Mulnite Farms Solar

Rockville Road
East Windsor, Connecticut

PREPARED FOR

Greenskies Development Company LLC
180 Johnson Street
Middletown, CT 06457

PREPARED BY

100 Great Meadow Road
Suite 200
Wethersfield, Connecticut
860.807.4300

May 2020

Table of Contents

List of Figures

List of Tables

Appendices

1

Project Summary

Project Description

The Petitioner, Greenskies Clean Energy, LLC, is proposing to construct a 5 MW solar farm on undeveloped farm field along with all associated utilities, access paths, fencing, and landscaping to support this use (the Project). When the Project reaches the end of its life cycle, the improvements constructed as part of this petition will be removed and the land will be restored in accordance with the decommissioning plan.

Site Description

The Project Site will be comprised on approximately ±54 acres east of the intersection of Rockville Road and Barber Hill Road comprised of two parcels, (Map, Block, Lot: 029-68-010 and 029-68-011) in East Windsor, Connecticut (see Figure 1). The site is bounded by Rockville Road to the north east, Barber Hill Road to the south east, and farm fields to the north, west, and south. The parcels to the north are zoned R-3 Single Family Residential and the parcels to the West, South, and East are zoned A-1 Agriculture/Residential. The development site is all within the A-1 zone (Agriculture/ Residential).

The project area under existing conditions is being actively farmed during the growing season and planted over the winter to maintain soil composition. There are no delineated on-site wetland systems on the development site. Under existing conditions, runoff from the project area generally flows north off the property. There are three design points that the water flows towards: one path collects and follows along the side of a farm field eventually discharging across residential property to a culvert that crosses Rockville Road, another path flows through an opening in a berm that naturally discharges into another farm field, and the third design point is directed into a culvert that crosses Rockville Road.

According to available soil mapping[1], a hydrologic soil group confirmation study performed in February 2020 and a stormwater basin geotechnical investigation performed in February 2020, the on-site soils were generally not found to have restrictive layers up to 8 feet in

[1] https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

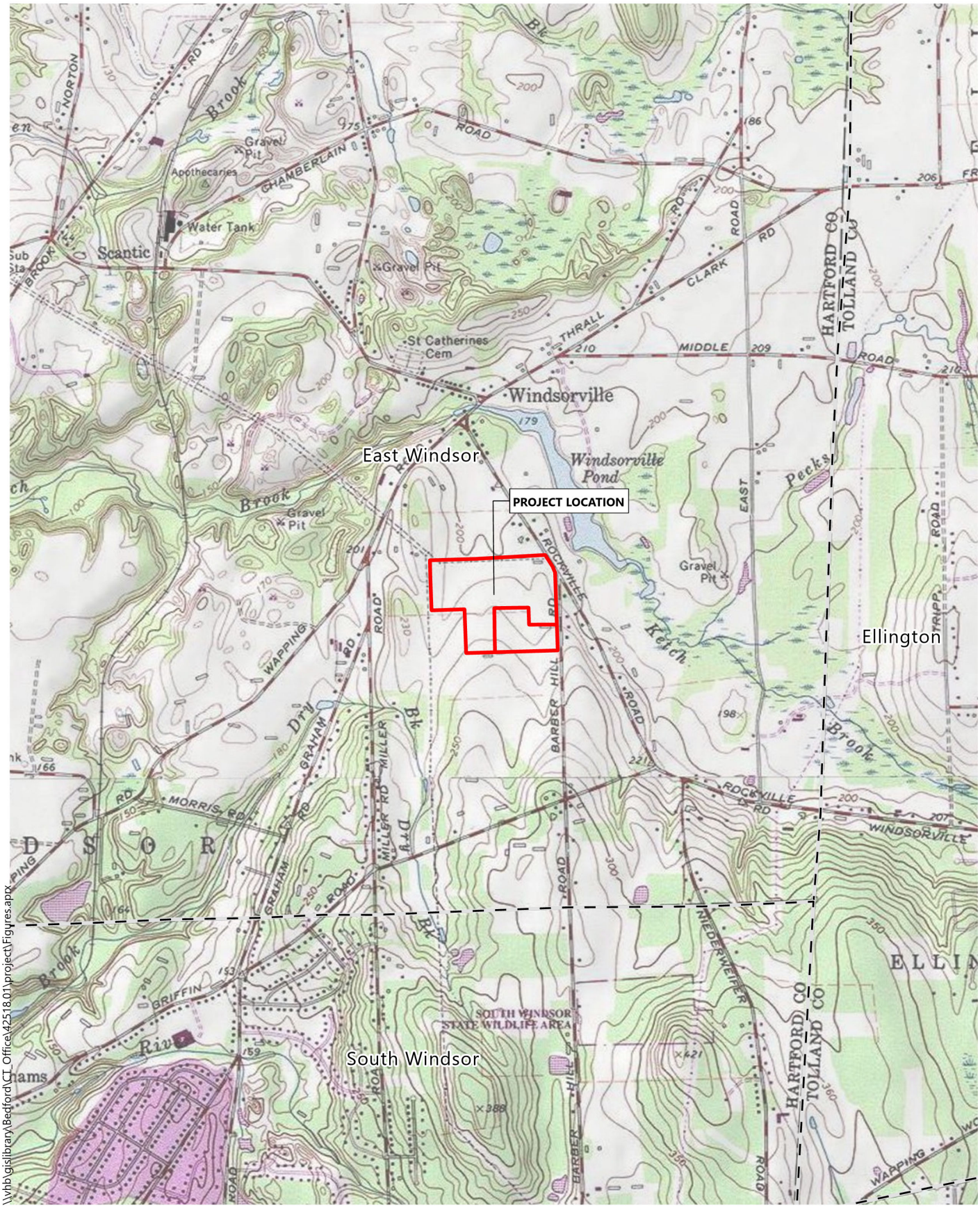
depth. The soil profiles examined in test pits were mostly consistent or similar to the named series in the mapped units available on-line. Based on the hydrologic soil group confirmation, the majority of on-Site soils within the Project area belong to the Hydraulic Soil Group "A", indicating that the soils have a high infiltration rate when thoroughly wet. The northwest and northeast portions of the site were found to have the Hydraulic Soil Group "B" indicating that the soils have a moderate infiltration rate when thoroughly wet. See Appendix B for NRCS Web Soil Survey output and field-performed test pit and infiltration results.

According to available CTDEEP Groundwater Classification maps, groundwater at the site is GA (see Appendix A). The CTDEEP Aquifer Protection Areas Mapping website does not show the site as being within an Aquifer Protection Area.

Methodology

The Project was designed to incorporate measures provided in the Connecticut Stormwater Quality Manual (CTDEEP 2004) as well as the CTDEEP guidance document Guidance Regarding Solar Arrays. The conclusion of this analysis is that the proposed improvements will not increase the post-development peak runoff rates in comparison to existing pre-development rates at any of the critical design points analyzed and the quality of stormwater runoff leaving the Site will be will be treated prior to discharge from the Site. It is also proposed to meet State channel protection requirements for frequent rainfall events.

Figure 1: Site Location Map



\\vhb\gislibrary\Bedford\CT_Office\42518.01\project\Figures.aprx

0 1000 2000 4000 Feet

Property Boundary

Town Boundary

Mulnite Farms | East Windsor, Connecticut

USGS Locus Map

Source: VHB, CTDEEP, USGS, ArcGIS Online

2

Existing Drainage Conditions

Summary

Under existing conditions, untreated stormwater runoff from the Project area generally flows to the north and off the site towards Windsorville Pond. One path collects and follows along the side of a farm field eventually discharging across residential property to a culvert that crosses Rockville Road, another path flows through an opening in a berm that naturally discharges into another farm field, and the third design point is directed into a culvert that crosses Rockville Road.

The Site is generally at its highest elevation in the southern portion of the Project and slopes down into the north side of the site. The entirety of the Project area is comprised of actively-farmed fields. Terrain slopes in the Project area range from 0% to approximately 5% with no slopes exceeding 15% existing slope.

Hydrologic Information

For the existing conditions hydrologic analysis, the Site has been divided into three (3) drainage areas, which have been identified as areas at the Project limits where flow begins to concentrate naturally. Table 1 provides a summary of the existing conditions hydrologic data. Figure 2 illustrates the existing drainage patterns on the Site. All portions of the Project site and tributary offsite areas have been considered in the hydrologic analysis discharging to the Design Points. In an effort to be conservative, the existing conditions of the site has been considered to be grass in the modelling to reflect the lowest runoff potential of the site throughout the seasons (winter cover crop as opposed to tilled soil or row crops).

Drainage Area 1 - This ±24.8-acre area is located at the western portion of the Site. Untreated stormwater in this area generally flows to the northeast towards a farm road, then exits the site and travels along the border of an abutting farm field. The water ultimately takes a turn toward the east across residential property and crosses under Rockville Road and into Windsorville Pond.

Drainage Area 2 - This ±47.4 acre area is located at the central portion of the Site and includes a significant offsite contribution of stormwater runoff from adjacent residential parcels to the south. Stormwater in this area flows untreated generally to an eroded opening in a berm that discharges into another farm field.

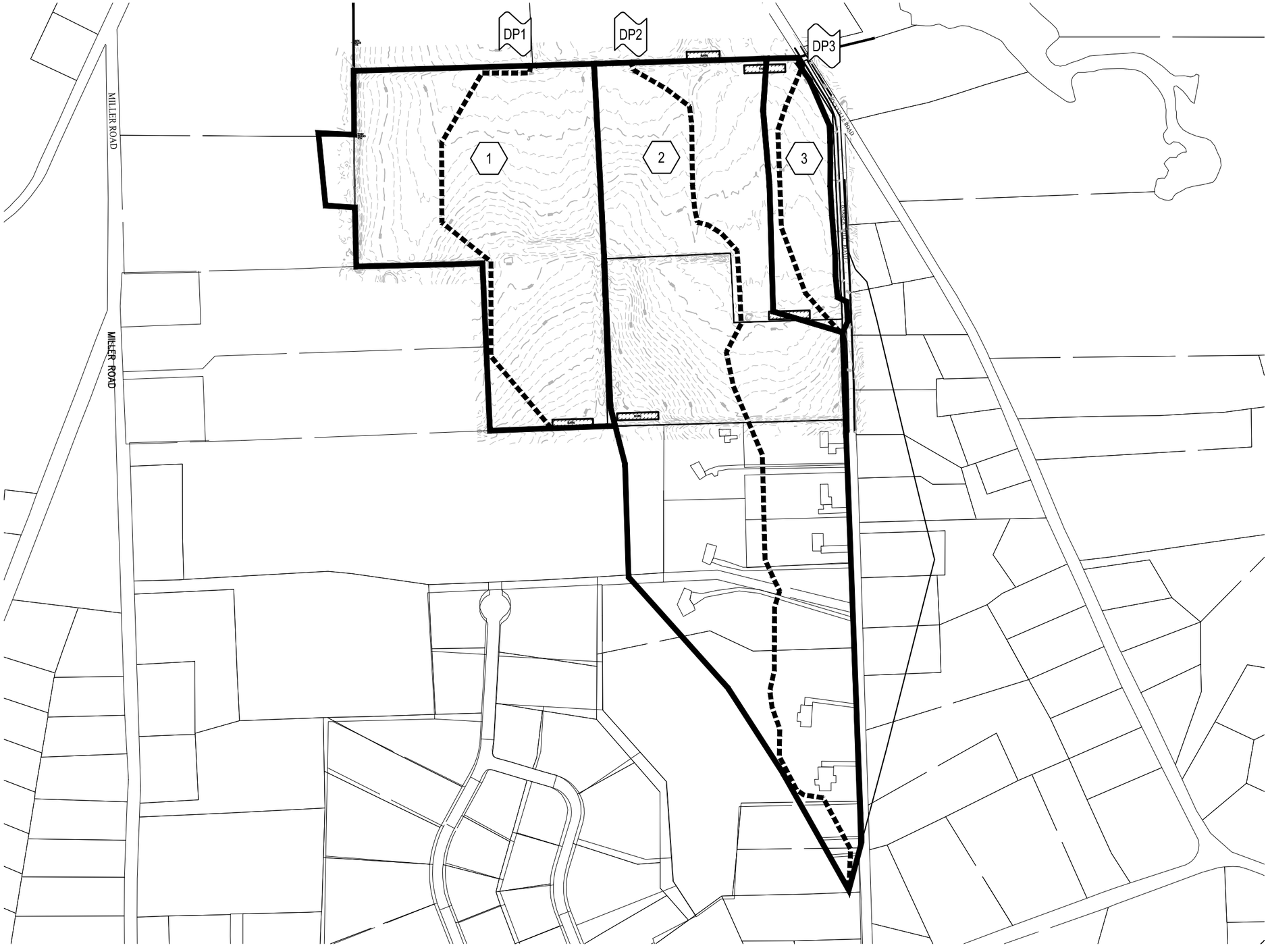
Drainage Area 3 - This ±5.6-acre area is located at the eastern portion of the Site. Stormwater in this area flows untreated generally to the north/northeast to a culvert discharging under Rockville Road towards Windsorville Pond.

Table 1 summarizes the key hydrologic parameters for each drainage area used in the existing conditions analysis.

Table 1 Existing Conditions Hydrologic Data

Drainage Area	*Discharge Location*	*Area (acres)*	*Curve Number*	*Time of Concentration (min)*
1	Existing Farm Road to North	24.8	54	38.9
2	Eroded Berm to North	47.4	57	68.9
3	Culvert under Rockville Road	5.6	47	24.2

Figure 2: Existing Drainage Areas



Legend

SYMBOLS

X — DESIGN POINT

X — DRAINAGE AREA DESIGNATION

LINETYPES

DRAINAGE AREA BOUNDARY

TIME OF CONCENTRATION FLOW LINE

0 200 400 Feet

Existing Drainage Areas

Figure 2

Mulnite Farms
Rockville Road - East Windsor, CT

05/07/2020

3

Proposed Drainage Conditions

Summary

The Site has been designed to maintain existing topography and mimic existing drainage patterns to the maximum extents feasible. In the majority of the on-Site areas, the Project proposes to install permanent turf-forming grasses to help stabilize the topsoil from erosion, sequester nutrients and pollutants, and lower runoff rates from the facility to the surrounding discharge points. Mature vegetation has been preserved to the maximum extents practicable and no tree clearing is proposed. As a result, the Project will have minimal impact to surrounding ecologically sensitive areas.

The three existing tobacco barns are the only existing sources of imperviousness to remain and the only impervious surfaces proposed to be constructed are access roads and small concrete pads for utility equipment. Once operational, vehicular access to the Project will be limited to infrequent maintenance visits. The vegetated buffers and proposed stormwater basins will provide water quality treatment in all portions of the Site.

Hydrologic Information

Natural drainage patterns will be maintained throughout the Site so that the proposed hydrologic conditions will closely match existing conditions. The proposed conditions analysis utilizes the same three (3) drainage areas from existing conditions. In accordance with the CTDEEP guidance document Guidance Regarding Solar Arrays, a reduction in Hydrologic Soil Group of one step has been considered in the proposed conditions hydrologic model for developed portions of the site.

Drainage Area 1 - This ±24.8-acre area is located at the western portion of the Site. Stormwater from this area will be directed to Stormwater Basin 1 and ultimately discharged to the same location as existing conditions to the north.

Drainage Area 2 - This ±47.4 acre area is located at the central portion of the Site and includes a significant offsite contribution of stormwater runoff from adjacent residential parcels to the south. Stormwater from this area will be directed to Stormwater Basin 2 and ultimately discharged to the same location as existing conditions to the north.

Drainage Area 3A - This ±4.0-acre area is located at the eastern portion of the Site. Stormwater from this area will be directed to Stormwater Basin 3 and ultimately discharged to the same location as existing conditions to the northeast.

Drainage Area 3B - This ±1.6-acre area is located at the eastern portion of the Site. No development is proposed in this watershed; however, runoff will be directed to a proposed roadside swale which will ultimately discharge at the 15" culvert under Rockville Road.

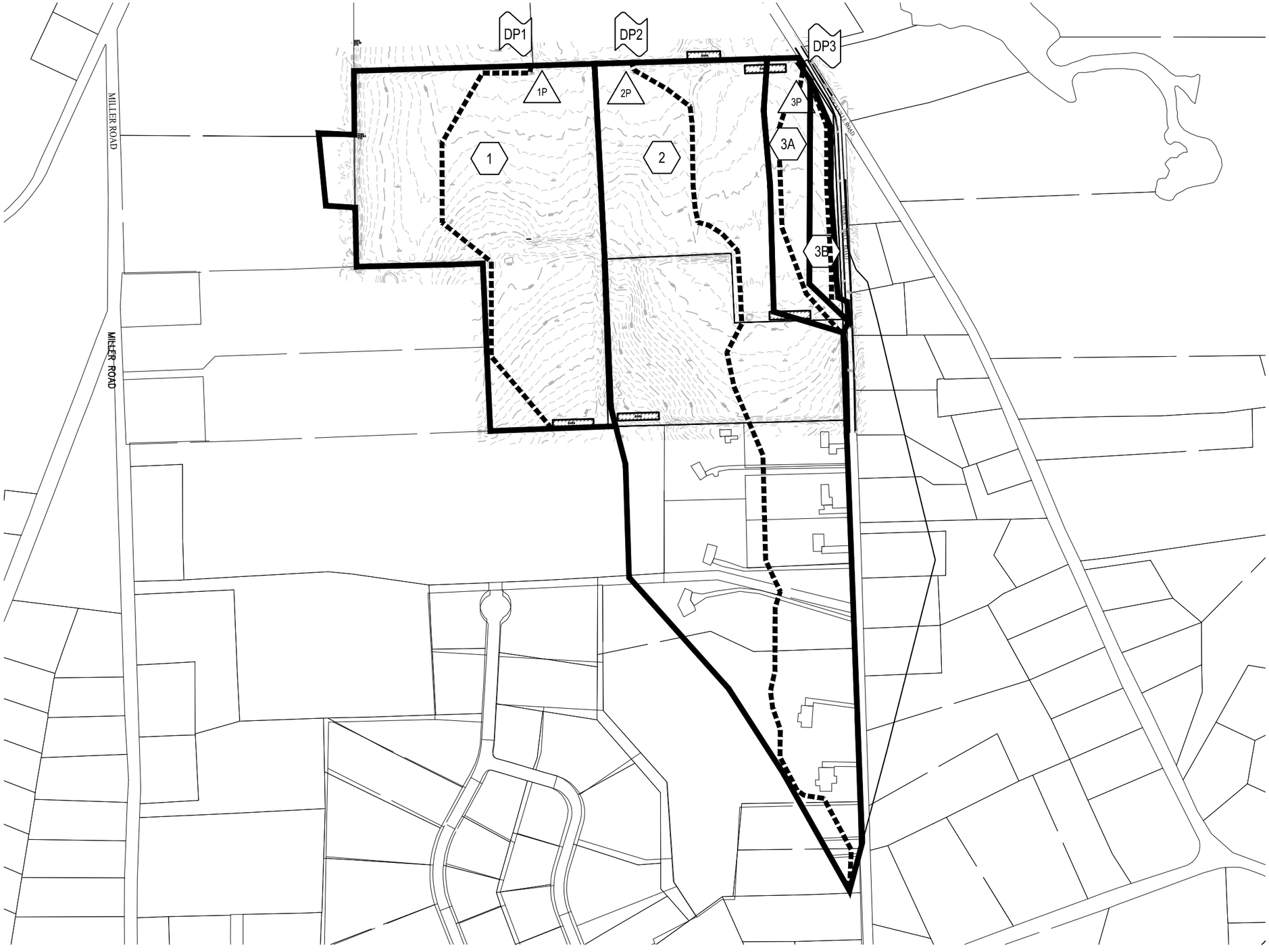
Table 2 summarizes the key hydrologic parameters for each drainage area used in the proposed conditions analysis.

Table 2 Proposed Conditions Hydrologic Data

Drainage Area	*Discharge Location*	*Area (acres)*	*Curve Number*	*Time of Concentration (min)*
1	Existing Farm Road to North	24.8	62	38.9
2	Eroded Berm to North	47.4	61	68.9
3A	Culvert under Rockville Road	4.0	54	24.2
3B	Culvert under Rockville Road	1.6	44	24.7

Figure 3: Proposed Drainage Areas

\\vhb\gbl\proj\Wethersfield\42518.01\tech\Drainage\42518.01 Proposed Conditions - 2.dwg



Legend

SYMBOLS

X — DESIGN POINT

X — DRAINAGE AREA DESIGNATION

X — POND

LINETYPES

DRAINAGE AREA BOUNDARY

TIME OF CONCENTRATION FLOW LINE

0 200 400 Feet

Proposed Drainage Areas

Figure 3

Mulnite Farms
Rockville Road - East Windsor, CT

05/07/2020

4

Hydrologic Analysis

Hydrologic Analysis

The rainfall-runoff was evaluated for the 2-, 25-, 50-, and 100-year storm recurrence. Rainfall volumes used for this analysis were based on the National Weather Service NOAA Hydrometeorological Design Studies Center, Type III, 24—hour storm event for the Site. Rainfall depths were 3.16, 6.16, 7.00, 7.94 inches respectively. Runoff coefficients for the pre- and post- development conditions provided in the tables below were determined using NRCS Technical Release 55 (TR-55) methodology as provided in the HydroCAD reports found in Appendix D.

In accordance with the guidance of CTDEEP's Guidance Regarding Solar Arrays the proposed conditions have been modelled with a loss of one class of Hydrologic Soil Group to conservatively estimate the effects of compaction during construction. The results of the pre- and post-development hydrologic models indicate that peak runoff rates from the Site will be reduced at all design points for all design storms with the implementation of the proposed permanent stormwater basins. The field soil test data was used in the design of the stormwater basins. One-half of the lowest field-tested infiltration rate for each infiltration basin has been assumed in the hydrologic model, to be conservative.

Table 3 presents a summary of the existing and proposed conditions peak discharge rates where stormwater basins are proposed.

Table 3 Peak Discharge Rates (cfs*)

Watershed	2-year	25-year	50-year	100-year
Design Point 1				
Existing	1.23	19.63	27.15	36.26
Proposed	0.00	12.51	23.16	36.06
Design Point 2				
Existing	3.25	32.42	43.67	57.23
Proposed	0.00	22.01	37.77	56.11
Design Point 3				
Existing	0.05	3.01	4.66	6.76
Proposed	0.01	1.25	3.49	6.40

* Expressed in cubic feet per second

Floodplain Information / Analysis

No portions of the Site lie within the Federal Emergency Management Agency (FEMA) mapped 1% annual chance flood A/AE flood zones as shown on the FEMA Flood Insurance Rate Map No. 09003C0245F, dated September 26, 2008 (included in Appendix A).

Water Quality Volume

Water Quality Volume (WQV) is based upon the first inch of rainfall, or a 1-inch rainfall event, over the acreage of proposed impervious surfaces for the development. Neither the solar panels nor the concrete equipment pads will be subject to vehicular access nor will they produce any pollutants to stormwater runoff. The crushed stone access paths will be trafficked infrequently and the grassy meadows downstream of the paths will provide residence time of stormwater runoff to remove the small amount of sediment from runoff.

To be conservative, water quality computations have been performed using a combination of 2004 CTDEEP Stormwater Quality Manual for the access roads and Minnesota Drainage Manual for the solar panels to determine required water quality volumes. These water quality volumes are addressed in the design of the proposed permanent stormwater basins. Computations can be found in Appendix D.

Water Quality Flow

Water Quality Flow (WQF) is a rate of stormwater runoff based upon the first inch of rainfall, or a 1-inch rainfall event. This regulation is generally followed for "flow-through" treatment devices. As the proposed development does not incorporate any "flow-through" water quality treatment devices, WQF is not applicable to this project.

Stream Channel Protection

Stream channel protection is provided at the discharge point of each permanent stormwater basin, in accordance with the guidance in 2004 CTDEEP Stormwater Quality Manual. The 2-year, 24-hour post-development peak flow rate is mitigated to 50% or less of the 2-year, 24-hour pre-development peak flow for each watershed containing development.

Appendix A:

FEMA Flood Insurance Rate Map

NOAA Rainfall Depth Estimates

CTDEEP Groundwater Classification Map

Aquifer Protection Area Mapping

FEMA Flood Insurance Rate Map

National Flood Hazard Layer FIRMette

FEMA

41°53'12.01"N

72°32'26.46"W

72°31'49.00"W

41°52'45.23"N

Feet

0 250 500 1,000 1,500 2,000

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/26/2020 at 3:05:10 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

NOAA Rainfall Depth Estimates

NOAA Atlas 14, Volume 10, Version 3
Location name: Broad Brook, Connecticut, USA*
Latitude: 41.8845°, Longitude: -72.5321°
Elevation: 202.13 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.336 (0.257-0.438)	0.407 (0.311-0.531)	0.523 (0.398-0.686)	0.618 (0.469-0.815)	0.750 (0.553-1.03)	0.850 (0.615-1.20)	0.954 (0.672-1.39)	1.07 (0.718-1.60)	1.24 (0.801-1.92)	1.38 (0.872-2.17)
10-min	0.476 (0.364-0.621)	0.576 (0.440-0.753)	0.740 (0.564-0.970)	0.876 (0.664-1.16)	1.06 (0.783-1.46)	1.20 (0.871-1.69)	1.35 (0.952-1.97)	1.52 (1.02-2.26)	1.76 (1.14-2.71)	1.95 (1.24-3.08)
15-min	0.560 (0.429-0.731)	0.678 (0.518-0.886)	0.871 (0.663-1.14)	1.03 (0.781-1.36)	1.25 (0.921-1.72)	1.42 (1.02-1.99)	1.59 (1.12-2.32)	1.79 (1.20-2.66)	2.07 (1.34-3.19)	2.30 (1.45-3.62)
30-min	0.755 (0.578-0.985)	0.916 (0.700-1.20)	1.18 (0.899-1.55)	1.40 (1.06-1.84)	1.70 (1.25-2.34)	1.92 (1.39-2.71)	2.16 (1.52-3.16)	2.43 (1.63-3.63)	2.81 (1.82-4.34)	3.13 (1.98-4.93)
60-min	0.949 (0.727-1.24)	1.15 (0.882-1.51)	1.49 (1.13-1.95)	1.77 (1.34-2.33)	2.15 (1.58-2.96)	2.43 (1.76-3.42)	2.74 (1.93-3.99)	3.07 (2.06-4.59)	3.56 (2.30-5.50)	3.96 (2.50-6.23)
2-hr	1.22 (0.940-1.59)	1.48 (1.13-1.92)	1.89 (1.45-2.47)	2.24 (1.70-2.93)	2.71 (2.01-3.72)	3.06 (2.23-4.30)	3.44 (2.45-5.04)	3.89 (2.61-5.77)	4.56 (2.96-7.01)	5.14 (3.26-8.04)
3-hr	1.41 (1.09-1.82)	1.70 (1.31-2.20)	2.17 (1.67-2.83)	2.57 (1.96-3.36)	3.11 (2.32-4.27)	3.51 (2.57-4.93)	3.95 (2.83-5.78)	4.48 (3.02-6.63)	5.29 (3.44-8.10)	5.99 (3.81-9.35)
6-hr	1.77 (1.37-2.28)	2.14 (1.66-2.76)	2.76 (2.13-3.57)	3.27 (2.51-4.25)	3.97 (2.97-5.42)	4.48 (3.30-6.28)	5.05 (3.65-7.38)	5.75 (3.89-8.47)	6.85 (4.47-10.4)	7.81 (4.98-12.1)
12-hr	2.17 (1.69-2.78)	2.66 (2.07-3.42)	3.47 (2.69-4.46)	4.13 (3.19-5.34)	5.05 (3.80-6.86)	5.72 (4.23-7.97)	6.46 (4.69-9.40)	7.38 (5.00-10.8)	8.84 (5.78-13.4)	10.1 (6.47-15.6)
24-hr	2.54 (1.99-3.24)	3.16 (2.47-4.03)	4.17 (3.25-5.34)	5.01 (3.89-6.44)	6.16 (4.66-8.35)	7.00 (5.22-9.73)	7.94 (5.80-11.5)	9.13 (6.20-13.3)	11.0 (7.23-16.6)	12.7 (8.15-19.4)
2-day	2.86 (2.25-3.62)	3.60 (2.83-4.56)	4.80 (3.77-6.11)	5.81 (4.53-7.43)	7.19 (5.48-9.71)	8.19 (6.15-11.4)	9.31 (6.87-13.5)	10.8 (7.36-15.6)	13.2 (8.67-19.7)	15.3 (9.88-23.3)
3-day	3.11 (2.46-3.93)	3.92 (3.10-4.96)	5.25 (4.13-6.66)	6.34 (4.96-8.09)	7.85 (6.00-10.6)	8.95 (6.74-12.4)	10.2 (7.54-14.8)	11.8 (8.07-17.0)	14.5 (9.54-21.6)	16.9 (10.9-25.6)
4-day	3.35 (2.65-4.22)	4.21 (3.33-5.31)	5.62 (4.43-7.12)	6.79 (5.32-8.64)	8.40 (6.43-11.3)	9.57 (7.22-13.2)	10.9 (8.07-15.8)	12.6 (8.64-18.1)	15.5 (10.2-23.0)	18.0 (11.6-27.2)
7-day	4.00 (3.18-5.02)	4.97 (3.95-6.25)	6.56 (5.20-8.27)	7.88 (6.21-9.99)	9.70 (7.45-13.0)	11.0 (8.34-15.1)	12.5 (9.28-18.0)	14.4 (9.91-20.6)	17.6 (11.6-25.9)	20.4 (13.2-30.6)
10-day	4.64 (3.70-5.81)	5.68 (4.52-7.12)	7.37 (5.85-9.26)	8.77 (6.92-11.1)	10.7 (8.23-14.2)	12.1 (9.16-16.5)	13.7 (10.1-19.5)	15.7 (10.8-22.3)	18.9 (12.5-27.8)	21.7 (14.1-32.5)
20-day	6.69 (5.36-8.32)	7.79 (6.23-9.70)	9.58 (7.65-12.0)	11.1 (8.79-13.9)	13.1 (10.1-17.2)	14.7 (11.1-19.6)	16.3 (12.0-22.7)	18.2 (12.6-25.8)	21.2 (14.1-30.9)	23.7 (15.4-35.2)
30-day	8.42 (6.77-10.5)	9.55 (7.67-11.9)	11.4 (9.11-14.2)	12.9 (10.3-16.2)	15.0 (11.6-19.5)	16.6 (12.5-22.0)	18.2 (13.3-25.0)	20.1 (14.0-28.2)	22.7 (15.2-33.0)	24.8 (16.2-36.8)
45-day	10.6 (8.55-13.1)	11.8 (9.47-14.6)	13.6 (11.0-16.9)	15.2 (12.1-19.0)	17.4 (13.4-22.4)	19.0 (14.3-25.0)	20.7 (15.1-28.0)	22.4 (15.6-31.3)	24.6 (16.5-35.6)	26.3 (17.2-38.8)
60-day	12.4 (10.0-15.3)	13.6 (11.0-16.8)	15.6 (12.5-19.3)	17.2 (13.7-21.4)	19.4 (15.0-24.9)	21.2 (15.9-27.6)	22.8 (16.6-30.6)	24.4 (17.1-34.0)	26.4 (17.7-38.0)	27.7 (18.1-40.8)

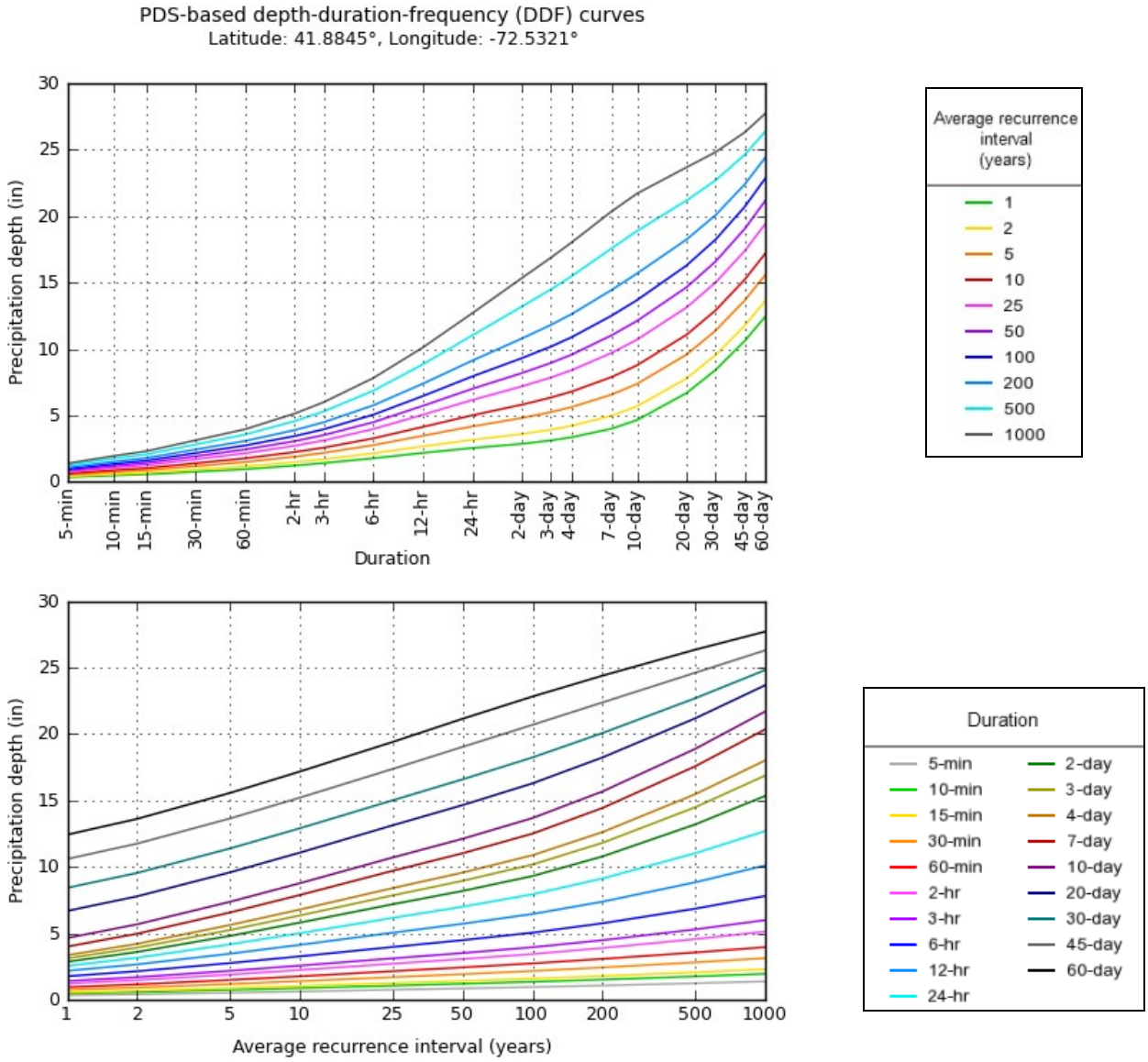
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical



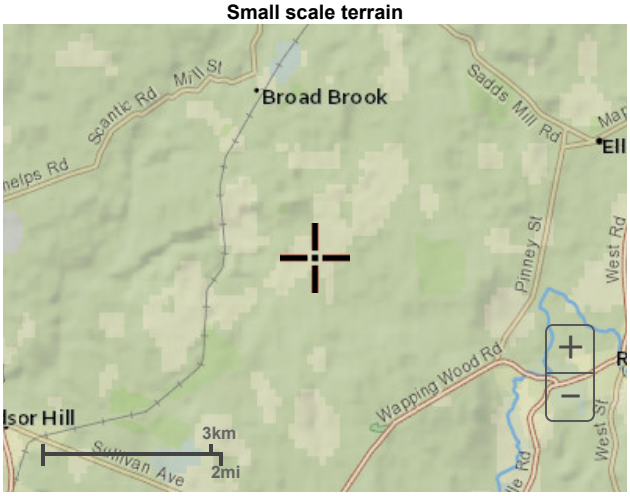
NOAA Atlas 14, Volume 10, Version 3

Created (GMT): Tue Dec 3 20:04:27 2019

Back to Top

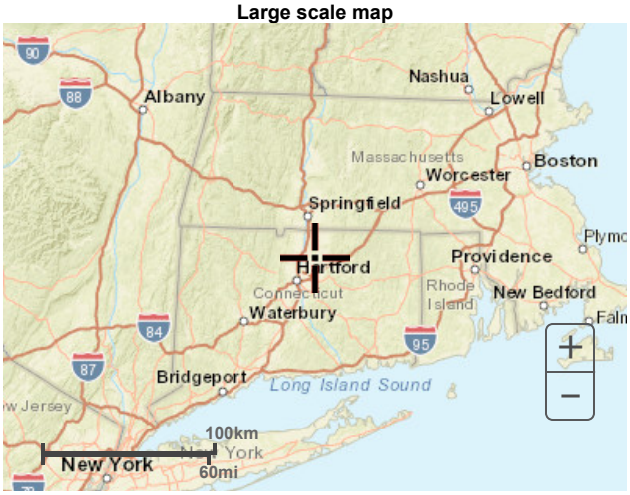
Maps & aerials

Small scale terrain

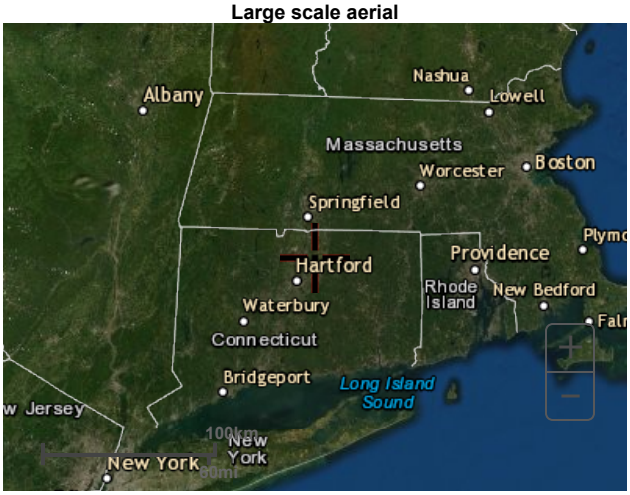


Large scale terrain

Large scale map



Large scale aerial



Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

CTDEEP Groundwater Classification Map

WATER QUALITY CLASSIFICATIONS
EAST WINDSOR, CT

SURFACE WATER QUALITY CLASSES

A	A
AA	AA
B, B*	B, B*
SA	SA
SB	SB

NOTES:
Surface Water Classifications beginning with S refer to Coastal and Marine Surface Water.
B* is a subset of Class B where no direct wastewater discharges are allowed other than those consistent with Class AA, A and SA surface waters.

GROUND WATER QUALITY CLASSES

GA (white background)
GAA, GAAs
GA, GAA may not meet current standards
GB
GC

Area of Contribution to Public Supply Well

Final Aquifer Protection Area (Level A)
Major Basin Boundary

EXPLANATION

WATER QUALITY CLASSIFICATIONS (WQC) MAPS are one of the elements of the Water Quality Standards (WQS) for the State of Connecticut. The WQS are a part of Connecticut's clean water program and are essential for protecting and improving water quality. The WQS follow the principles of Connecticut's Clean Water Act which is in Chapter 446K of the Connecticut General Statutes. The WQS provide policy guidance in many areas, for example decisions on acceptable discharges to water resources, siting of landfills, remediations or prioritization of municipal sewerage system projects. The first two elements of the WQS are the Standards, which set an overall policy for management of water quality, and the Criteria, which are descriptive and numerical standards that describe the allowable parameters and goals for various water quality classifications. A discussion of these two elements is found in the Water Quality Standards document available on the CT DEEP website. The third element is the Classifications and the Water Quality Classification Maps which show the Classification assigned to each surface and groundwater resource throughout the State. The WQS are adopted using a public participation process. The WQC maps are also adopted using a public participation process but go through hearings separately from the Standards and Criteria hearings. Revision and adoption of the WQC data occurs in accordance with the public participation procedures contained in Section 22a-426 of the Connecticut General Statutes. Ground WQC is subject to Connecticut regulation and changes must be reviewed and adopted. All changes to the Surface WQC require an adoption process which is subject to federal review and approval in addition to CT regulation. The adoption dates for the WQC by major drainage basin are: Housatonic River, Hudson River and Southwest Coastal Basins - March 1999; Connecticut River and South Central Coastal Basins - February 1993; Thames River, Pawcatuck River and Southeast Coastal Basins - December 1986. Surface Water Classifications do not change after the adoption date until the next major revision. Ground Water Classifications may change after the adoption date under specific circumstances. The map may have more than one WQC adoption date because a town may be in more than one major drainage basin.

SURFACE WATERS in Connecticut are divided into freshwater classified as AA, A, B or B* and saline waters classified as SA or SB. Class AA designated uses are existing or proposed drinking water supplies; habitat for fish and other aquatic life and wildlife; recreation; and water supply for industry and agriculture. Class A designated uses are habitat for fish and other aquatic life and wildlife; potential drinking water supplies; recreation; navigation; and water supply for industry and agriculture. Class SA designated uses are habitat for fish and other aquatic life and wildlife; shellfish harvesting for direct human consumption; recreation; industrial water supply; and navigation. Class B designated uses are habitat for fish and aquatic life and wildlife; recreation; navigation; and industrial and agricultural water supply. Class B*, applicable to Candlewood Lake, is a subset of Class B and is identical in all ways to the designated uses, criteria and standards for Class B waters except for the restriction on direct discharges. Class SB designated uses are habitat for marine fish and aquatic life and wildlife; commercial shellfish harvesting; recreation; industrial water supply; and navigation.

Surface waters which are not specifically classified shall be considered as Class A or Class AA. Surface waters in GA ground water areas are assumed Class A or Class SA unless otherwise indicated. Surface waters in GAA ground water areas are assumed Class AA unless otherwise indicated.

On the WQC map a surface water quality goal of A is represented by blue colored water bodies. Surface water quality goal of AA is represented by purple colored water bodies. Surface water quality goal of B is represented by gold colored water bodies.

GROUND WATERS in Connecticut are classified as GAA, GA, GB and GC. Class GAA designated uses are existing or potential public supply of water suitable for drinking without treatment and baseflow for hydraulically-connected surface water bodies. The Class GAAs is a subclass of GAA for ground water that is tributary to a public water supply reservoir. The area of contribution to a public water supply well is represented by a 500-foot radius around the well and is assumed to be Class GAA unless otherwise classified. Class GA designated uses are existing private and potential public or private supplies of water suitable for drinking without treatment and baseflow for hydraulically-connected surface water bodies. All ground waters not specifically classified are considered as Class GA. Class GB designated uses are industrial process water and cooling waters and baseflow for hydraulically-connected water bodies and is presumed not suitable for human consumption without treatment. Class GC designated uses are assimilation of discharges authorized by the Commissioner pursuant to Section 22a-430 of the General Statutes.

On the WQC map GA is represented by white colored land areas. Class GAA and class GAAs are represented by blue colored land areas. The area of contribution to a public water supply well is shown by a blue cross-hatch overprint. A notation of GAA followed by a state abbreviation indicates a watershed that contributes to the public water supply for a state other than Connecticut. Class GA or Class GAA areas that currently may not be meeting the GA or GAA standards are represented on the WQC maps by tan colored land areas. Class GB is represented by green colored land areas. Class GC is represented by magenta colored land areas.

FINAL AQUIFER PROTECTION AREAS (Level A) are included on the WQC maps for informational purposes. These areas are anticipated to be reclassified GAA during the next major basin updates, subject to public participation. The Aquifer Protection Program helps protect Connecticut's public drinking water resources by delineating aquifer protection areas (also called wellhead protection areas) for public supply wells and establishing land use regulations within these areas. These areas represent the land area contributing ground water to active public water supply wells or well fields that serve more than 1000 people and are set in sand and gravel aquifers (stratified drift deposits).

DATA SOURCES

WATER QUALITY CLASSIFICATIONS DATA – Water quality classifications shown on this map are based on information from the following digital spatial datasets that are typically shown together – Ground Water Quality Classifications Poly, Surface Water Quality Classifications Line, and Surface Water Quality Classifications Poly. The map legend above reflects the content of these three data sources. These WQC data were initially compiled on 1:24,000-scale 7.5 minute USGS topographic quadrangle maps and later digitized at 1:24,000 scale. For example, the Surface Water Quality Classifications Line and Surface Water Quality Classifications Poly digital data assigns surface water quality classifications to water bodies such as rivers, streams, reservoirs, lakes, ponds and coves found in 1:24,000-scale hydrography data available from CT DEEP. The hydrography may not include all the waterbodies in Connecticut. The Ground Water Quality Classifications Poly data assigns ground water quality classifications, at 1:24,000 scale, to the remaining land areas in Connecticut.

