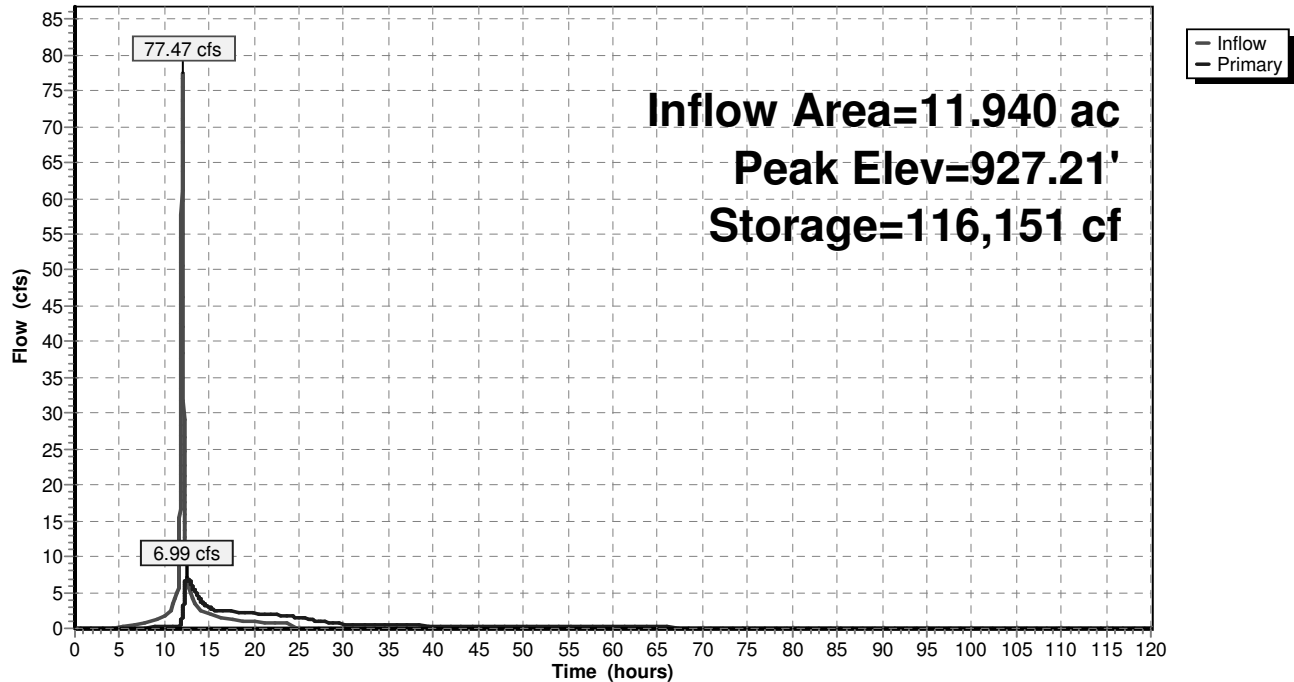
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 924.40' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 925.50' | 10.0" W x 5.0" H Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 926.90' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=6.99 cfs @ 12.56 hrs HW=927.21' (Free Discharge)

↑
 —1=Orifice/Grate (Orifice Controls 0.68 cfs @ 7.82 fps)
 —2=Orifice/Grate (Orifice Controls 2.04 cfs @ 5.89 fps)
 —3=Orifice/Grate (Weir Controls 4.26 cfs @ 1.81 fps)

Pond 10P: Subarea B middle SWMA

Hydrograph



Summary for Pond 11P: Subarea B south SWMA

Inflow Area = 3.670 ac, 0.00% Impervious, Inflow Depth = 4.49" for 100-year event
 Inflow = 28.05 cfs @ 11.96 hrs, Volume= 1.372 af
 Outflow = 2.21 cfs @ 12.47 hrs, Volume= 1.365 af, Atten= 92%, Lag= 30.7 min
 Primary = 2.21 cfs @ 12.47 hrs, Volume= 1.365 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 928.65' @ 12.47 hrs Surf.Area= 16,630 sf Storage= 35,856 cf

Plug-Flow detention time= 740.0 min calculated for 1.365 af (100% of inflow)
 Center-of-Mass det. time= 736.8 min (1,519.3 - 782.6)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 926.00' | 60,527 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 926.00 | 10,530 | 0 | 0 |
| 927.00 | 12,744 | 11,637 | 11,637 |
| 928.00 | 15,057 | 13,901 | 25,538 |
| 929.00 | 17,472 | 16,265 | 41,802 |
| 930.00 | 19,978 | 18,725 | 60,527 |

