EXHIBIT B

Stormwater Management Report

STORMWATER MANAGEMENT REPORT

For the Proposed:

0.99 MW SOLAR PHOTOVOLTAIC ARRAY

Located At:
37 Hunters Lane
Southington, Connecticut

Prepared On:
December 13, 2023

Prepared For:

TRITEC AMERICAS

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CT 25759

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  Prepared by Harry E. Cole & Son
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  - Existing & Proposed Calcs for 2-, 25-, 50- & 100- yr storm events)
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INTRODUCTION

At the request of TRITEC Americas, LLC (Petitioner), Solli Engineering (Solli) has prepared this Stormwater Management Report to provide an analysis of the potential stormwater impacts associated with the proposed 0.99± megawatt (MW) alternating current (AC) ground-mounted solar electric generating facility (Project/Facility) located at 37 Hunters Lane, Southington, Connecticut (Site). The proposed stormwater management plan outlined herein has been designed accordance with the following State of Connecticut guidelines as well as other applicable state and federal requirements and regulations:

- General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (Effective Date: December 31, 2020, Modification Date: November 25, 2022)
- 2024 Connecticut Stormwater Quality Manual
- 2024 Connecticut Guidelines for Soil Erosion and Sediment Control
- Connecticut Department of Transportation 2000 Drainage Manual
- CT DEEP Appendix I Stormwater Management at Solar Array Construction Projects

EXISTING SITE CONDITIONS

The Site consists of one (1) parcel totaling 24.25± acres located at 37 Hunters Lane, Southington, Connecticut. The Site is bound by Hunters Lane and residential uses to the north; I-84, and commercial uses to the east; and residential uses to the south and west. The Site is located in a Residential Zone (R-12). The parcel is currently developed as a multifamily residential complex, with an existing access road connecting Hunters Lane in the north to residential buildings and parking structures in the southern portion of the property. The proposed Project area is immediately surrounded by undeveloped woodlands.

The Project area's topography generally slopes between 1%-6%. The Site contains two wetland systems that run north to south along the eastern and western property lines. All proposed solar panels will remain outside of the 100' upland buffer area from these wetlands.

For more information regarding the Site, refer to the Existing Conditions Map in Appendix A.

PROPOSED SITE CONDITIONS

The proposed Project area is 6.6± acres, within an overgrown portion of the eastern region of the Site. Access to the Facility will be provided via a new 12' wide, 500'± long gravel road which connects to the existing access driveway for the multifamily residential development. The Project will be surrounded by a 7-ft tall chain link fence to provide adequate security measures.

As currently designed, the proposed Facility will consist of 2,590 TrinaSolar TSM-DEG19C20 540W modules. The modules will be installed on a post-driven ground-mounted, single-axis tracking system, with minor changes to the existing grades within the array, therefore the post-development site conditions will mimic the pre-development site conditions to the maximum extent possible. As discussed later in this report, a proposed stormwater basin with a sediment forebay is proposed to assist in mitigating peak runoff flows, as well as to treat the Water Quality Volume (WQv) per CT DEEP requirements.

For more information regarding the Project, refer to the Grading & Drainage Plan (Sheet 2.21) in Appendix A.

STORMWATER MANAGEMENT

The Project will add approximately 6,200 square feet of impervious/gravel area associated with the gravel access drive and concrete equipment pad. The proposed stormwater management design consists of an infiltration basin with a sediment forebay and two emergency spillways. The sediment forebay was designed with enough capacity to treat 10% of the WQv and the stormwater basin provides adequate storage for the full WQv that will effectively clean and treat the stormwater runoff prior to discharging into the wetlands, while attenuating peak flows to pre-development conditions.

METHODOLOGY

A hydrologic analysis was performed using the HydroCAD stormwater modeling system computer program developed by HydroCAD Software Solutions, LLC. Hydrographs for each watershed were developed using the SCS Synthetic Unit Hydrograph Method with an NRCC-D 24-hr rainfall distribution.

Rainfall depths for the site were used for calculating the volumes and rates of runoff for this project. The depths were taken from the NOAA Atlas documents (Latitude: 41.5790º, Longitude: -72.9044º) and the rainfall values are listed in Table 1 below.