AQUIFER PROTECTION AREA DATA – Aquifer Protection Areas shown on this map are from the Aquifer Protection Area digital dataset which contains polygon data intended to be used at 1:24,000 scale. The dataset contains regulated areas classified as Level A Aquifer Protection Area (Final) and Level B Aquifer Protection Area (Preliminary). The Level B areas are not shown on the WQC maps. The data was collected from 1991 to the present and is actively updated as Final area mapping replaces earlier Preliminary areas. The Aquifer Protection Areas are delineated by the individual water companies owning the well fields and submitted to the CT DEEP for approval. Preliminary mapping provides a general estimate of the area contributing ground water to the well field. Final mapping is based on extensive, site-specific, detailed modeling of the ground water flow system. CT DEEP may adjust Final area boundaries to be consistent with 1:24,000 scale topography and base map data where appropriate during the approval process.

MAJOR DRAINAGE BASIN DATA – Major drainage basins shown on this map are from Major Basin Line data developed by CT DEEP and intended to be used at 1:24,000 scale.

BASE MAP DATA - Based on data originally from 1:24,000-scale USGS 7.5 minute topographic quadrangle maps published between 1969 and 1992. It includes political boundaries, railroads, airports, hydrography, geographic names and geographic places. Streets and street names are from Tele Atlas® copyrighted data. Base map information is neither current nor complete.

RELATED INFORMATION
This map is intended to be printed at its original dimensions in order to maintain the 1:24,000 scale (1 inch = 2000 feet).
WATER QUALITY STANDARDS - Go to the CT DEEP website for a summary and the full text of the "Water Quality Standards" and for other information on water quality.
AQUIFER PROTECTION AREAS - Go to the CT DEEP website for more information.

ADOPTED DATES

Water Quality Standards
February 25, 2011

Thames River, Pawcatuck River and Southeast Coastal Basins: December 1986

Connecticut River and South Central Coastal Basins: February 1993

Housatonic River, Hudson River and Southwest Coastal Basins: March 1999

MAJOR BASINS

1 Pawcatuck
2 Southeast Coast
3 Thames
4 Connecticut
5 South Central Coast
6 Housatonic
7 Southwest Coast
8 Hudson

MAP LOCATION

State Plane Coordinate System of 1983. Zone 3526
Lambert Conformal Conic Projection
North American Datum of 1983

0.5 0 1 Miles
1000 0 1000 2000 3000 4000 5000 6000 7000 Feet
0.5 0 1 Kilometers

SCALE 1:24,000 (1 inch = 2000 feet) when map is printed at original size

STATE OF CONNECTICUT
DEPARTMENT OF
ENERGY & ENVIRONMENTAL PROTECTION
79 Elm Street
Hartford, CT 06106-5127

Map created by CT DEEP
October 2018

Map is not colorfast
Protect from light and moisture

Aquifer Protection Area Mapping

AQUIFER PROTECTION AREAS

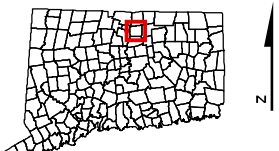
East Windsor, CT

August 26, 2019

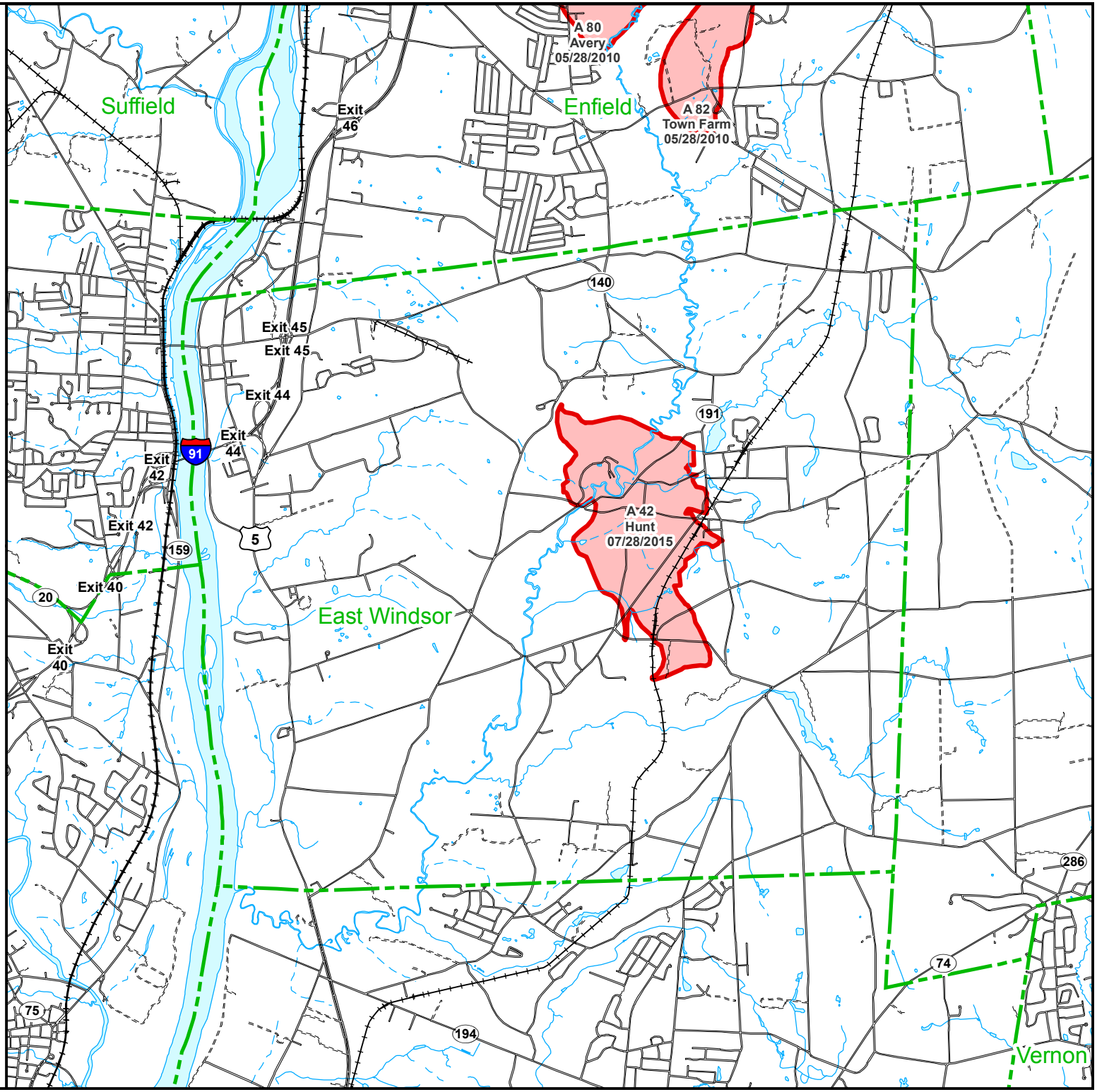
- Level A APA (Final Adopted)
- Level A APA (Final)
- Level B APA (Preliminary)
- Town Boundary

NOTE: The Aquifer Protection Areas were delineated through Connecitcut's Level A and Level B Mapping Processes. Aquifer Protection Areas are delineated for active public water supply wells in stratified drift that serve more than 1000 people, in accordance with Sections 22a-354c and 22a-354z of the Connecticut General Statutes. Level B Mapping delineates a preliminary aquifer protection area, providing an estimate of the land area from which the well draws its water. Level A Mapping delineates the final Aquifer Protection Area, which becomes the regulatory boundary for land use controls designed to protect the well from contamination. As Level A Mapping is completed for each well field and approved by DEEP, it replaces the Level B Mapping. Final Adopted Level A Areas are those where towns have land use regulations for them. Masschusetts and Rhode Island Wellhead Protection Areas may be shown for informational purposes.

QUESTIONS:
Bureau of Water Protection and Land Reuse
Planning and Standards Division
Phone: (860) 424-3020
www.ct.gov/deep/aquiferprotection



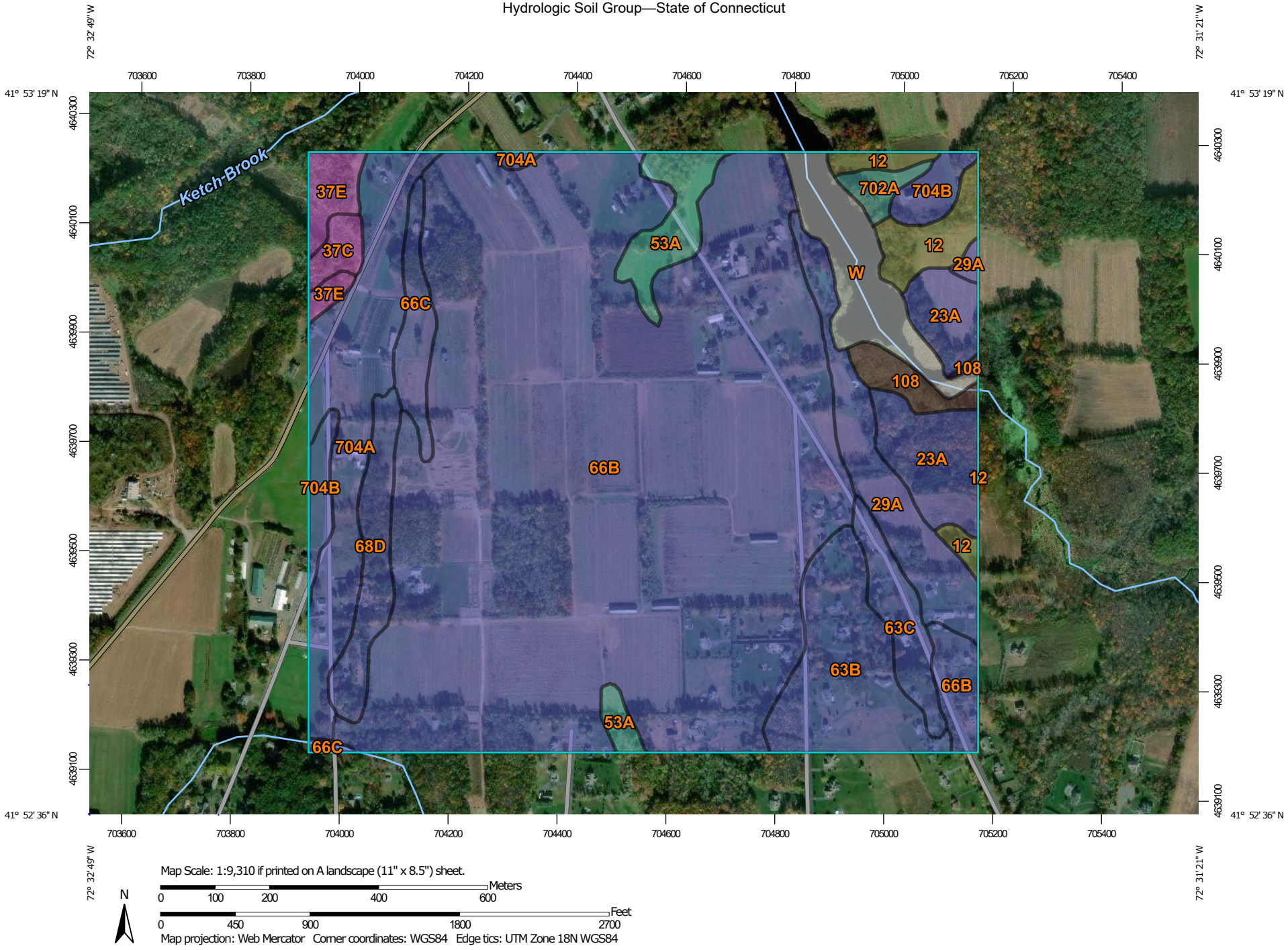
STATE OF CONNECTICUT
DEPARTMENT OF
ENERGY & ENVIRONMENTAL PROTECTION
79 Elm Street
Hartford, CT 06106-5127



Appendix B:

NRCS Soil Survey Information
Test Pit and Infiltration Testing Data

NRCS Soil Survey Information


72° 32' 49" W
72° 31' 21" W
41° 53' 19" N
41° 52' 36" N
703600
703800
704000
704200
704400
704600
704800
705000
705200
705400
4640300
4640100
4639900
4639700
4639500
4639300
4639100
Ketch-Brook
704A
37E
37C
37E
66C
53A
12
702A
704B
12
29A
W
23A
108
108
704A
66B
23A
12
704B
29A
68D
12
63C
63B
66B
53A
66C
Map Scale: 1:9,310 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 100 200 400 600
Feet
0 450 900 1800 2700
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

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 1:12,000.

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: State of Connecticut
Survey Area Data: Version 19, Sep 13, 2019

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

Date(s) aerial images were photographed: Aug 27, 2016—Oct 30, 2017

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
12	Raypol silt loam	C/D	7.5	2.2%
23A	Sudbury sandy loam, 0 to 5 percent slopes	B	13.5	4.0%
29A	Agawam fine sandy loam, 0 to 3 percent slopes	B	14.1	4.2%
37C	Manchester gravelly sandy loam, 3 to 15 percent slopes	A	2.3	0.7%
37E	Manchester gravelly sandy loam, 15 to 45 percent slopes	A	4.3	1.3%
53A	Wapping very fine sandy loam, 0 to 3 percent slopes	C	7.7	2.3%
63B	Cheshire fine sandy loam, 3 to 8 percent slopes	B	18.1	5.4%
63C	Cheshire fine sandy loam, 8 to 15 percent slopes	B	6.4	1.9%
66B	Narragansett silt loam, 2 to 8 percent slopes	B	200.4	59.8%
66C	Narragansett silt loam, 8 to 15 percent slopes	B	5.7	1.7%
68D	Narragansett silt loam, 15 to 25 percent slopes, extremely stony	B	8.3	2.5%
108	Saco silt loam	B/D	3.6	1.1%
702A	Tisbury silt loam, 0 to 3 percent slopes	C	2.2	0.6%
704A	Enfield silt loam, 0 to 3 percent slopes	B	24.1	7.2%
704B	Enfield silt loam, 3 to 8 percent slopes	B	5.8	1.7%
W	Water		11.4	3.4%
Totals for Area of Interest			**335.3**	**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.

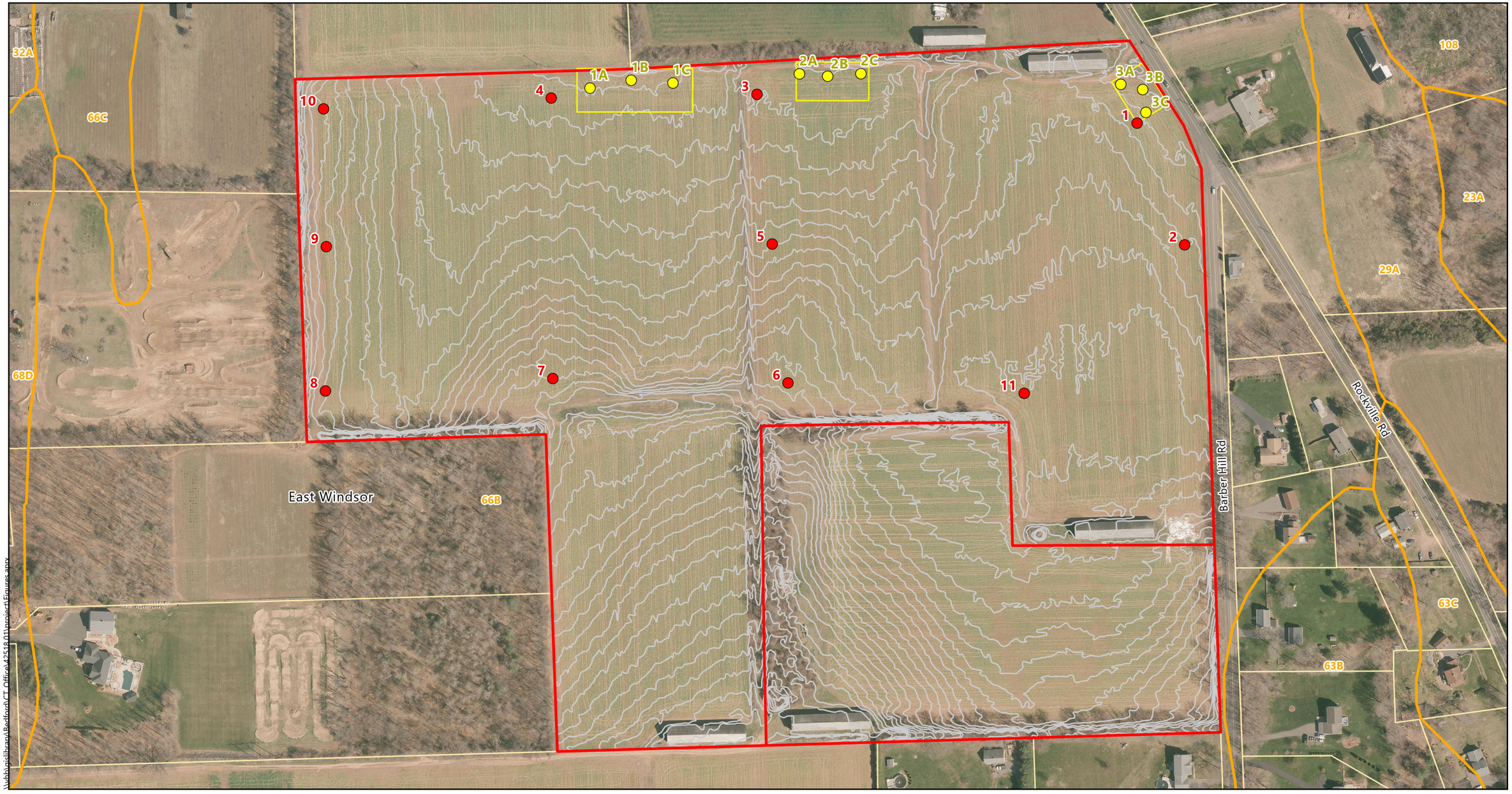
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Test Pit and Infiltration Testing Data



\\vhb\gis\library\Bedford\CT_Office\42518.01\project\Figures.aprx

0 100 200 400 Feet

Stormwater Test Pits

Site-Specific HSG Soil Survey

NRSC Soil Boundary

Stormwater Test Pit Areas

Property Boundary

1-ft Contour Intervals

Parcel Boundary

Town Boundary

Mulnite Farms | East Windsor, Connecticut

Test Pit Locations

Source: VHB, CTDEEP, USGS, ArcGIS Online

East Windsor Soil Test Pit Descriptions
Described 02/13/2020
By Patricia Brousseau, RIDEM Class IV License No. D4095

Test Pit **1**

Ap	0-15 inches	Brown (7.5YR 4/4) sandy loam, weak medium granular structure, friable, many roots, abrupt smooth boundary
Bw	15-22 inches	Yellowish brown (5YR 4/6) sandy loam, weak medium subangular blocky structure, friable, few roots, clear smooth boundary
BC	22-32 inches	Reddish brown (5YR 4/4) loamy sand, weak medium to coarse subangular blocky structure, friable, common roots, clear smooth boundary
2C	32-48 inches	Reddish brown (2.5YR 4/4) extremely cobbly loamy sand, single grain, loose

Test Pit **2**

Ap	0-13 inches	Brown (7.5YR 4/4) sandy loam, weak medium granular structure, friable, many medium roots, abrupt smooth boundary
BC	13-26 inches	Reddish brown (5YR 4/4) loamy sand, weak medium subangular blocky structure to massive, friable, few fine roots, clear smooth boundary
2C1	26-41 inches	Reddish brown (2.5YR 4/4) very gravelly loamy sand, massive, friable, abrupt smooth boundary
3C2	41-48 inches	Dark reddish brown (2.5YR 3/4) extremely cobbly loamy sand, single grain, loose

Test Pit **3**

Ap	0-14 inches	Brown (7.5YR 4/4) sandy loam, weak medium granular structure, friable, many medium roots, abrupt smooth boundary
Bw	14-16 inches	Strong brown (7.5YR 4/6) sandy loam, weak medium subangular blocky structure, friable, common medium roots, abrupt wavy boundary
2C1	16-30 inches	Reddish brown (2.5YR 4/4) gravelly loamy sand, massive, friable, common roots, abrupt wavy boundary
2C2	30-48 inches	Reddish brown (2.5YR 4/4) very cobbly sand, single grain, loose

Test Pit **4**

Ap	0-18 inches	Dark brown (7.5YR 3/4) sandy loam, weak medium granular structure, friable, common roots, abrupt wavy boundary
Bw1	18-22 inches	Reddish brown (7.5YR 4/4) loamy sand, massive, friable, few roots, clear smooth boundary
Bw2	22-28 inches	Dark yellowish brown (10YR 4/4) loamy sand, massive, friable, few roots, abrupt smooth boundary
2C1	28-37 inches	Reddish brown (5YR 5/4) sand, single grain, loose, clear smooth boundary

2C2	37-58 inches	Reddish brown (5YR 5/4) sand, single grain, loose, common fine to medium, distinct yellowish red (5YR 5/6) concentrations

Estimated ASHWT at 37 inches

Test Pit **5**

Ap	0-10 inches	Brown (7.5YR 4/3) sandy loam, weak medium granular structure, friable, many medium fine roots, abrupt smooth boundary
Bw	10-18 inches	Dark yellowish brown (10YR 4/6) loamy sand, medium subangular blocky structure, friable, abrupt wavy boundary
2C1	18-27 inches	Reddish brown (5YR 4/4) cobbly sand, single grain, loose, clear smooth boundary
2C2	27-40 inches	Reddish brown (5YR 4/4) very cobbly sand, single grain, loose, clear smooth boundary
2C3	40-53 inches	Reddish brown (2.5YR 5/4) extremely gravelly fine sand, single grain, loose

Test Pit **6**

Ap	0-10 inches	Brown (7.5YR 4/4) sandy loam, weak medium granular structure, friable, many roots, abrupt smooth boundary
Bw	10-15 inches	Brown (7.5YR 5/4) sandy loam, weak medium subangular blocky structure, friable, abrupt smooth boundary
2C1	15-31 inches	Reddish brown (5YR 4/4) loamy sand, weak medium subangular blocky structure, friable, clear smooth boundary
3C2	31-41 inches	Dark reddish brown (2.5YR 3/3) extremely gravelly coarse sand, single grain, loose, clear smooth boundary
4C3	41-55 inches	Dusky red (10R 3/3) extremely gravelly sand, single grain, loose

Test Pit **7**

Ap	0-4 inches	Brown (7.5YR 4/3) sandy loam, weak medium granular structure, friable, many roots, abrupt smooth boundary
Bw	4-11 inches	Yellowish brown (10YR 5/4) loamy sand, massive, friable, few roots, abrupt smooth boundary
2C1	11-20 inches	Reddish brown (5YR 4/4) loamy sand, massive, friable, clear smooth boundary
2C2	20-42 inches	Reddish brown (2.5YR 4/4) extremely gravelly sand, single grain, loose, clear smooth boundary
2C3	42-50 inches	Dark reddish brown (2.5YR 3/4) extremely gravelly sand, single grain, loose

Test Pit **8**

Ap	0-13 inches	Brown (7.5YR 4/3) sandy loam, weak medium granular structure, friable, common roots, abrupt smooth boundary
Bw	13-17 inches	Brown (7.5YR 5/4) loamy sand, massive, friable, abrupt wavy boundary
2C1	17-28 inches	Reddish brown (5YR 4/4) gravelly loamy sand, massive, friable, clear smooth boundary
2C2	28-50 inches	Dark reddish brown (2.5YR 3/3) stony gravelly sand, single grain, loose

Test Pit **9**

Ap	0-12 inches	Brown (7.5YR 4/3) sandy loam, weak medium granular structure, friable, common roots, abrupt smooth boundary
Bw	12-21 inches	Dark yellowish brown (10YR 4/4) sandy loam, weak medium subangular blocky structure, friable, abrupt wavy boundary
2C1	21-34 inches	Reddish brown (5YR 4/4) stony sand, single grain, loose, clear smooth boundary
2C2	34-47 inches	Reddish brown (2.5YR 4/4) very gravelly sand, single grain, loose, clear smooth boundary
2Cr	47-52 inches	Dusky red (10R 3/3) extremely gravelly and stony sand, single grain, loose

Test Pit **10**

Ap	0-13 inches	Brown (7.5YR 4/4) sandy loam, weak medium subangular blocky structure, friable, common roots, abrupt smooth boundary
Bw	13-21 inches	Strong brown (7.5YR 4/6) loamy sand, weak medium subangular blocky structure, friable, few roots, clear wavy boundary
2C1	21-36 inches	Reddish brown (2.5YR 4/4) very gravelly sand, single grain, loose, clear smooth boundary
2C2	36-48 inches	Reddish brown (2.5YR 4/4) extremely cobbly sand, few fine distinct red (2.5YR 4/6) concentrations, single grain, loose, clear smooth boundary,
2Cr	48-56 inches	Reddish brown (2.5YR 4/4) extremely stony and cobbly sand, single grain, loose

Estimated SHWT at 36 inches

Test Pit **11**

Ap	0-12 inches	Brown (10YR 4/3) sandy loam, weak medium granular structure, friable, many roots, abrupt smooth boundary
2C1	12-26 inches	Strong brown (7.5YR 4/6) sand, single grain, loose, few roots, clear smooth boundary
2C2	26-49 inches	Reddish brown (5YR 5/4) sand, single grain, loose, few, coarse, distinct strong brown (7.5YR 5/6) concentrations, abrupt smooth boundary
2Cd3	49-53 inches	Weak red (10R 4/3) loamy sand, weak medium to fine platy structure to massive, firm

Estimated SHWT at 26 inches
Few, fine, and distinct strong brown (7.5YR 5/8) concentrations and the interface of the Ap and C1

Form #2 Technical Standards for Subsurface Sewage Disposal Systems

SITE INVESTIGATION FOR A SUBSURFACE SEWAGE DISPOSAL SYSTEM

Application/Permit #: _____

Property Owner_____Location Mulnite Farm, East Windsor, CT

DEEP TEST PIT DATA/SOIL DESCRIPTIONS

DATE: 2/12/2020 (Record all Test Pits)

TEST PIT: 1A	TEST PIT: 1B	TEST PIT: 1C	TEST PIT:
0-16" dark brown organic silt loam 16-87" red fine sand	0-8" dark brown organic silt loam 8-22" tan silt loam 22-69" brown fine sand 69-89" red fine sand	0-18" dark brown organic silt loam 18-23" tan silt loam 23-40" brown fine sand 40-88" red fine sand with cobbles	
Mottles:	Mottles:	Mottles:	Mottles:
GW:	GW:	GW:	GW:
Ledge:	Ledge:	Ledge:	Ledge:
Roots:	Roots:	Roots:	Roots:
Restrictive:	Restrictive:	Restrictive:	Restrictive:

COMMENTS: _____

_____

GROUNDWATER TABLE (Near max., below max., etc.)_____

SOIL MOISTURE (High, medium, low, etc): _____

PERCOLATION TEST DATA

DATE: 2/12/2020 (Record all Perc Tests)

PERC: 1A		PERC: 1B		PERC: 1C		PERC:	
DEPTH: 23" @ 36" bench		DEPTH: 25" @ 36" bench		DEPTH: 24" @ 36" bench		DEPTH:	
PRESOAK:		PRESOAK:		PRESOAK:		PRESOAK:	
TIME	READING	TIME	READING	TIME	READING	TIME	READING
9:52 10:07 10:22 10:37 10:52	3.9" 7.5" 9" 10.8" 11.9"	9:55 10:10	12.7" 23" empty	9:59 10:14 10:29 10:44	4.4" 15.5" 19" 21.6" empty		
PERC RATE: 4.4 in./hr		PERC RATE: > 40 in./hr		PERC RATE: 10.4 in./hr		PERC RATE:	

COMMENTS: _____

_____

Form #2 Technical Standards for Subsurface Sewage Disposal Systems

SITE INVESTIGATION FOR A SUBSURFACE SEWAGE DISPOSAL SYSTEM

Application/Permit #: _____

Property Owner_____Location Mulnite Farm, East Windsor, CT

DEEP TEST PIT DATA/SOIL DESCRIPTIONS

DATE: 2/12/2020 (Record all Test Pits)

TEST PIT: 2A	TEST PIT: 2B	TEST PIT: 2C	TEST PIT:
0-25" dark brown organic silt loam 25-31" tan silt loam 31-94" red sandy loam	0-23" dark brown organic silt loam 23-52" tan silty loam 52-96" red fine sand with cobbles	0-34" dark brown organic silt loam 34-54" tan silt loam 54-97" red fine sand with cobbles	
Mottles:	Mottles:	Mottles:	Mottles:
GW:	GW:	GW:	GW:
Ledge:	Ledge:	Ledge:	Ledge:
Roots:	Roots:	Roots:	Roots:
Restrictive:	Restrictive:	Restrictive:	Restrictive:

COMMENTS: _____

_____

GROUNDWATER TABLE (Near max., below max., etc.)_____

SOIL MOISTURE (High, medium, low, etc): _____

PERCOLATION TEST DATA

DATE: 2/12/2020 (Record all Perc Tests)

PERC: 2A		PERC: 2B		PERC: 2C		PERC:	
DEPTH: 20" @ 36" bench		DEPTH: 21" @ 36" bench		DEPTH: 22" @ 36" bench		DEPTH:	
PRESOAK:		PRESOAK:		PRESOAK:		PRESOAK:	
TIME	READING	TIME	READING	TIME	READING	TIME	READING
11:30 11:45 12:00 12:15 12:30	3" 9.2" 13.4" 15.2" 16.8"	11:33 11:48 12:03	4.5" 16.7" 19.5" empty	11:36 11:51 12:06 12:21 12:36	3" 10.8" 14.8" 17.3" 18.3"		
PERC RATE: 6.4 in./hr		PERC RATE: > 10 in./hr		PERC RATE: 4.0 in./hr		PERC RATE:	

COMMENTS: _____

_____

Form #2 Technical Standards for Subsurface Sewage Disposal Systems

SITE INVESTIGATION FOR A SUBSURFACE SEWAGE DISPOSAL SYSTEM

Application/Permit #: _____

Property Owner_____Location Mulnite Farm, East Windsor, CT

DEEP TEST PIT DATA/SOIL DESCRIPTIONS

DATE: 2/12/2020 (Record all Test Pits)

TEST PIT: 3A	TEST PIT: 3B	TEST PIT: 3C	TEST PIT:
0-13" dark brown organic silt loam with cobbles 13-27" light brown silty loam with cobbles 27-83" red sandy loam with large boulders	0-15" dark brown organic silty loam 15-32" brown silty loam 32-102" red sandy loam with cobbles	0-14" dark brown organic silty loam 14-32" light brown silty loam 32-98" red sandy loam	
Mottles:	Mottles:	Mottles:	Mottles:
GW:	GW:	GW:	GW:
Ledge:	Ledge:	Ledge:	Ledge:
Roots:	Roots:	Roots:	Roots:
Restrictive:	Restrictive:	Restrictive:	Restrictive:

COMMENTS: _____

_____

GROUNDWATER TABLE (Near max., below max., etc.)_____

SOIL MOISTURE (High, medium, low, etc): _____

PERCOLATION TEST DATA

DATE: 2/12/2020 (Record all Perc Tests)

PERC: 3A		PERC: 3B		PERC: 3C		PERC:	
DEPTH: 40" from grade		DEPTH: 39" from grade		DEPTH: 38" from grade		DEPTH:	
PRESOAK:		PRESOAK:		PRESOAK:		PRESOAK:	
TIME	READING	TIME	READING	TIME	READING	TIME	READING
1:23 1:38 1:53 2:08 2:23	15" 22.4" 25.2" 28.1" 29.7"	1:25 1:40 1:55 2:10 2:25	12.5" 22.5" 25.6" 28.3" 29.9"	1:28 1:43 1:58 2:13 2:28	10.5" 17.6" 20.8" 23.1" 25.2"		
PERC RATE: 6.4 in./hr		PERC RATE: 6.4 in./hr		PERC RATE: 8.4 in./hr		PERC RATE:	

COMMENTS: _____

_____

Appendix C:

Erosion and Sedimentation Control Checklist
Long Term Stormwater Operation and Maintenance Measures

Erosion and Sedimentation Control Checklist

Mulnite Farms Solar – East Windsor, CT – Rockville Road

Best Management Practices – Maintenance/ Evaluation Checklist

Construction Practices

Best Management Practice	Inspection Frequency	Date Inspected	Inspector	Minimum Maintenance and Key Items to Check	Cleaning/Repair Needed ☐yes ☐no (List Items)	Date of Cleaning/Repair	Performed by
Silt Fencing	Once per week or after a 0.5″ or greater storm event						
Compost Filter Sock	Once per week or after a 0.5″ or greater storm event						
Straw Wattles	Once per week or after a 0.5″ or greater storm event						
Stabilized Construction Exit	Once per week or after a 0.5″ or greater storm event						
Temporary Sediment Trap/Basin & Diversion Swales	Once per week or after a 0.5″ or greater storm event						
Vegetated Slope Stabilization	Once per week or after a 0.5″ or greater storm event						
Energy Dissipators	Once per week or after a 0.5″ or greater storm event						

Stormwater Control Manager _____

Long Term Stormwater Operation and Maintenance Measures

Mulnite Farms Solar – East Windsor, CT – Rockville Road

Best Management Practices – Maintenance/ Evaluation Checklist

Long Term Practices

Best Management Practice	Inspection Frequency	Date Inspected	Inspector	Minimum Maintenance and Key Items to Check	Cleaning/Repair Needed ☐yes ☐no (List Items)	Date of Cleaning/Repair	Performed by
Trash/Litter	Routinely pick up and remove litter from entire property as required.						
Vegetated Areas	Inspect bi-annually. Replant bare areas upon identification.						
Energy Dissipators	Inspect monthly for the first 3 months and after any rain event exceeding 0.5″. Inspect 2x per year thereafter.						
Diversion Swales	Inspect monthly for the first 3 months and after any rain event exceeding 0.5″. Inspect 2x per year thereafter.						
Infiltration Basin	Inspect monthly for the first 3 months and after any rain event exceeding 0.5″. Inspect 2x per year thereafter.						

Stormwater Control Manager _____

Project Information

Site

Project Name:	Mulnite Farms Solar
Address or Locus:	Rockville Road
City, State & Zip:	East Windsor, CT 06016

Developer

Client Name:	Greenskies Clean Energy, LLC
Client Address:	180 Johnson Street
Client City, State & Zip:	Middletown, CT 06457
Client Telephone No.:	(860) 398-5408
Client Cell Phone:	
Client E-Mail:	cross@greenskies.com

Site Supervisor

Site Manager Name:	To be determined
Site Manager Address:	
Site Manager City, State & Zip:	
Site Manager Telephone No.:	
Site Manager Cell Phone:	
Site Manager E-Mail:	

Appendix D:

Diversion Swale & Sediment Trap/Basin Sizing
Water Quality Computations
HydroCAD: Existing Conditions
HydroCAD: Proposed Conditions

Diversion Swale & Sediment Trap/Basin Sizing

Temporary Diversion Sizing

TD	1-1
629,230	sf
14.45	ac

Reference DOT Drainage Manual 2000

Swale Slope, S =	0.010	ft / ft	
Manning's n for bare soil / ECB, n =	0.025		
Q25 (disturbed soil & forest) =	19.53	cfs	
Bottom width, w =	5	ft	
Side slopes, X:1 =	3		
Estimated flow depth, d =	0.88	ft	
Q = (1/n) * A * R^(2/3) * S^(1/2)			
A * R^(2/3) = Q / (1/n) / S^(1/2) =	**4.88**	(target for variable depth)	
A = (w * d) + 2 * (0.5d * Xd) =	6.72	sf	
P = w + 2 * (sqrt(d^2 + (Xd)^2) =	10.57	ft	
R = A / P =	0.64	ft	
A * R^(2/3) =	**4.97**	(must be close to target)	
y =	62.4	pcf	
ŧd = y * d * S =	**0.55**	psf	< 1.55 psf for ECB - OK
Velocity, V = Q / A =	**2.90**	fps	< 5.00 fps for ECB - OK

Temporary Diversion Sizing

TD	2-1
119,387	sf
2.74	ac

Reference DOT Drainage Manual 2000

Swale Slope, S =	0.014	ft / ft	
Manning's n for bare soil / ECB, n =	0.025		
Q25 (disturbed soil & forest) =	2.46	cfs	
Bottom width, w =	1	ft	
Side slopes, X:1 =	3		
Estimated flow depth, d =	0.5	ft	
Q = (1/n) * A * R^(2/3) * S^(1/2)			
A * R^(2/3) = Q / (1/n) / S^(1/2) =	**0.52**	(target for variable depth)	
A = (w * d) + 2 * (0.5d * Xd) =	1.25	sf	
P = w + 2 * (sqrt(d^2 + (Xd)^2) =	4.16	ft	
R = A / P =	0.30	ft	
A * R^(2/3) =	**0.56**	(must be close to target)	
y =	62.4	pcf	
ŧd = y * d * S =	**0.43**	psf	< 1.55 psf for ECB - OK
Velocity, V = Q / A =	**1.97**	fps	< 5.00 fps for ECB - OK

Temporary Diversion Sizing

TD	3-1
43,940	sf
1.01	ac

Reference DOT Drainage Manual 2000

Swale Slope, S =	0.010	ft / ft	
Manning's n for bare soil / ECB, n =	0.025		
Q25 (disturbed soil & forest) =	1.77	cfs	
Bottom width, w =	1	ft	
Side slopes, X:1 =	3		
Estimated flow depth, d =	0.5	ft	
Q = (1/n) * A * R^(2/3) * S^(1/2)			
A * R^(2/3) = Q / (1/n) / S^(1/2) =	**0.45**	(target for variable depth)	
A = (w * d) + 2 * (0.5d * Xd) =	1.25	sf	
P = w + 2 * (sqrt(d^2 + (Xd)^2) =	4.16	ft	
R = A / P =	0.30	ft	
A * R^(2/3) =	**0.56**	(must be close to target)	
y =	62.4	pcf	
ŧd = y * d * S =	**0.30**	psf	< 1.55 psf for ECB - OK
Velocity, V = Q / A =	**1.42**	fps	< 5.00 fps for ECB - OK

Temporary Diversion Sizing

TD	3-2
24,802	sf
0.57	ac

Reference DOT Drainage Manual 2000

Swale Slope, S =	0.008	ft / ft	
Manning's n for bare soil / ECB, n =	0.025		
Q25 (disturbed soil & forest) =	0.27	cfs	
Bottom width, w =	0.5	ft	
Side slopes, X:1 =	3		
Estimated flow depth, d =	0.5	ft	
Q = (1/n) * A * R^(2/3) * S^(1/2)			
A * R^(2/3) = Q / (1/n) / S^(1/2) =	**0.07**	(target for variable depth)	
A = (w * d) + 2 * (0.5d * Xd) =	1.00	sf	
P = w + 2 * (sqrt(d^2 + (Xd)^2) =	3.66	ft	
R = A / P =	0.27	ft	
A * R^(2/3) =	**0.42**	(must be close to target)	
y =	62.4	pcf	
ŧd = y * d * S =	**0.26**	psf	< 1.55 psf for ECB - OK
Velocity, V = Q / A =	**0.27**	fps	< 5.00 fps for ECB - OK

Temporary Diversion Sizing

TD	Roadside Swale
460,082	sf
10.56	ac

Reference DOT Drainage Manual 2000

Swale Slope, S =	0.011	ft / ft	
Manning's n for bare soil / ECB, n =	0.030		
Q25	21	cfs	
Bottom width, w =	4	ft	
Side slopes, X:1 =	3		
Estimated flow depth, d =	1.05	ft	
Q = (1/n) * A * R^(2/3) * S^(1/2)			
A * R^(2/3) = Q / (1/n) / S^(1/2) =	**6.07**	(target for variable depth)	
A = (w * d) + 2 * (0.5d * Xd) =	7.51	sf	
P = w + 2 * (sqrt(d^2 + (Xd)^2) =	10.64	ft	
R = A / P =	0.71	ft	
A * R^(2/3) =	**5.95**	(must be close to target)	
y =	62.4	pcf	
ŧd = y * d * S =	**0.71**	psf	< 1.55 psf for ECB - OK
Velocity, V = Q / A =	**2.80**	fps	< 5.00 fps for ECB - OK

Sediment Trap Sizing

TST	3	
	4.0 ac	@ 134 cy/acre
V	14,500	
Vw	7,250	
Vd	7,250	

Temporary Sediment Trap Sizing
Mulnite Farms Solar
April 2020

TST #	Tributary Acreage, ac	*(134 cy / acre)** Volume Required Below Top of Spillway, cf	Volume Provided in Permanent Basin Below Top of Spillway, cf
3	4.0	14,472	18,055

* Per 2002 Connecticut Guidelines for Soil Erosion and Sediment Control

SEDIMENT BASIN SIZING

SB 1

DA, drainage area =	439,956	sf
	10.10	ac
	0.016	sq mi.
Construction Duration:	8	months
(DA) (A) = 10.1 ac * 50 tons =	505	tons / year
	337	tons for life of basin
Delivery Ratio DR (from Figure SB-12) for sandy loam =	60%	
Density of sediment (from Figure SB-2) for sandy loam =	85	pcf
Trap Efficiency TE =	80%	
V sediment storage = (DA)(A)(DR)(TE)(2,000) / Density =	**3,806**	**cf**
10-year, 24-hour rainfall, P =	5.01	in.
Vr (from Hydrographs) =	3.25	watershed inches
Q10 = Qi (for fallow soil, from Hydrographs) =	23.00	cfs
Qi / DA =	2.28	
Qo / Qi (from Figure SB-13) =	0.09	
Qo =	2.07	cfs
Release rate = Qo * 640 / DA =	131.2	csm
Vs (from Figure DB-6) =	1.55	watershed inches
Vs = Vs * DA / 12 * 43,560 =	**56,828**	**cf**
Minimum volume required below crest of emergency spillway =	**60,634**	**cf**
Minimum volume provided below crest of emergency spillway =	***62,016***	***cf***

SEDIMENT BASIN SIZING

SB 2

DA, drainage area =	376,794	sf
	8.65	ac
	0.014	sq mi.
Construction Duration:	8	months
(DA) (A) = 8.65 ac * 50 tons =	433	tons / year
	289	tons for life of basin
Delivery Ratio DR (from Figure SB-12) for sandy loam =	60%	
Density of sediment (from Figure SB-2) for sandy loam =	85	pcf
Trap Efficiency TE =	80%	
V sediment storage = (DA)(A)(DR)(TE)(2,000) / Density =	**3,264**	**cf**
10-year, 24-hour rainfall, P =	5.01	in.
Vr (from Hydrographs) =	3.25	watershed inches
Q10 = Qi (for fallow soil, from Hydrographs) =	19.69	cfs
Qi / DA =	2.28	
Qo / Qi (from Figure SB-13) =	0.09	
Qo =	1.77	cfs
Release rate = Qo * 640 / DA =	131.1	csm
Vs (from Figure DB-6) =	1.55	watershed inches
Vs = Vs * DA / 12 * 43,560 =	**48,669**	**cf**
Minimum volume required below crest of emergency spillway =	**51,933**	**cf**
Minimum volume provided below crest of emergency spillway =	***111,694***	***cf***

Water Quality Computations

Water Quality Volume Calculations

Project: **Mulnite Farms Solar** By: JDW Date:
Location: East Windsor, CT Checked: SJK Date:

Basin Name	1	2	3	
Rainfall, P	1.0 in.	1.0 in.	1.0 in.	a
Area, A	6.77 ac	4.25 ac	2.44 ac	b
Access Road & Equipment Pad Area	0.39 ac	0.51 ac	0.12 ac	c
% Impervious, I	6 %	12 %	5 %	
Volumetric Runoff Coeff., R	0.102	0.158	0.093	d
Water Quality Volume for impervious areas, WQV	**0.057** ac-ft	**0.056** ac-ft	**0.019** ac-ft	e
	2,496 cf	**2,444** cf	**822** cf	
HSG 'B' Pervious Area Unit	85.77 sf	85.77 sf	85.77 sf	f
WQV per Unit	1.00 cf	1.00 cf	1.00 cf	g
HSG 'B' Panel Area in Watershed	5.74 ac	8.07 ac	1.26 ac	
Water Quality Volume for panelized areas, WQV	**0.067** ac-ft	**0.094** ac-ft	**0.015** ac-ft	h
	2,916 cf	**4,098** cf	**641** cf	
HSG 'C' Pervious Area Unit	85.77 sf	85.77 sf	85.77 sf	f
WQV per Unit	1.21 cf	1.21 cf	1.21 cf	g
HSG 'C' Panel Area in Watershed	3.97 ac	0.07 ac	0.30 ac	
Water Quality Volume for panelized areas, WQV	**0.056** ac-ft	**0.001** ac-ft	**0.004** ac-ft	h
	2,439 cf	**43** cf	**182** cf	
HSG 'D' Pervious Area Unit	85.77 sf	85.77 sf	85.77 sf	f
WQV per Unit	1.53 cf	1.53 cf	1.53 cf	g
HSG 'D' Panel Area in Watershed	ac	ac	ac	
Water Quality Volume for panelized areas, WQV	**0.000** ac-ft	**0.000** ac-ft	**0.000** ac-ft	h
	0 cf	**0** cf	**0** cf	
Total WQV required	**0.180** ac-ft	**0.151** ac-ft	**0.038** ac-ft	
	7,852 cf	**6,585** cf	**1,645** cf	
Total WQV Provided in Basin	***62,016 cf***	***111,694 cf***	***9,544 cf***	i