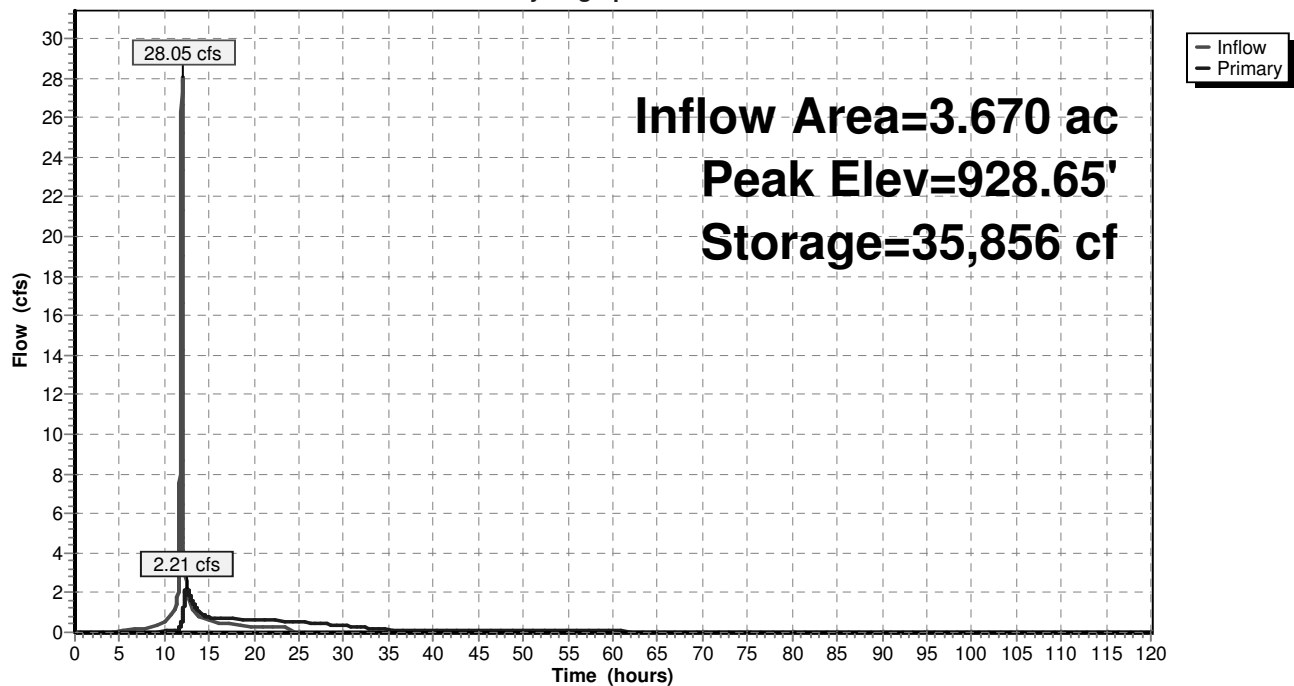
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 926.00' | 2.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 926.70' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 928.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

Primary OutFlow Max=2.20 cfs @ 12.47 hrs HW=928.65' (Free Discharge)

↑
 —1=Orifice/Grate (Orifice Controls 0.17 cfs @ 7.72 fps)
 —2=Orifice/Grate (Orifice Controls 0.56 cfs @ 6.43 fps)
 —3=Orifice/Grate (Weir Controls 1.47 cfs @ 1.27 fps)

Pond 11P: Subarea B south SWMA

Hydrograph



Summary for Pond 12P: Subarea "A" SWMA

Inflow Area = 9.330 ac, 0.00% Impervious, Inflow Depth = 4.93" for 100-year event
 Inflow = 75.03 cfs @ 11.96 hrs, Volume= 3.833 af
 Outflow = 5.36 cfs @ 12.51 hrs, Volume= 3.795 af, Atten= 93%, Lag= 33.0 min
 Primary = 5.36 cfs @ 12.51 hrs, Volume= 3.795 af

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
 Peak Elev= 932.76' @ 12.51 hrs Surf.Area= 42,753 sf Storage= 103,312 cf