Table 1: Rainfall Data

Return Period (Storm Event)	24-hr Rainfall Depth (inches)
2-year	3.48
25-year	6.74
50-year	7.66
100-year	8.67

The drainage areas used in the calculations are illustrated on the Existing and Proposed Drainage Area Maps (DA-1 & DA-2). These maps and the corresponding HydroCAD output are attached in Appendices B. Utilizing CT DEEP Appendix I, this hydrologic analysis will reflect an increase of the Hydrologic Soil Group ("HSG") present on-site by a half (1/2) step (e.g., half the difference between the runoff curve number for HSG A versus HSG B). This increase, as indicated by CT DEEP, is intended to account for the compaction of soils that results from extensive machinery traffic during construction of the array. The Water Quality Volume ("WQv") was calculated assuming that the gravel surfaces and concrete equipment pads are effectively impervious cover.

EXISTING CONDITIONS

Approximately 9.18 acres of the Site were analyzed for stormwater management purposes. The areas analyzed contain the contributing areas directly impacted by the proposed redevelopment. Based on existing drainage patterns, the 9.18-acre area was considered as two (2) contributing drainage areas, labeled Existing Drainage Area 1 (EDA-1) and Existing Drainage Area 2 (EDA-2). The majority of the runoff from EDA-1 flows from northwest to southeast overland and enters the existing intermittent stream on-site before eventually entering the existing stormwater basin located just outside the eastern property line. The majority of runoff from EDA-2 flows from west to east overland and discharges into the existing stormwater basin located just outside the eastern property line.

Table 2: Existing Drainage Areas

Drainage Area Label	Drainage Area	Curve Number	Time of Concentration
Existing Drainage Area 1 (EDA-1)	**1.98 AC**	82	28.9 Min.
Existing Drainage Area 2 (EDA-2)	**7.20 AC**	78	29.3 Min.

For more information regarding the existing drainage conditions of the project area refer to the Existing Drainage Area Map (DA-1) in Appendix A and the HydroCAD calculations in Appendix B.

PROPOSED CONDITIONS

The Project proposes a stormwater infiltration basin that will provide storage for a reduction in peak flows and WQv. According to the NRCS Soil Survey Geographic database for the State of Connecticut, the soils in which the stormwater detention basin is proposed, are comprised of Ludlow silt loam. The saturated hydraulic conductivity (Ksat) for these soils provides a rating of 3.9278 micrometers per second, which translates to an infiltration rate of 0.50 in/hr. This infiltration rate was used for the analysis (see Web Soil Survey Report in Appendix B). Based on the proposed drainage patterns, the 9.18-acre area was divided into three (3) contributing drainage areas: Proposed Drainage Area 1 (PDA-1), Proposed Drainage Area 2A (PDA-2A), and Proposed Drainage Area 2B (PDA-2B).

PDA-1 has a contributing drainage area of approximately 0.90 acres. Similar to existing conditions, runoff from PDA-1 flows from northwest to southeast overland and enters the existing intermittent stream on-site before eventually entering the existing stormwater basin located just outside the eastern property line.

PDA-2A has a contributing drainage area of approximately 5.17 acres. The majority of runoff from PDA-2A flows from west to east and discharges into the existing stormwater basin located just outside the eastern property line.

PDA-2B has a contributing drainage area of approximately 3.11 acres. This drainage area flows southwest to northeast and into the proposed stormwater basin. Stormwater passes through the proposed sediment forebay before entering the larger sediment basin. In the case of larger rain events, stormwater would discharge through the two proposed 20’ emergency spillways with rip-rap protection and exit the property along the eastern property line before entering the existing stormwater basin off-site to the northeast.

All proposed areas of disturbance within the solar array will be seeded with a Fuzz & Buzz Mix – ERNMX-147, or approved equal, that promotes a meadow-type ground cover.

Table 3: Proposed Drainage Areas

Drainage Area Label	Drainage Area	Curve Number	Time of Concentration
Proposed Drainage Area 1 (PDA-1)	**0.90 AC**	78	31.0 Min.
Proposed Drainage Area 2A (PDA-2A)	5.17 AC	75	29.3 Min.
Proposed Drainage Area 2B (PDA -2B)	3.11 AC	79	27.1 Min.

For more information regarding the proposed stormwater management design of the Project area refer to the Proposed Drainage Area Map (DA-2) in Appendix A; and the Hydrocad and Water Quality Volume calculations in Appendix B.

As a result of the proposed stormwater management measures, the peak flows for the 2, 25, 50 and 100-year storm events are reduced from existing conditions as shown in the chart below.

Table 4: Peak Flow Comparison Table

Peak Flow (cfs)			
Storm Event	**Total Drainage Areas**		**Percent Reduction in Peak Flow**
	EDA	**PDA**	
2-Year	8.16	4.48	45.1%
25-Year	23.11	22.01	4.8%
50-Year	27.49	26.39	4.0%
100-Year	32.31	31.24	3.3%

CT DEEP APPENDIX I DESIGN REGULATIONS/COMPLIANCE

The following identifies and details the regulations and proposed compliance measures within CT DEEP Appendix I that pertain specifically to civil, stormwater, and erosion control designs.