[a] First one inch of rainfall; 2004 Connecticut Stormwater Quality Manual

[b] Non-panel area of the development area tributary to the basin

[c] Impervious cover area tributary to the stormwater management basin

[d] R=0.05+0.009*I; Section 7.4.1 from 2004 Connecticut Stormwater Quality Manual

[e] WQV=P*R*A/12; Section 7.4.1 from 2004 Connecticut Stormwater Quality Manual

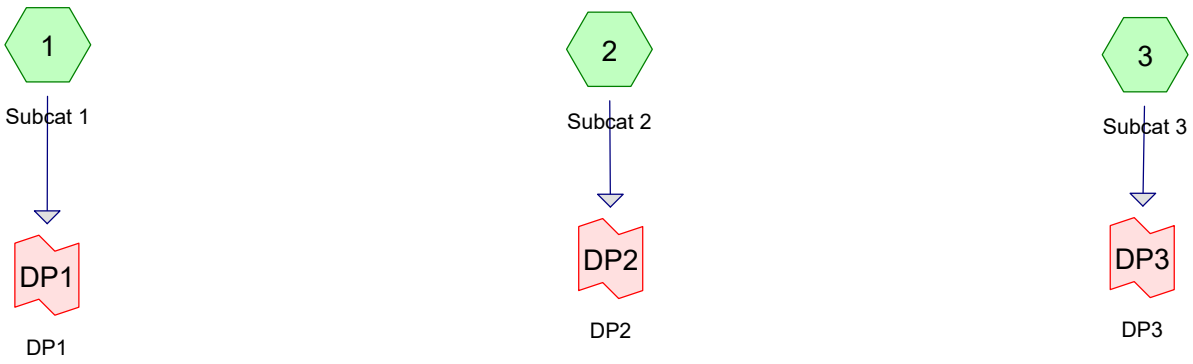
[f] Width of solar panel multiplied by length of 2 panels in portrait and pervious clear area; Solar Panel Calculator from Minnesota Public Drainage Manual

[g] Water quality volume to be treated per unit of 2-panels in portrait; Solar Panel Calculator from Minnesota Public Drainage Manual

[h] Computed by Solar Panel Calculator from Minnesota Public Drainage Manual

[i] Volume below crest of spillway from proposed stormwater basin

HydroCAD Analysis: Existing Conditions



Subcat Reach Pond Link

Routing Diagram for 42518.01 HydroCAD Existing - 2
Prepared by VHB, Printed 5/7/2020

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
24.151	39	>75% Grass cover, Good, HSG A (1, 2, 3)
40.678	61	>75% Grass cover, Good, HSG B (1, 2, 3)
0.825	86	Fallow, bare soil, HSG B (1)
1.077	98	Paved parking, HSG B (2)
0.015	98	Roofs, HSG A (2)
1.070	98	Roofs, HSG B (1, 2, 3)
0.051	81	Row crops, straight row, Poor, HSG B (1, 2, 3)
0.002	36	Woods, Fair, HSG A (2)
9.908	60	Woods, Fair, HSG B (1, 2)
77.777	**55**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
24.168	HSG A	1, 2, 3
53.608	HSG B	1, 2, 3
0.000	HSG C	
0.000	HSG D	
0.000	Other	
77.777		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
24.151	40.678	0.000	0.000	0.000	64.829	>75% Grass cover, Good	1, 2, 3
0.000	0.825	0.000	0.000	0.000	0.825	Fallow, bare soil	1
0.000	1.077	0.000	0.000	0.000	1.077	Paved parking	2
0.015	1.070	0.000	0.000	0.000	1.086	Roofs	1, 2, 3
0.000	0.051	0.000	0.000	0.000	0.051	Row crops, straight row, Poor	1, 2, 3
0.002	9.908	0.000	0.000	0.000	9.910	Woods, Fair	1, 2
24.168	**53.608**	**0.000**	**0.000**	**0.000**	**77.777**	**TOTAL AREA**	

2-Year Storm Event – Existing

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Subcat 1 Runoff Area=24.787 ac 0.42% Impervious Runoff Depth>0.17"
Flow Length=1,823' Tc=38.9 min CN=54 Runoff=1.23 cfs 0.353 af

Subcatchment2: Subcat 2 Runoff Area=47.389 ac 4.08% Impervious Runoff Depth>0.24"
Flow Length=3,408' Tc=68.9 min CN=57 Runoff=3.25 cfs 0.946 af

Subcatchment3: Subcat 3 Runoff Area=5.601 ac 2.20% Impervious Runoff Depth>0.05"
Flow Length=901' Tc=24.2 min CN=47 Runoff=0.05 cfs 0.022 af

Link DP1: DP1 Inflow=1.23 cfs 0.353 af
Primary=1.23 cfs 0.353 af

Link DP2: DP2 Inflow=3.25 cfs 0.946 af
Primary=3.25 cfs 0.946 af

Link DP3: DP3 Inflow=0.05 cfs 0.022 af
Primary=0.05 cfs 0.022 af

Total Runoff Area = 77.777 ac Runoff Volume = 1.322 af Average Runoff Depth = 0.20"
97.22% Pervious = 75.614 ac 2.78% Impervious = 2.162 ac

Summary for Subcatchment 1: Subcat 1

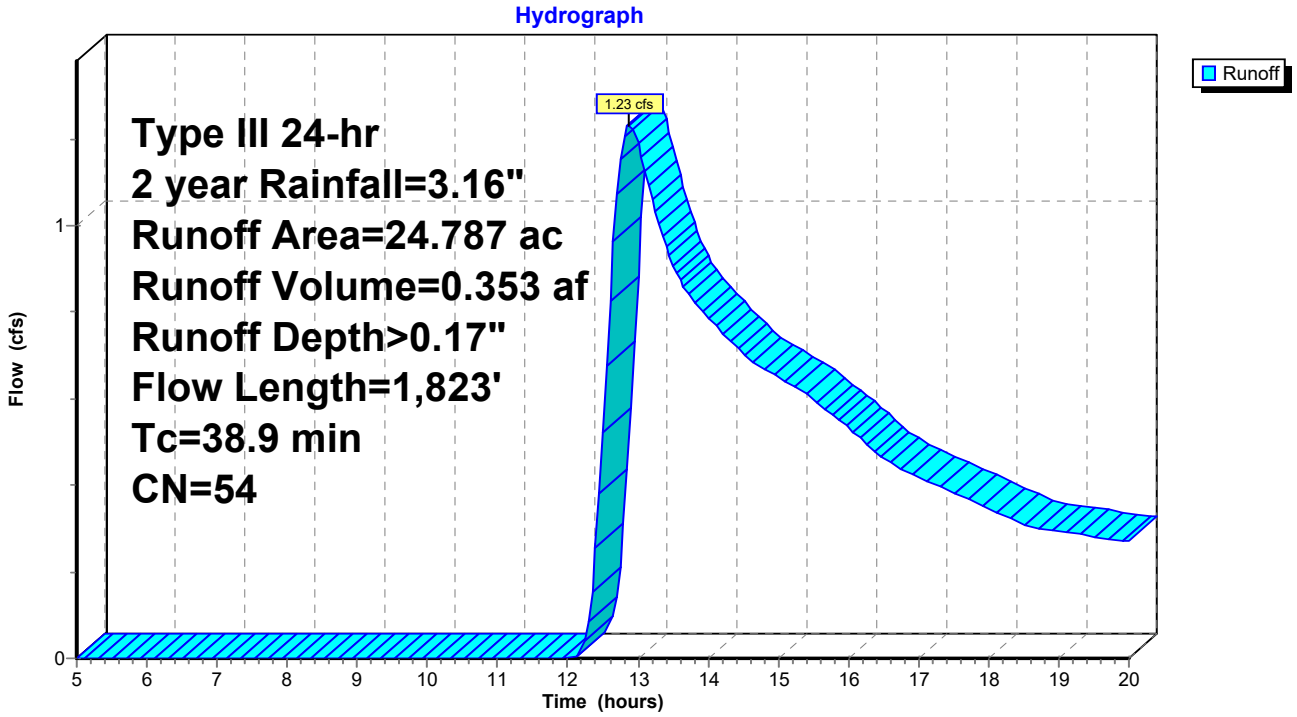
Runoff = 1.23 cfs @ 12.87 hrs, Volume= 0.353 af, Depth> 0.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.16"

Area (ac)	CN	Description
8.771	39	>75% Grass cover, Good, HSG A
14.632	61	>75% Grass cover, Good, HSG B
0.825	86	Fallow, bare soil, HSG B
0.105	98	Roofs, HSG B
0.000	81	Row crops, straight row, Poor, HSG B
0.454	60	Woods, Fair, HSG B
24.787	54	Weighted Average
24.682		99.58% Pervious Area
0.105		0.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.16"
3.9	317	0.0379	1.36		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.5	465	0.0170	0.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.3	203	0.0440	1.47		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.9	788	0.0089	0.66		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
38.9	1,823	Total			

Subcatchment 1: Subcat 1



Summary for Subcatchment 2: Subcat 2

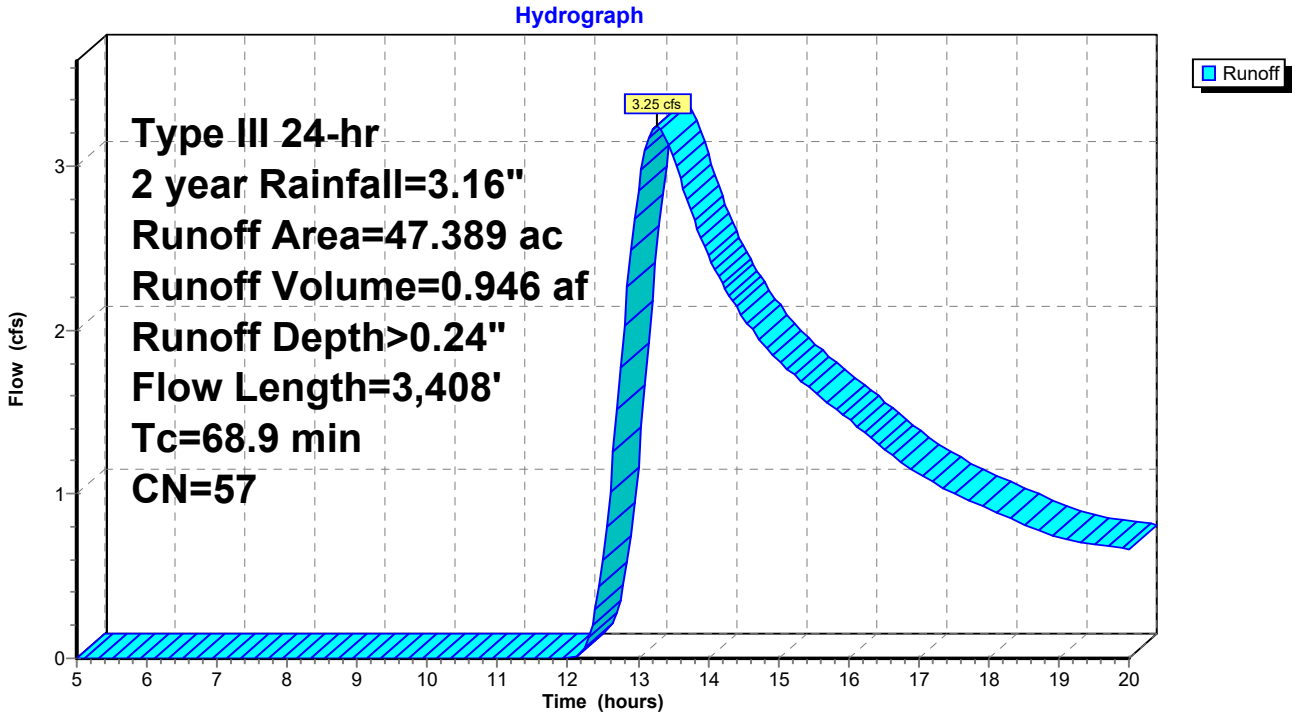
Runoff = 3.25 cfs @ 13.26 hrs, Volume= 0.946 af, Depth> 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.16"

Area (ac)	CN	Description
11.555	39	>75% Grass cover, Good, HSG A
24.443	61	>75% Grass cover, Good, HSG B
1.077	98	Paved parking, HSG B
0.015	98	Roofs, HSG A
0.842	98	Roofs, HSG B
0.000	81	Row crops, straight row, Poor, HSG B
0.002	36	Woods, Fair, HSG A
9.455	60	Woods, Fair, HSG B
47.389	57	Weighted Average
45.455		95.92% Pervious Area
1.934		4.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0600	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.16"
2.3	226	0.0531	1.61		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	103	0.0580	1.20		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.6	522	0.0498	1.56		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.8	502	0.0359	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.5	1,317	0.0121	0.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.3	688	0.0131	0.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
68.9	3,408	Total			

Subcatchment 2: Subcat 2



Summary for Subcatchment 3: Subcat 3

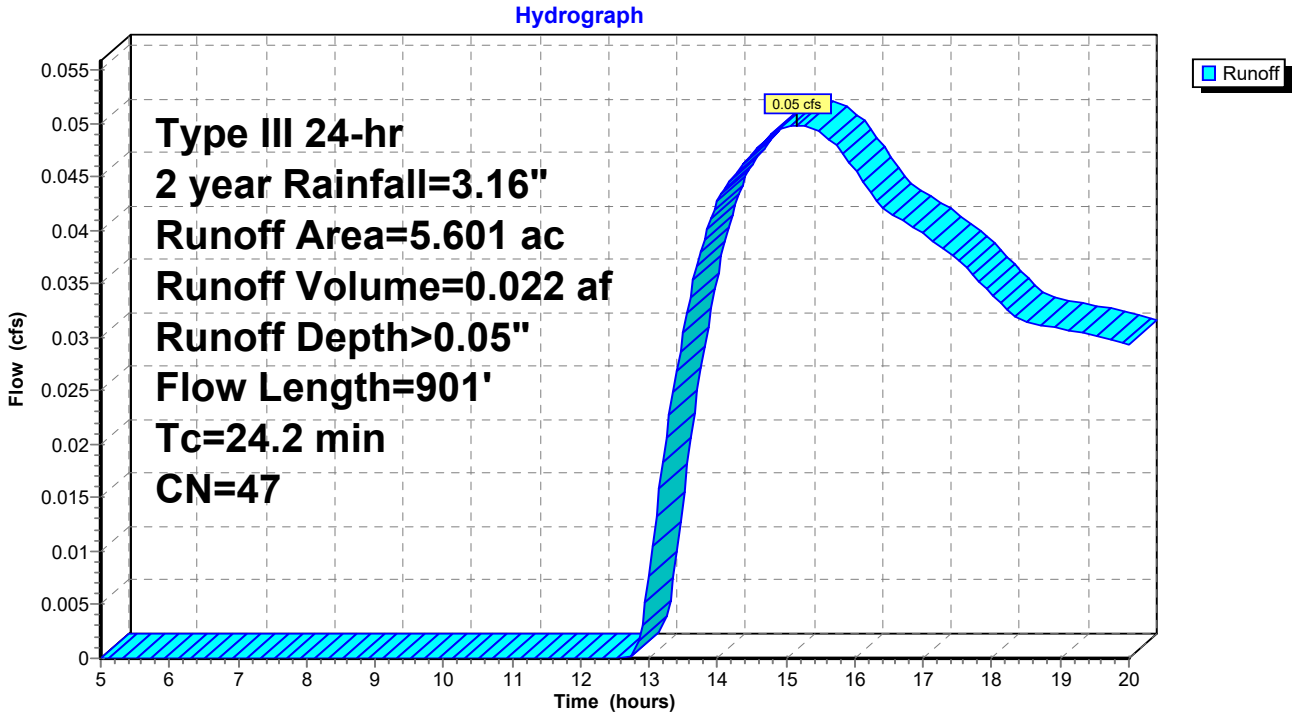
Runoff = 0.05 cfs @ 15.16 hrs, Volume= 0.022 af, Depth> 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.16"

Area (ac)	CN	Description
3.824	39	>75% Grass cover, Good, HSG A
1.603	61	>75% Grass cover, Good, HSG B
0.123	98	Roofs, HSG B
0.050	81	Row crops, straight row, Poor, HSG B
5.601	47	Weighted Average
5.477		97.80% Pervious Area
0.123		2.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	50	0.1400	0.29		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 3.16"
3.7	237	0.0230	1.06		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.1	393	0.0051	0.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.5	221	0.0136	0.82		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.2	901	Total			

Subcatchment 3: Subcat 3

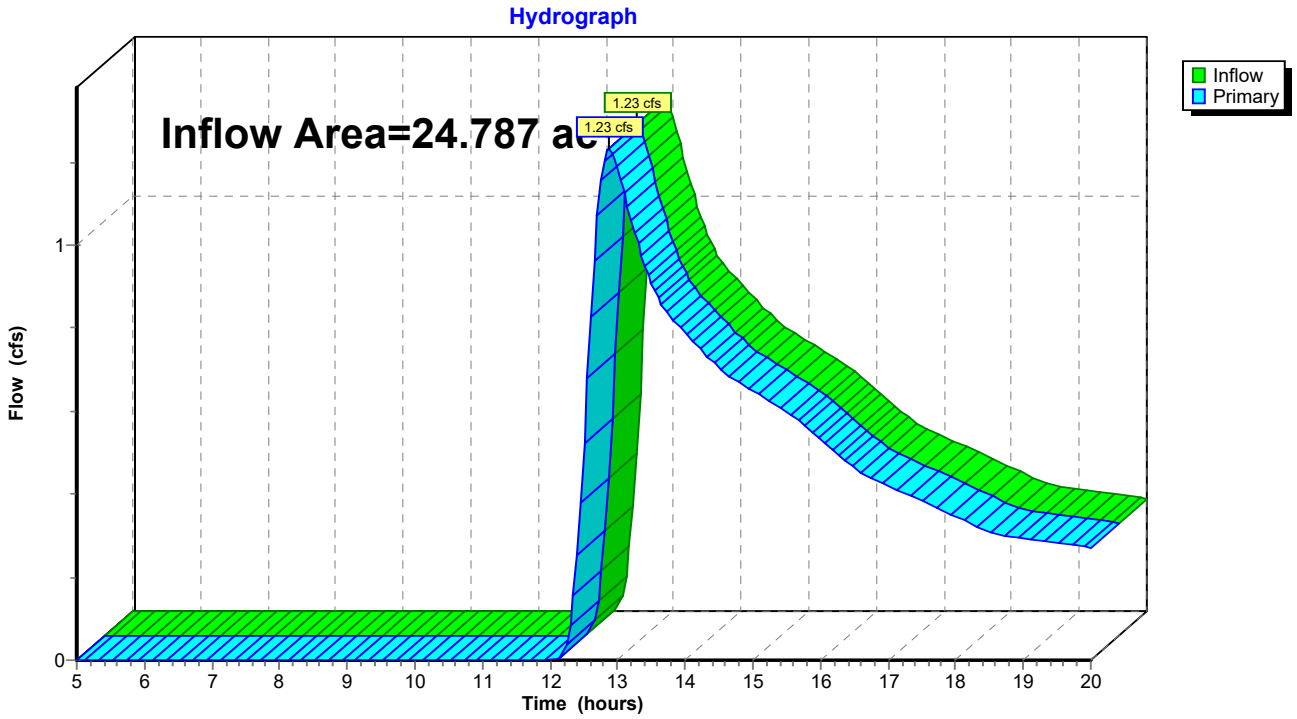


Summary for Link DP1: DP1

Inflow Area = 24.787 ac, 0.42% Impervious, Inflow Depth > 0.17" for 2 year event
Inflow = 1.23 cfs @ 12.87 hrs, Volume= 0.353 af
Primary = 1.23 cfs @ 12.87 hrs, Volume= 0.353 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP1: DP1

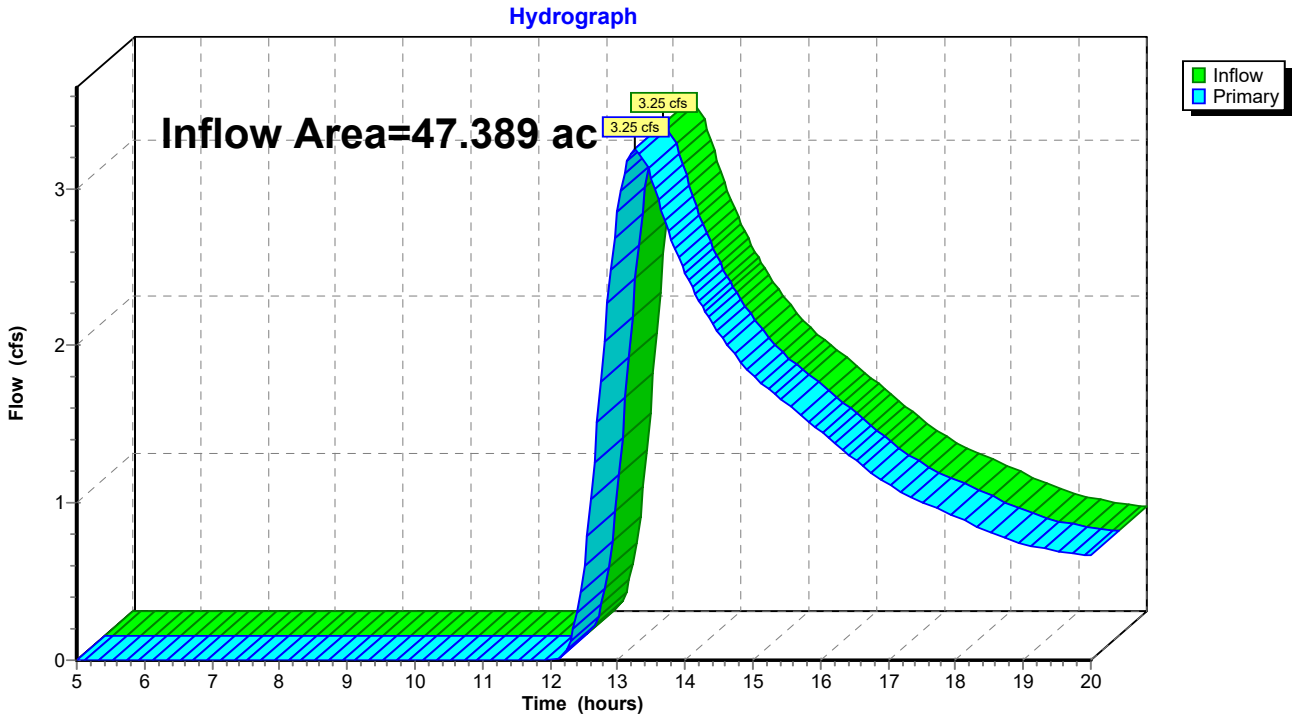


Summary for Link DP2: DP2

Inflow Area = 47.389 ac, 4.08% Impervious, Inflow Depth > 0.24" for 2 year event
Inflow = 3.25 cfs @ 13.26 hrs, Volume= 0.946 af
Primary = 3.25 cfs @ 13.26 hrs, Volume= 0.946 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP2: DP2

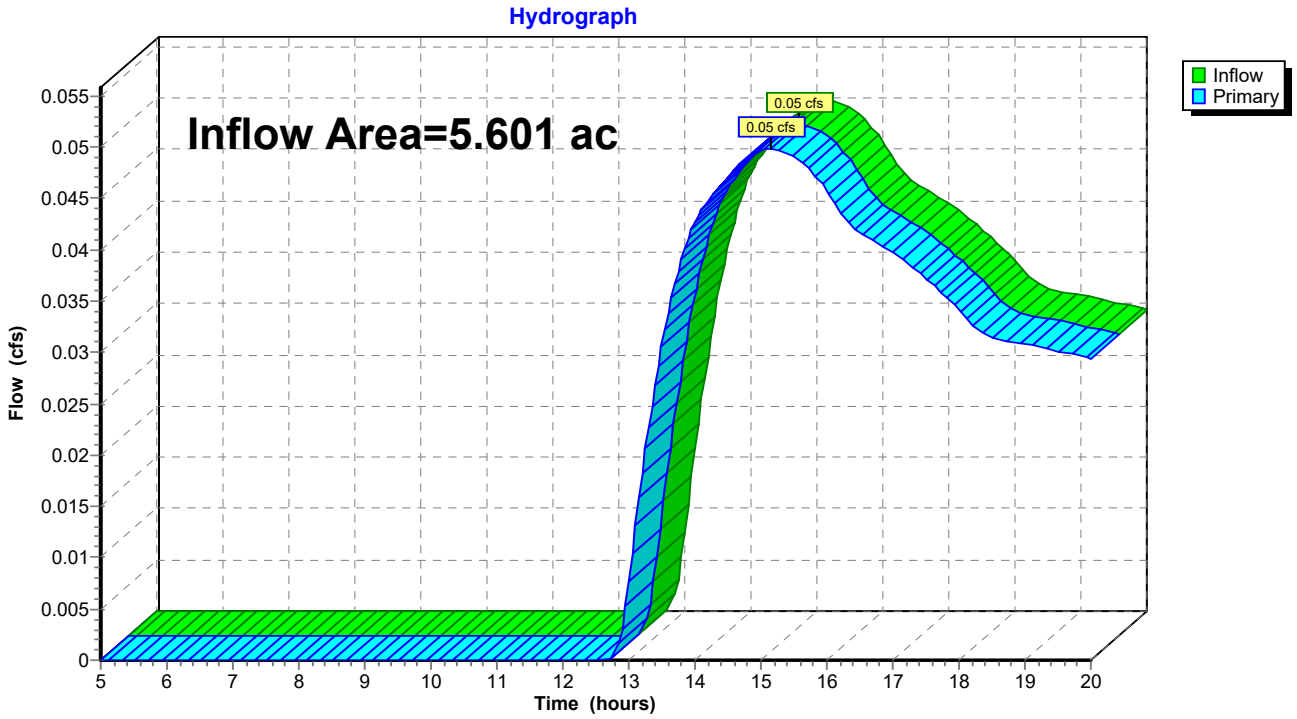


Summary for Link DP3: DP3

Inflow Area = 5.601 ac, 2.20% Impervious, Inflow Depth > 0.05" for 2 year event
Inflow = 0.05 cfs @ 15.16 hrs, Volume= 0.022 af
Primary = 0.05 cfs @ 15.16 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP3: DP3



25-Year Storm Event – Existing

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Subcat 1 Runoff Area=24.787 ac 0.42% Impervious Runoff Depth>1.36"
Flow Length=1,823' Tc=38.9 min CN=54 Runoff=19.63 cfs 2.801 af

Subcatchment2: Subcat 2 Runoff Area=47.389 ac 4.08% Impervious Runoff Depth>1.56"
Flow Length=3,408' Tc=68.9 min CN=57 Runoff=32.42 cfs 6.158 af

Subcatchment3: Subcat 3 Runoff Area=5.601 ac 2.20% Impervious Runoff Depth>0.88"
Flow Length=901' Tc=24.2 min CN=47 Runoff=3.01 cfs 0.409 af

Link DP1: DP1 Inflow=19.63 cfs 2.801 af
Primary=19.63 cfs 2.801 af

Link DP2: DP2 Inflow=32.42 cfs 6.158 af
Primary=32.42 cfs 6.158 af

Link DP3: DP3 Inflow=3.01 cfs 0.409 af
Primary=3.01 cfs 0.409 af

Total Runoff Area = 77.777 ac Runoff Volume = 9.367 af Average Runoff Depth = 1.45"
97.22% Pervious = 75.614 ac 2.78% Impervious = 2.162 ac

Summary for Subcatchment 1: Subcat 1

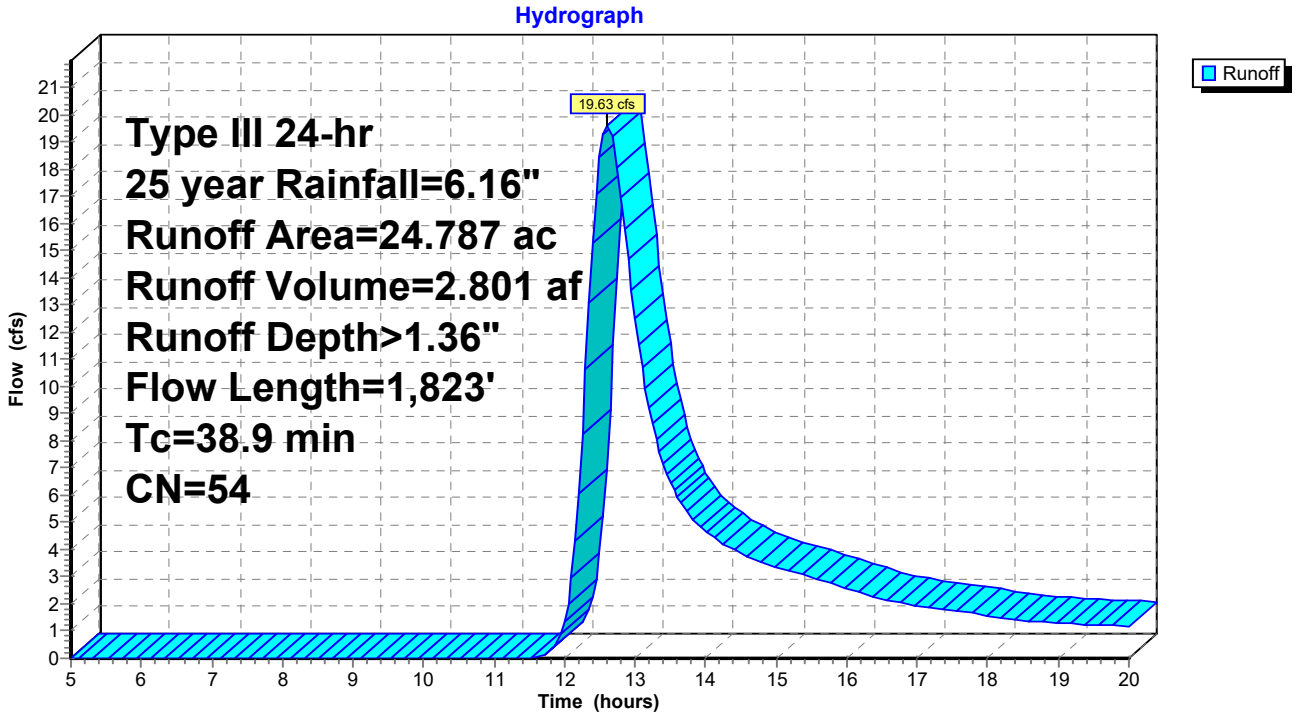
Runoff = 19.63 cfs @ 12.61 hrs, Volume= 2.801 af, Depth> 1.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=6.16"

Area (ac)	CN	Description
8.771	39	>75% Grass cover, Good, HSG A
14.632	61	>75% Grass cover, Good, HSG B
0.825	86	Fallow, bare soil, HSG B
0.105	98	Roofs, HSG B
0.000	81	Row crops, straight row, Poor, HSG B
0.454	60	Woods, Fair, HSG B
24.787	54	Weighted Average
24.682		99.58% Pervious Area
0.105		0.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.16"
3.9	317	0.0379	1.36		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.5	465	0.0170	0.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.3	203	0.0440	1.47		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.9	788	0.0089	0.66		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
38.9	1,823	Total			

Subcatchment 1: Subcat 1



Summary for Subcatchment 2: Subcat 2

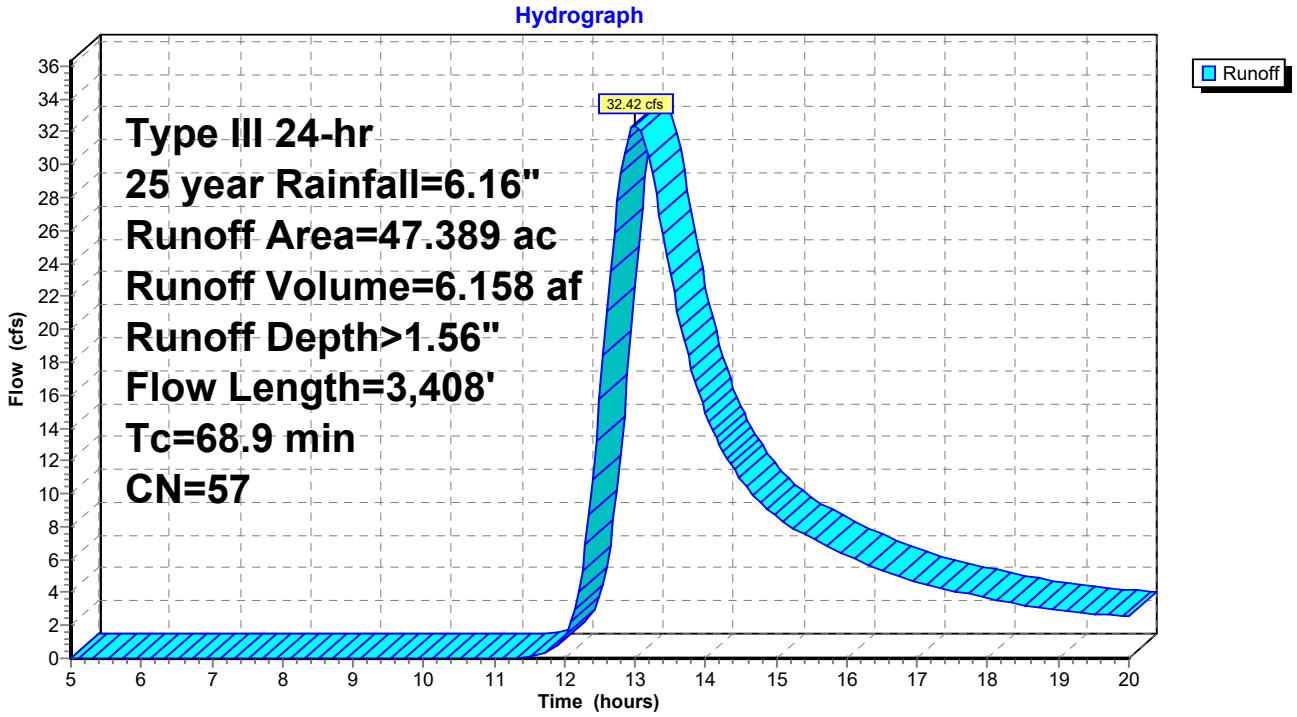
Runoff = 32.42 cfs @ 13.00 hrs, Volume= 6.158 af, Depth> 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=6.16"

Area (ac)	CN	Description
11.555	39	>75% Grass cover, Good, HSG A
24.443	61	>75% Grass cover, Good, HSG B
1.077	98	Paved parking, HSG B
0.015	98	Roofs, HSG A
0.842	98	Roofs, HSG B
0.000	81	Row crops, straight row, Poor, HSG B
0.002	36	Woods, Fair, HSG A
9.455	60	Woods, Fair, HSG B
47.389	57	Weighted Average
45.455		95.92% Pervious Area
1.934		4.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0600	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.16"
2.3	226	0.0531	1.61		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	103	0.0580	1.20		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.6	522	0.0498	1.56		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.8	502	0.0359	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.5	1,317	0.0121	0.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.3	688	0.0131	0.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
68.9	3,408	Total			

Subcatchment 2: Subcat 2



Summary for Subcatchment 3: Subcat 3

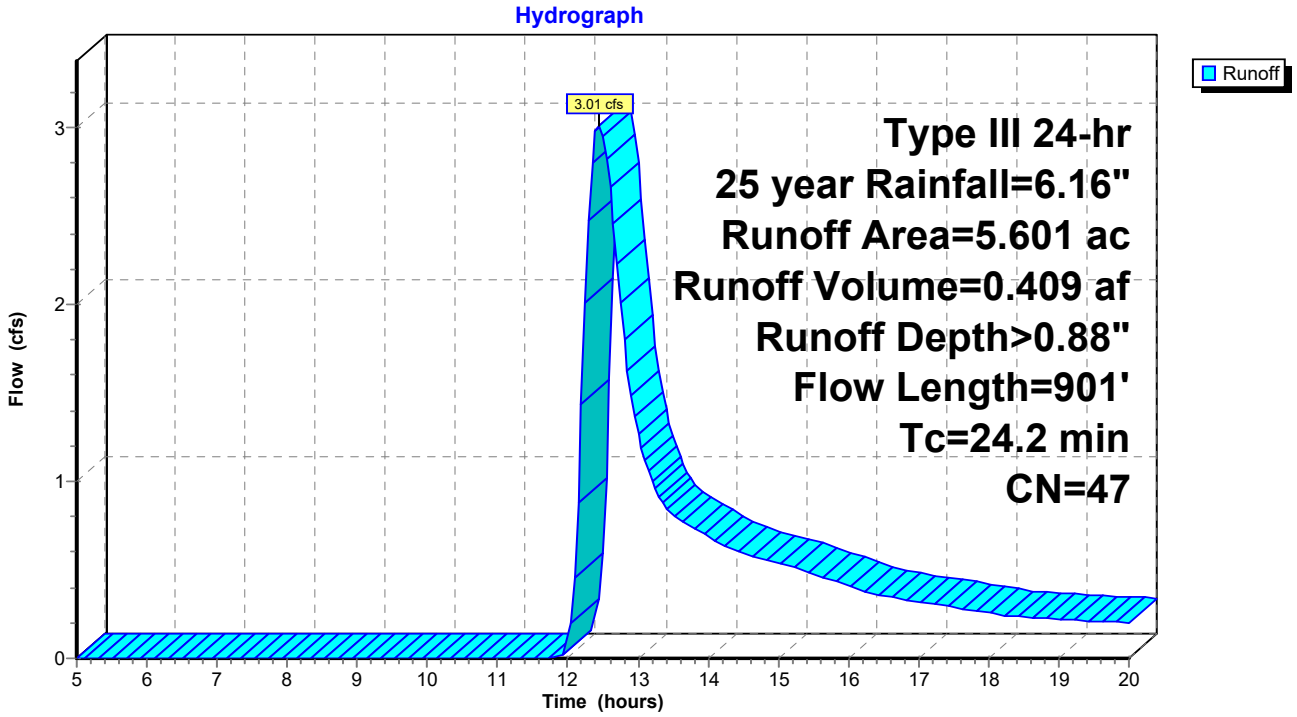
Runoff = 3.01 cfs @ 12.44 hrs, Volume= 0.409 af, Depth> 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=6.16"

Area (ac)	CN	Description
3.824	39	>75% Grass cover, Good, HSG A
1.603	61	>75% Grass cover, Good, HSG B
0.123	98	Roofs, HSG B
0.050	81	Row crops, straight row, Poor, HSG B
5.601	47	Weighted Average
5.477		97.80% Pervious Area
0.123		2.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	50	0.1400	0.29		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 3.16"
3.7	237	0.0230	1.06		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.1	393	0.0051	0.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.5	221	0.0136	0.82		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.2	901	Total			

Subcatchment 3: Subcat 3

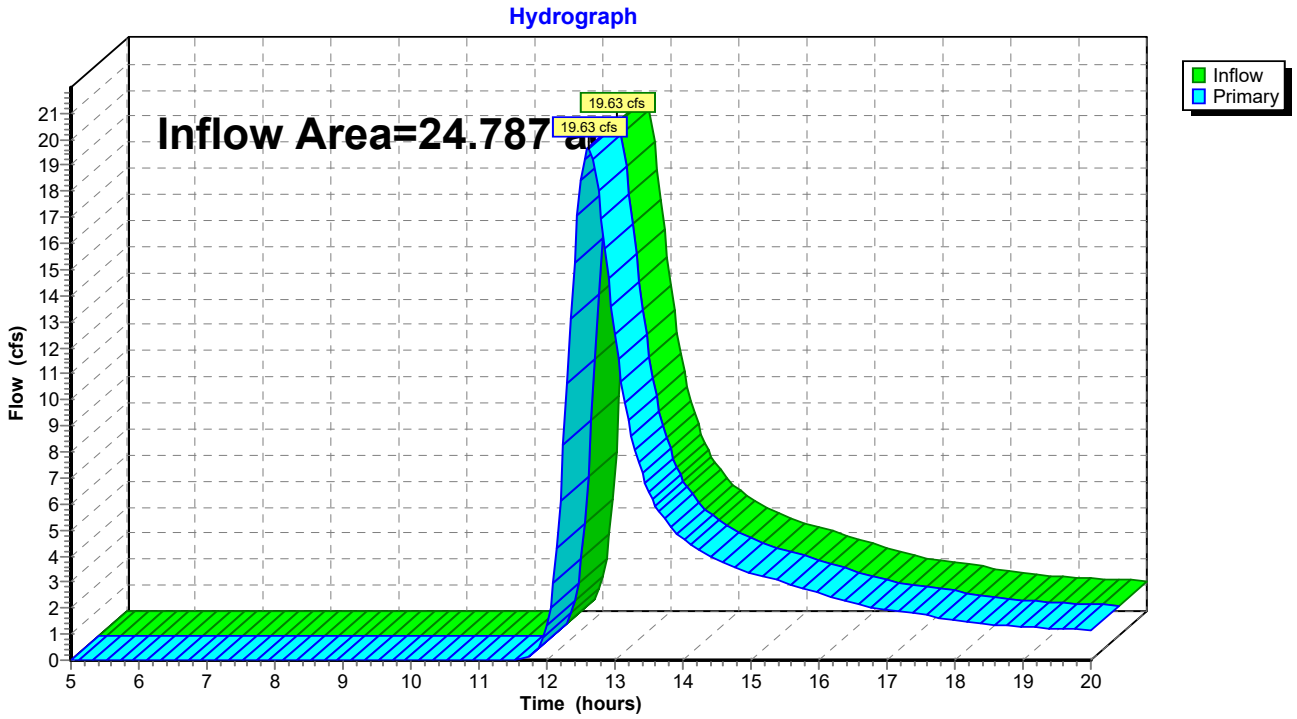


Summary for Link DP1: DP1

Inflow Area = 24.787 ac, 0.42% Impervious, Inflow Depth > 1.36" for 25 year event
Inflow = 19.63 cfs @ 12.61 hrs, Volume= 2.801 af
Primary = 19.63 cfs @ 12.61 hrs, Volume= 2.801 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP1: DP1

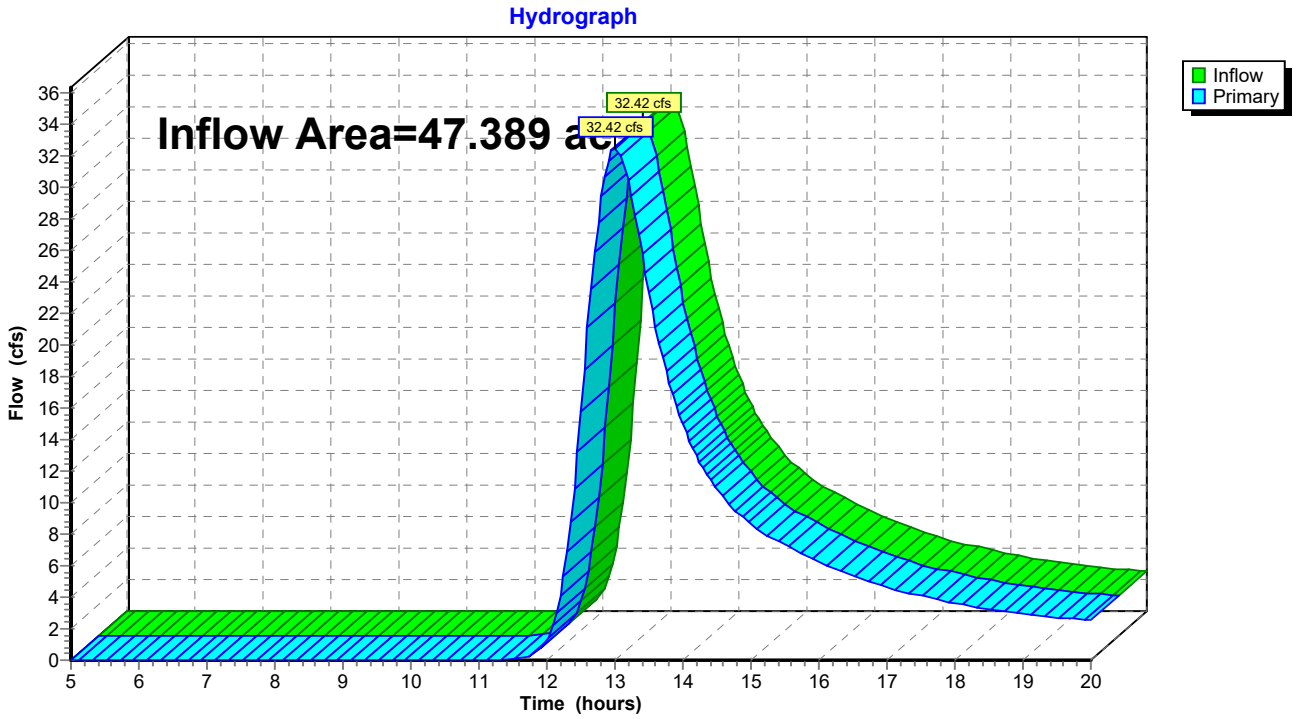


Summary for Link DP2: DP2

Inflow Area = 47.389 ac, 4.08% Impervious, Inflow Depth > 1.56" for 25 year event
Inflow = 32.42 cfs @ 13.00 hrs, Volume= 6.158 af
Primary = 32.42 cfs @ 13.00 hrs, Volume= 6.158 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP2: DP2