Plug-Flow detention time= 801.4 min calculated for 3.794 af (99% of inflow)
 Center-of-Mass det. time= 795.2 min (1,560.9 - 765.7)

| Volume | Invert | Avail.Storage | Storage Description |
|--------|---------|---------------|--|
| #1 | 930.00' | 159,374 cf | Custom Stage Data (Prismatic) Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---------------------|----------------------|---------------------------|---------------------------|
| 930.00 | 32,218 | 0 | 0 |
| 931.00 | 35,943 | 34,081 | 34,081 |
| 932.00 | 39,768 | 37,856 | 71,936 |
| 933.00 | 43,694 | 41,731 | 113,667 |
| 934.00 | 47,719 | 45,707 | 159,374 |

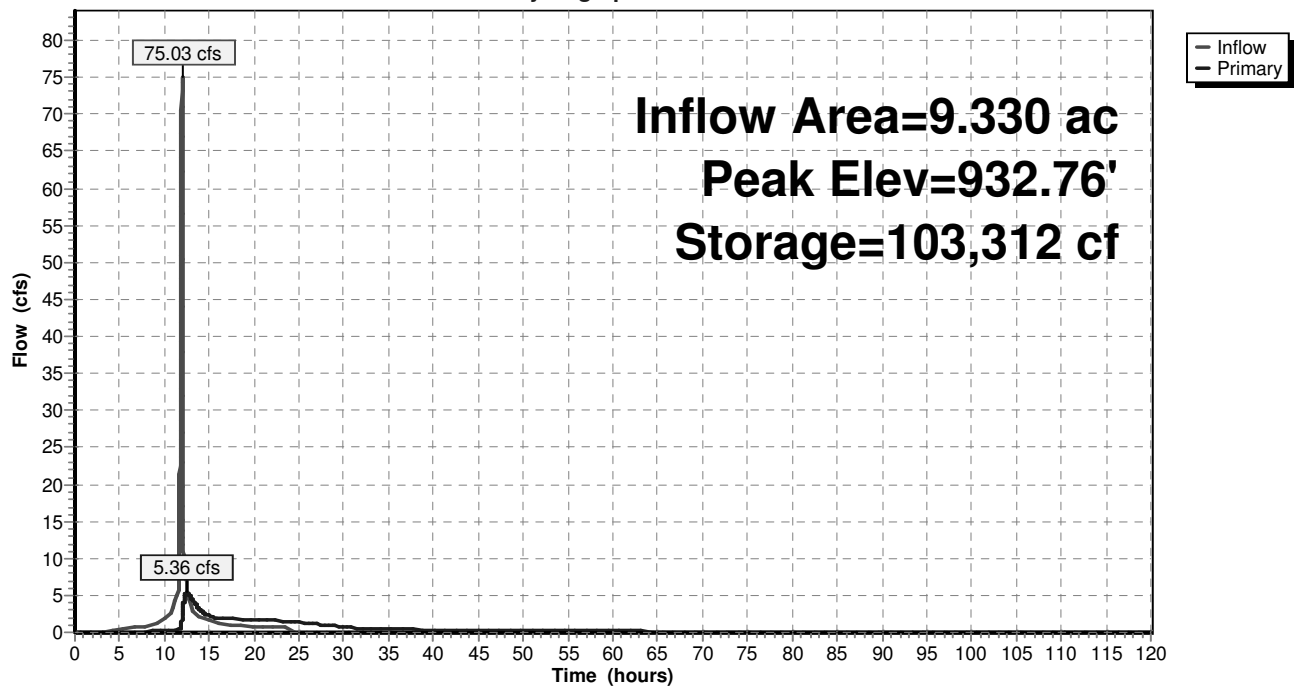
| Device | Routing | Invert | Outlet Devices |
|--------|---------|---------|---|
| #1 | Primary | 930.00' | 4.0" Vert. Orifice/Grate C= 0.600 |
| #2 | Primary | 931.00' | 8.0" W x 4.0" H Vert. Orifice/Grate C= 0.600 |
| #3 | Primary | 932.50' | 1.9" x 24.0" Horiz. Orifice/Grate X 8.00 C= 0.600 in 23.0" x 23.0" Grate (69% open area) Limited to weir flow at low heads |