I. Design and construction requirements:

1. Roadways, gravel surfaces, transformer pads are considered effective impervious cover for the purposes of calculating the WQv. The proposed solar panels in the array that are within existing and post-construction slopes that are greater than 15% are considered impervious for the purposes of calculating the WQv. The remainder of the proposed solar panels that are proposed within existing and post-construction slopes that are less than 15% are not considered impervious cover for the purposes of calculating the WQv because the following have been met:

    a. Vegetative areas between the rows of solar panels have a width of 9 feet which is greater than the solar panel width of 7.8 feet.
    b. The post-development stormwater runoff will be less than that of the pre-development stormwater runoff due to the proposed stormwater management basin.
    c. The Project meets (iv) of this requirement as the plan includes specific engineered phased construction plans and detailed erosion control measures.
    d. The panels are spaced and provide a minimum height of 3 feet from the ground to provide growth of native vegetation.

2. Setback and buffer requirements have been met following the below:

    a. No wetlands or waters are located within 100 feet of the proposed solar panels. No solar panels are located within the 50-foot setback of any property boundary that is located downgradient of the construction activity.
    b. There is a minimum of 50 feet between the limit of construction activity and downgradient wetlands.
    c. There is a minimum of 10 feet between the construction activity associated with the installation of the access road and interconnection and downgradient wetlands.

3. The wetlands and water courses were originally delineated by Pietras Environmental Group, LLC in 2017 and confirmed in the field by William Kenny Associates in 2023. The location of delineated resources, as well as buffers, are shown on the Site Layout Plan (Sheet 2.11) in Appendix A.

II. Design requirements for post-construction stormwater management measures:

1. Post-construction stormwater control measures have been designed and will be constructed to provide permanent stabilization and non-erosive conveyance of runoff from the site.
2. The orientation of the panels follows the existing slopes on the site to the extent practicable.
3. The hydrologic analysis has been completed, as described above, with the following details:

    a. The Project evaluates and controls the 2, 25, 50, and 100-year 24-hour rainfall events in accordance with the CT Stormwater Quality Manual. Maximum sheet flow was kept to 100 feet and shallow concentrated flows were calculated using velocity factors per NRCS Part 630 National Engineering Handbook Chapter 15.
    b. NRCS soil mapping was used for the stormwater design.
    c. There are no areas where the grades will change by more than two (2) feet from existing conditions. With the modeled half-drop (1/2) in HSG for the facility area and the change in curve number associated with the ground cover change from existing to proposed conditions, there will be a decrease in post-development runoff in comparison to pre-development runoff.
    d. Pre-and post-development drainage area maps & computations are provided in Appendices A and B.
    e. The information above and herein demonstrates that the Project will have no net increase in peak flows, erosive velocities or volumes, or adverse impacts to downstream properties.

SOIL EROSION & SEDIMENT CONTROL

The plans for soil erosion and sediment control prepared for this project have been developed in accordance with the 2024 Connecticut Guidelines for Soil Erosion and Sediment Control, prepared by the Connecticut Council on Soil and Water Conservation in cooperation with the Connecticut Department of Environmental Protection.

The soil erosion and sediment control measures that will be proposed as part of this project include geotextile silt fences with wings for areas less than 1 acre, compost filter socks, construction entrance, and dust control measures. The soil erosion and sediment control measures will be implemented in two (2) phases. Phase I measures are associated with the clearing, grubbing and demolition of the existing Site features. Phase II measures are associated with fine grading and installation of the modules, hardscape, and utilities infrastructure.

CONCLUSION

The stormwater management for the proposed site has been designed such that the post-development peak discharges to the waters of the State of Connecticut for the 2-, 25-, 50-, and 100- year storm events are less than the pre-development peak discharges. In addition, the Project adheres to the regulations and guidelines presented by CT DEEP's Appendix I as described above. As a result, the proposed solar array will not result in any adverse conditions to the surrounding areas and properties.