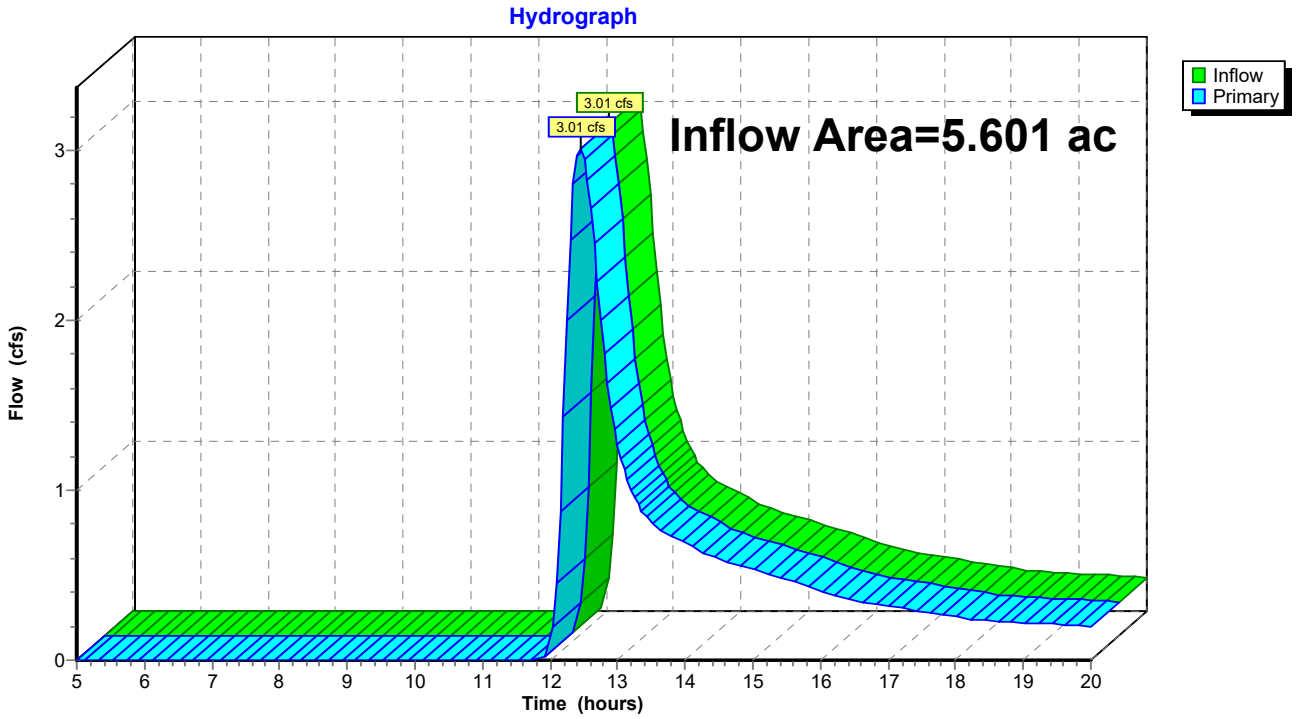


Summary for Link DP3: DP3

Inflow Area = 5.601 ac, 2.20% Impervious, Inflow Depth > 0.88" for 25 year event
Inflow = 3.01 cfs @ 12.44 hrs, Volume= 0.409 af
Primary = 3.01 cfs @ 12.44 hrs, Volume= 0.409 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP3: DP3



50-Year Storm Event- Existing

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Subcat 1 Runoff Area=24.787 ac 0.42% Impervious Runoff Depth>1.81"
Flow Length=1,823' Tc=38.9 min CN=54 Runoff=27.15 cfs 3.746 af

Subcatchment2: Subcat 2 Runoff Area=47.389 ac 4.08% Impervious Runoff Depth>2.05"
Flow Length=3,408' Tc=68.9 min CN=57 Runoff=43.67 cfs 8.094 af

Subcatchment3: Subcat 3 Runoff Area=5.601 ac 2.20% Impervious Runoff Depth>1.24"
Flow Length=901' Tc=24.2 min CN=47 Runoff=4.66 cfs 0.579 af

Link DP1: DP1 Inflow=27.15 cfs 3.746 af
Primary=27.15 cfs 3.746 af

Link DP2: DP2 Inflow=43.67 cfs 8.094 af
Primary=43.67 cfs 8.094 af

Link DP3: DP3 Inflow=4.66 cfs 0.579 af
Primary=4.66 cfs 0.579 af

Total Runoff Area = 77.777 ac Runoff Volume = 12.420 af Average Runoff Depth = 1.92"
97.22% Pervious = 75.614 ac 2.78% Impervious = 2.162 ac

Summary for Subcatchment 1: Subcat 1

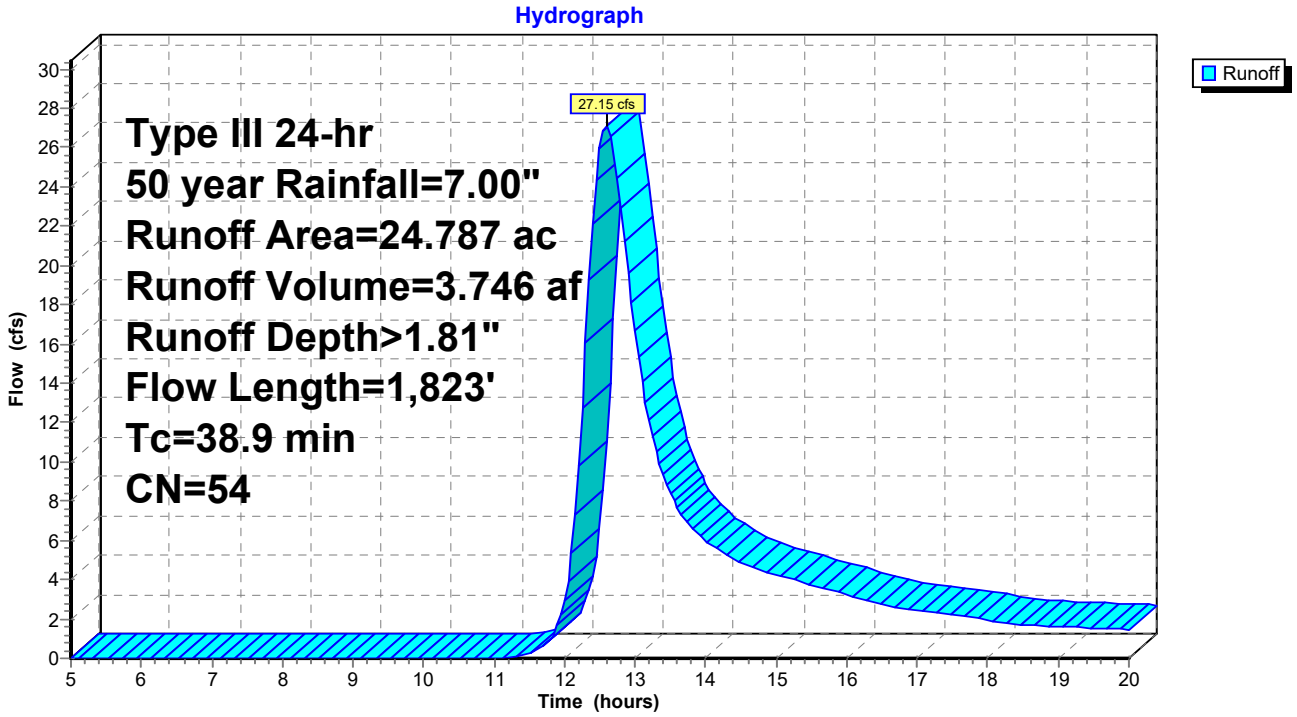
Runoff = 27.15 cfs @ 12.60 hrs, Volume= 3.746 af, Depth> 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 year Rainfall=7.00"

Area (ac)	CN	Description
8.771	39	>75% Grass cover, Good, HSG A
14.632	61	>75% Grass cover, Good, HSG B
0.825	86	Fallow, bare soil, HSG B
0.105	98	Roofs, HSG B
0.000	81	Row crops, straight row, Poor, HSG B
0.454	60	Woods, Fair, HSG B
24.787	54	Weighted Average
24.682		99.58% Pervious Area
0.105		0.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.16"
3.9	317	0.0379	1.36		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.5	465	0.0170	0.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.3	203	0.0440	1.47		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.9	788	0.0089	0.66		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
38.9	1,823	Total			

Subcatchment 1: Subcat 1



Summary for Subcatchment 2: Subcat 2

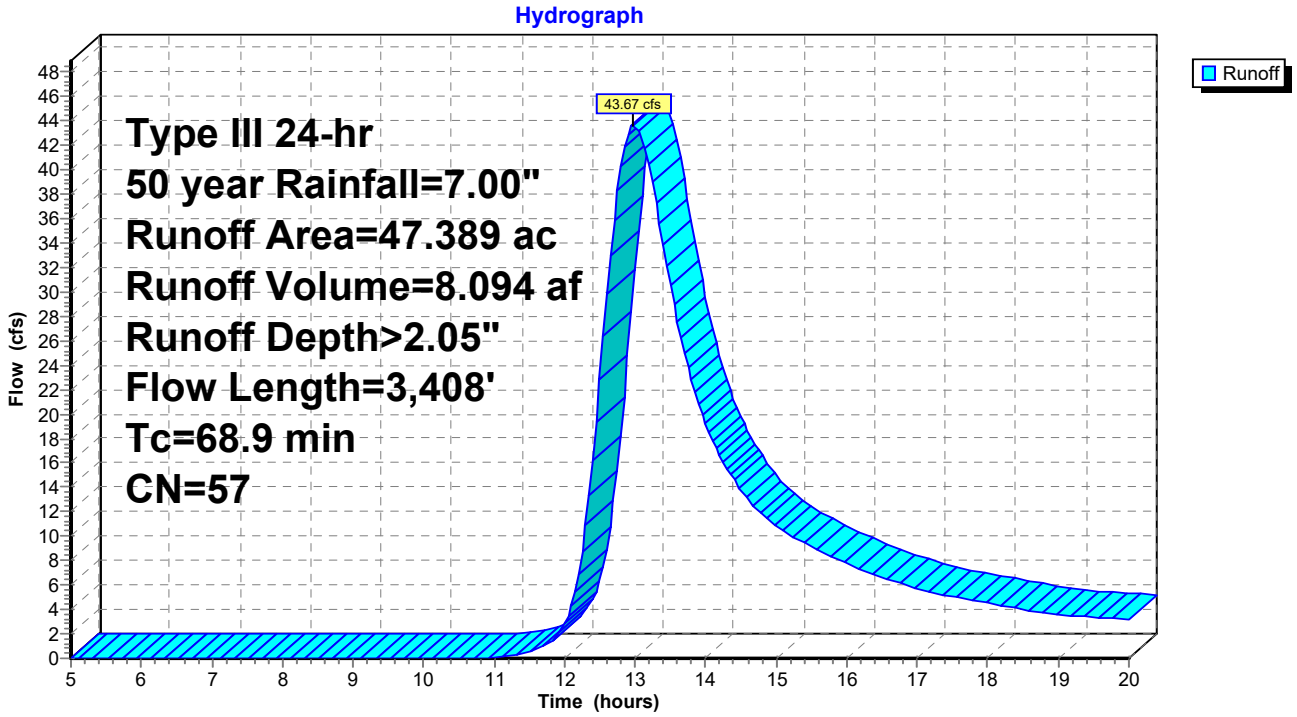
Runoff = 43.67 cfs @ 12.98 hrs, Volume= 8.094 af, Depth> 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 year Rainfall=7.00"

Area (ac)	CN	Description
11.555	39	>75% Grass cover, Good, HSG A
24.443	61	>75% Grass cover, Good, HSG B
1.077	98	Paved parking, HSG B
0.015	98	Roofs, HSG A
0.842	98	Roofs, HSG B
0.000	81	Row crops, straight row, Poor, HSG B
0.002	36	Woods, Fair, HSG A
9.455	60	Woods, Fair, HSG B
47.389	57	Weighted Average
45.455		95.92% Pervious Area
1.934		4.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0600	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.16"
2.3	226	0.0531	1.61		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	103	0.0580	1.20		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.6	522	0.0498	1.56		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.8	502	0.0359	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.5	1,317	0.0121	0.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.3	688	0.0131	0.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
68.9	3,408	Total			

Subcatchment 2: Subcat 2



Summary for Subcatchment 3: Subcat 3

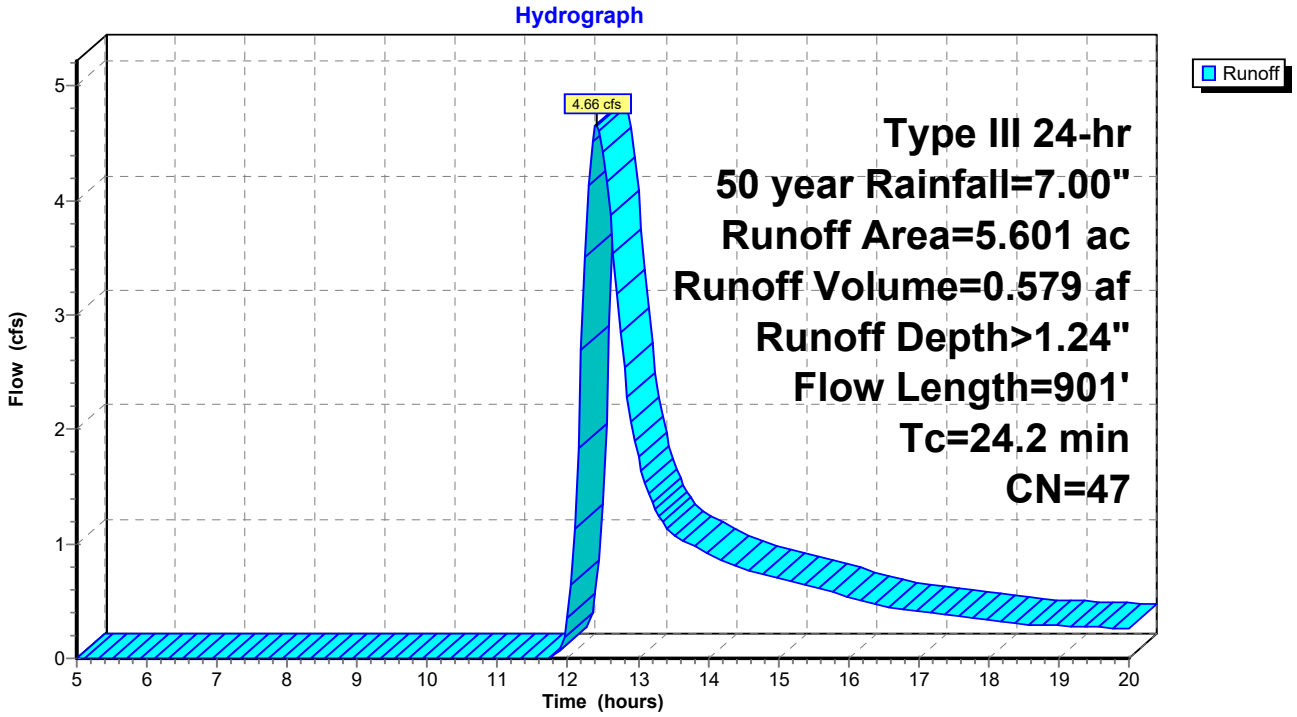
Runoff = 4.66 cfs @ 12.41 hrs, Volume= 0.579 af, Depth> 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 year Rainfall=7.00"

Area (ac)	CN	Description
3.824	39	>75% Grass cover, Good, HSG A
1.603	61	>75% Grass cover, Good, HSG B
0.123	98	Roofs, HSG B
0.050	81	Row crops, straight row, Poor, HSG B
5.601	47	Weighted Average
5.477		97.80% Pervious Area
0.123		2.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	50	0.1400	0.29		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 3.16"
3.7	237	0.0230	1.06		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.1	393	0.0051	0.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.5	221	0.0136	0.82		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.2	901	Total			

Subcatchment 3: Subcat 3

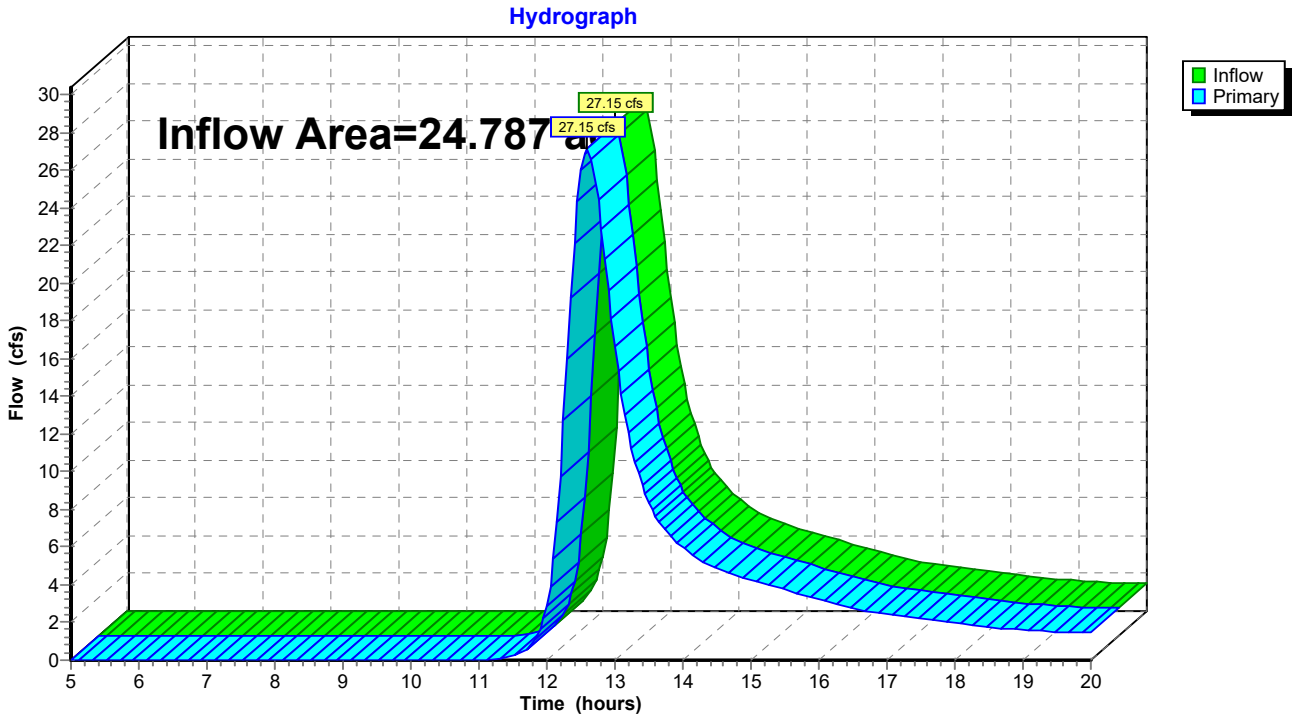


Summary for Link DP1: DP1

Inflow Area = 24.787 ac, 0.42% Impervious, Inflow Depth > 1.81" for 50 year event
Inflow = 27.15 cfs @ 12.60 hrs, Volume= 3.746 af
Primary = 27.15 cfs @ 12.60 hrs, Volume= 3.746 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP1: DP1

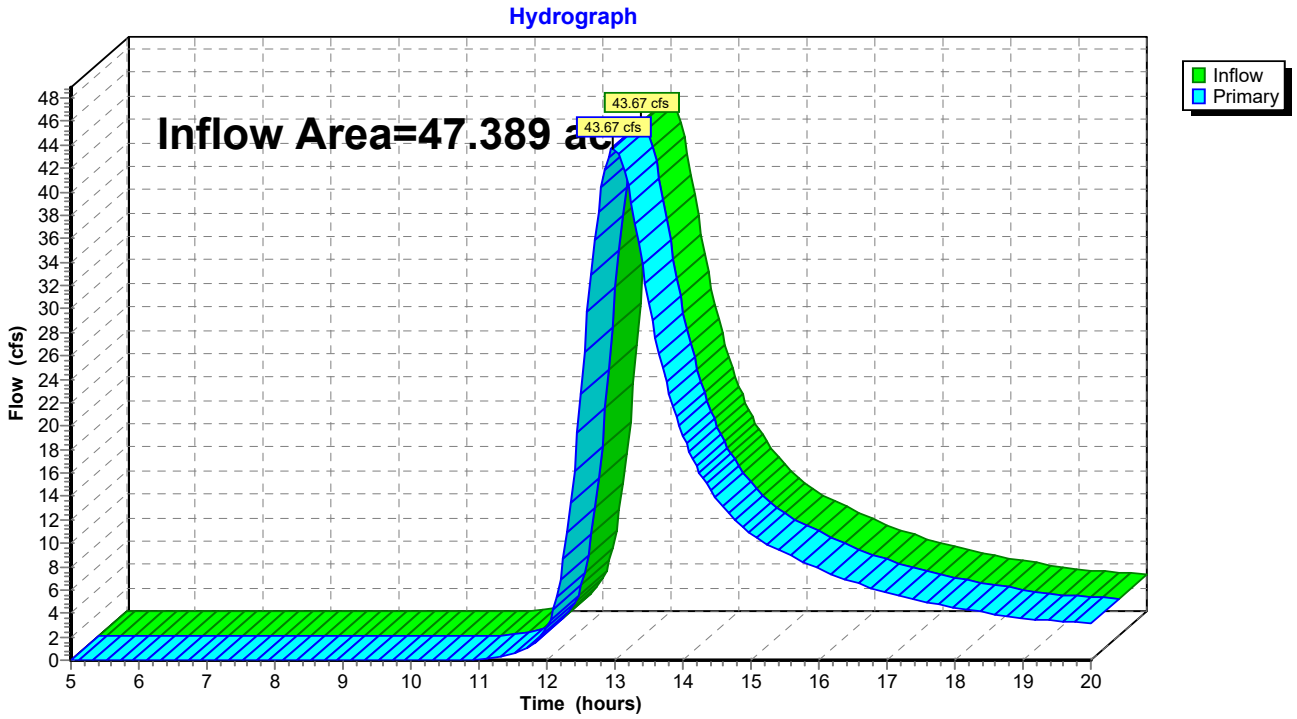


Summary for Link DP2: DP2

Inflow Area = 47.389 ac, 4.08% Impervious, Inflow Depth > 2.05" for 50 year event
Inflow = 43.67 cfs @ 12.98 hrs, Volume= 8.094 af
Primary = 43.67 cfs @ 12.98 hrs, Volume= 8.094 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP2: DP2

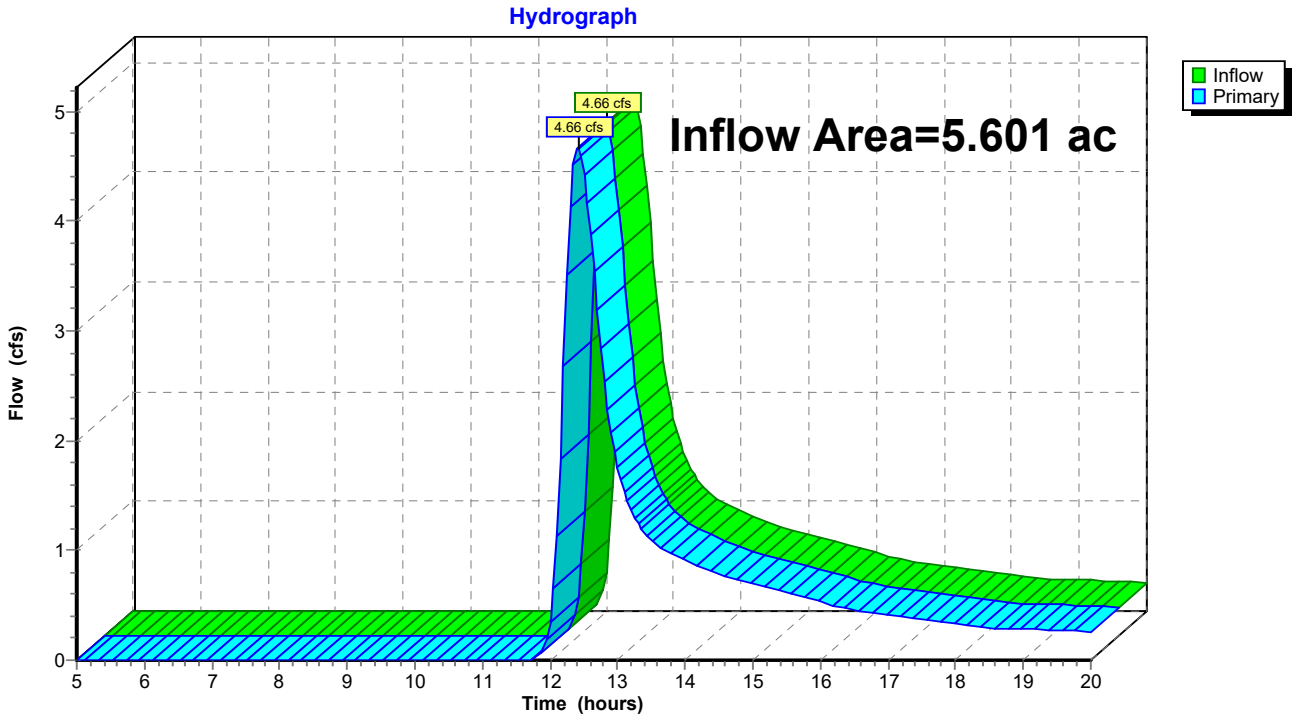


Summary for Link DP3: DP3

Inflow Area = 5.601 ac, 2.20% Impervious, Inflow Depth > 1.24" for 50 year event
Inflow = 4.66 cfs @ 12.41 hrs, Volume= 0.579 af
Primary = 4.66 cfs @ 12.41 hrs, Volume= 0.579 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP3: DP3



100-Year Storm Event – Existing

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Subcat 1 Runoff Area=24.787 ac 0.42% Impervious Runoff Depth>2.37"
Flow Length=1,823' Tc=38.9 min CN=54 Runoff=36.26 cfs 4.897 af

Subcatchment2: Subcat 2 Runoff Area=47.389 ac 4.08% Impervious Runoff Depth>2.64"
Flow Length=3,408' Tc=68.9 min CN=57 Runoff=57.23 cfs 10.427 af

Subcatchment3: Subcat 3 Runoff Area=5.601 ac 2.20% Impervious Runoff Depth>1.70"
Flow Length=901' Tc=24.2 min CN=47 Runoff=6.76 cfs 0.792 af

Link DP1: DP1 Inflow=36.26 cfs 4.897 af
Primary=36.26 cfs 4.897 af

Link DP2: DP2 Inflow=57.23 cfs 10.427 af
Primary=57.23 cfs 10.427 af

Link DP3: DP3 Inflow=6.76 cfs 0.792 af
Primary=6.76 cfs 0.792 af

Total Runoff Area = 77.777 ac Runoff Volume = 16.116 af Average Runoff Depth = 2.49"
97.22% Pervious = 75.614 ac 2.78% Impervious = 2.162 ac

Summary for Subcatchment 1: Subcat 1

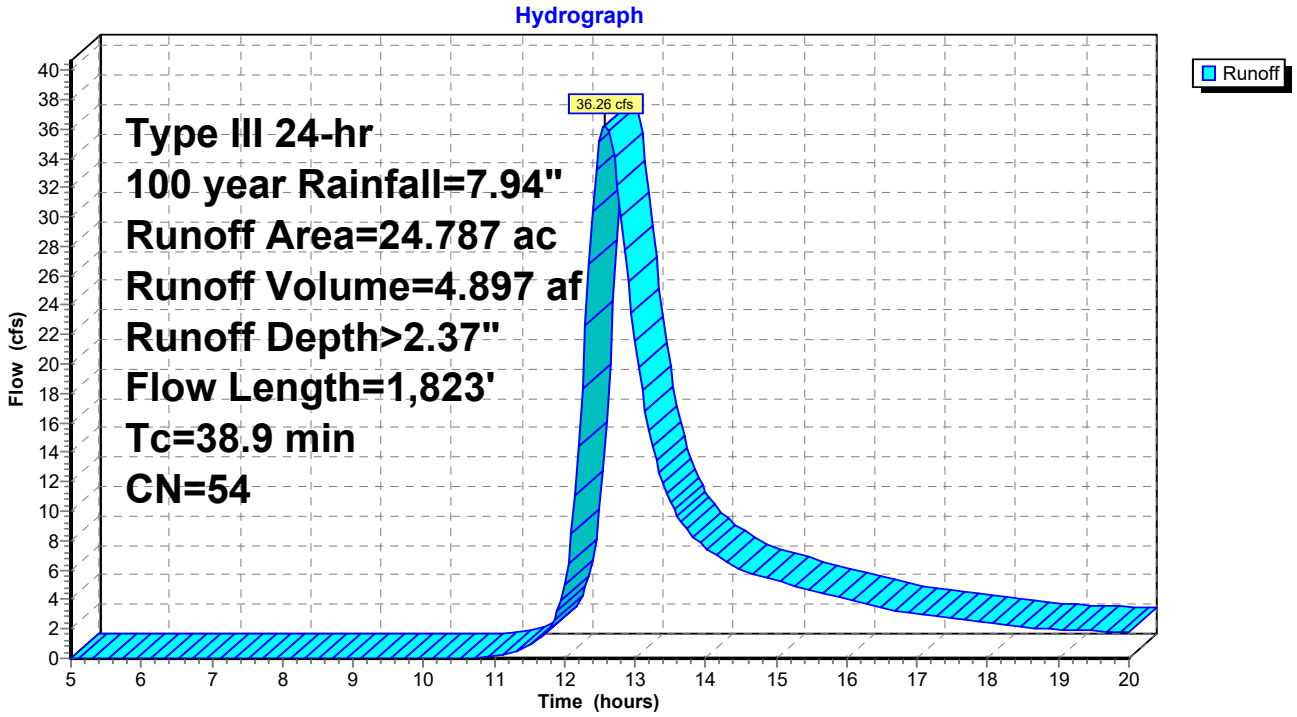
Runoff = 36.26 cfs @ 12.58 hrs, Volume= 4.897 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.94"

Area (ac)	CN	Description
8.771	39	>75% Grass cover, Good, HSG A
14.632	61	>75% Grass cover, Good, HSG B
0.825	86	Fallow, bare soil, HSG B
0.105	98	Roofs, HSG B
0.000	81	Row crops, straight row, Poor, HSG B
0.454	60	Woods, Fair, HSG B
24.787	54	Weighted Average
24.682		99.58% Pervious Area
0.105		0.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.16"
3.9	317	0.0379	1.36		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.5	465	0.0170	0.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.3	203	0.0440	1.47		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.9	788	0.0089	0.66		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
38.9	1,823	Total			

Subcatchment 1: Subcat 1



Summary for Subcatchment 2: Subcat 2

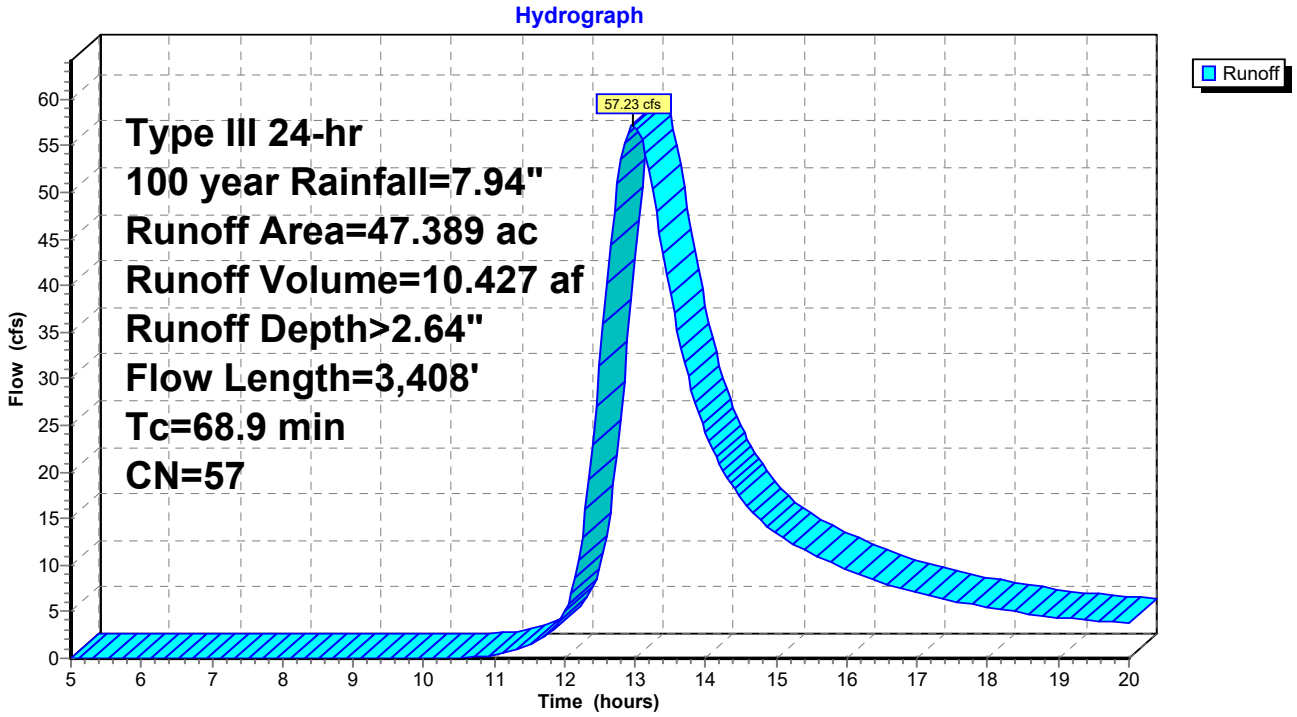
Runoff = 57.23 cfs @ 12.97 hrs, Volume= 10.427 af, Depth> 2.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.94"

Area (ac)	CN	Description
11.555	39	>75% Grass cover, Good, HSG A
24.443	61	>75% Grass cover, Good, HSG B
1.077	98	Paved parking, HSG B
0.015	98	Roofs, HSG A
0.842	98	Roofs, HSG B
0.000	81	Row crops, straight row, Poor, HSG B
0.002	36	Woods, Fair, HSG A
9.455	60	Woods, Fair, HSG B
47.389	57	Weighted Average
45.455		95.92% Pervious Area
1.934		4.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0600	0.10		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.16"
2.3	226	0.0531	1.61		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.4	103	0.0580	1.20		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.6	522	0.0498	1.56		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.8	502	0.0359	0.95		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
28.5	1,317	0.0121	0.77		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
14.3	688	0.0131	0.80		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
68.9	3,408	Total			

Subcatchment 2: Subcat 2



Summary for Subcatchment 3: Subcat 3

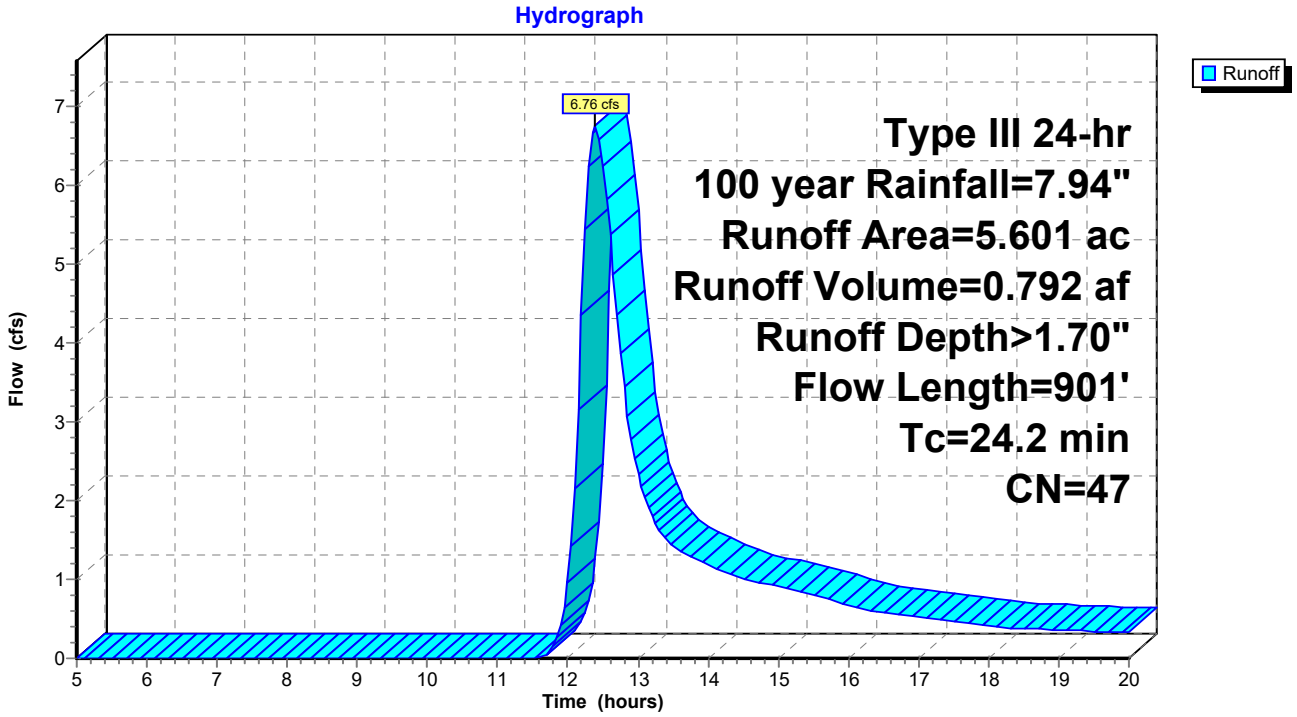
Runoff = 6.76 cfs @ 12.39 hrs, Volume= 0.792 af, Depth> 1.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.94"

Area (ac)	CN	Description
3.824	39	>75% Grass cover, Good, HSG A
1.603	61	>75% Grass cover, Good, HSG B
0.123	98	Roofs, HSG B
0.050	81	Row crops, straight row, Poor, HSG B
5.601	47	Weighted Average
5.477		97.80% Pervious Area
0.123		2.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	50	0.1400	0.29		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 3.16"
3.7	237	0.0230	1.06		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.1	393	0.0051	0.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.5	221	0.0136	0.82		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.2	901	Total			

Subcatchment 3: Subcat 3

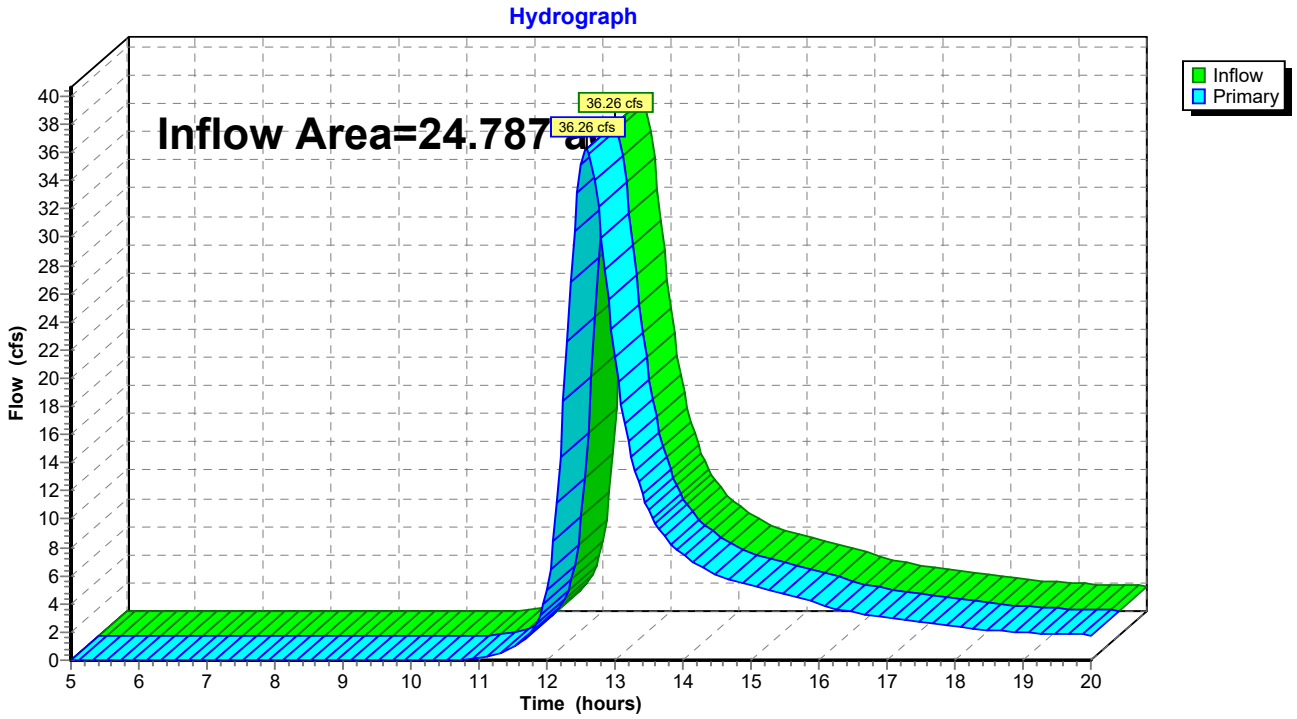


Summary for Link DP1: DP1

Inflow Area = 24.787 ac, 0.42% Impervious, Inflow Depth > 2.37" for 100 year event
Inflow = 36.26 cfs @ 12.58 hrs, Volume= 4.897 af
Primary = 36.26 cfs @ 12.58 hrs, Volume= 4.897 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP1: DP1

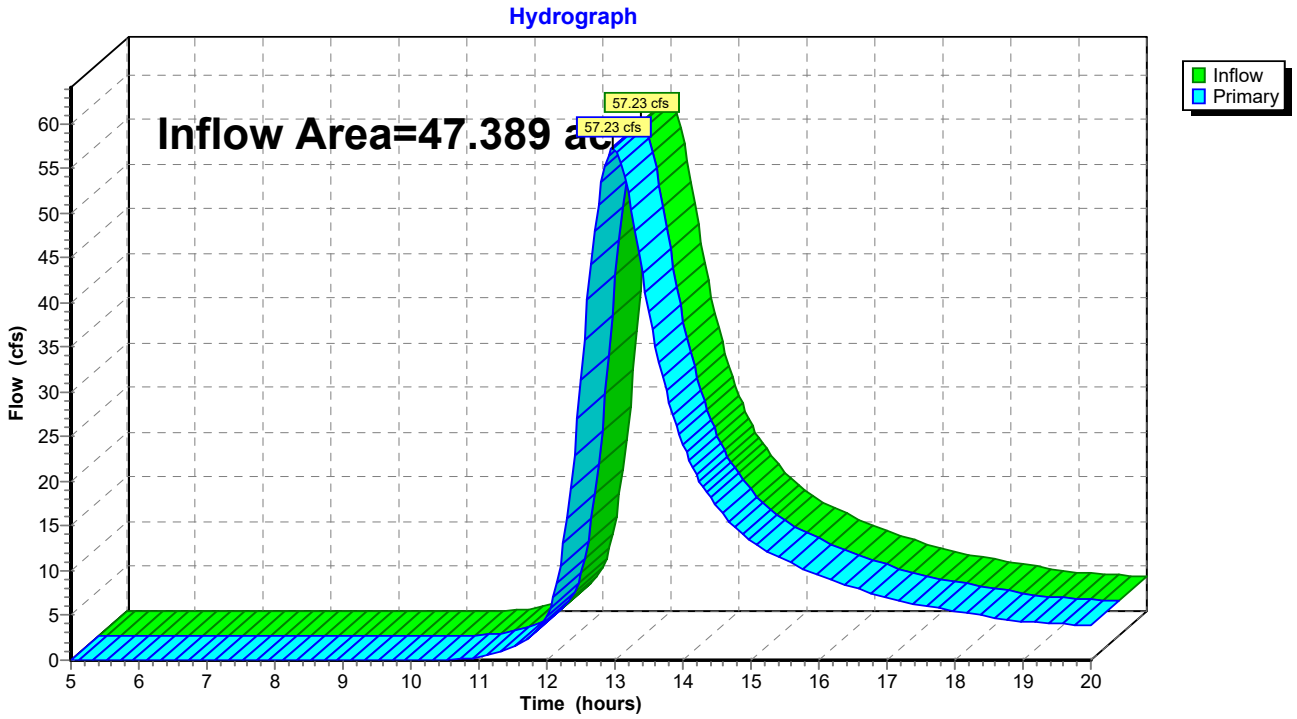


Summary for Link DP2: DP2

Inflow Area = 47.389 ac, 4.08% Impervious, Inflow Depth > 2.64" for 100 year event
Inflow = 57.23 cfs @ 12.97 hrs, Volume= 10.427 af
Primary = 57.23 cfs @ 12.97 hrs, Volume= 10.427 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP2: DP2