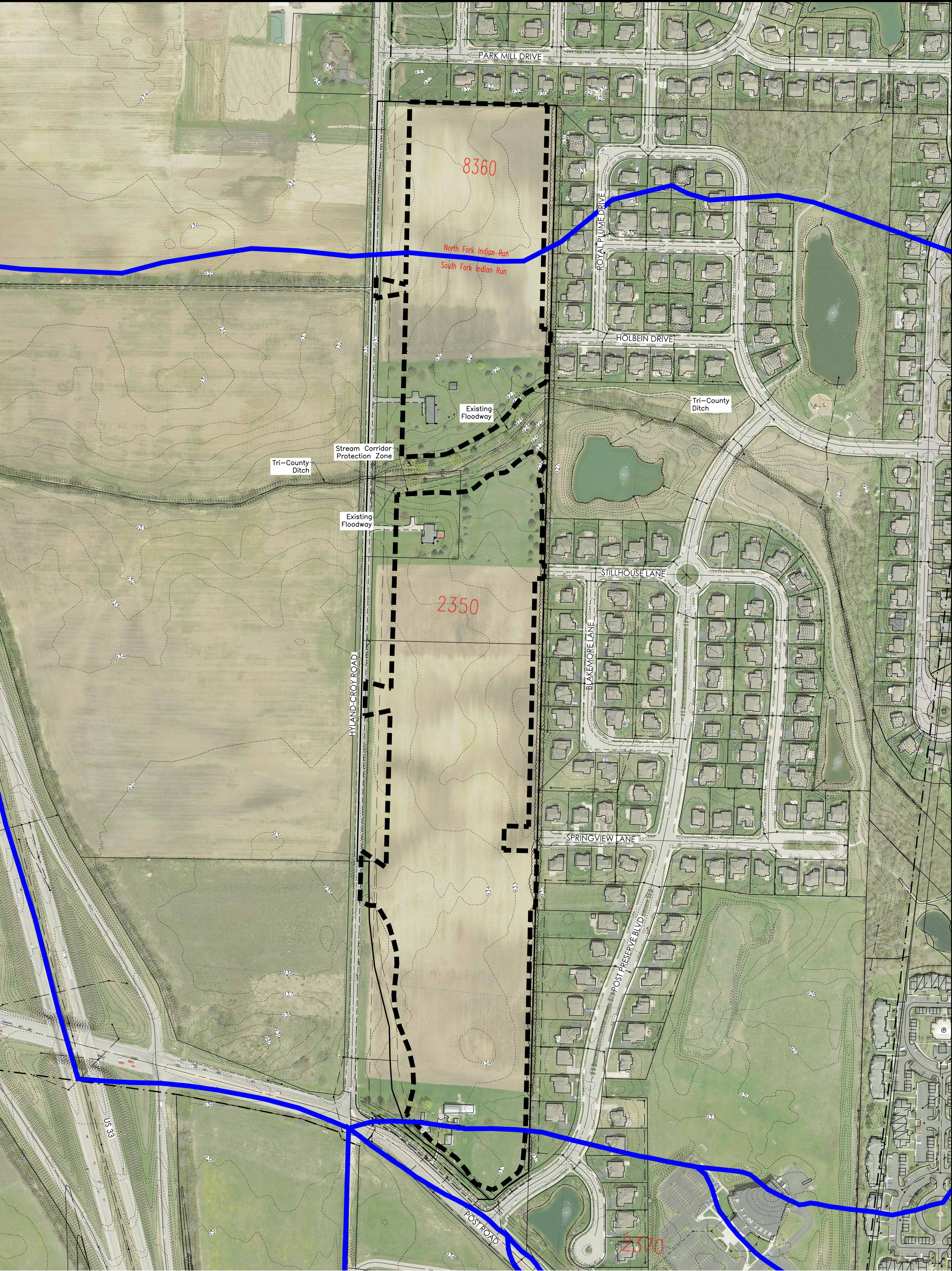
Primary OutFlow Max=5.36 cfs @ 12.51 hrs HW=932.76' (Free Discharge)

↑
 —1=Orifice/Grate (Orifice Controls 0.68 cfs @ 7.75 fps)
 —2=Orifice/Grate (Orifice Controls 1.35 cfs @ 6.08 fps)
 —3=Orifice/Grate (Weir Controls 3.33 cfs @ 1.67 fps)

Pond 12P: Subarea "A" SWMA

Hydrograph





LEGEND

--- Tributary Area Line

— Dublin Master Plan Boundaries

GRAPHIC SCALE

0 75 150 300

1 inch = 150 feet

1 inch =150 feet

| | | |
|--|--|--|
| | | |
|--|--|--|