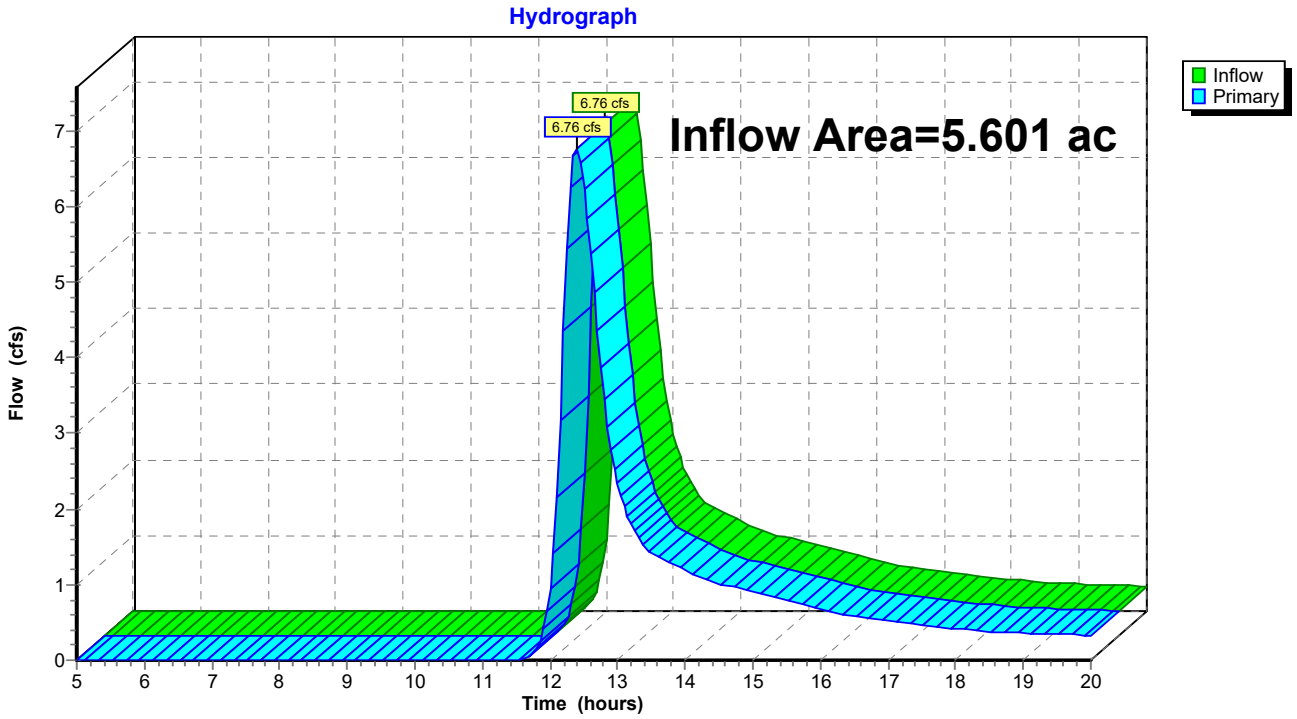


Summary for Link DP3: DP3

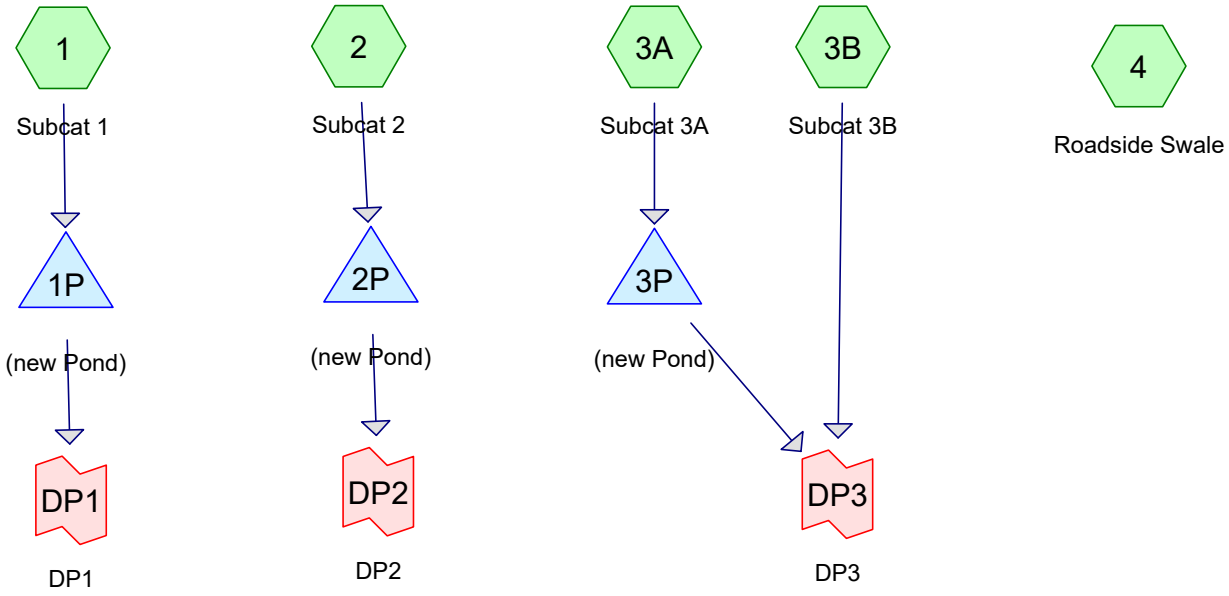
Inflow Area = 5.601 ac, 2.20% Impervious, Inflow Depth > 1.70" for 100 year event
Inflow = 6.76 cfs @ 12.39 hrs, Volume= 0.792 af
Primary = 6.76 cfs @ 12.39 hrs, Volume= 0.792 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP3: DP3



HydroCAD Analysis: Proposed Conditions



Subcat Reach Pond Link

Routing Diagram for 42518.01 HydroCAD Proposed - 2
Prepared by VHB, Printed 5/8/2020

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
8.211	68	1 acre lots, 20% imp, HSG B (4)
8.294	39	>75% Grass cover, Good, HSG A (1, 2, 3A, 3B, 4)
52.380	61	>75% Grass cover, Good, HSG B (1, 2, 3A, 3B, 4)
4.356	74	>75% Grass cover, Good, HSG C (1, 2, 3A)
0.825	86	Fallow, bare soil, HSG B (1)
0.000	76	Gravel roads, HSG A (3B)
2.518	85	Gravel roads, HSG B (1, 2, 3A, 3B, 4)
0.116	89	Gravel roads, HSG C (1)
1.077	98	Paved parking, HSG B (2)
0.015	98	Roofs, HSG A (2)
1.070	98	Roofs, HSG B (1, 2, 3A)
9.476	60	Woods, Fair, HSG B (1, 2, 4)
88.339	**62**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
8.310	HSG A	1, 2, 3A, 3B, 4
75.556	HSG B	1, 2, 3A, 3B, 4
4.473	HSG C	1, 2, 3A
0.000	HSG D	
0.000	Other	
88.339		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	8.211	0.000	0.000	0.000	8.211	1 acre lots, 20% imp	4
8.294	52.380	4.356	0.000	0.000	65.030	>75% Grass cover, Good	1, 2, 3A, 3B, 4
0.000	0.825	0.000	0.000	0.000	0.825	Fallow, bare soil	1
0.000	2.518	0.116	0.000	0.000	2.635	Gravel roads	1, 2, 3A, 3B, 4
0.000	1.077	0.000	0.000	0.000	1.077	Paved parking	2
0.015	1.070	0.000	0.000	0.000	1.086	Roofs	1, 2, 3A
0.000	9.476	0.000	0.000	0.000	9.476	Woods, Fair	1, 2, 4
8.310	**75.556**	**4.473**	**0.000**	**0.000**	**88.339**	**TOTAL AREA**	

2-Year Storm Event – Proposed

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Subcat 1 Runoff Area=24.787 ac 0.42% Impervious Runoff Depth>0.40"
Flow Length=1,823' Tc=38.9 min CN=62 Runoff=4.75 cfs 0.822 af

Subcatchment2: Subcat 2 Runoff Area=47.389 ac 4.08% Impervious Runoff Depth>0.36"
Tc=68.9 min CN=61 Runoff=5.81 cfs 1.409 af

Subcatchment3A: Subcat 3A Runoff Area=3.969 ac 3.11% Impervious Runoff Depth>0.28"
Flow Length=901' Tc=24.2 min CN=58 Runoff=0.52 cfs 0.092 af

Subcatchment3B: Subcat 3B Runoff Area=1.632 ac 0.00% Impervious Runoff Depth>0.02"
Flow Length=850' Tc=24.7 min CN=44 Runoff=0.01 cfs 0.002 af

Subcatchment4: Roadside Swale Runoff Area=10.562 ac 15.55% Impervious Runoff Depth>0.72"
Flow Length=2,983' Tc=28.0 min CN=70 Runoff=5.16 cfs 0.632 af

Pond 1P: (new Pond) Peak Elev=197.89' Storage=17,981 cf Inflow=4.75 cfs 0.822 af
Discarded=0.73 cfs 0.457 af Primary=0.00 cfs 0.000 af Outflow=0.73 cfs 0.457 af

Pond 2P: (new Pond) Peak Elev=198.24' Storage=35,083 cf Inflow=5.81 cfs 1.409 af
Discarded=1.03 cfs 0.619 af Primary=0.00 cfs 0.000 af Outflow=1.03 cfs 0.619 af

Pond 3P: (new Pond) Peak Elev=200.55' Storage=1,023 cf Inflow=0.52 cfs 0.092 af
Discarded=0.15 cfs 0.090 af Primary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.090 af

Link DP1: DP1 Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link DP2: DP2 Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Link DP3: DP3 Inflow=0.01 cfs 0.002 af
Primary=0.01 cfs 0.002 af

Total Runoff Area = 88.339 ac Runoff Volume = 2.958 af Average Runoff Depth = 0.40"
95.69% Pervious = 84.534 ac 4.31% Impervious = 3.804 ac

Summary for Subcatchment 1: Subcat 1

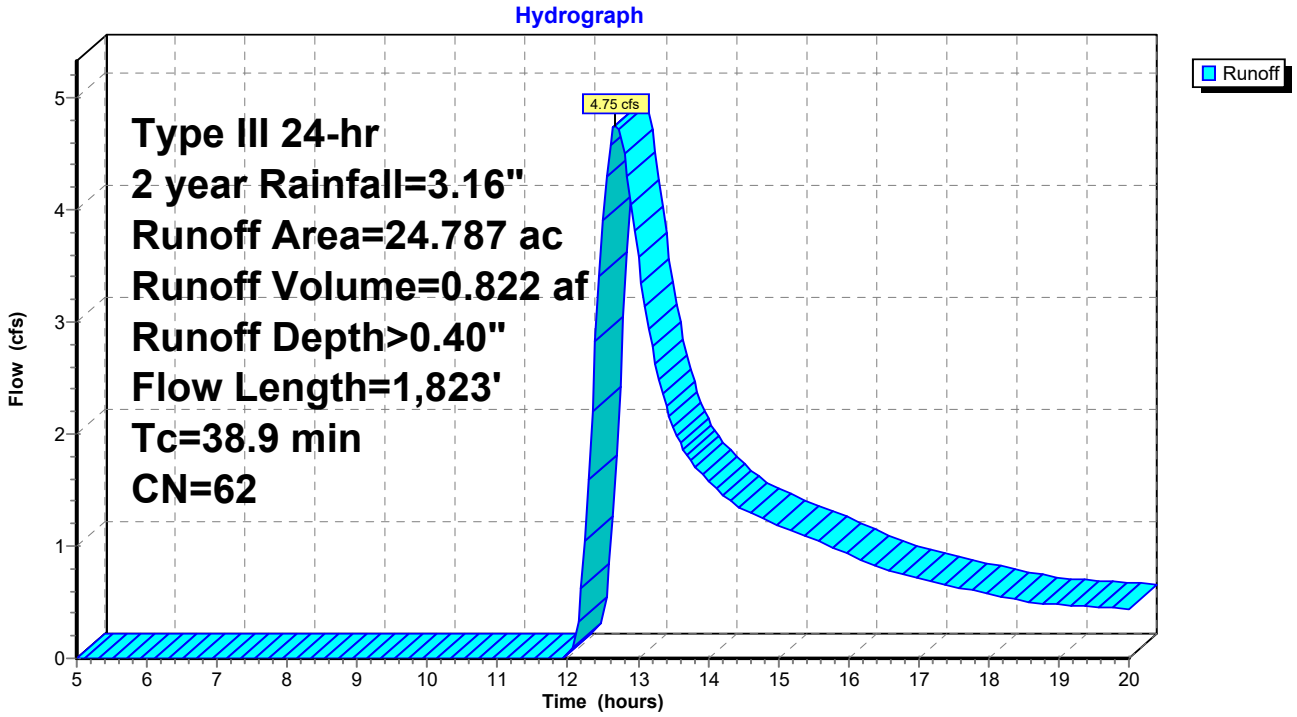
Runoff = 4.75 cfs @ 12.69 hrs, Volume= 0.822 af, Depth> 0.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.16"

Area (ac)	CN	Description
2.719	39	>75% Grass cover, Good, HSG A
16.345	61	>75% Grass cover, Good, HSG B
3.970	74	>75% Grass cover, Good, HSG C
0.825	86	Fallow, bare soil, HSG B
0.272	85	Gravel roads, HSG B
0.116	89	Gravel roads, HSG C
0.105	98	Roofs, HSG B
0.436	60	Woods, Fair, HSG B
24.787	62	Weighted Average
24.682		99.58% Pervious Area
0.105		0.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.16"
3.9	317	0.0379	1.36		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.5	465	0.0170	0.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.3	203	0.0440	1.47		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.9	788	0.0089	0.66		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
38.9	1,823	Total			

Subcatchment 1: Subcat 1



Summary for Subcatchment 2: Subcat 2

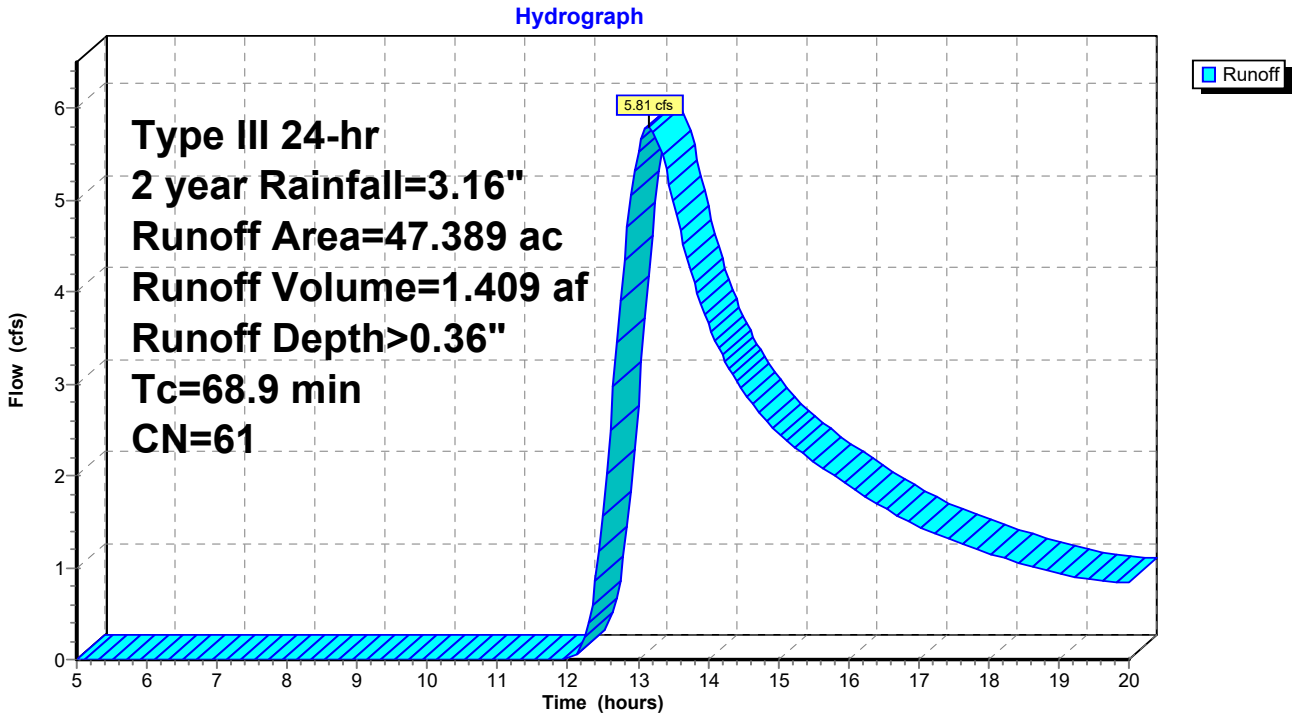
Runoff = 5.81 cfs @ 13.16 hrs, Volume= 1.409 af, Depth> 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.16"

Area (ac)	CN	Description
2.943	39	>75% Grass cover, Good, HSG A
32.892	61	>75% Grass cover, Good, HSG B
0.069	74	>75% Grass cover, Good, HSG C
0.512	85	Gravel roads, HSG B
1.077	98	Paved parking, HSG B
0.015	98	Roofs, HSG A
0.842	98	Roofs, HSG B
9.040	60	Woods, Fair, HSG B
47.389	61	Weighted Average
45.455		95.92% Pervious Area
1.934		4.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
68.9					**Direct Entry,**

Subcatchment 2: Subcat 2



Summary for Subcatchment 3A: Subcat 3A

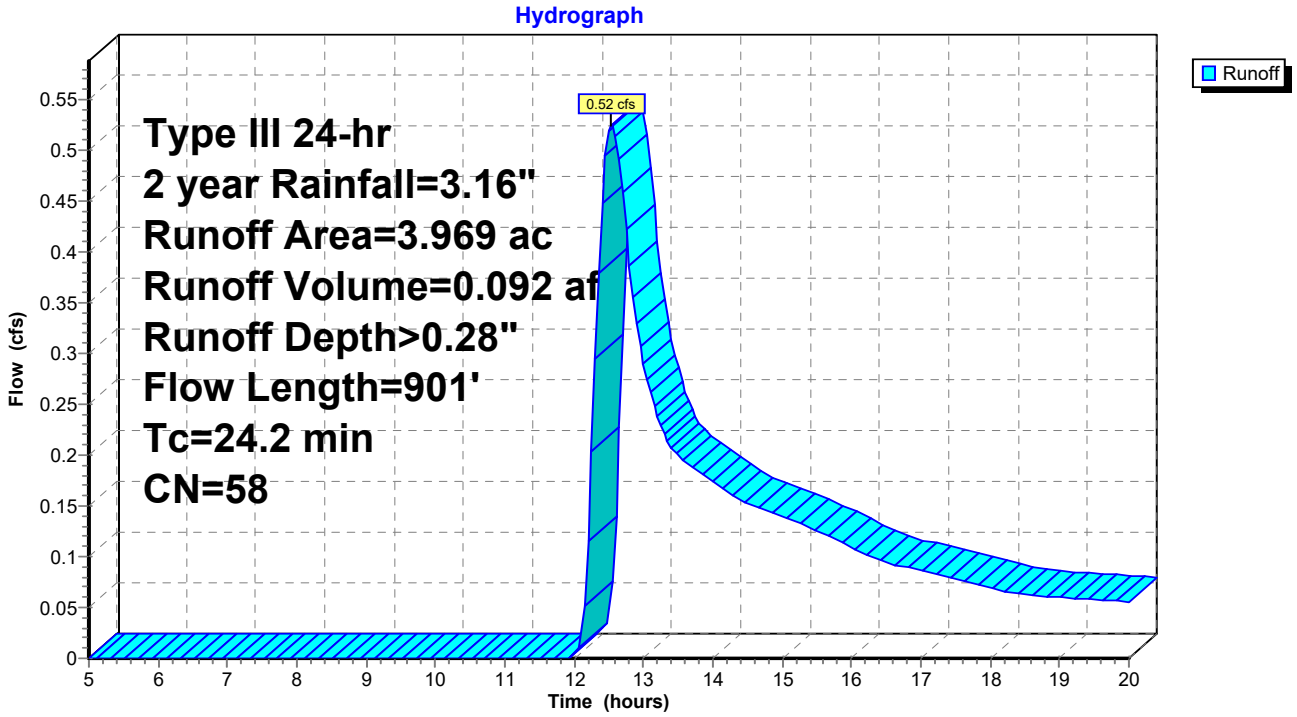
Runoff = 0.52 cfs @ 12.54 hrs, Volume= 0.092 af, Depth> 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.16"

Area (ac)	CN	Description
1.056	39	>75% Grass cover, Good, HSG A
2.393	61	>75% Grass cover, Good, HSG B
0.317	74	>75% Grass cover, Good, HSG C
0.079	85	Gravel roads, HSG B
0.123	98	Roofs, HSG B
3.969	58	Weighted Average
3.845		96.89% Pervious Area
0.123		3.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	50	0.1400	0.29		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 3.16"
3.7	237	0.0230	1.06		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.1	393	0.0051	0.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.5	221	0.0136	0.82		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.2	901	Total			

Subcatchment 3A: Subcat 3A



Summary for Subcatchment 3B: Subcat 3B

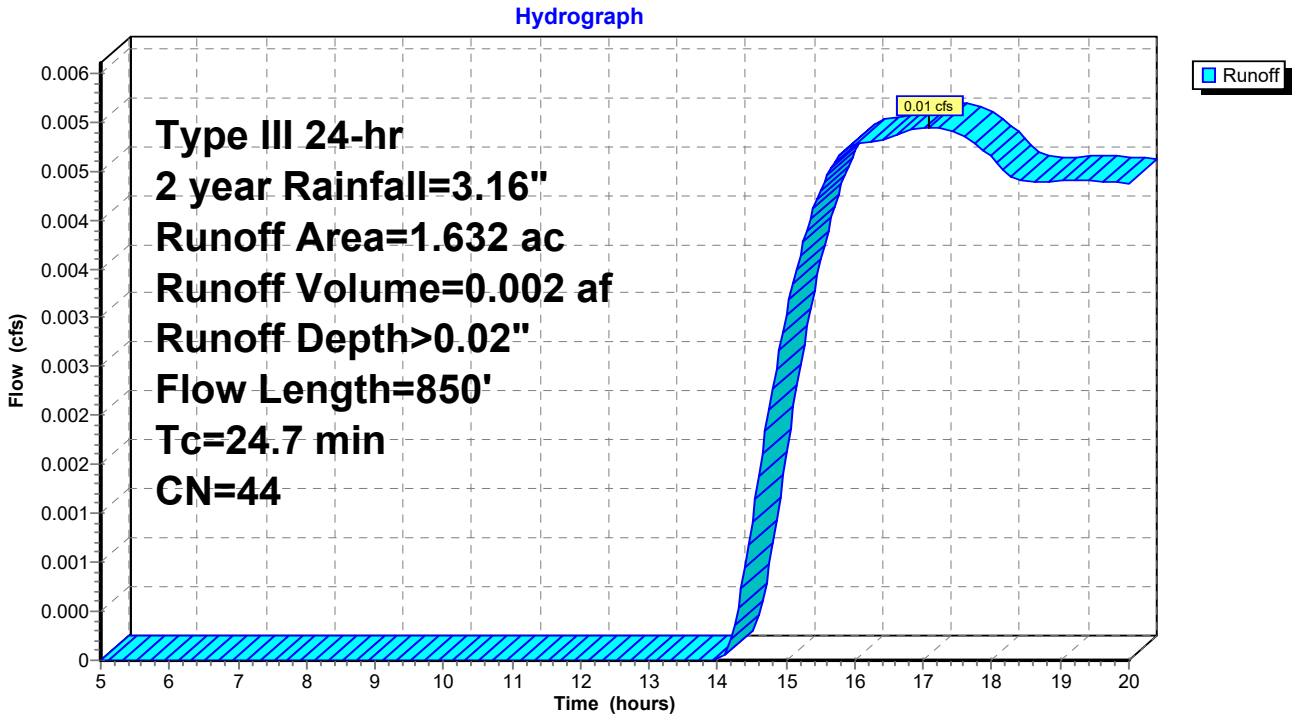
Runoff = 0.01 cfs @ 17.08 hrs, Volume= 0.002 af, Depth> 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.16"

Area (ac)	CN	Description
1.316	39	>75% Grass cover, Good, HSG A
0.279	61	>75% Grass cover, Good, HSG B
0.000	76	Gravel roads, HSG A
0.036	85	Gravel roads, HSG B
1.632	44	Weighted Average
1.632		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.16"
19.0	800	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.7	850	Total			

Subcatchment 3B: Subcat 3B



Summary for Subcatchment 4: Roadside Swale

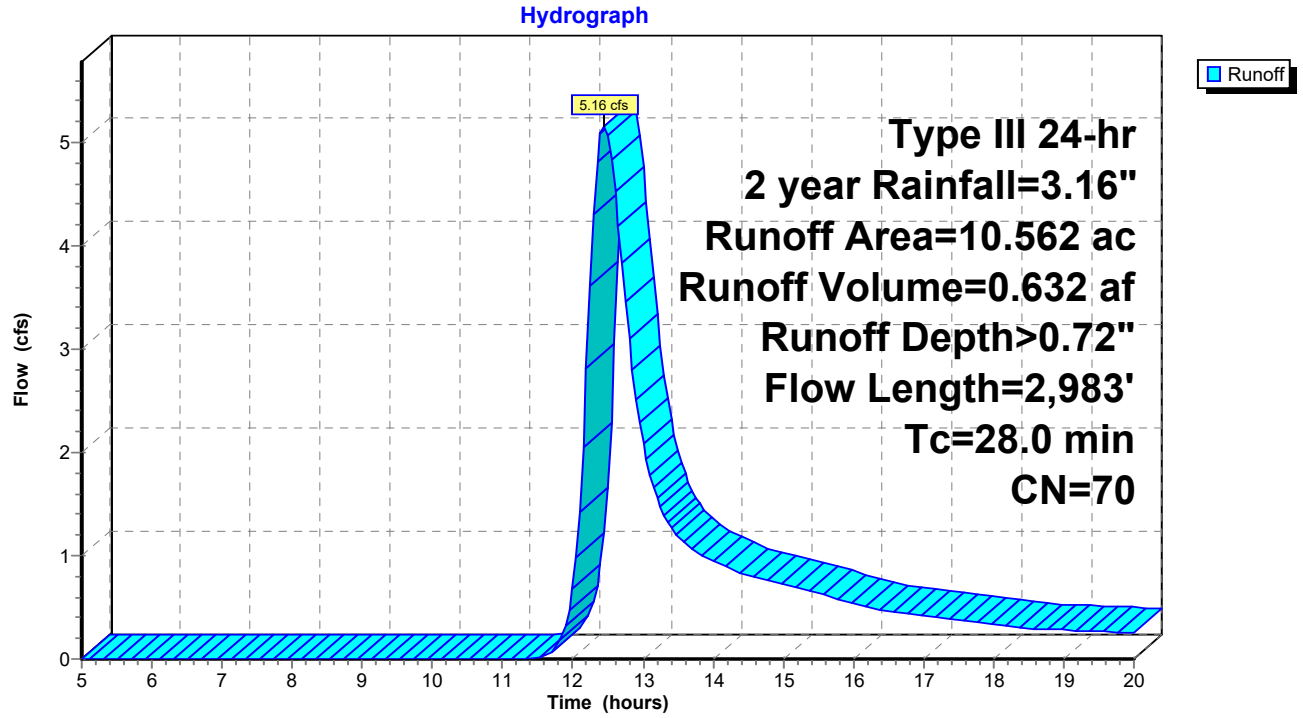
Runoff = 5.16 cfs @ 12.45 hrs, Volume= 0.632 af, Depth> 0.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.16"

Area (ac)	CN	Description
8.211	68	1 acre lots, 20% imp, HSG B
0.261	39	>75% Grass cover, Good, HSG A
0.471	61	>75% Grass cover, Good, HSG B
1.619	85	Gravel roads, HSG B
0.000	60	Woods, Fair, HSG B
10.562	70	Weighted Average
8.920		84.45% Pervious Area
1.642		15.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.16"
9.5	2,050	0.0312	3.59		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
18.0	883	0.0136	0.82		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
28.0	2,983	Total			

Subcatchment 4: Roadside Swale



Summary for Pond 1P: (new Pond)

Inflow Area = 24.787 ac, 0.42% Impervious, Inflow Depth > 0.40" for 2 year event
Inflow = 4.75 cfs @ 12.69 hrs, Volume= 0.822 af
Outflow = 0.73 cfs @ 16.82 hrs, Volume= 0.457 af, Atten= 85%, Lag= 248.3 min
Discarded = 0.73 cfs @ 16.82 hrs, Volume= 0.457 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 197.89' @ 16.82 hrs Surf.Area= 14,257 sf Storage= 17,981 cf

Plug-Flow detention time= 187.4 min calculated for 0.456 af (55% of inflow)
Center-of-Mass det. time= 95.5 min (972.8 - 877.3)

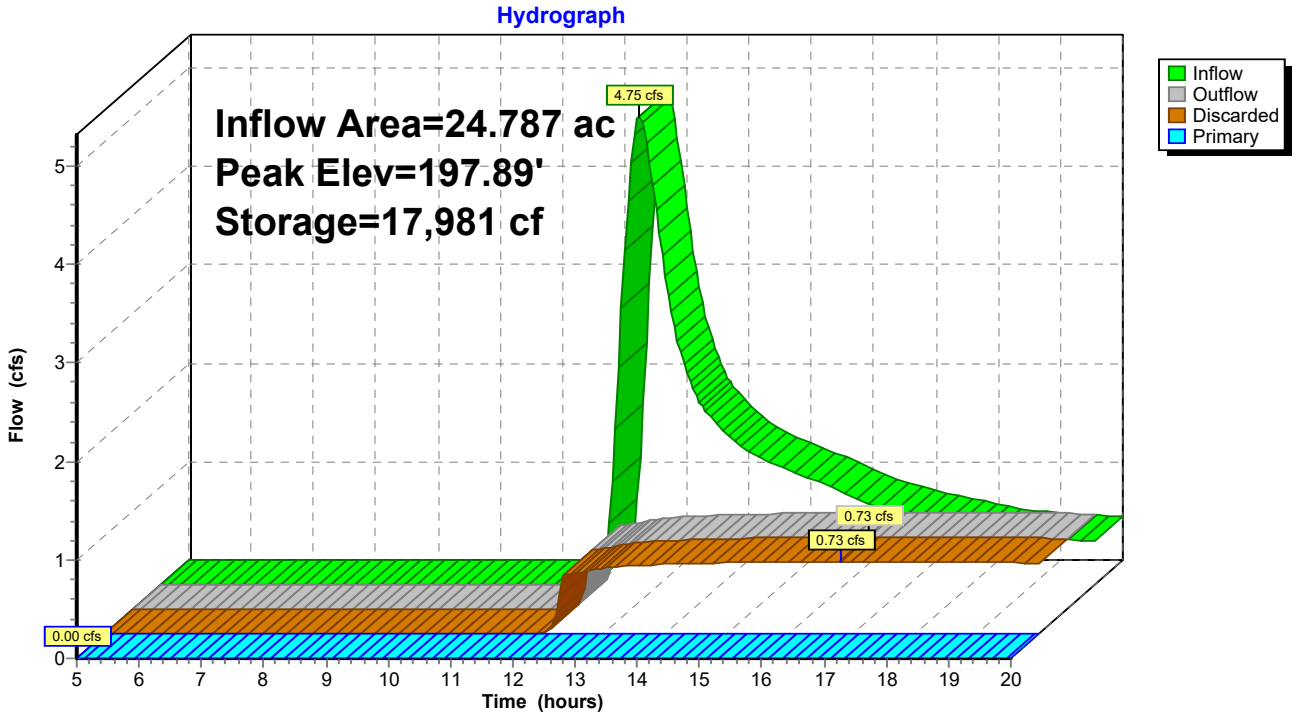
Volume	Invert	Avail.Storage	Storage Description
#1	196.50'	105,552 cf	**44.00'W x 264.00'L x 6.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	200.50'	**9.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	196.50'	**2.200 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=0.73 cfs @ 16.82 hrs HW=197.89' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.73 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=196.50' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: (new Pond)



Summary for Pond 2P: (new Pond)

Inflow Area = 47.389 ac, 4.08% Impervious, Inflow Depth > 0.36" for 2 year event
Inflow = 5.81 cfs @ 13.16 hrs, Volume= 1.409 af
Outflow = 1.03 cfs @ 18.53 hrs, Volume= 0.619 af, Atten= 82%, Lag= 322.4 min
Discarded = 1.03 cfs @ 18.53 hrs, Volume= 0.619 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 198.24' @ 18.53 hrs Surf.Area= 21,864 sf Storage= 35,083 cf

Plug-Flow detention time= 182.5 min calculated for 0.619 af (44% of inflow)
Center-of-Mass det. time= 78.7 min (980.4 - 901.7)

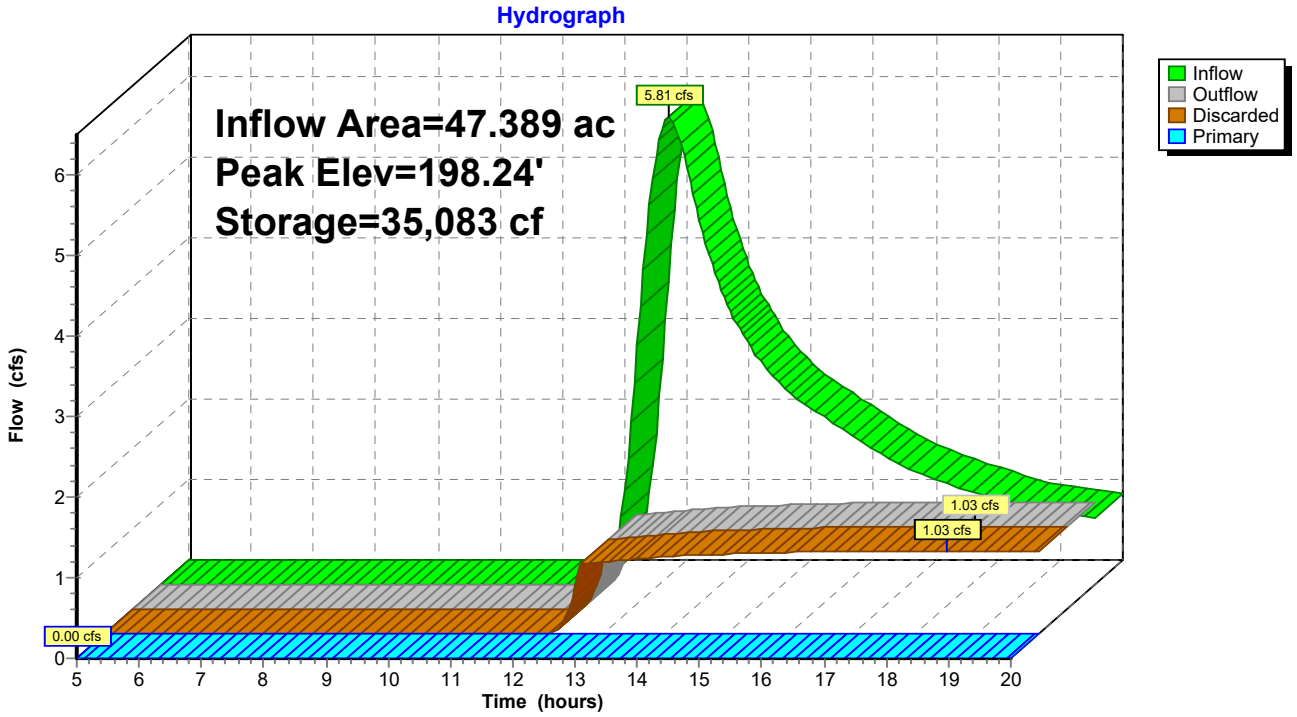
Volume	Invert	Avail.Storage	Storage Description
#1	196.50'	156,731 cf	**79.00'W x 234.00'L x 6.30'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	201.30'	**15.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	196.50'	**2.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=1.03 cfs @ 18.53 hrs HW=198.24' (Free Discharge)
↑—**2=Exfiltration** (Controls 1.03 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=196.50' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2P: (new Pond)



Summary for Pond 3P: (new Pond)

Inflow Area = 3.969 ac, 3.11% Impervious, Inflow Depth > 0.28" for 2 year event
Inflow = 0.52 cfs @ 12.54 hrs, Volume= 0.092 af
Outflow = 0.15 cfs @ 14.49 hrs, Volume= 0.090 af, Atten= 71%, Lag= 117.0 min
Discarded = 0.15 cfs @ 14.49 hrs, Volume= 0.090 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 200.55' @ 14.49 hrs Surf.Area= 2,056 sf Storage= 1,023 cf

Plug-Flow detention time= 78.8 min calculated for 0.090 af (99% of inflow)
Center-of-Mass det. time= 74.8 min (958.9 - 884.0)

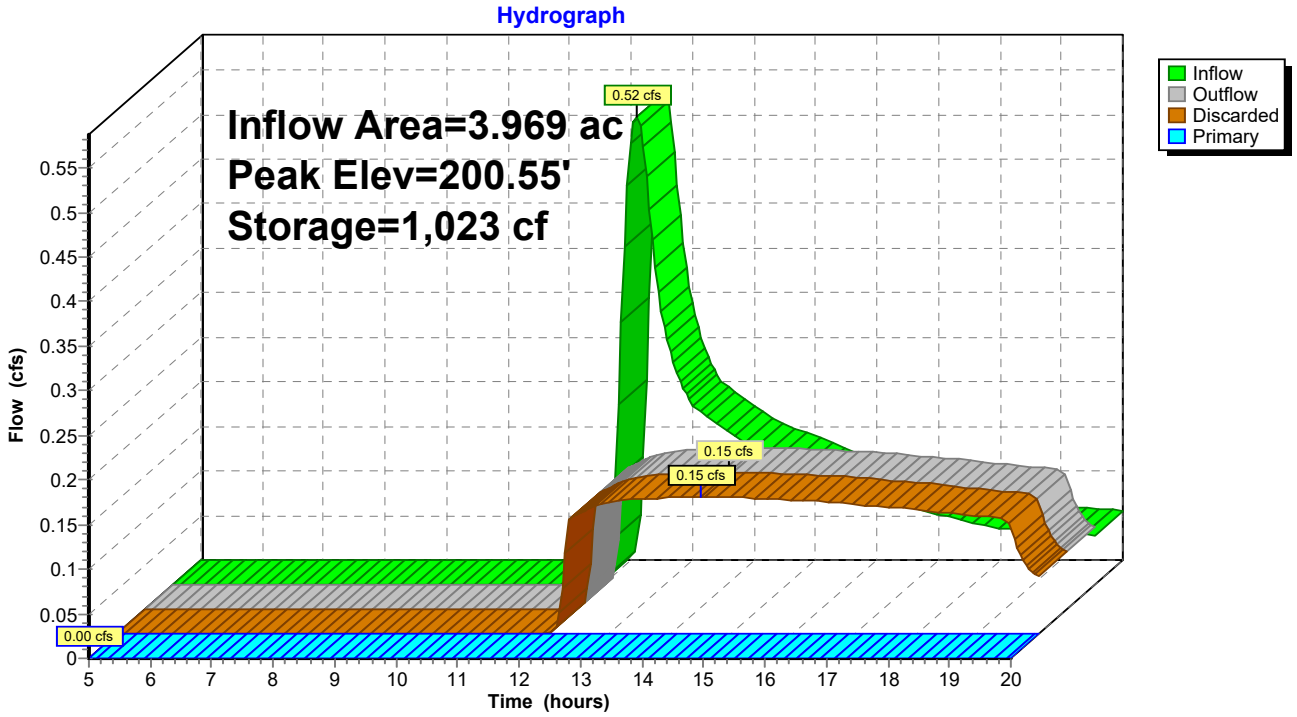
Volume	Invert	Avail.Storage	Storage Description
#1	200.00'	24,402 cf	**19.00'W x 89.00'L x 6.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	203.30'	**3.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#2	Discarded	200.00'	**3.200 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=0.15 cfs @ 14.49 hrs HW=200.55' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.15 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=200.00' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: (new Pond)

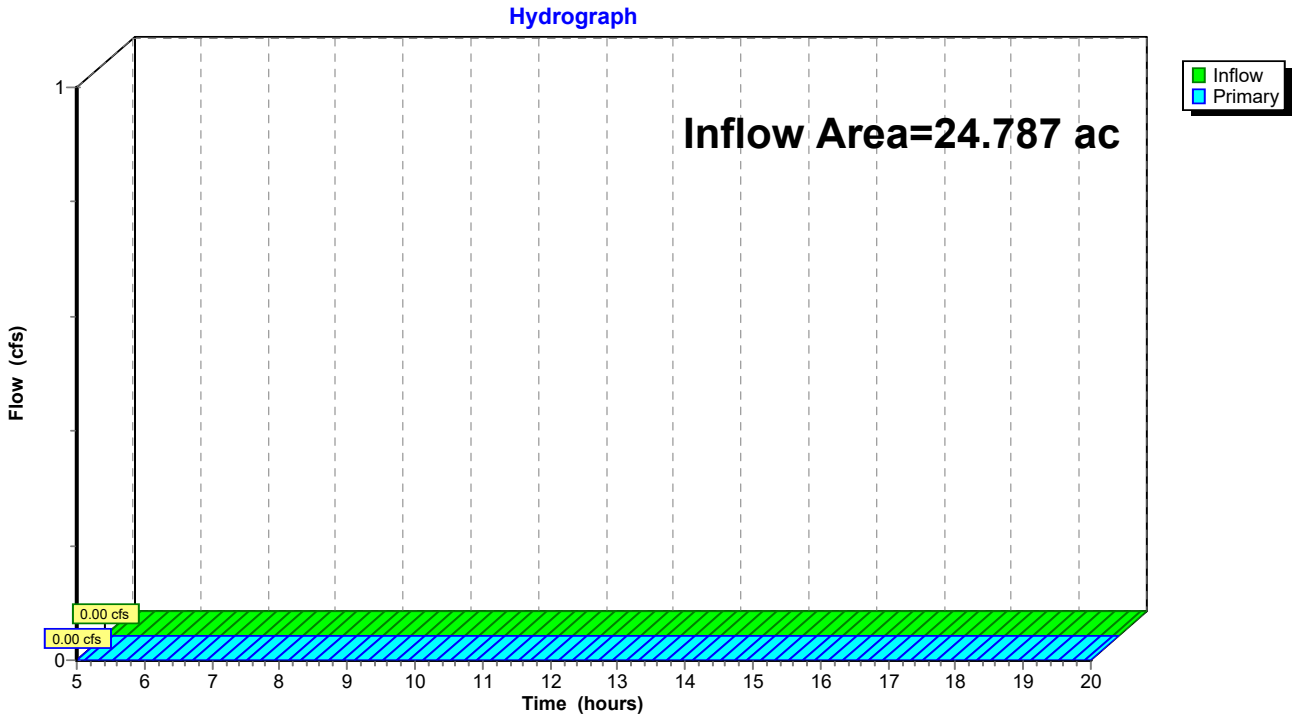


Summary for Link DP1: DP1

Inflow Area = 24.787 ac, 0.42% Impervious, Inflow Depth = 0.00" for 2 year event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP1: DP1

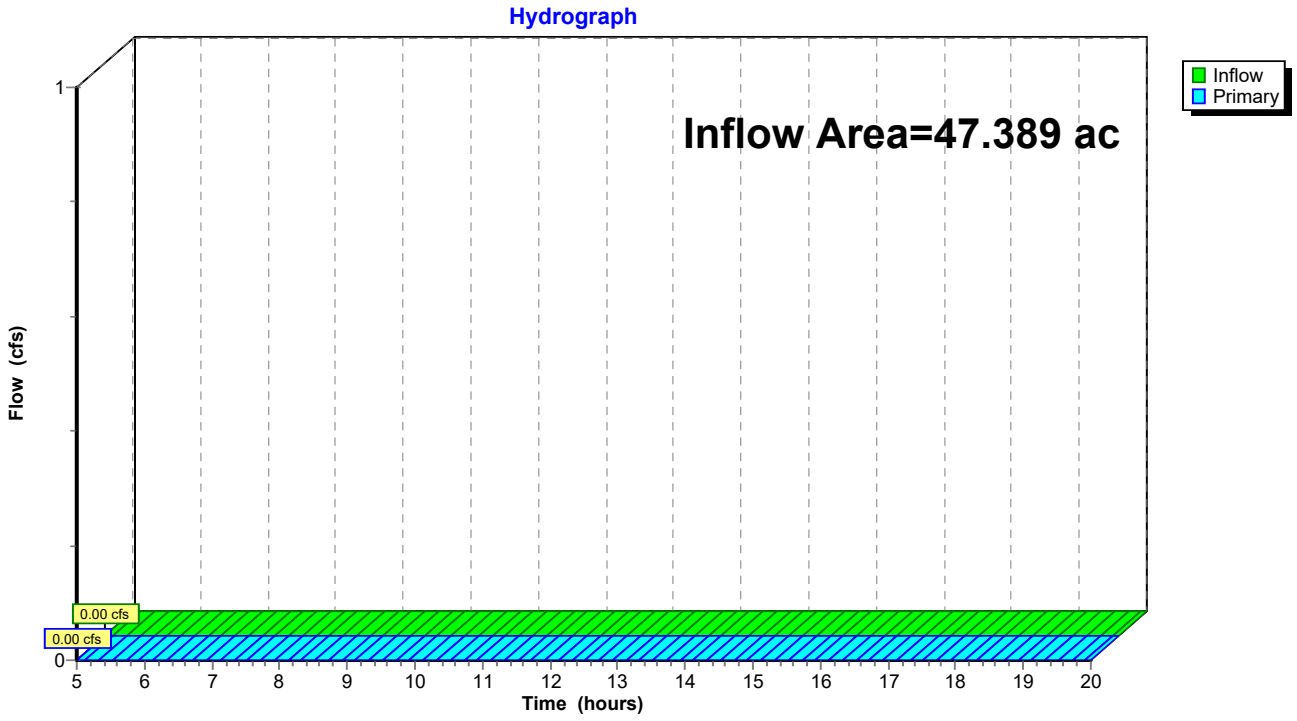


Summary for Link DP2: DP2

Inflow Area = 47.389 ac, 4.08% Impervious, Inflow Depth = 0.00" for 2 year event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP2: DP2

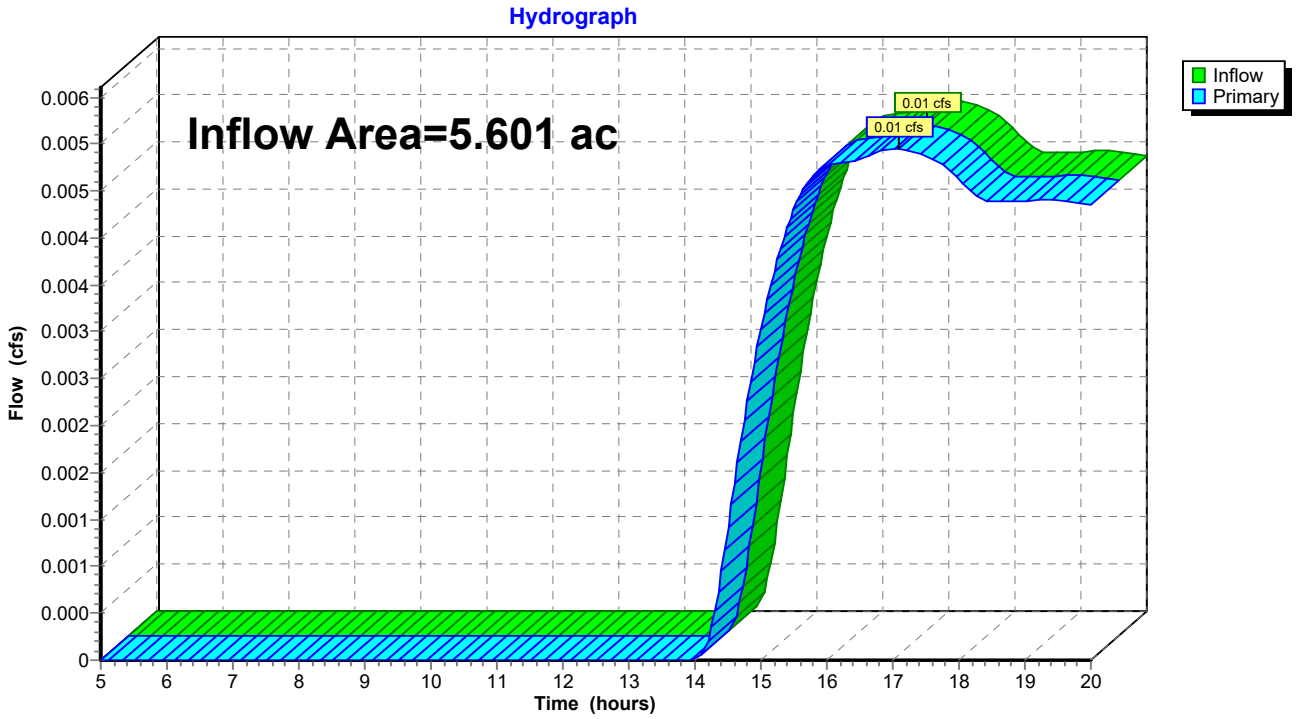


Summary for Link DP3: DP3

Inflow Area = 5.601 ac, 2.20% Impervious, Inflow Depth > 0.00" for 2 year event
Inflow = 0.01 cfs @ 17.08 hrs, Volume= 0.002 af
Primary = 0.01 cfs @ 17.08 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP3: DP3



25-Year Storm Event- Proposed

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Subcat 1 Runoff Area=24.787 ac 0.42% Impervious Runoff Depth>1.99"
Flow Length=1,823' Tc=38.9 min CN=62 Runoff=30.66 cfs 4.103 af

Subcatchment2: Subcat 2 Runoff Area=47.389 ac 4.08% Impervious Runoff Depth>1.88"
Tc=68.9 min CN=61 Runoff=40.25 cfs 7.411 af

Subcatchment3A: Subcat 3A Runoff Area=3.969 ac 3.11% Impervious Runoff Depth>1.67"
Flow Length=901' Tc=24.2 min CN=58 Runoff=4.98 cfs 0.554 af

Subcatchment3B: Subcat 3B Runoff Area=1.632 ac 0.00% Impervious Runoff Depth>0.69"
Flow Length=850' Tc=24.7 min CN=44 Runoff=0.61 cfs 0.093 af

Subcatchment4: Roadside Swale Runoff Area=10.562 ac 15.55% Impervious Runoff Depth>2.70"
Flow Length=2,983' Tc=28.0 min CN=70 Runoff=21.00 cfs 2.373 af

Pond 1P: (new Pond) Peak Elev=201.14' Storage=75,073 cf Inflow=30.66 cfs 4.103 af
Discarded=1.10 cfs 0.722 af Primary=12.51 cfs 1.921 af Outflow=13.61 cfs 2.643 af

Pond 2P: (new Pond) Peak Elev=201.97' Storage=131,116 cf Inflow=40.25 cfs 7.411 af
Discarded=1.44 cfs 0.917 af Primary=22.01 cfs 3.847 af Outflow=23.45 cfs 4.765 af

Pond 3P: (new Pond) Peak Elev=203.56' Storage=10,664 cf Inflow=4.98 cfs 0.554 af
Discarded=0.34 cfs 0.213 af Primary=0.99 cfs 0.136 af Outflow=1.32 cfs 0.350 af

Link DP1: DP1 Inflow=12.51 cfs 1.921 af
Primary=12.51 cfs 1.921 af

Link DP2: DP2 Inflow=22.01 cfs 3.847 af
Primary=22.01 cfs 3.847 af

Link DP3: DP3 Inflow=1.25 cfs 0.230 af
Primary=1.25 cfs 0.230 af

Total Runoff Area = 88.339 ac Runoff Volume = 14.534 af Average Runoff Depth = 1.97"
95.69% Pervious = 84.534 ac 4.31% Impervious = 3.804 ac

Summary for Subcatchment 1: Subcat 1

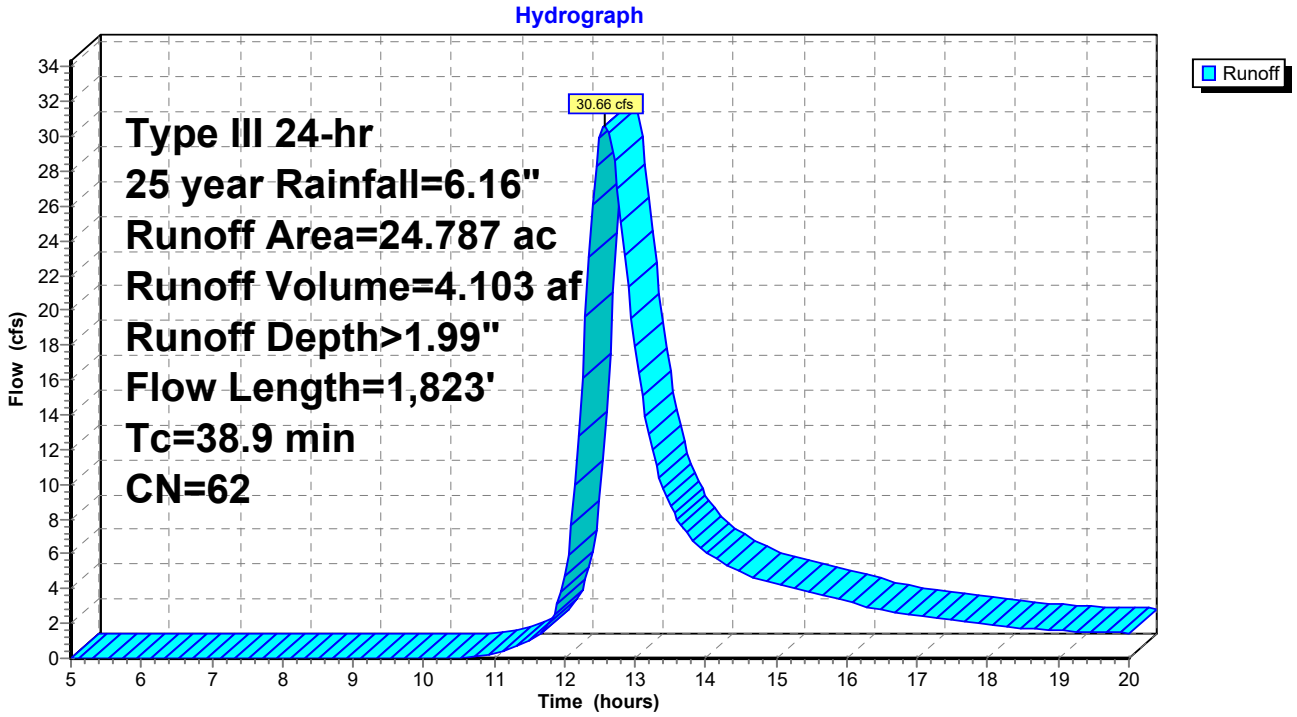
Runoff = 30.66 cfs @ 12.58 hrs, Volume= 4.103 af, Depth> 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=6.16"

Area (ac)	CN	Description
2.719	39	>75% Grass cover, Good, HSG A
16.345	61	>75% Grass cover, Good, HSG B
3.970	74	>75% Grass cover, Good, HSG C
0.825	86	Fallow, bare soil, HSG B
0.272	85	Gravel roads, HSG B
0.116	89	Gravel roads, HSG C
0.105	98	Roofs, HSG B
0.436	60	Woods, Fair, HSG B
24.787	62	Weighted Average
24.682		99.58% Pervious Area
0.105		0.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.16"
3.9	317	0.0379	1.36		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.5	465	0.0170	0.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.3	203	0.0440	1.47		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.9	788	0.0089	0.66		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
38.9	1,823	Total			

Subcatchment 1: Subcat 1



Summary for Subcatchment 2: Subcat 2

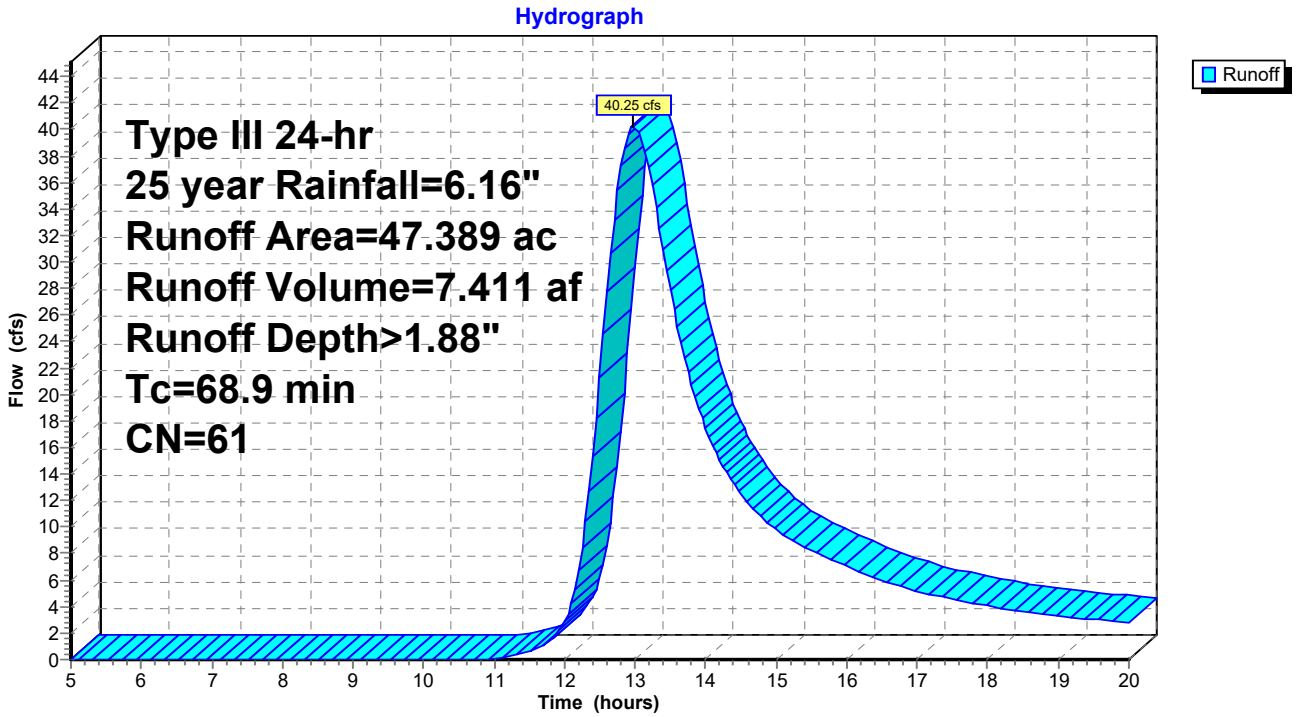
Runoff = 40.25 cfs @ 12.97 hrs, Volume= 7.411 af, Depth> 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=6.16"

Area (ac)	CN	Description
2.943	39	>75% Grass cover, Good, HSG A
32.892	61	>75% Grass cover, Good, HSG B
0.069	74	>75% Grass cover, Good, HSG C
0.512	85	Gravel roads, HSG B
1.077	98	Paved parking, HSG B
0.015	98	Roofs, HSG A
0.842	98	Roofs, HSG B
9.040	60	Woods, Fair, HSG B
47.389	61	Weighted Average
45.455		95.92% Pervious Area
1.934		4.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
68.9					**Direct Entry,**

Subcatchment 2: Subcat 2



Summary for Subcatchment 3A: Subcat 3A

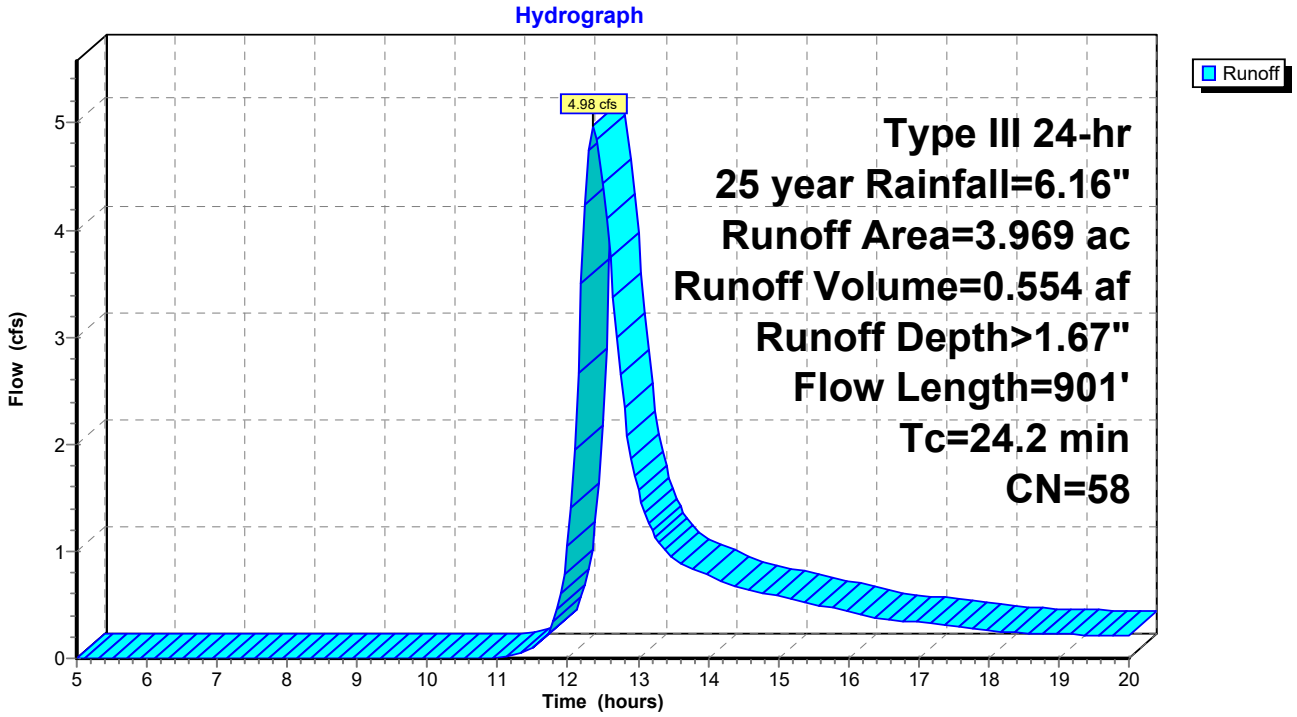
Runoff = 4.98 cfs @ 12.37 hrs, Volume= 0.554 af, Depth> 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=6.16"

Area (ac)	CN	Description
1.056	39	>75% Grass cover, Good, HSG A
2.393	61	>75% Grass cover, Good, HSG B
0.317	74	>75% Grass cover, Good, HSG C
0.079	85	Gravel roads, HSG B
0.123	98	Roofs, HSG B
3.969	58	Weighted Average
3.845		96.89% Pervious Area
0.123		3.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	50	0.1400	0.29		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 3.16"
3.7	237	0.0230	1.06		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.1	393	0.0051	0.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.5	221	0.0136	0.82		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.2	901	Total			

Subcatchment 3A: Subcat 3A



Summary for Subcatchment 3B: Subcat 3B

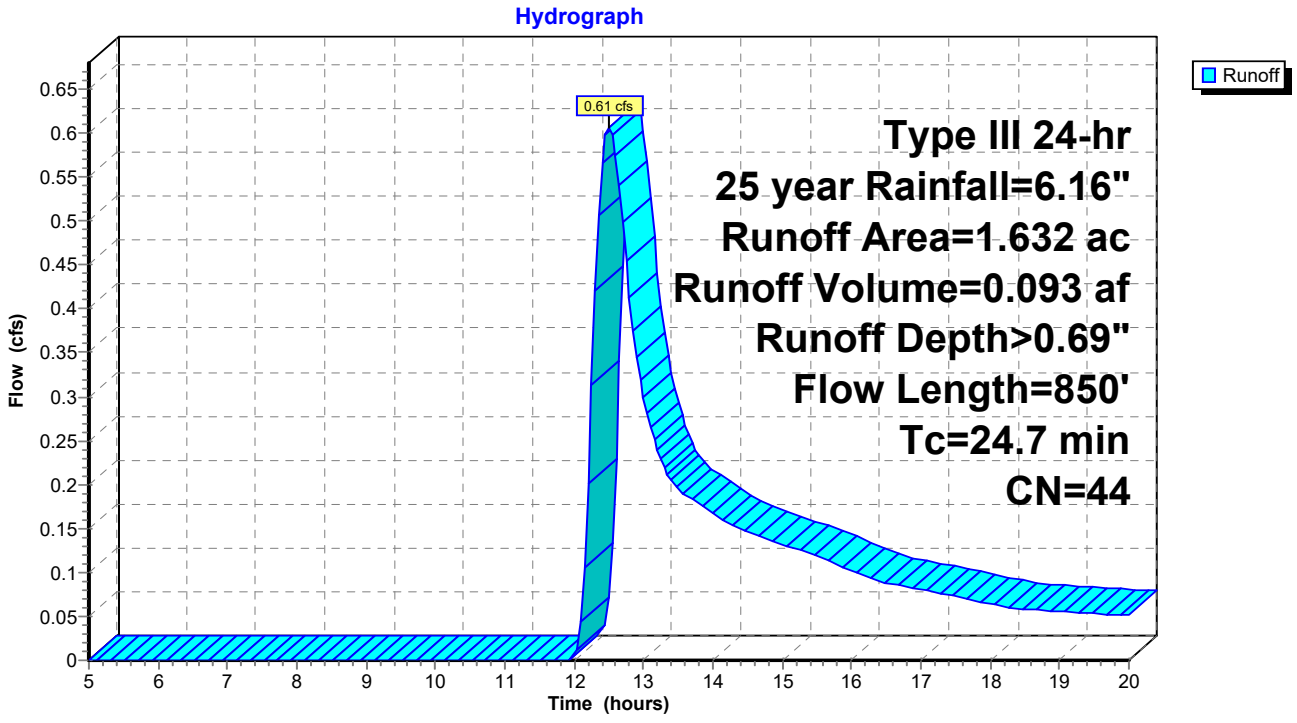
Runoff = 0.61 cfs @ 12.50 hrs, Volume= 0.093 af, Depth> 0.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=6.16"

Area (ac)	CN	Description
1.316	39	>75% Grass cover, Good, HSG A
0.279	61	>75% Grass cover, Good, HSG B
0.000	76	Gravel roads, HSG A
0.036	85	Gravel roads, HSG B
1.632	44	Weighted Average
1.632		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.16"
19.0	800	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.7	850	Total			

Subcatchment 3B: Subcat 3B



Summary for Subcatchment 4: Roadside Swale

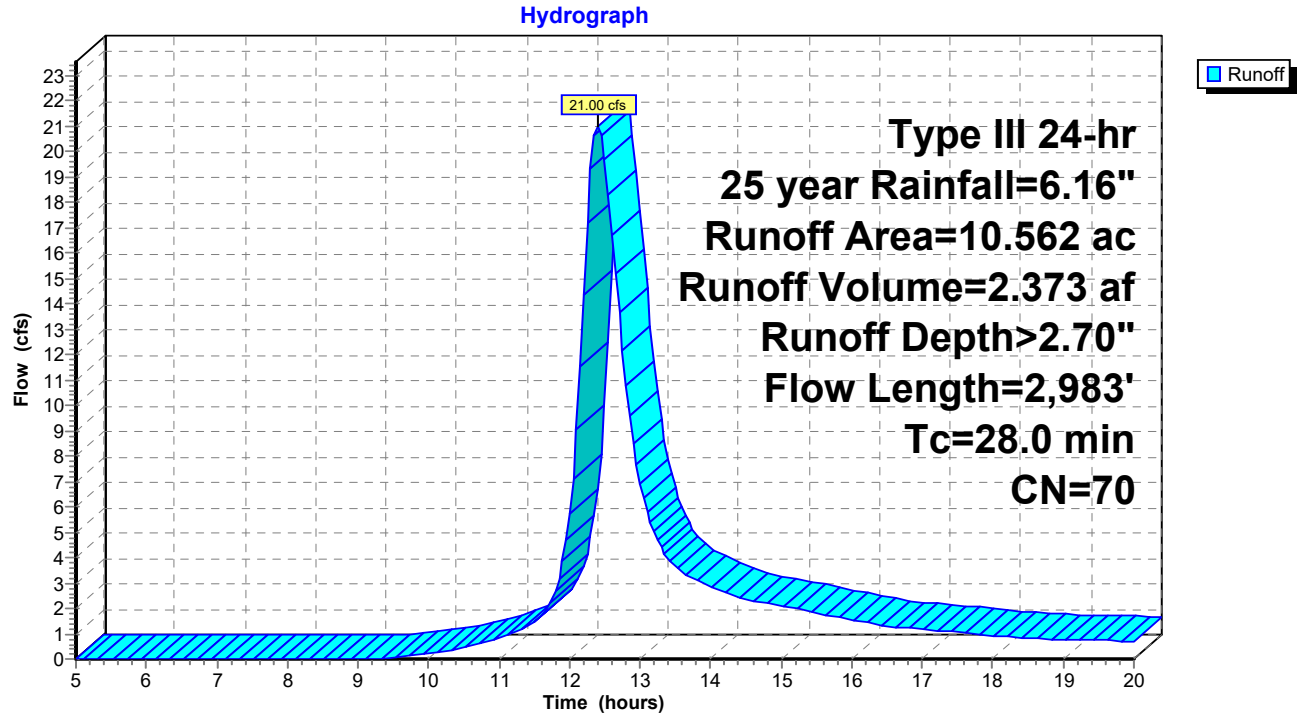
Runoff = 21.00 cfs @ 12.40 hrs, Volume= 2.373 af, Depth> 2.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=6.16"

Area (ac)	CN	Description
8.211	68	1 acre lots, 20% imp, HSG B
0.261	39	>75% Grass cover, Good, HSG A
0.471	61	>75% Grass cover, Good, HSG B
1.619	85	Gravel roads, HSG B
0.000	60	Woods, Fair, HSG B
10.562	70	Weighted Average
8.920		84.45% Pervious Area
1.642		15.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.16"
9.5	2,050	0.0312	3.59		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
18.0	883	0.0136	0.82		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
28.0	2,983	Total			

Subcatchment 4: Roadside Swale



Summary for Pond 1P: (new Pond)

Inflow Area = 24.787 ac, 0.42% Impervious, Inflow Depth > 1.99" for 25 year event
Inflow = 30.66 cfs @ 12.58 hrs, Volume= 4.103 af
Outflow = 13.61 cfs @ 13.17 hrs, Volume= 2.643 af, Atten= 56%, Lag= 35.4 min
Discarded = 1.10 cfs @ 13.17 hrs, Volume= 0.722 af
Primary = 12.51 cfs @ 13.17 hrs, Volume= 1.921 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 201.14' @ 13.17 hrs Surf.Area= 20,974 sf Storage= 75,073 cf

Plug-Flow detention time= 136.0 min calculated for 2.635 af (64% of inflow)
Center-of-Mass det. time= 63.5 min (902.4 - 838.9)

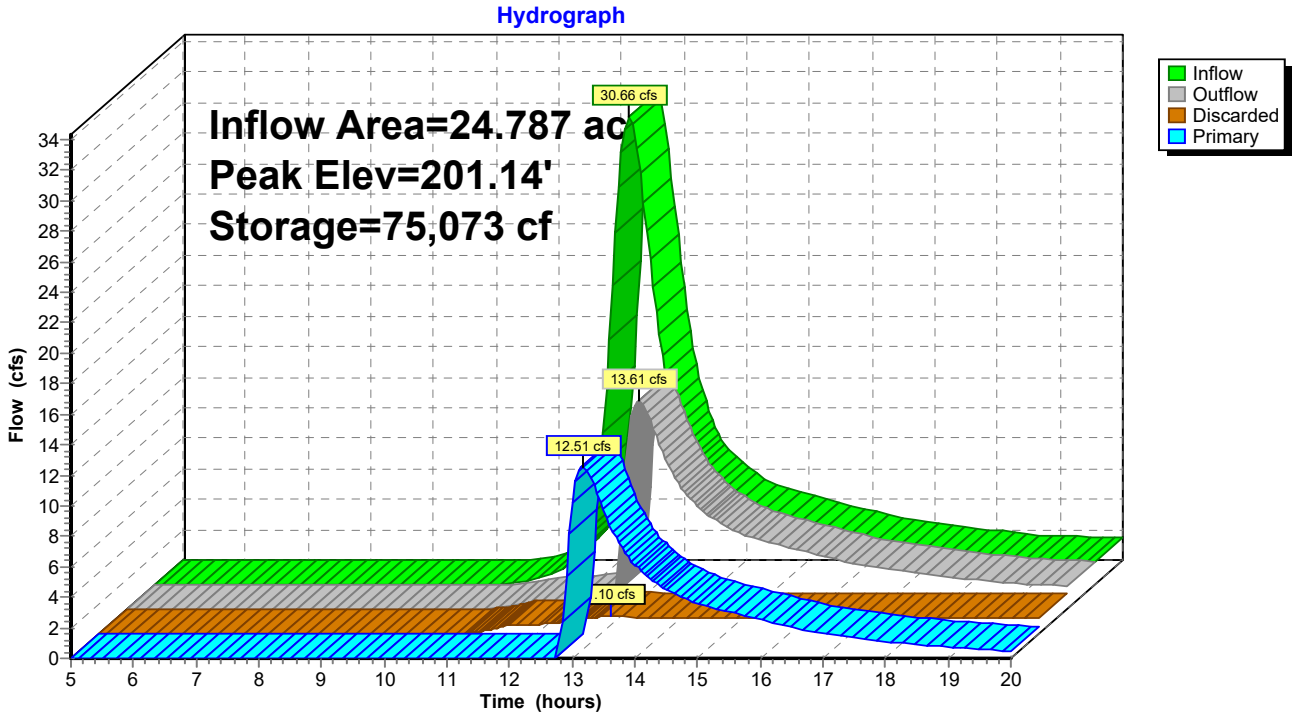
Volume	Invert	Avail.Storage	Storage Description
#1	196.50'	105,552 cf	**44.00'W x 264.00'L x 6.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	200.50'	**9.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	196.50'	**2.200 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=1.10 cfs @ 13.17 hrs HW=201.14' (Free Discharge)
↑—**2=Exfiltration** (Controls 1.10 cfs)

Primary OutFlow Max=12.47 cfs @ 13.17 hrs HW=201.14' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 12.47 cfs @ 2.15 fps)

Pond 1P: (new Pond)



Summary for Pond 2P: (new Pond)

Inflow Area = 47.389 ac, 4.08% Impervious, Inflow Depth > 1.88" for 25 year event
Inflow = 40.25 cfs @ 12.97 hrs, Volume= 7.411 af
Outflow = 23.45 cfs @ 13.67 hrs, Volume= 4.765 af, Atten= 42%, Lag= 42.0 min
Discarded = 1.44 cfs @ 13.67 hrs, Volume= 0.917 af
Primary = 22.01 cfs @ 13.67 hrs, Volume= 3.847 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 201.97' @ 13.67 hrs Surf.Area= 29,831 sf Storage= 131,116 cf

Plug-Flow detention time= 133.2 min calculated for 4.765 af (64% of inflow)
Center-of-Mass det. time= 62.2 min (925.5 - 863.3)

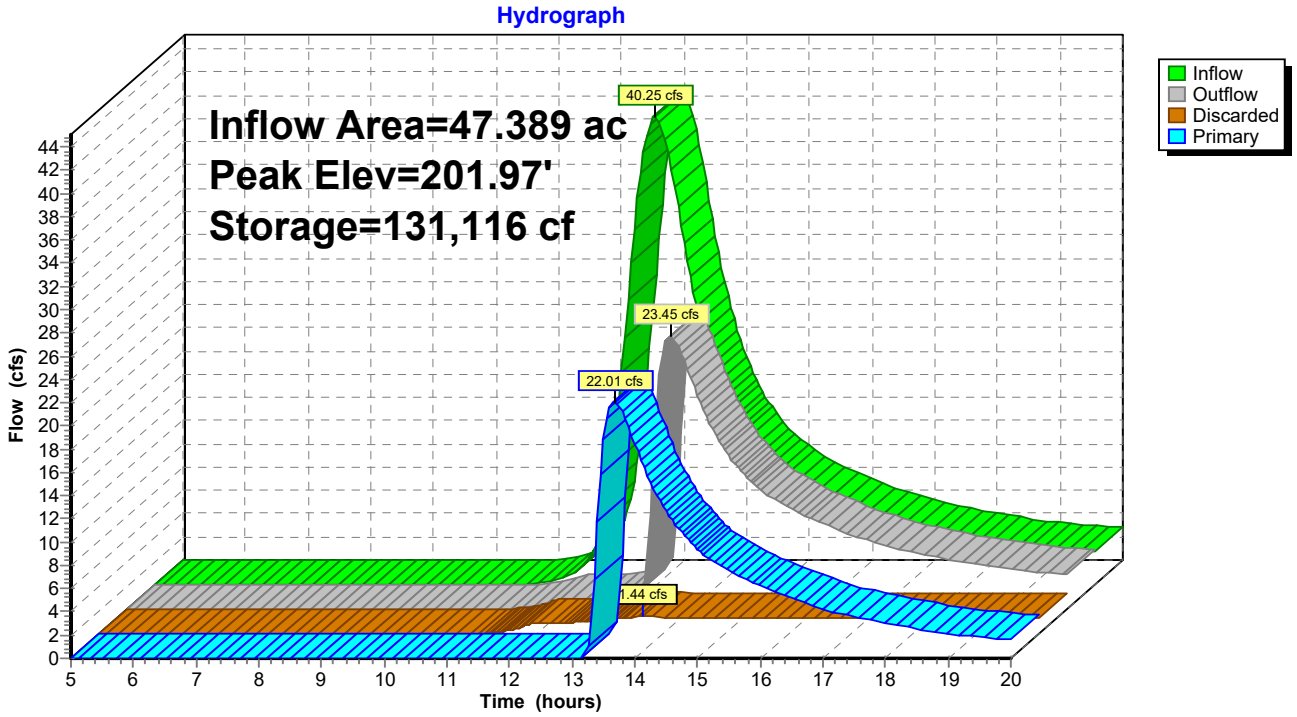
Volume	Invert	Avail.Storage	Storage Description
#1	196.50'	156,731 cf	**79.00'W x 234.00'L x 6.30'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	201.30'	**15.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	196.50'	**2.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=1.44 cfs @ 13.67 hrs HW=201.97' (Free Discharge)
↑—**2=Exfiltration** (Controls 1.44 cfs)

Primary OutFlow Max=21.95 cfs @ 13.67 hrs HW=201.97' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 21.95 cfs @ 2.19 fps)

Pond 2P: (new Pond)



Summary for Pond 3P: (new Pond)

Inflow Area = 3.969 ac, 3.11% Impervious, Inflow Depth > 1.67" for 25 year event
Inflow = 4.98 cfs @ 12.37 hrs, Volume= 0.554 af
Outflow = 1.32 cfs @ 13.12 hrs, Volume= 0.350 af, Atten= 73%, Lag= 44.9 min
Discarded = 0.34 cfs @ 13.12 hrs, Volume= 0.213 af
Primary = 0.99 cfs @ 13.12 hrs, Volume= 0.136 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 203.56' @ 13.12 hrs Surf.Area= 4,453 sf Storage= 10,664 cf

Plug-Flow detention time= 158.4 min calculated for 0.349 af (63% of inflow)
Center-of-Mass det. time= 81.0 min (916.3 - 835.3)

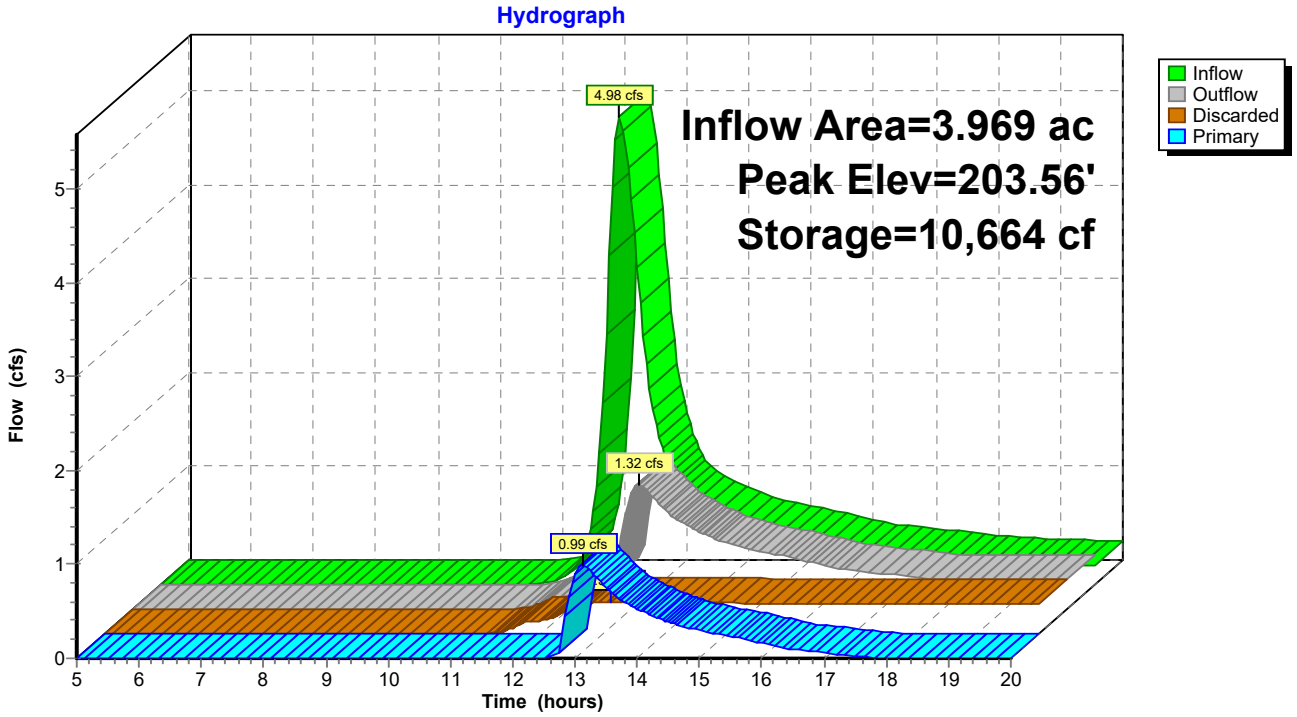
Volume	Invert	Avail.Storage	Storage Description
#1	200.00'	24,402 cf	**19.00'W x 89.00'L x 6.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	203.30'	**3.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#2	Discarded	200.00'	**3.200 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=0.34 cfs @ 13.12 hrs HW=203.56' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.34 cfs)

Primary OutFlow Max=0.98 cfs @ 13.12 hrs HW=203.56' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.98 cfs @ 1.26 fps)

Pond 3P: (new Pond)

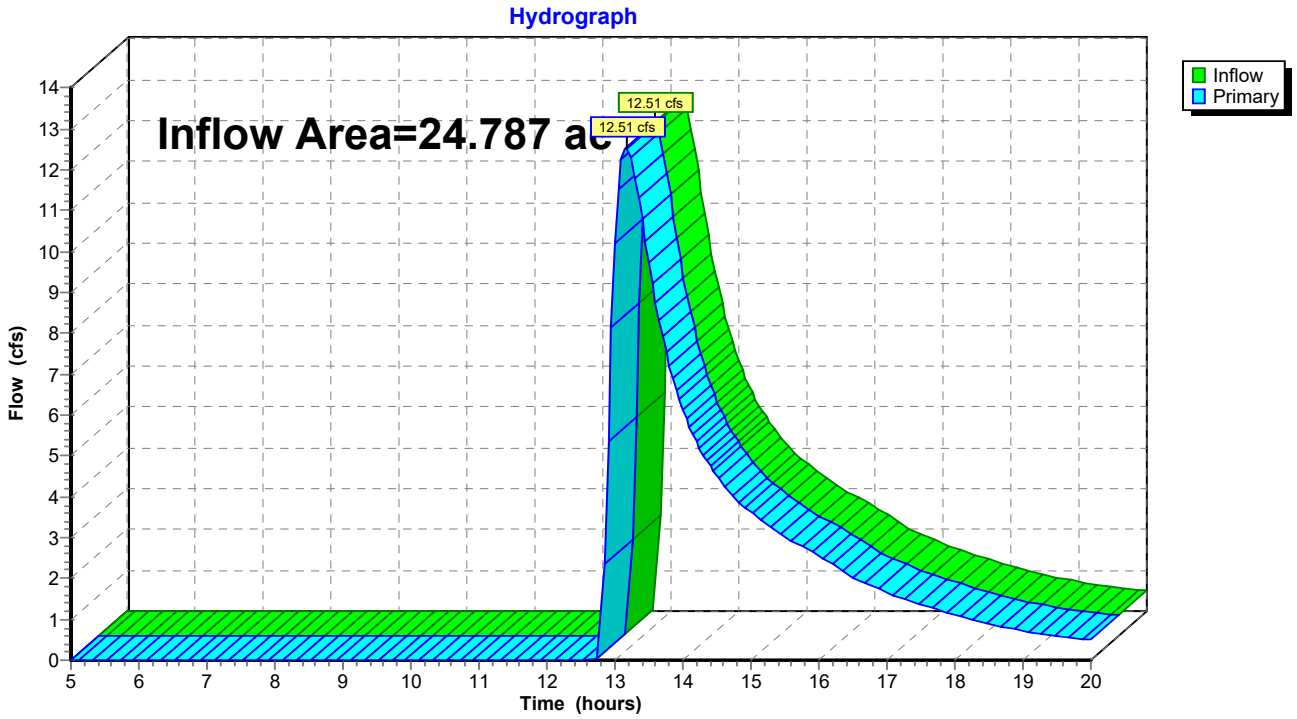


Summary for Link DP1: DP1

Inflow Area = 24.787 ac, 0.42% Impervious, Inflow Depth > 0.93" for 25 year event
Inflow = 12.51 cfs @ 13.17 hrs, Volume= 1.921 af
Primary = 12.51 cfs @ 13.17 hrs, Volume= 1.921 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP1: DP1

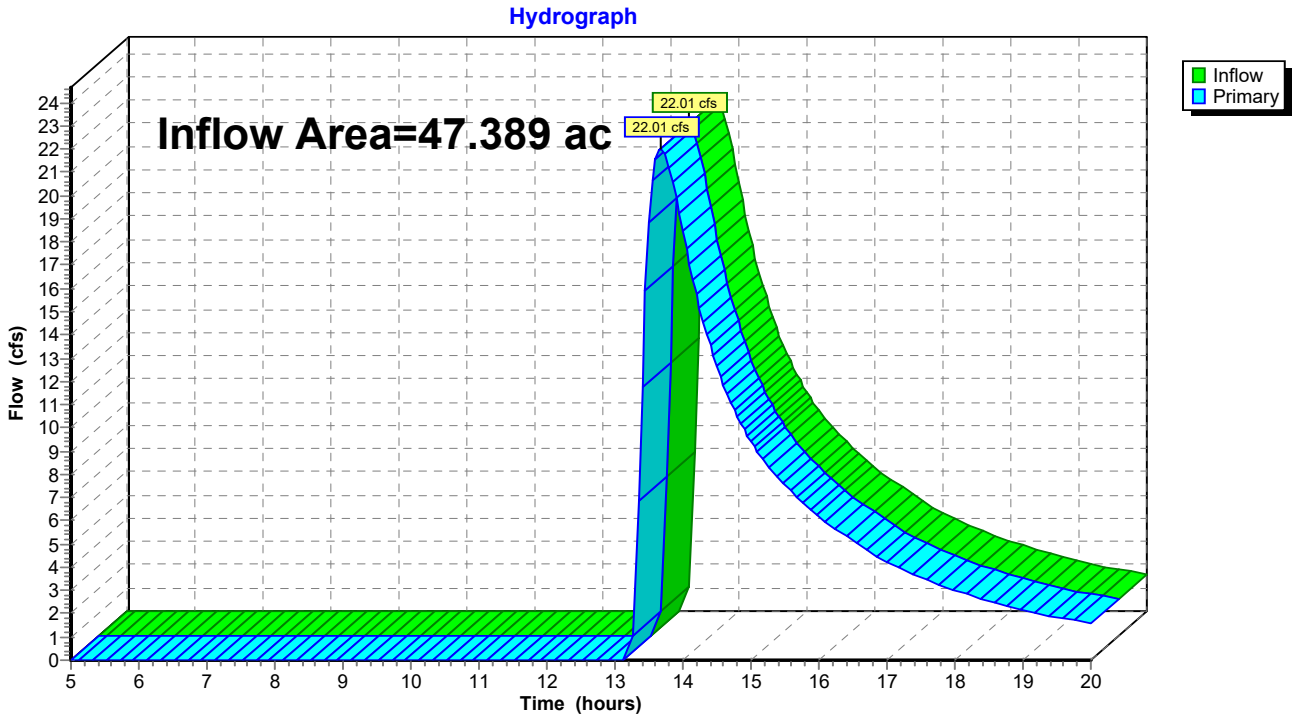


Summary for Link DP2: DP2

Inflow Area = 47.389 ac, 4.08% Impervious, Inflow Depth > 0.97" for 25 year event
Inflow = 22.01 cfs @ 13.67 hrs, Volume= 3.847 af
Primary = 22.01 cfs @ 13.67 hrs, Volume= 3.847 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP2: DP2

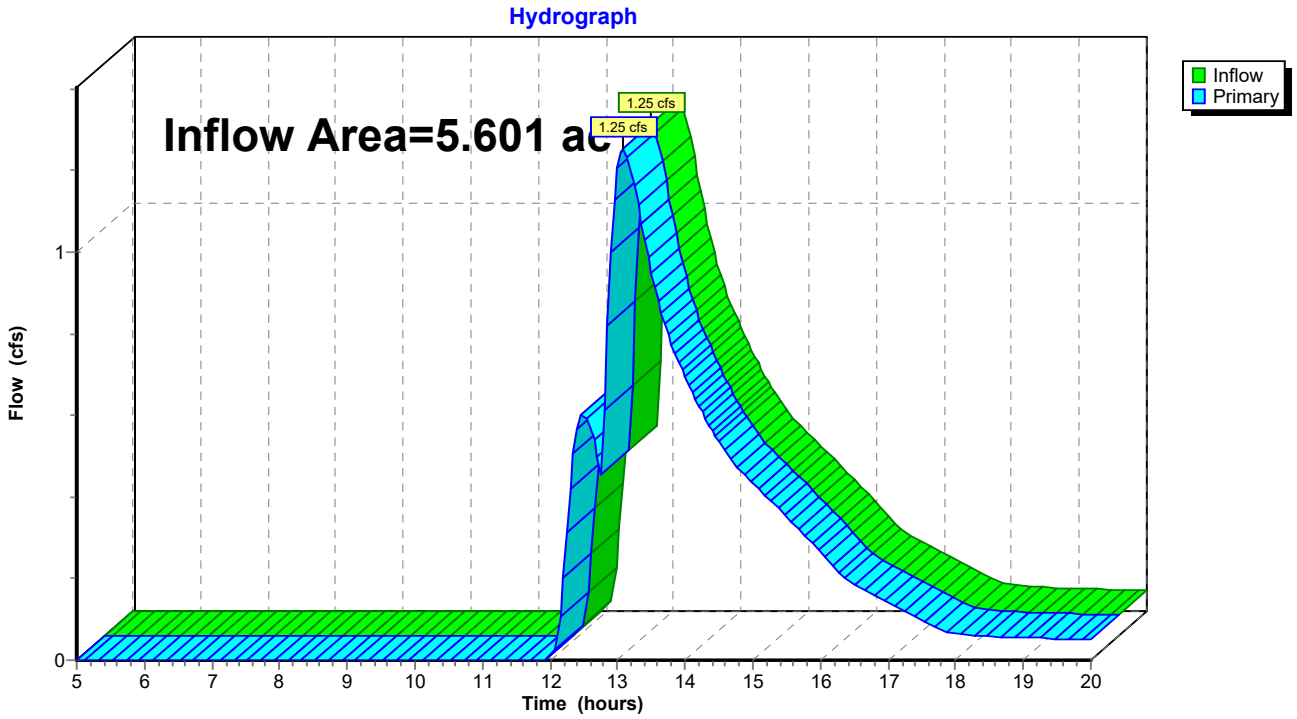


Summary for Link DP3: DP3

Inflow Area = 5.601 ac, 2.20% Impervious, Inflow Depth > 0.49" for 25 year event
Inflow = 1.25 cfs @ 13.09 hrs, Volume= 0.230 af
Primary = 1.25 cfs @ 13.09 hrs, Volume= 0.230 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP3: DP3



50-Year Storm Event- Proposed

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Subcat 1 Runoff Area=24.787 ac 0.42% Impervious Runoff Depth>2.54"
Flow Length=1,823' Tc=38.9 min CN=62 Runoff=39.65 cfs 5.252 af

Subcatchment2: Subcat 2 Runoff Area=47.389 ac 4.08% Impervious Runoff Depth>2.42"
Tc=68.9 min CN=61 Runoff=52.55 cfs 9.538 af

Subcatchment3A: Subcat 3A Runoff Area=3.969 ac 3.11% Impervious Runoff Depth>2.19"
Flow Length=901' Tc=24.2 min CN=58 Runoff=6.64 cfs 0.723 af

Subcatchment3B: Subcat 3B Runoff Area=1.632 ac 0.00% Impervious Runoff Depth>1.01"
Flow Length=850' Tc=24.7 min CN=44 Runoff=1.01 cfs 0.137 af

Subcatchment4: Roadside Swale Runoff Area=10.562 ac 15.55% Impervious Runoff Depth>3.34"
Flow Length=2,983' Tc=28.0 min CN=70 Runoff=26.03 cfs 2.938 af

Pond 1P: (new Pond) Peak Elev=201.48' Storage=82,145 cf Inflow=39.65 cfs 5.252 af
Discarded=1.14 cfs 0.755 af Primary=23.16 cfs 3.024 af Outflow=24.30 cfs 3.778 af

Pond 2P: (new Pond) Peak Elev=202.26' Storage=139,954 cf Inflow=52.55 cfs 9.538 af
Discarded=1.47 cfs 0.960 af Primary=37.77 cfs 5.911 af Outflow=39.24 cfs 6.872 af

Pond 3P: (new Pond) Peak Elev=203.80' Storage=11,781 cf Inflow=6.64 cfs 0.723 af
Discarded=0.35 cfs 0.222 af Primary=2.83 cfs 0.287 af Outflow=3.18 cfs 0.509 af

Link DP1: DP1 Inflow=23.16 cfs 3.024 af
Primary=23.16 cfs 3.024 af

Link DP2: DP2 Inflow=37.77 cfs 5.911 af
Primary=37.77 cfs 5.911 af

Link DP3: DP3 Inflow=3.49 cfs 0.424 af
Primary=3.49 cfs 0.424 af

Total Runoff Area = 88.339 ac Runoff Volume = 18.588 af Average Runoff Depth = 2.53"
95.69% Pervious = 84.534 ac 4.31% Impervious = 3.804 ac

Summary for Subcatchment 1: Subcat 1

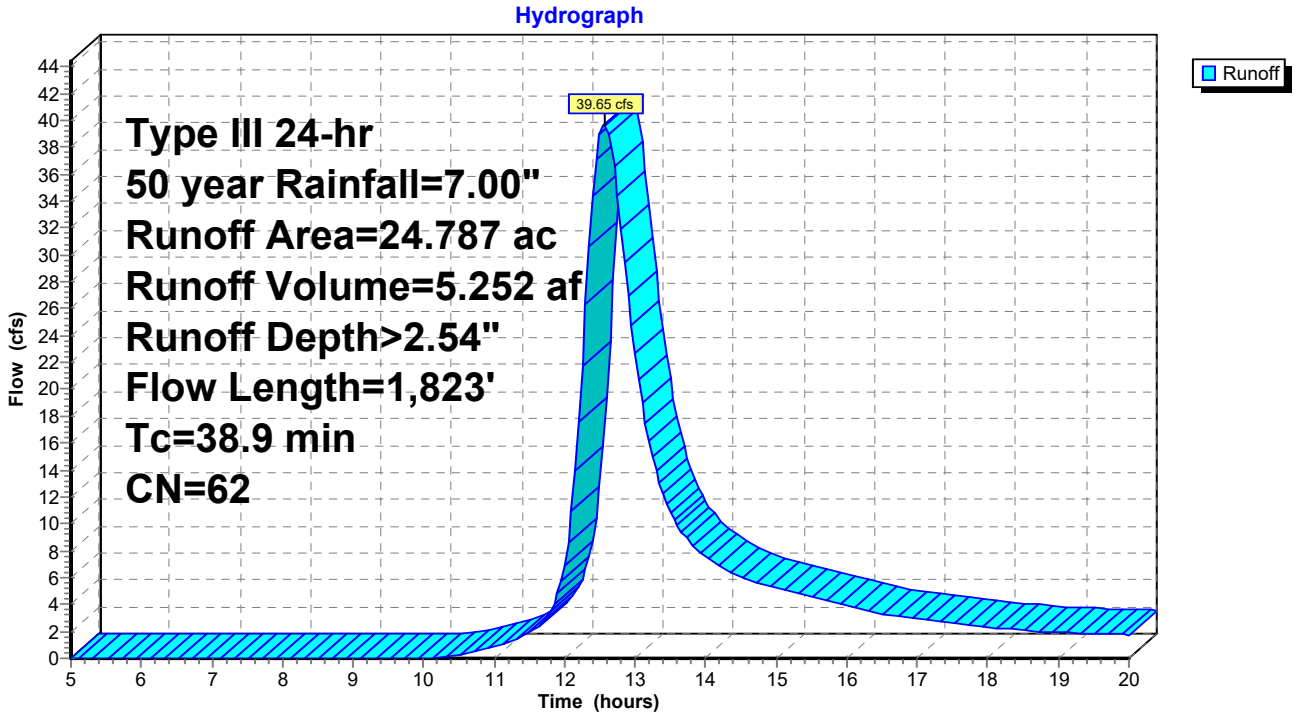
Runoff = 39.65 cfs @ 12.57 hrs, Volume= 5.252 af, Depth> 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 year Rainfall=7.00"

Area (ac)	CN	Description
2.719	39	>75% Grass cover, Good, HSG A
16.345	61	>75% Grass cover, Good, HSG B
3.970	74	>75% Grass cover, Good, HSG C
0.825	86	Fallow, bare soil, HSG B
0.272	85	Gravel roads, HSG B
0.116	89	Gravel roads, HSG C
0.105	98	Roofs, HSG B
0.436	60	Woods, Fair, HSG B
24.787	62	Weighted Average
24.682		99.58% Pervious Area
0.105		0.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.16"
3.9	317	0.0379	1.36		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.5	465	0.0170	0.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.3	203	0.0440	1.47		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.9	788	0.0089	0.66		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
38.9	1,823	Total			

Subcatchment 1: Subcat 1



Summary for Subcatchment 2: Subcat 2

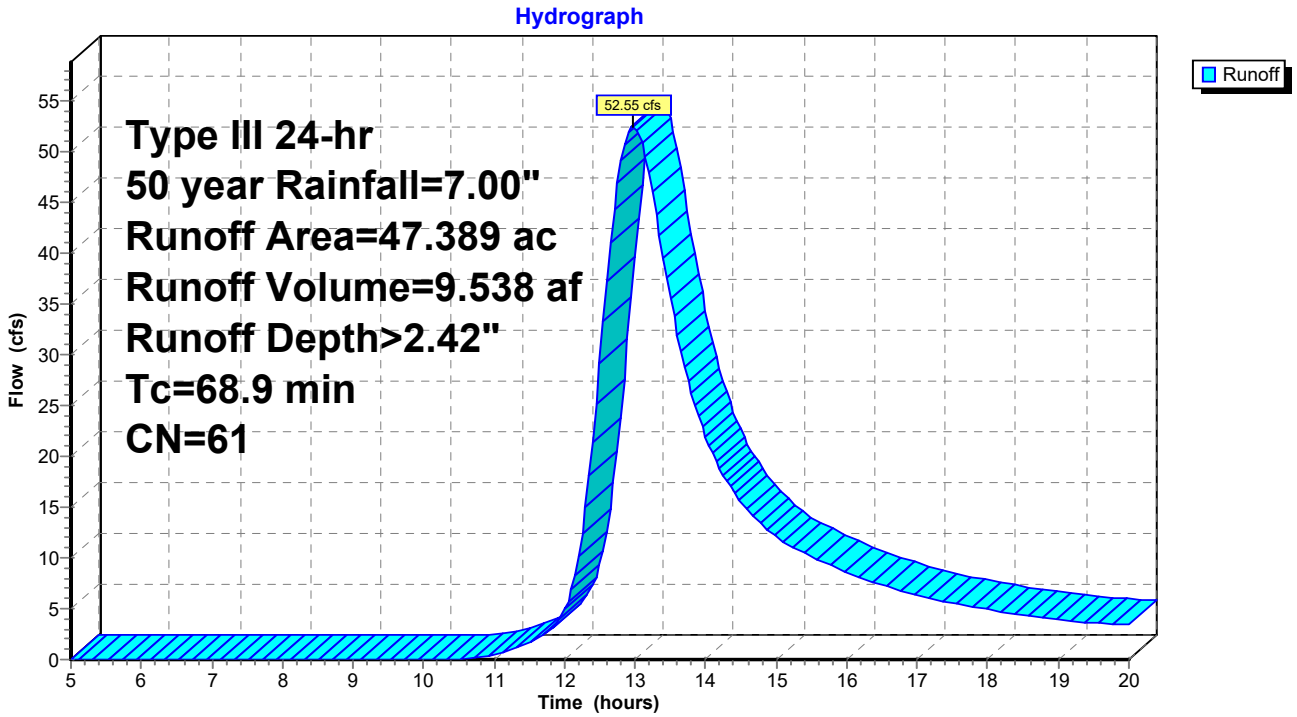
Runoff = 52.55 cfs @ 12.96 hrs, Volume= 9.538 af, Depth> 2.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 year Rainfall=7.00"

Area (ac)	CN	Description
2.943	39	>75% Grass cover, Good, HSG A
32.892	61	>75% Grass cover, Good, HSG B
0.069	74	>75% Grass cover, Good, HSG C
0.512	85	Gravel roads, HSG B
1.077	98	Paved parking, HSG B
0.015	98	Roofs, HSG A
0.842	98	Roofs, HSG B
9.040	60	Woods, Fair, HSG B
47.389	61	Weighted Average
45.455		95.92% Pervious Area
1.934		4.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
68.9					**Direct Entry,**

Subcatchment 2: Subcat 2



Summary for Subcatchment 3A: Subcat 3A

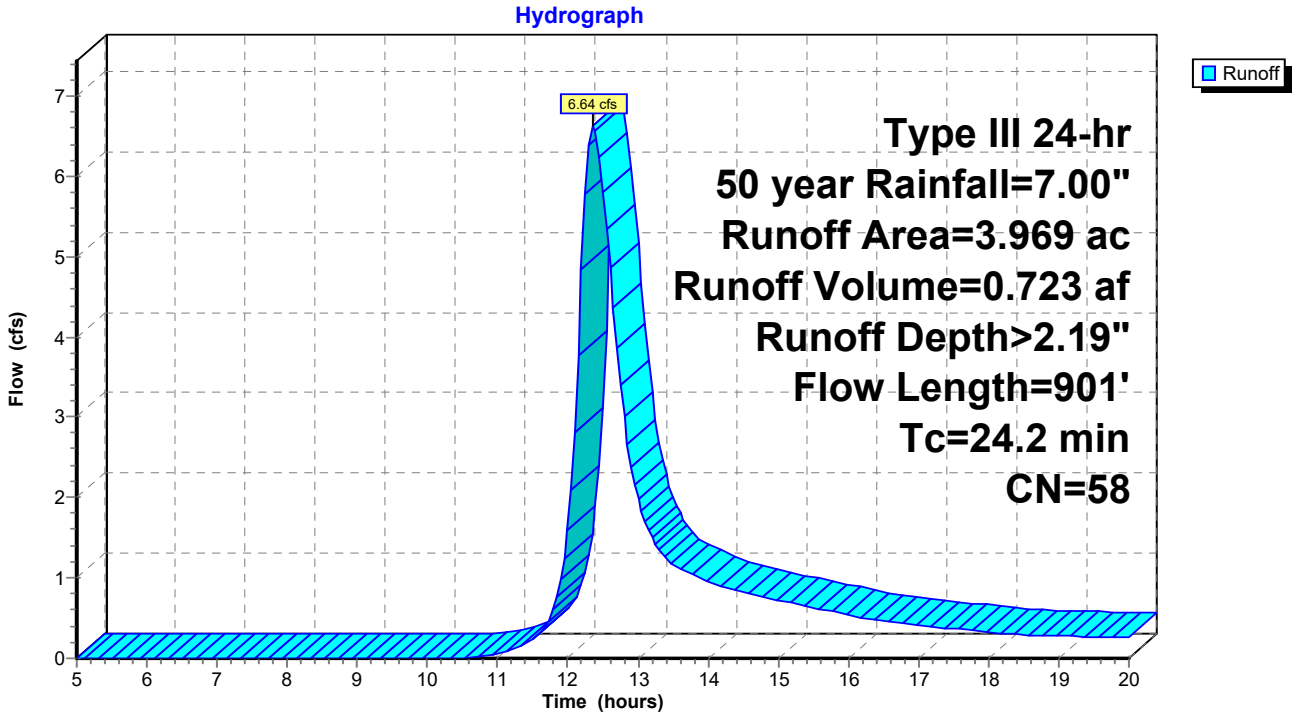
Runoff = 6.64 cfs @ 12.36 hrs, Volume= 0.723 af, Depth> 2.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 year Rainfall=7.00"

Area (ac)	CN	Description
1.056	39	>75% Grass cover, Good, HSG A
2.393	61	>75% Grass cover, Good, HSG B
0.317	74	>75% Grass cover, Good, HSG C
0.079	85	Gravel roads, HSG B
0.123	98	Roofs, HSG B
3.969	58	Weighted Average
3.845		96.89% Pervious Area
0.123		3.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	50	0.1400	0.29		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 3.16"
3.7	237	0.0230	1.06		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.1	393	0.0051	0.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.5	221	0.0136	0.82		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.2	901	Total			

Subcatchment 3A: Subcat 3A



Summary for Subcatchment 3B: Subcat 3B

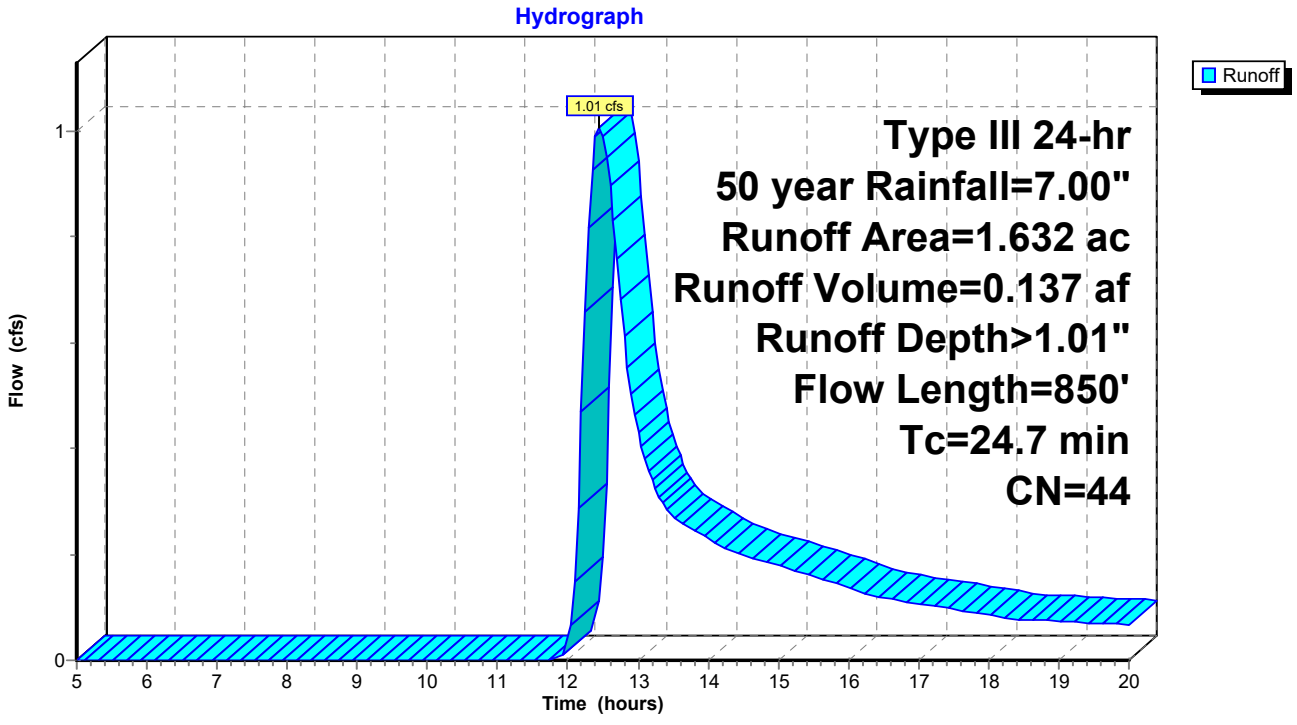
Runoff = 1.01 cfs @ 12.45 hrs, Volume= 0.137 af, Depth> 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 year Rainfall=7.00"

Area (ac)	CN	Description
1.316	39	>75% Grass cover, Good, HSG A
0.279	61	>75% Grass cover, Good, HSG B
0.000	76	Gravel roads, HSG A
0.036	85	Gravel roads, HSG B
1.632	44	Weighted Average
1.632		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.16"
19.0	800	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.7	850	Total			

Subcatchment 3B: Subcat 3B



Summary for Subcatchment 4: Roadside Swale

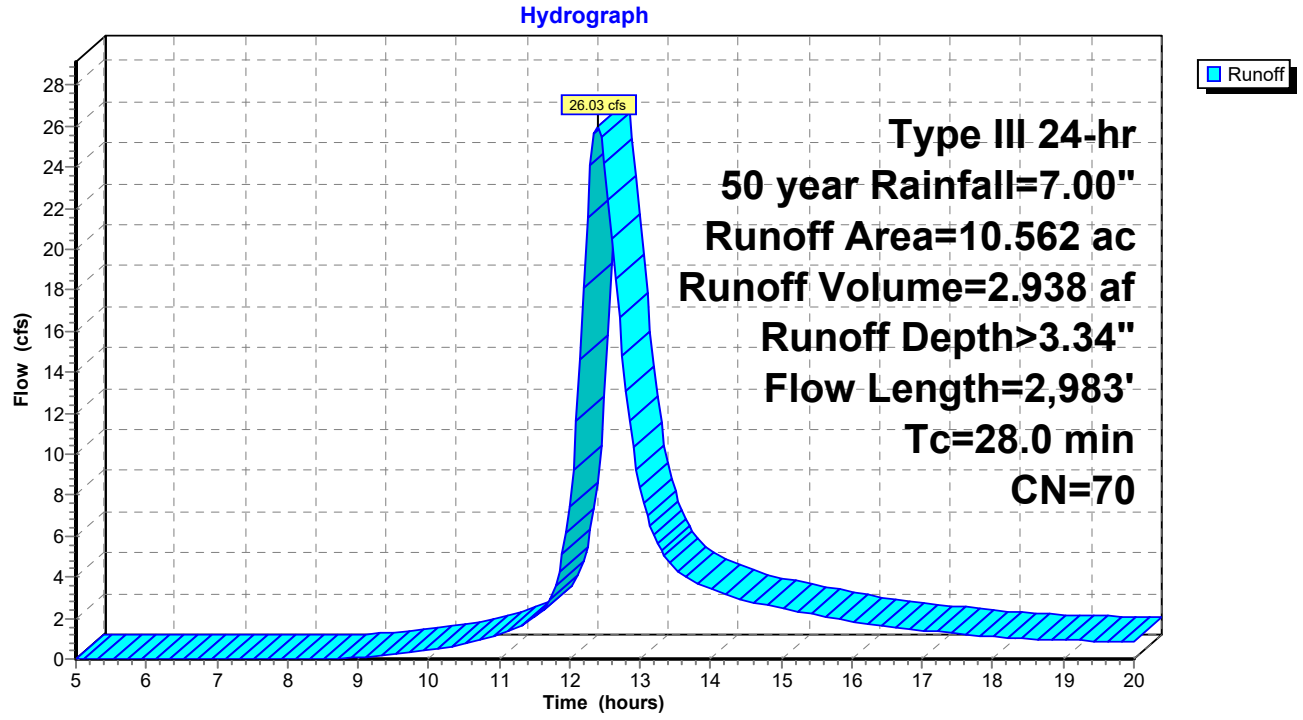
Runoff = 26.03 cfs @ 12.40 hrs, Volume= 2.938 af, Depth> 3.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50 year Rainfall=7.00"

Area (ac)	CN	Description
8.211	68	1 acre lots, 20% imp, HSG B
0.261	39	>75% Grass cover, Good, HSG A
0.471	61	>75% Grass cover, Good, HSG B
1.619	85	Gravel roads, HSG B
0.000	60	Woods, Fair, HSG B
10.562	70	Weighted Average
8.920		84.45% Pervious Area
1.642		15.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.16"
9.5	2,050	0.0312	3.59		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
18.0	883	0.0136	0.82		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
28.0	2,983	Total			

Subcatchment 4: Roadside Swale



Summary for Pond 1P: (new Pond)

Inflow Area = 24.787 ac, 0.42% Impervious, Inflow Depth > 2.54" for 50 year event
Inflow = 39.65 cfs @ 12.57 hrs, Volume= 5.252 af
Outflow = 24.30 cfs @ 12.96 hrs, Volume= 3.778 af, Atten= 39%, Lag= 23.8 min
Discarded = 1.14 cfs @ 12.96 hrs, Volume= 0.755 af
Primary = 23.16 cfs @ 12.96 hrs, Volume= 3.024 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 201.48' @ 12.96 hrs Surf.Area= 21,702 sf Storage= 82,145 cf

Plug-Flow detention time= 112.1 min calculated for 3.778 af (72% of inflow)
Center-of-Mass det. time= 48.7 min (882.3 - 833.6)

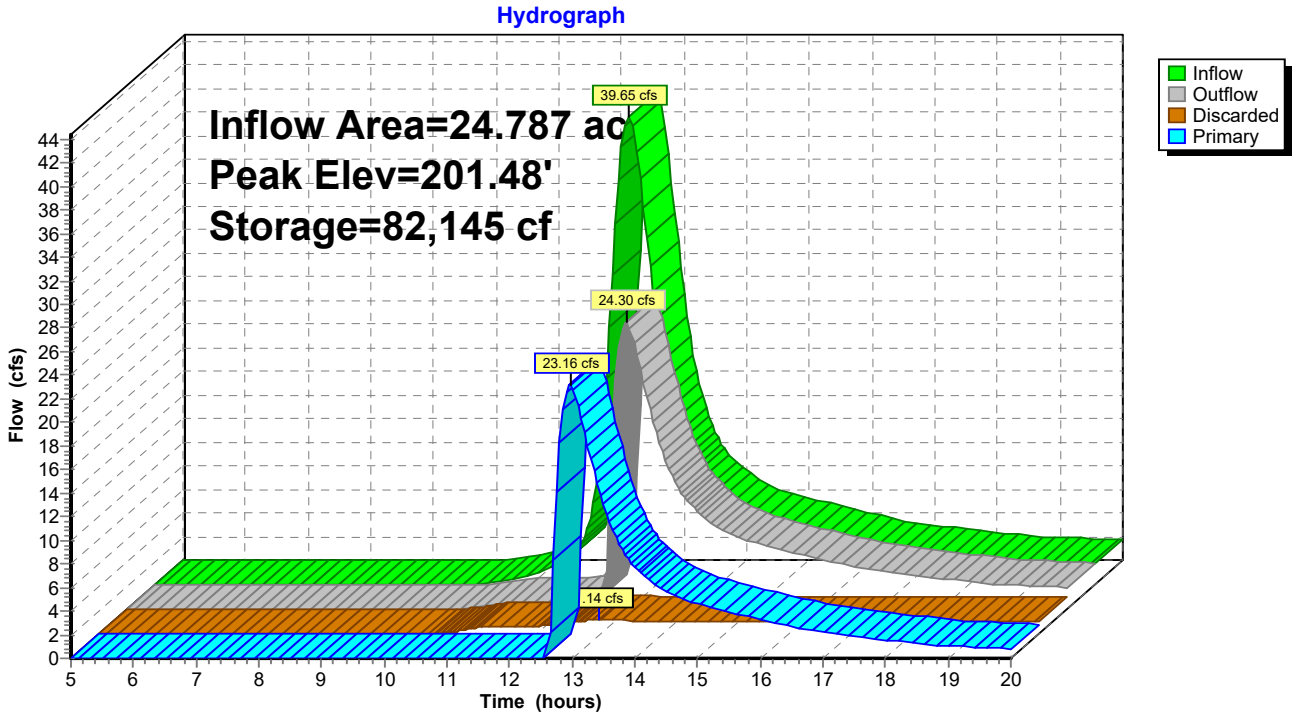
Volume	Invert	Avail.Storage	Storage Description
#1	196.50'	105,552 cf	**44.00'W x 264.00'L x 6.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	200.50'	**9.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	196.50'	**2.200 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=1.14 cfs @ 12.96 hrs HW=201.47' (Free Discharge)
↑—**2=Exfiltration** (Controls 1.14 cfs)

Primary OutFlow Max=23.09 cfs @ 12.96 hrs HW=201.47' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 23.09 cfs @ 2.64 fps)

Pond 1P: (new Pond)



Summary for Pond 2P: (new Pond)

Inflow Area = 47.389 ac, 4.08% Impervious, Inflow Depth > 2.42" for 50 year event
Inflow = 52.55 cfs @ 12.96 hrs, Volume= 9.538 af
Outflow = 39.24 cfs @ 13.41 hrs, Volume= 6.872 af, Atten= 25%, Lag= 27.0 min
Discarded = 1.47 cfs @ 13.41 hrs, Volume= 0.960 af
Primary = 37.77 cfs @ 13.41 hrs, Volume= 5.911 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 202.26' @ 13.41 hrs Surf.Area= 30,500 sf Storage= 139,954 cf

Plug-Flow detention time= 108.3 min calculated for 6.872 af (72% of inflow)
Center-of-Mass det. time= 47.6 min (905.7 - 858.2)

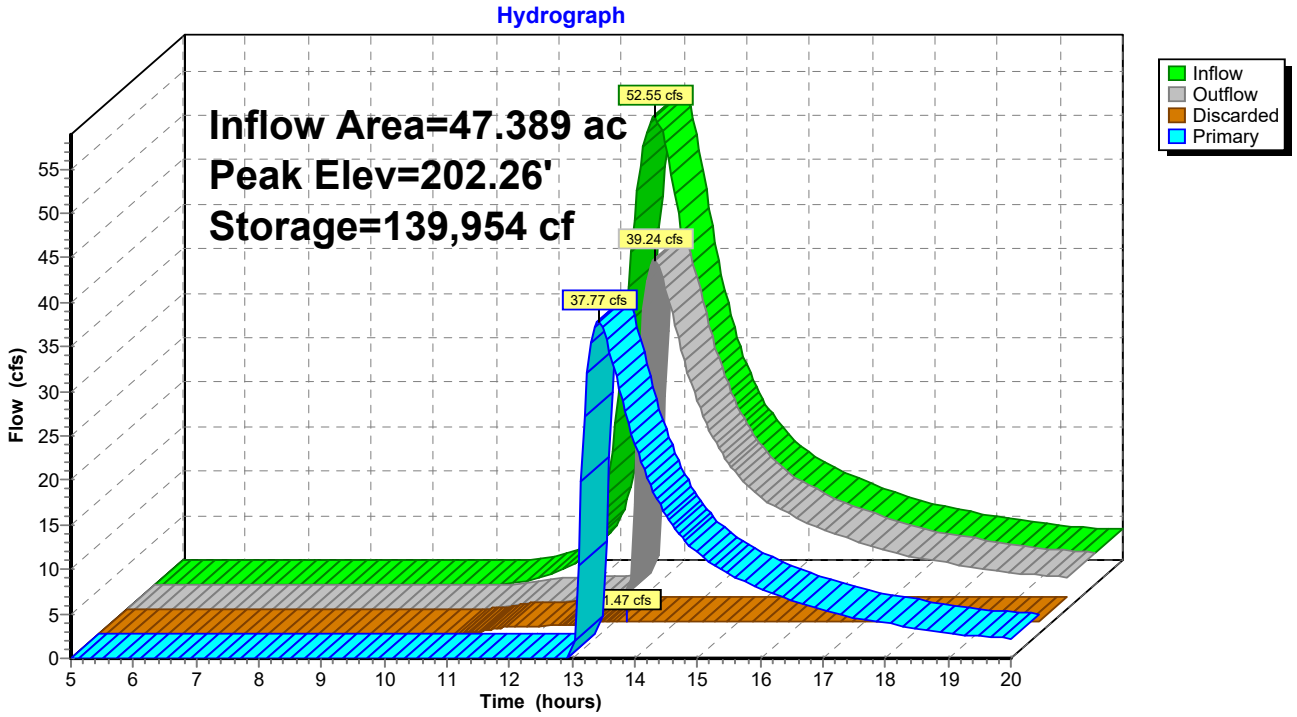
Volume	Invert	Avail.Storage	Storage Description
#1	196.50'	156,731 cf	**79.00'W x 234.00'L x 6.30'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	201.30'	**15.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	196.50'	**2.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=1.47 cfs @ 13.41 hrs HW=202.26' (Free Discharge)
↑—**2=Exfiltration** (Controls 1.47 cfs)

Primary OutFlow Max=37.68 cfs @ 13.41 hrs HW=202.26' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 37.68 cfs @ 2.62 fps)

Pond 2P: (new Pond)



Summary for Pond 3P: (new Pond)

Inflow Area = 3.969 ac, 3.11% Impervious, Inflow Depth > 2.19" for 50 year event
Inflow = 6.64 cfs @ 12.36 hrs, Volume= 0.723 af
Outflow = 3.18 cfs @ 12.78 hrs, Volume= 0.509 af, Atten= 52%, Lag= 25.0 min
Discarded = 0.35 cfs @ 12.78 hrs, Volume= 0.222 af
Primary = 2.83 cfs @ 12.78 hrs, Volume= 0.287 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 203.80' @ 12.78 hrs Surf.Area= 4,677 sf Storage= 11,781 cf

Plug-Flow detention time= 122.7 min calculated for 0.507 af (70% of inflow)
Center-of-Mass det. time= 55.4 min (884.8 - 829.4)

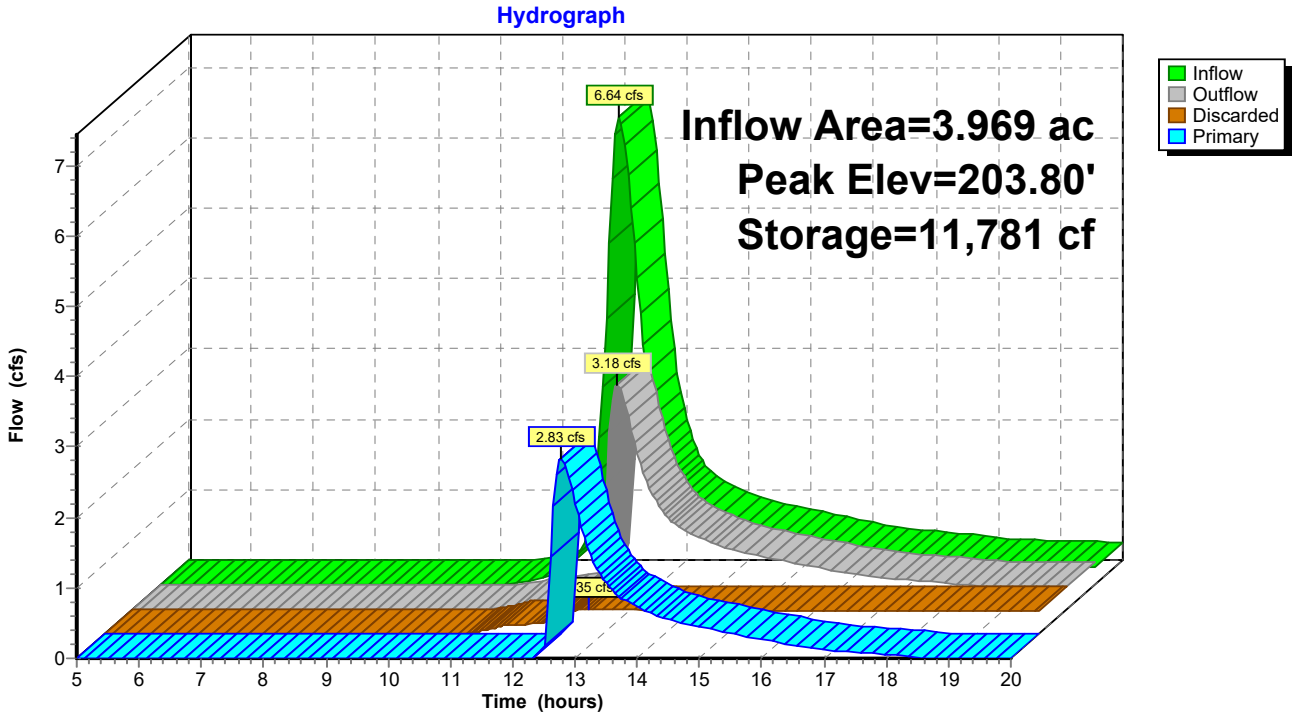
Volume	Invert	Avail.Storage	Storage Description
#1	200.00'	24,402 cf	**19.00'W x 89.00'L x 6.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	203.30'	**3.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#2	Discarded	200.00'	**3.200 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=0.35 cfs @ 12.78 hrs HW=203.80' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.35 cfs)

Primary OutFlow Max=2.81 cfs @ 12.78 hrs HW=203.80' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 2.81 cfs @ 1.87 fps)

Pond 3P: (new Pond)

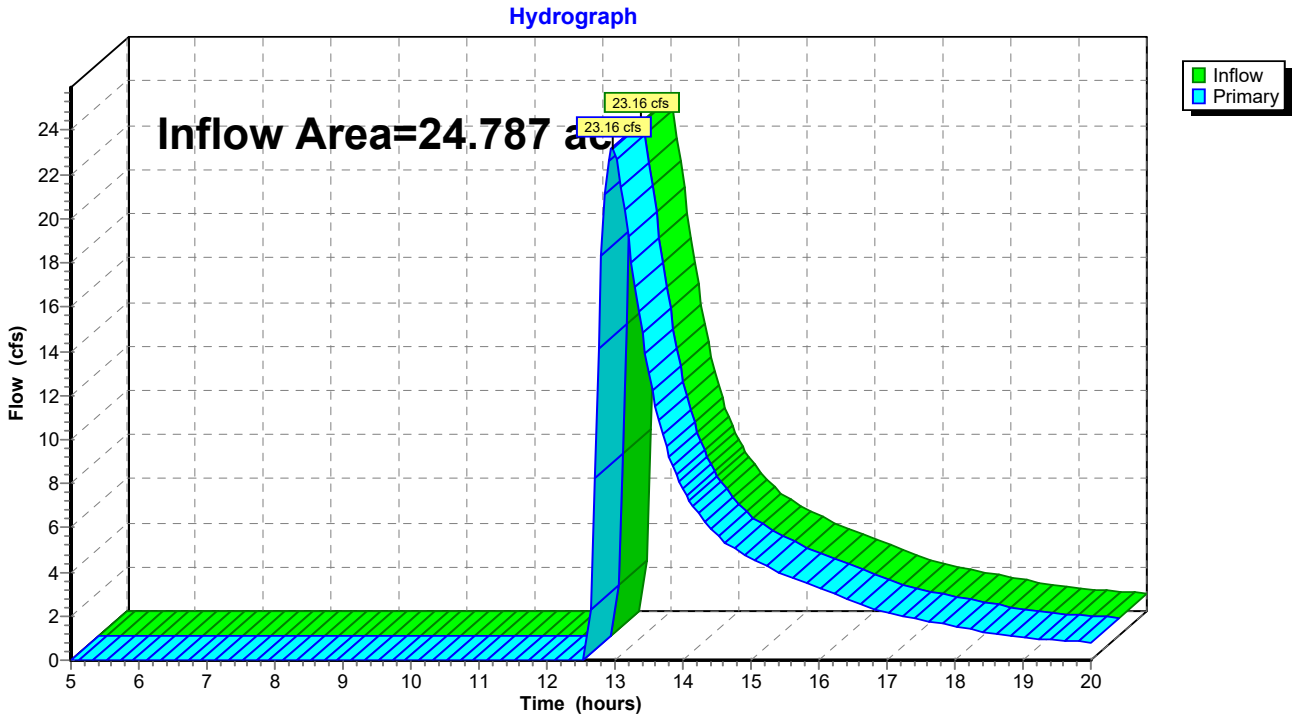


Summary for Link DP1: DP1

Inflow Area = 24.787 ac, 0.42% Impervious, Inflow Depth > 1.46" for 50 year event
Inflow = 23.16 cfs @ 12.96 hrs, Volume= 3.024 af
Primary = 23.16 cfs @ 12.96 hrs, Volume= 3.024 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP1: DP1

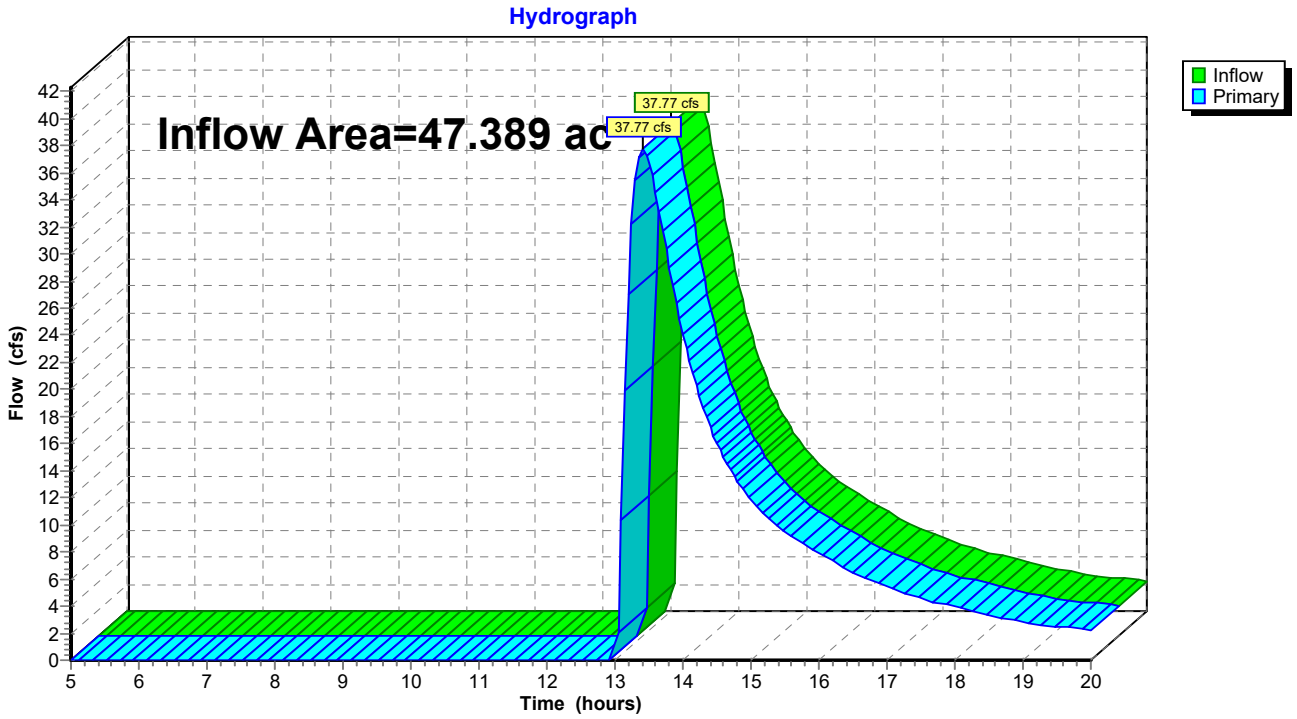


Summary for Link DP2: DP2

Inflow Area = 47.389 ac, 4.08% Impervious, Inflow Depth > 1.50" for 50 year event
Inflow = 37.77 cfs @ 13.41 hrs, Volume= 5.911 af
Primary = 37.77 cfs @ 13.41 hrs, Volume= 5.911 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP2: DP2

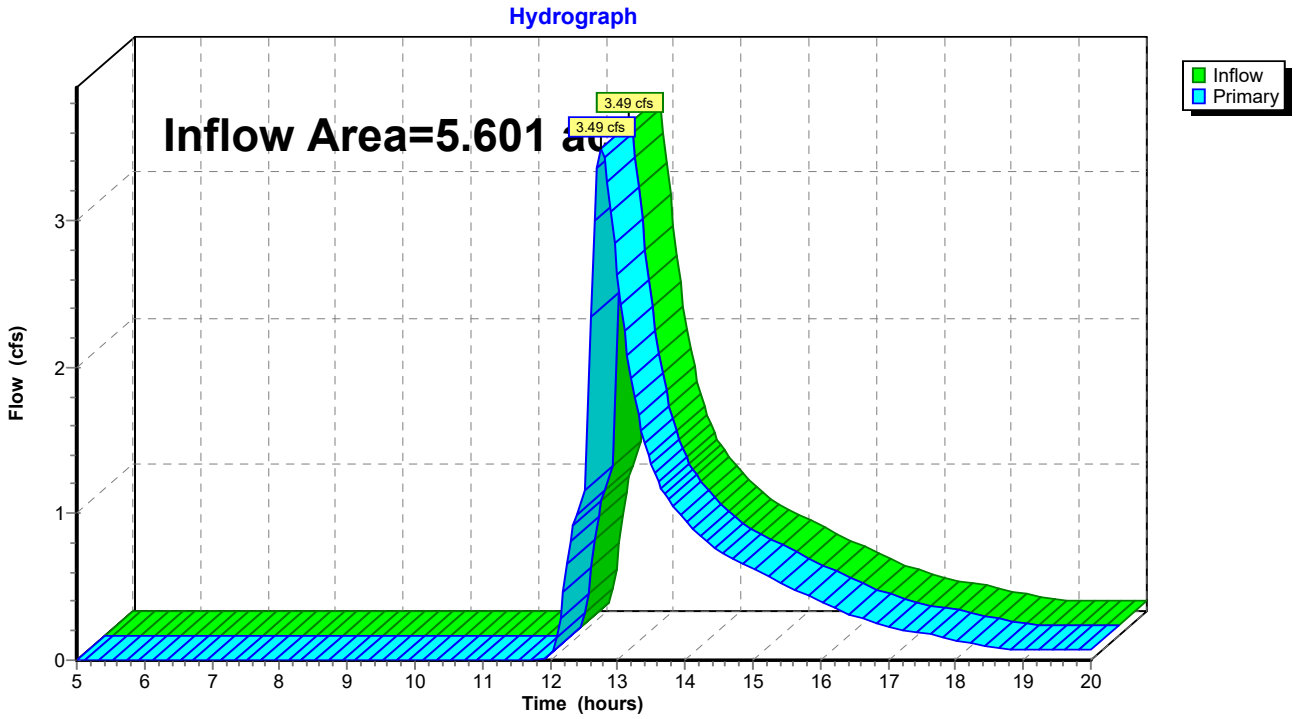


Summary for Link DP3: DP3

Inflow Area = 5.601 ac, 2.20% Impervious, Inflow Depth > 0.91" for 50 year event
Inflow = 3.49 cfs @ 12.76 hrs, Volume= 0.424 af
Primary = 3.49 cfs @ 12.76 hrs, Volume= 0.424 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP3: DP3



100-Year Storm Event – Proposed

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Subcat 1 Runoff Area=24.787 ac 0.42% Impervious Runoff Depth>3.20"
Flow Length=1,823' Tc=38.9 min CN=62 Runoff=50.23 cfs 6.613 af

Subcatchment2: Subcat 2 Runoff Area=47.389 ac 4.08% Impervious Runoff Depth>3.06"
Tc=68.9 min CN=61 Runoff=67.06 cfs 12.067 af

Subcatchment3A: Subcat 3A Runoff Area=3.969 ac 3.11% Impervious Runoff Depth>2.80"
Flow Length=901' Tc=24.2 min CN=58 Runoff=8.61 cfs 0.926 af

Subcatchment3B: Subcat 3B Runoff Area=1.632 ac 0.00% Impervious Runoff Depth>1.42"
Flow Length=850' Tc=24.7 min CN=44 Runoff=1.54 cfs 0.193 af

Subcatchment4: Roadside Swale Runoff Area=10.562 ac 15.55% Impervious Runoff Depth>4.08"
Flow Length=2,983' Tc=28.0 min CN=70 Runoff=31.80 cfs 3.595 af

Pond 1P: (new Pond) Peak Elev=201.81' Storage=89,626 cf Inflow=50.23 cfs 6.613 af
Discarded=1.19 cfs 0.789 af Primary=36.06 cfs 4.336 af Outflow=37.24 cfs 5.125 af

Pond 2P: (new Pond) Peak Elev=202.55' Storage=148,985 cf Inflow=67.06 cfs 12.067 af
Discarded=1.51 cfs 1.006 af Primary=56.11 cfs 8.375 af Outflow=57.62 cfs 9.381 af

Pond 3P: (new Pond) Peak Elev=204.05' Storage=12,948 cf Inflow=8.61 cfs 0.926 af
Discarded=0.37 cfs 0.231 af Primary=5.18 cfs 0.475 af Outflow=5.56 cfs 0.706 af

Link DP1: DP1 Inflow=36.06 cfs 4.336 af
Primary=36.06 cfs 4.336 af

Link DP2: DP2 Inflow=56.11 cfs 8.375 af
Primary=56.11 cfs 8.375 af

Link DP3: DP3 Inflow=6.40 cfs 0.668 af
Primary=6.40 cfs 0.668 af

Total Runoff Area = 88.339 ac Runoff Volume = 23.394 af Average Runoff Depth = 3.18"
95.69% Pervious = 84.534 ac 4.31% Impervious = 3.804 ac

Summary for Subcatchment 1: Subcat 1

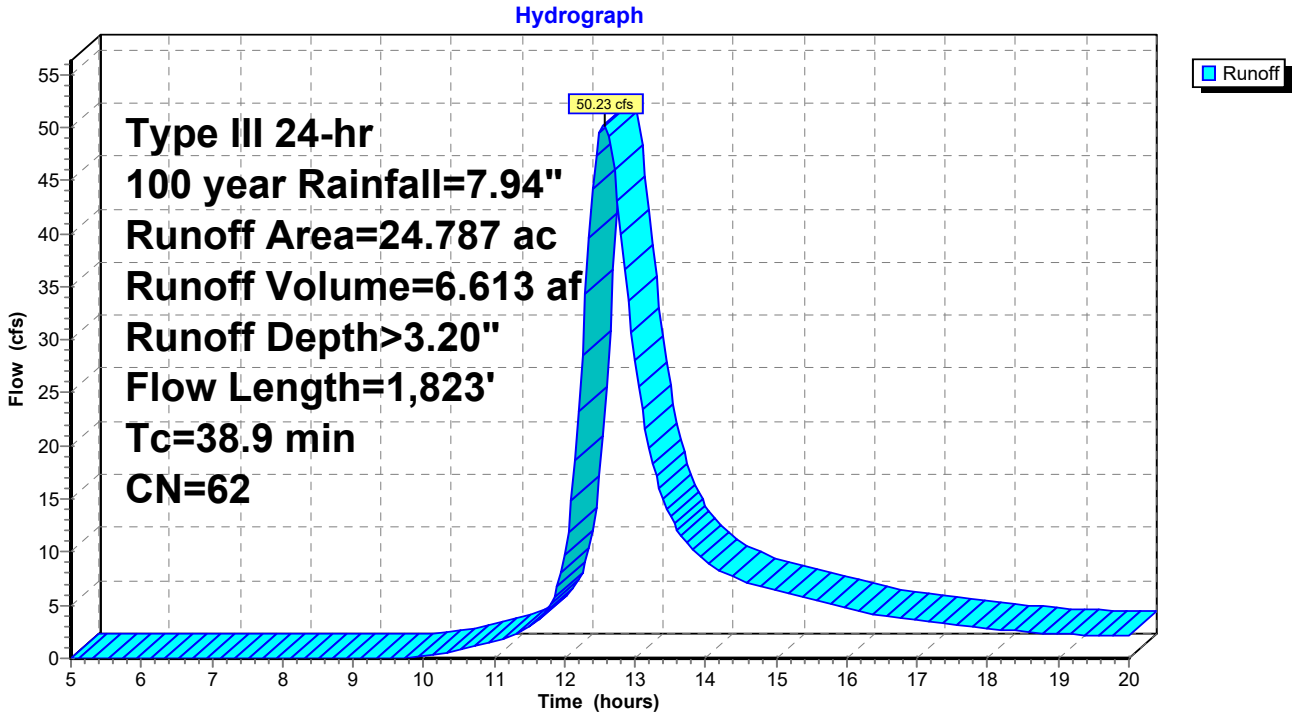
Runoff = 50.23 cfs @ 12.56 hrs, Volume= 6.613 af, Depth> 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.94"

Area (ac)	CN	Description
2.719	39	>75% Grass cover, Good, HSG A
16.345	61	>75% Grass cover, Good, HSG B
3.970	74	>75% Grass cover, Good, HSG C
0.825	86	Fallow, bare soil, HSG B
0.272	85	Gravel roads, HSG B
0.116	89	Gravel roads, HSG C
0.105	98	Roofs, HSG B
0.436	60	Woods, Fair, HSG B
24.787	62	Weighted Average
24.682		99.58% Pervious Area
0.105		0.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	50	0.0400	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.16"
3.9	317	0.0379	1.36		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
8.5	465	0.0170	0.91		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.3	203	0.0440	1.47		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
19.9	788	0.0089	0.66		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
38.9	1,823	Total			

Subcatchment 1: Subcat 1



Summary for Subcatchment 2: Subcat 2

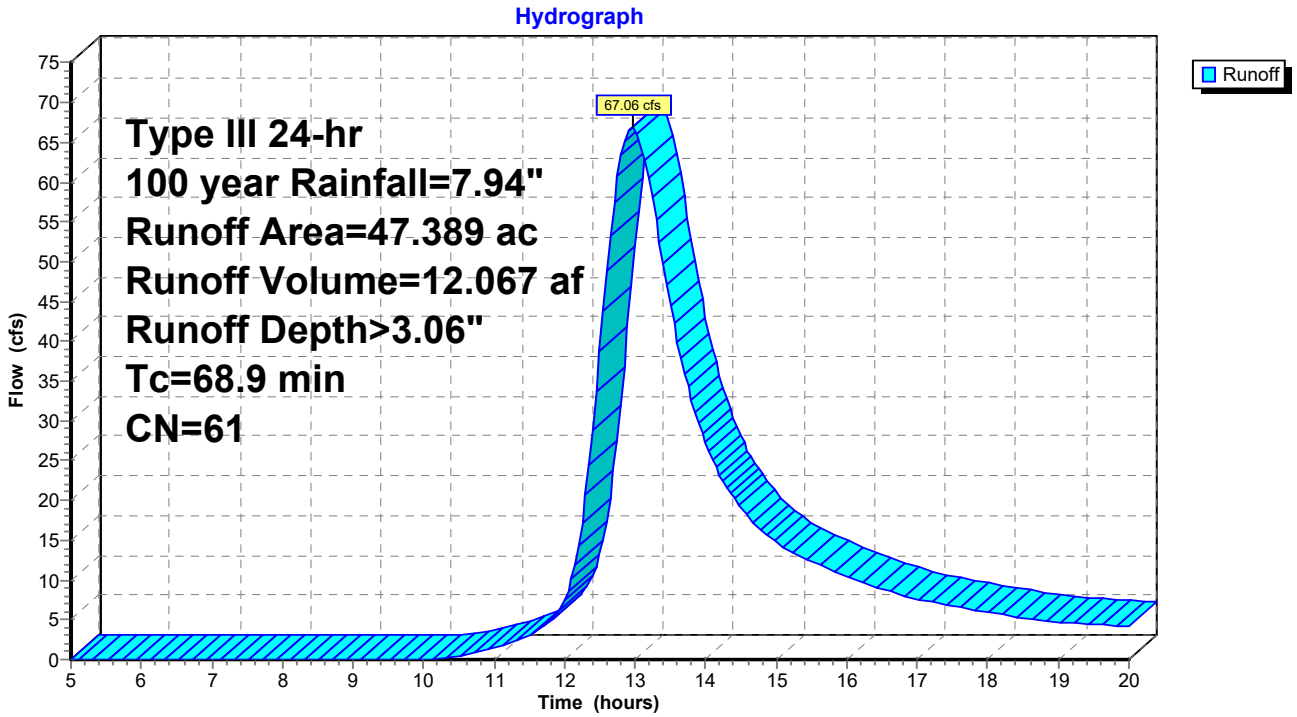
Runoff = 67.06 cfs @ 12.96 hrs, Volume= 12.067 af, Depth> 3.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.94"

Area (ac)	CN	Description
2.943	39	>75% Grass cover, Good, HSG A
32.892	61	>75% Grass cover, Good, HSG B
0.069	74	>75% Grass cover, Good, HSG C
0.512	85	Gravel roads, HSG B
1.077	98	Paved parking, HSG B
0.015	98	Roofs, HSG A
0.842	98	Roofs, HSG B
9.040	60	Woods, Fair, HSG B
47.389	61	Weighted Average
45.455		95.92% Pervious Area
1.934		4.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
68.9					**Direct Entry,**

Subcatchment 2: Subcat 2



Summary for Subcatchment 3A: Subcat 3A

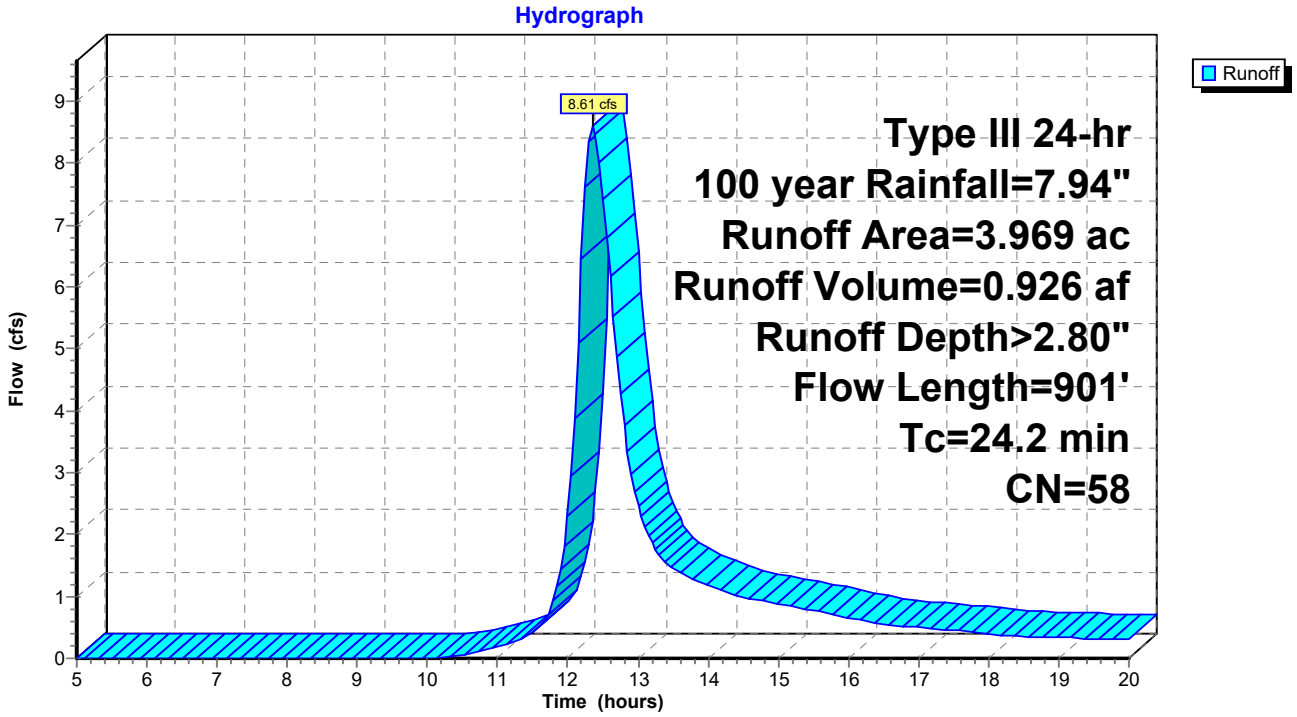
Runoff = 8.61 cfs @ 12.36 hrs, Volume= 0.926 af, Depth> 2.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.94"

Area (ac)	CN	Description
1.056	39	>75% Grass cover, Good, HSG A
2.393	61	>75% Grass cover, Good, HSG B
0.317	74	>75% Grass cover, Good, HSG C
0.079	85	Gravel roads, HSG B
0.123	98	Roofs, HSG B
3.969	58	Weighted Average
3.845		96.89% Pervious Area
0.123		3.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.9	50	0.1400	0.29		**Sheet Flow,** Cultivated: Residue>20% n= 0.170 P2= 3.16"
3.7	237	0.0230	1.06		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
13.1	393	0.0051	0.50		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.5	221	0.0136	0.82		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.2	901	Total			

Subcatchment 3A: Subcat 3A



Summary for Subcatchment 3B: Subcat 3B

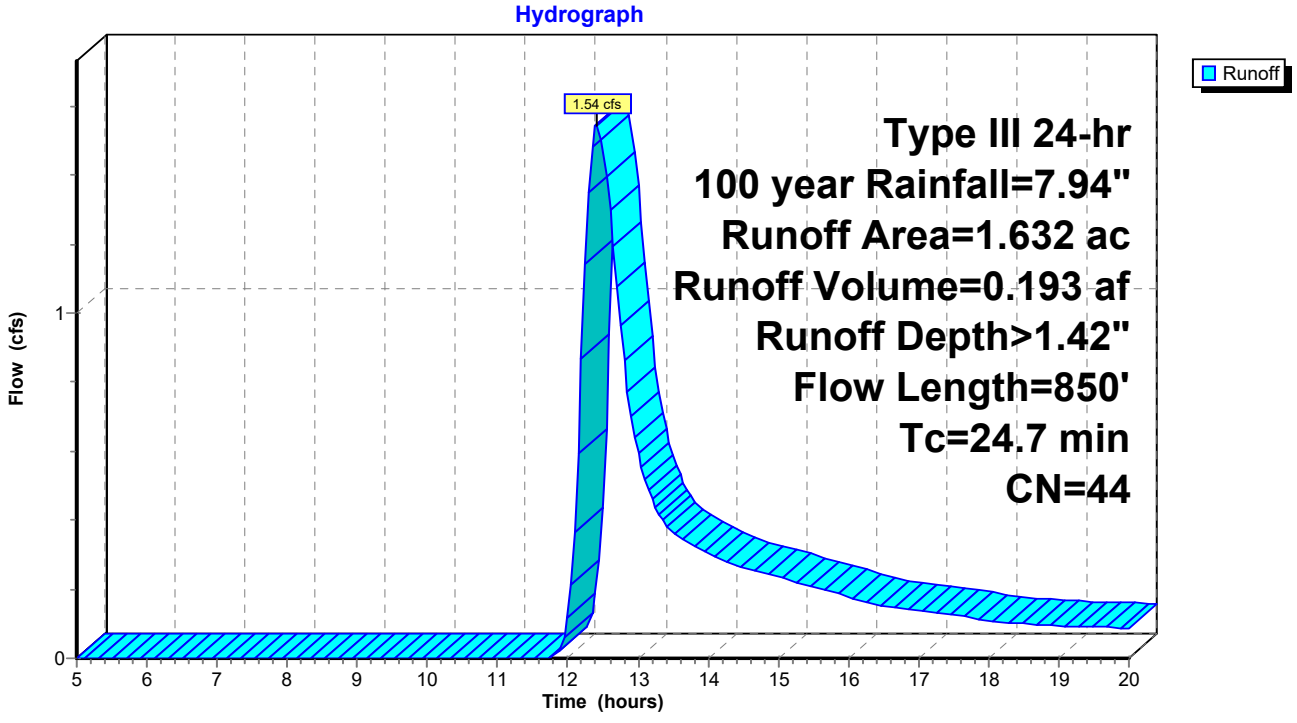
Runoff = 1.54 cfs @ 12.42 hrs, Volume= 0.193 af, Depth> 1.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.94"

Area (ac)	CN	Description
1.316	39	>75% Grass cover, Good, HSG A
0.279	61	>75% Grass cover, Good, HSG B
0.000	76	Gravel roads, HSG A
0.036	85	Gravel roads, HSG B
1.632	44	Weighted Average
1.632		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.16"
19.0	800	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
24.7	850	Total			

Subcatchment 3B: Subcat 3B



Summary for Subcatchment 4: Roadside Swale

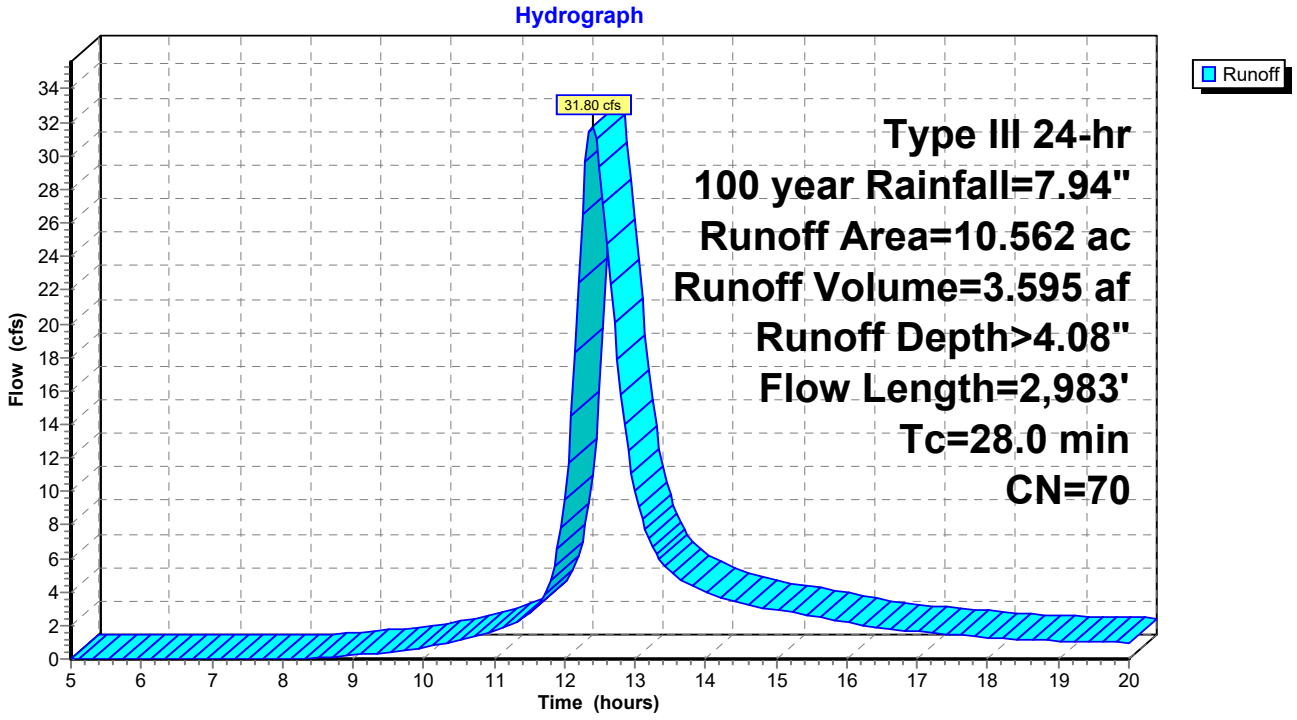
Runoff = 31.80 cfs @ 12.39 hrs, Volume= 3.595 af, Depth> 4.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 year Rainfall=7.94"

Area (ac)	CN	Description
8.211	68	1 acre lots, 20% imp, HSG B
0.261	39	>75% Grass cover, Good, HSG A
0.471	61	>75% Grass cover, Good, HSG B
1.619	85	Gravel roads, HSG B
0.000	60	Woods, Fair, HSG B
10.562	70	Weighted Average
8.920		84.45% Pervious Area
1.642		15.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.16"
9.5	2,050	0.0312	3.59		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
18.0	883	0.0136	0.82		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
28.0	2,983	Total			

Subcatchment 4: Roadside Swale



Summary for Pond 1P: (new Pond)

Inflow Area = 24.787 ac, 0.42% Impervious, Inflow Depth > 3.20" for 100 year event
Inflow = 50.23 cfs @ 12.56 hrs, Volume= 6.613 af
Outflow = 37.24 cfs @ 12.85 hrs, Volume= 5.125 af, Atten= 26%, Lag= 17.2 min
Discarded = 1.19 cfs @ 12.85 hrs, Volume= 0.789 af
Primary = 36.06 cfs @ 12.85 hrs, Volume= 4.336 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 201.81' @ 12.85 hrs Surf.Area= 22,453 sf Storage= 89,626 cf

Plug-Flow detention time= 93.6 min calculated for 5.108 af (77% of inflow)
Center-of-Mass det. time= 39.3 min (868.0 - 828.7)

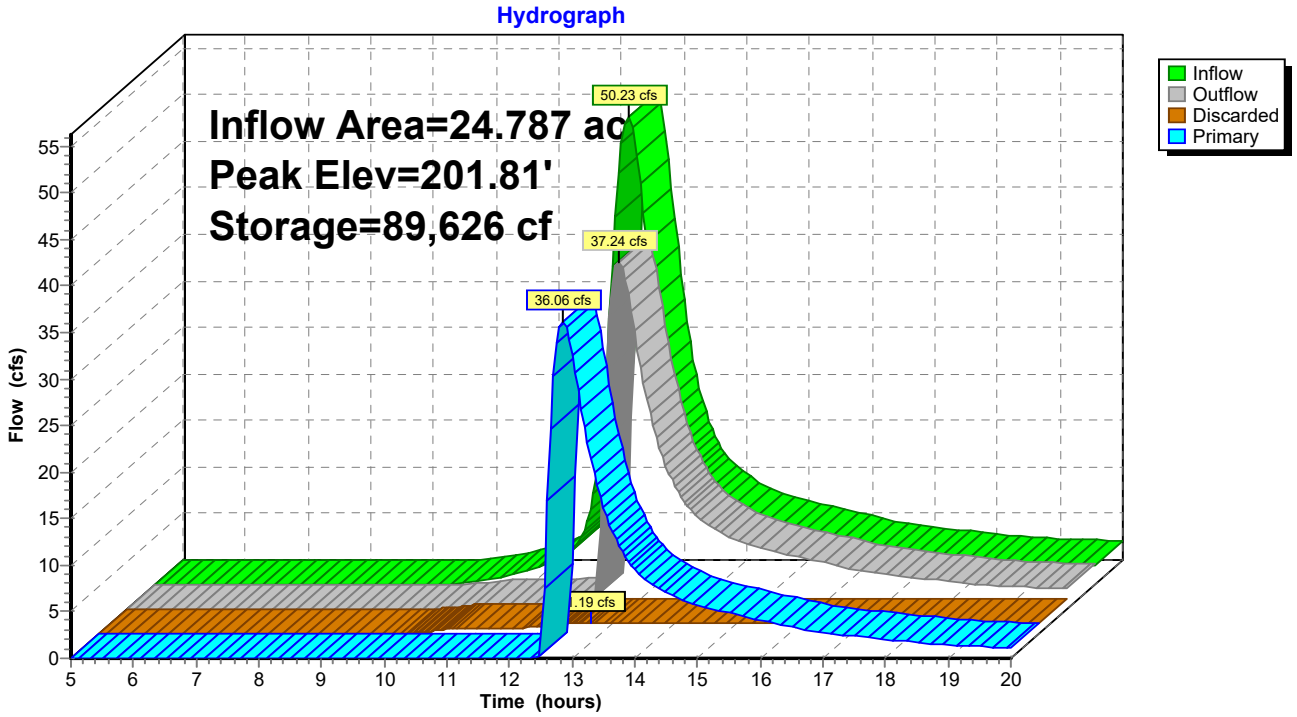
Volume	Invert	Avail.Storage	Storage Description
#1	196.50'	105,552 cf	**44.00'W x 264.00'L x 6.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	200.50'	**9.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	196.50'	**2.200 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=1.19 cfs @ 12.85 hrs HW=201.81' (Free Discharge)
↑—**2=Exfiltration** (Controls 1.19 cfs)

Primary OutFlow Max=36.01 cfs @ 12.85 hrs HW=201.81' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 36.01 cfs @ 3.05 fps)

Pond 1P: (new Pond)



Summary for Pond 2P: (new Pond)

Inflow Area = 47.389 ac, 4.08% Impervious, Inflow Depth > 3.06" for 100 year event
Inflow = 67.06 cfs @ 12.96 hrs, Volume= 12.067 af
Outflow = 57.62 cfs @ 13.26 hrs, Volume= 9.381 af, Atten= 14%, Lag= 18.4 min
Discarded = 1.51 cfs @ 13.26 hrs, Volume= 1.006 af
Primary = 56.11 cfs @ 13.26 hrs, Volume= 8.375 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 202.55' @ 13.26 hrs Surf.Area= 31,174 sf Storage= 148,985 cf

Plug-Flow detention time= 90.3 min calculated for 9.381 af (78% of inflow)
Center-of-Mass det. time= 38.3 min (891.6 - 853.4)

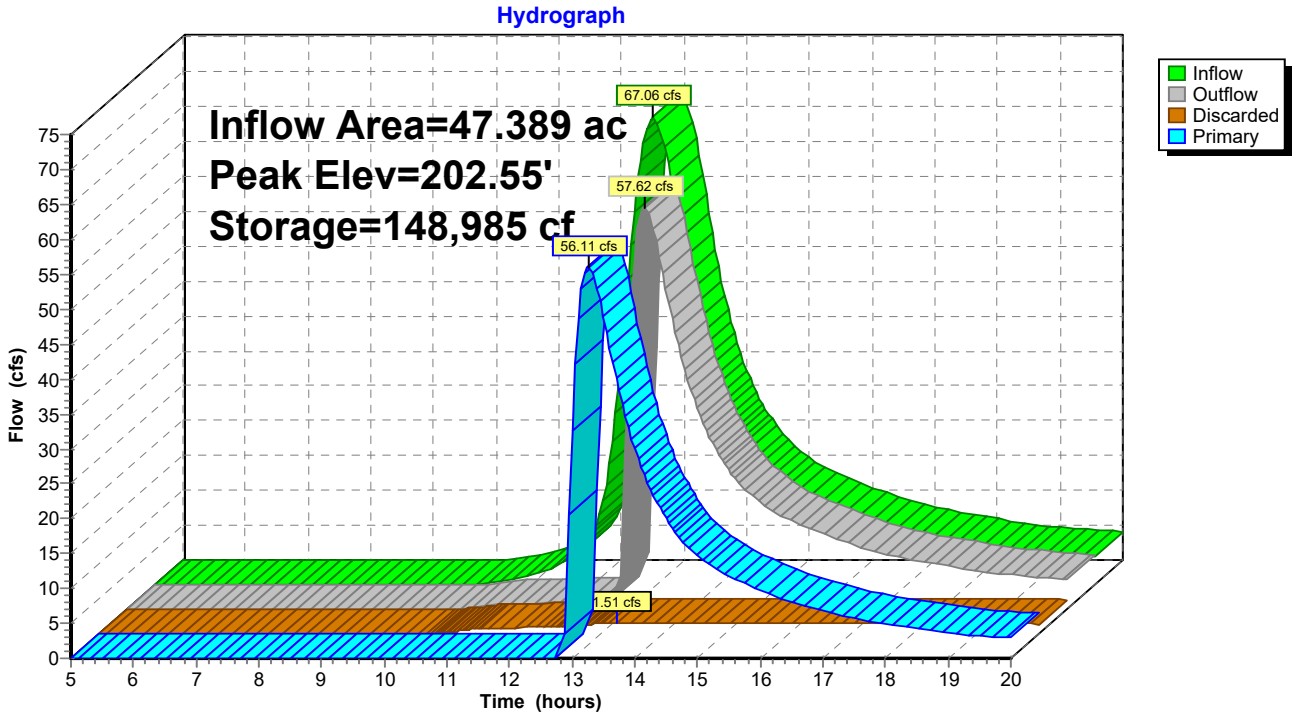
Volume	Invert	Avail.Storage	Storage Description
#1	196.50'	156,731 cf	**79.00'W x 234.00'L x 6.30'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	201.30'	**15.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32
#2	Discarded	196.50'	**2.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=1.51 cfs @ 13.26 hrs HW=202.55' (Free Discharge)
↑—**2=Exfiltration** (Controls 1.51 cfs)

Primary OutFlow Max=56.01 cfs @ 13.26 hrs HW=202.55' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 56.01 cfs @ 2.98 fps)

Pond 2P: (new Pond)



Summary for Pond 3P: (new Pond)

Inflow Area = 3.969 ac, 3.11% Impervious, Inflow Depth > 2.80" for 100 year event
Inflow = 8.61 cfs @ 12.36 hrs, Volume= 0.926 af
Outflow = 5.56 cfs @ 12.65 hrs, Volume= 0.706 af, Atten= 35%, Lag= 17.7 min
Discarded = 0.37 cfs @ 12.65 hrs, Volume= 0.231 af
Primary = 5.18 cfs @ 12.65 hrs, Volume= 0.475 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 204.05' @ 12.65 hrs Surf.Area= 4,904 sf Storage= 12,948 cf

Plug-Flow detention time= 99.2 min calculated for 0.704 af (76% of inflow)
Center-of-Mass det. time= 41.2 min (865.2 - 824.0)

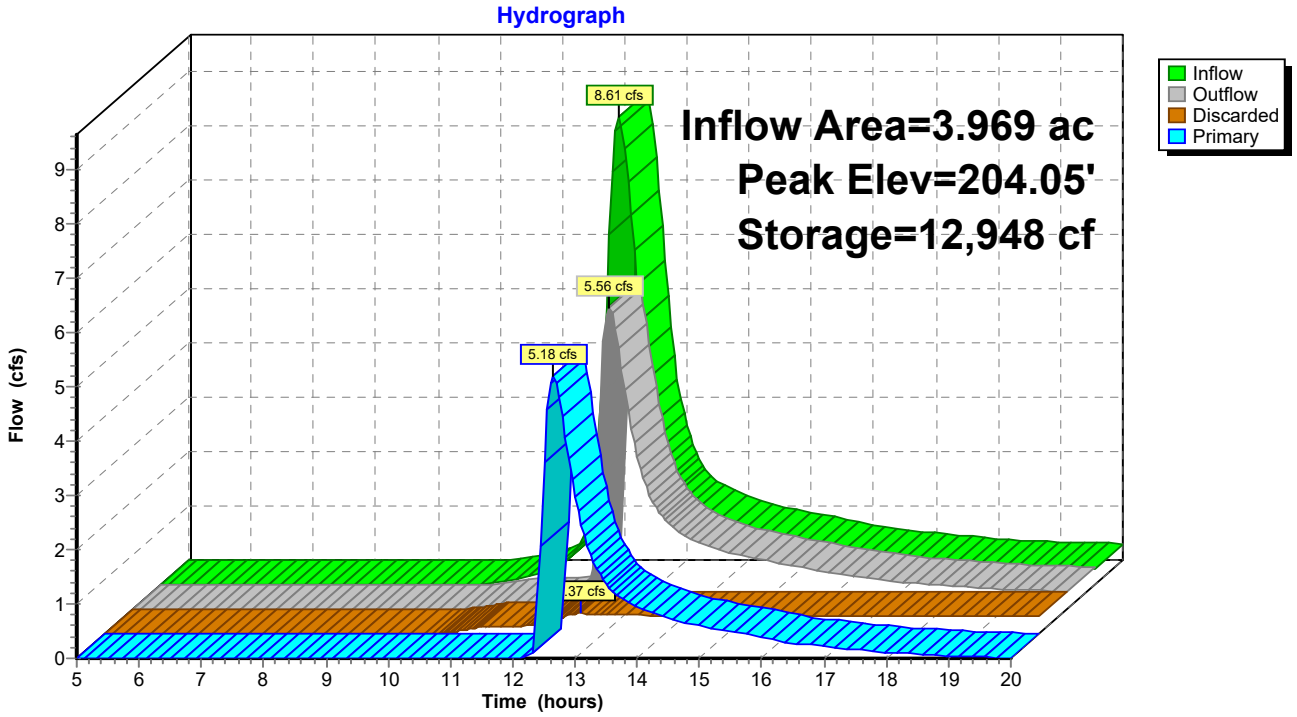
Volume	Invert	Avail.Storage	Storage Description
#1	200.00'	24,402 cf	**19.00'W x 89.00'L x 6.00'H Prismatoid Z=3.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	203.30'	**3.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#2	Discarded	200.00'	**3.200 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 90.00' Phase-In= 0.01'

Discarded OutFlow Max=0.37 cfs @ 12.65 hrs HW=204.05' (Free Discharge)
↑—**2=Exfiltration** (Controls 0.37 cfs)

Primary OutFlow Max=5.18 cfs @ 12.65 hrs HW=204.05' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 5.18 cfs @ 2.31 fps)

Pond 3P: (new Pond)

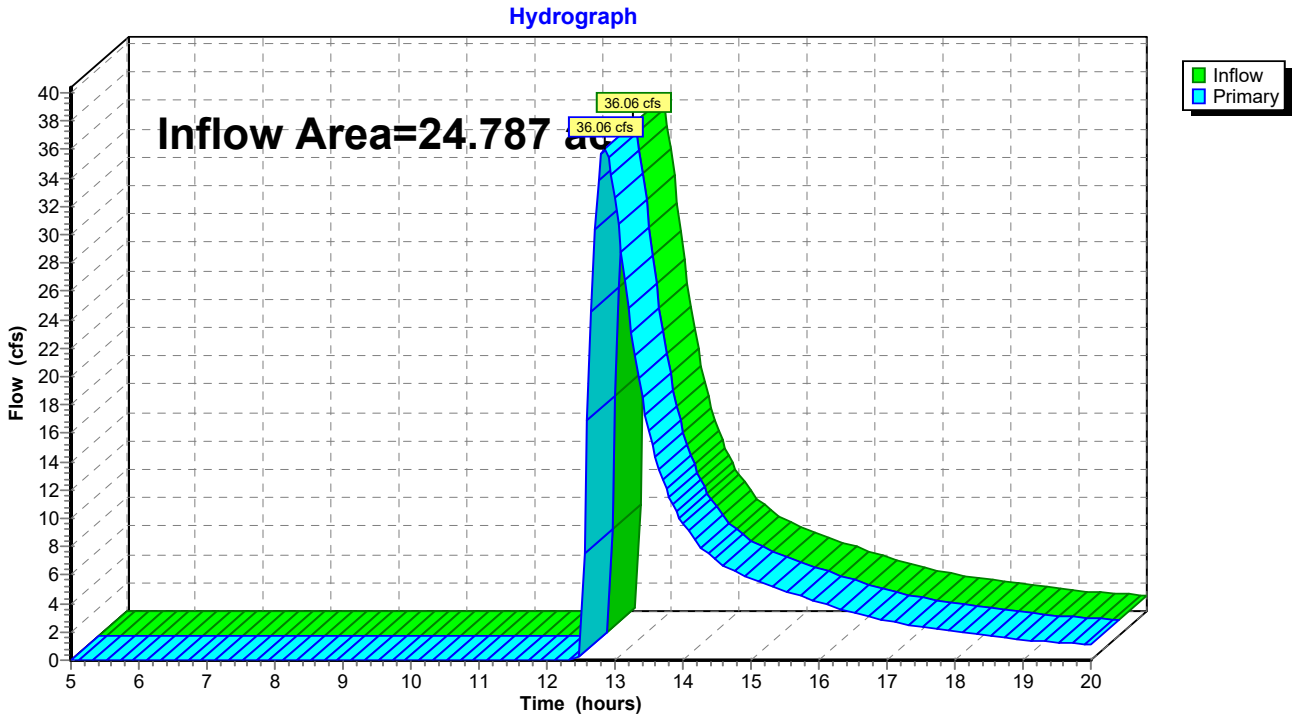


Summary for Link DP1: DP1

Inflow Area = 24.787 ac, 0.42% Impervious, Inflow Depth > 2.10" for 100 year event
Inflow = 36.06 cfs @ 12.85 hrs, Volume= 4.336 af
Primary = 36.06 cfs @ 12.85 hrs, Volume= 4.336 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP1: DP1

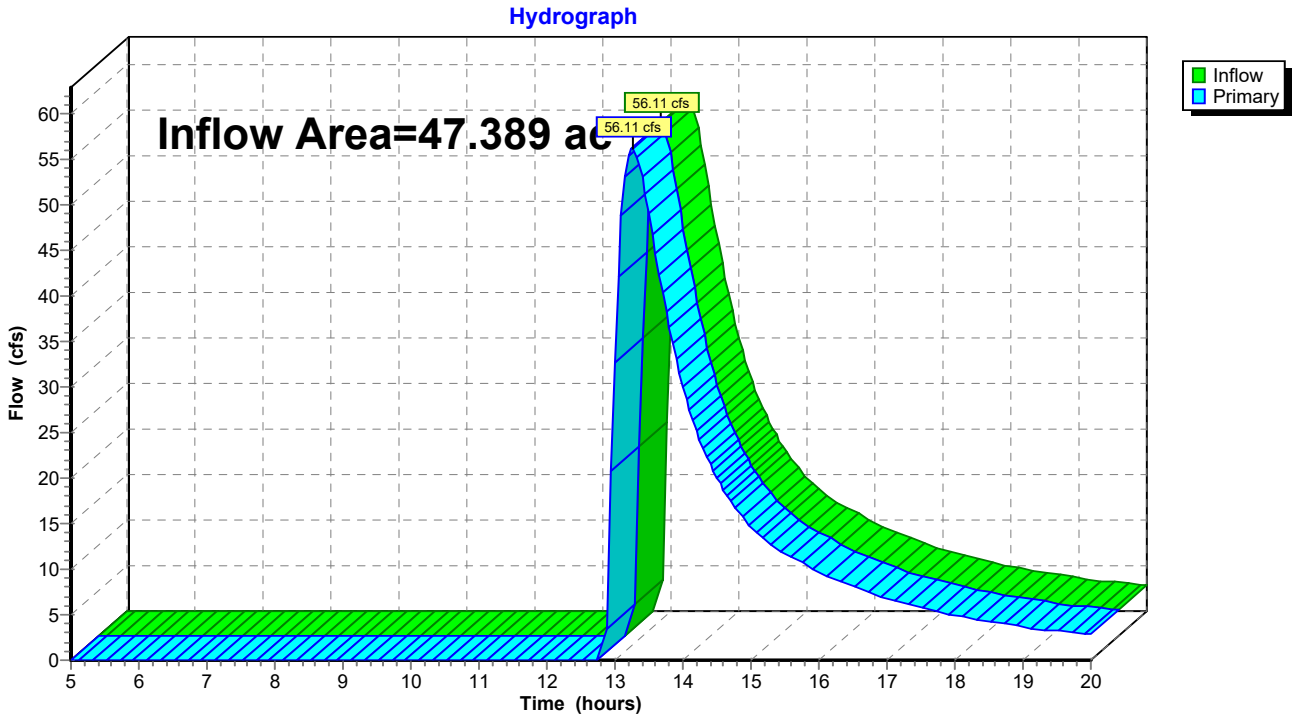


Summary for Link DP2: DP2

Inflow Area = 47.389 ac, 4.08% Impervious, Inflow Depth > 2.12" for 100 year event
Inflow = 56.11 cfs @ 13.26 hrs, Volume= 8.375 af
Primary = 56.11 cfs @ 13.26 hrs, Volume= 8.375 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP2: DP2



Summary for Link DP3: DP3

Inflow Area = 5.601 ac, 2.20% Impervious, Inflow Depth > 1.43" for 100 year event
Inflow = 6.40 cfs @ 12.63 hrs, Volume= 0.668 af
Primary = 6.40 cfs @ 12.63 hrs, Volume= 0.668 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link DP3: DP3