Appendix A – Figures

- Existing Conditions Map of 37 Hunters Lane, Southington, Connecticut

Prepared by Harry E. Cole & Son

- NRCS Soil Survey Map
- Grading & Drainage Plan (2.21)
- Existing Drainage Area Map (DA-1)
- Proposed Drainage Area Map (DA-2)

N/F SAMUEL L GUZMAN JR

N/F MICHAEL P & MELISSA A SCOTT

N/F MICHAEL A & MARCIA A COOK

N/F CHARLES A & KATHY A MOSS

N/F MICHAEL C CIABURRI

N/F ERNARD M & LOIS A EDDINS

N/F MATTHEW & DONNA JEDYNAK

NAD 83

Ex. CB #B4
TF=207.07
15" HDPE Inv.=204.02(NW)
4" PVC Inv.=204.10
15" HDPE Inv.=203.67(E)

Ex. CB #B5
TF=208.36
15" HDPE Inv.=204.85(SE)

Ex. CB #C3
TF=207.52
15" HDPE Inv.=203.86(NE)
6" PVC Inv.=204.33

Ex. San.MH #3
TF=208.06
8" PVC FL.=198.39

Ex. Elect. Meter (Typ.)

Ex. Party Wall (Typ.)

Arborvitae (Typ.)

N4° 07' 35"W 719.21'

15' SIDE YARD

N4° 09' 41"W 212.01'

N4° 05' 15"W 190.82'

EX. MON (TYP.)

EX. T.P. (TYP.)

35' LANDSCAPE BUFFER

LIMIT OF ENVIRONMENTAL LAND USE RESTRICTION LINE (PER MAP REFERENCE 'C')

BENCHMARK
TOP NUT OF FIRE HYDRANT
ELEV. = 208.22
(NAVD 88 Datum)

BUILDING A

BUILDING B

BUILDING C

BUILDING D

BUILDING E

PARKING STRUCTURE

Ex. Party Wall (Typ.)

Ex. Elect. Meter (Typ.)

Ex. Elect. MH (Typ.)

Ex. San.MH #4
TF=207.25
8" PVC FL.=199.72

30' REAR YARD

4' Conc. Sidewalk (Typ.)

Ex. Irrigation Valves(Typ.)

Ex. YD
TF=206.04
Conc. Gen. Pad(Typ.)

N/F TOWN OF SOUTHINGTON

N82° 39' 45"E 169.57'

Location of Berm

Toe of Berm

Top of Berm

Ex. CBCL
TF=203.20
10" MTL Inv.=202.16

Ex. San.MH #2
TF=203.76
8" PVC FL.=194.69

Garage

Conc. Pad

8" MTL Piping
Inv.=201.96

Rip Rap

Existing Intermittent Watercourse

EX. SMH
TF = 202.31
INV. 8" = 185.01

Ex. San.MH (Doghouse)
TF=202.48
8" PVC FL.=194.28

EX. SMH
TF = 199.00
INV. 8" = 188.10

N30° 14' 25"E 649.70'

20' REAR YARD

STATE OF CONNECTICUT I-84

Fire Hydrant

Water Meter

Ex. San.MH #6
TF=207.95
8" PVC FL.=203.05

Dumpster Pad w/Fencing

Patio w/ Vinyl Fence

Conc. Walk

Ex. CB
TF=207.21
15" HDPE Inv.=203.10(SE)
(Filled with Debris)

Ex. San.MH #5
TF=208.46
8" PVC FL.=201.02

Ex. Swale

Ex. DMH
TF=207.93
15" HDPE Inv.=202.27(SE)
15" HDPE Inv.=203.28(NW)

Ex. Flared End
15" HDPE Inv.=202.14(NW)

UPLAND REVIEW (TYP.)

Ex. Flared End
15" HDPE Inv.=202.15(SW)

Ex. CBCL #B2
TF=207.07
15" HDPE Inv.=203.04(W)
4" PVC Inv.=203.43
15" HDPE Inv.=203.00(NE)
6" PVC Inv.=203.94

50' Upland Review Area

4" MTL Standpipe

(3) 4" PVC Standpipes

Raised Dirt Area

Arborvitae (Typ.)

Ex. Party Wall (Typ.)

Conc. Gen. Pad(Typ.)

Water Valve(Typ.)

Ex. Wood Chip Path Remains

LIMIT OF ENVIRONMENTAL LAND USE RESTRICTION AREA

LIMIT OF ENVIRONMENTAL LAND USE RESTRICTION LINE (PER MAP REFERENCE 'C')

4' Conc. Sidewalk (Typ.)

Ex. Lamp w/Elect. Box (Typ.)

Ex. Elect. MH (Typ.)

Fire Hydrant

w/ Water Valve (Typ.)

Approx. Location of Ex. Water Line Per Locations and Approved Site Plan Location

Bit. Pavement (Typ.)

Top & Toe of Ex. Swale

Bit. Curbing (Typ.)

N49° 25' 29"E 510.92'

HUNTERS LANE

N24° 55' 43"W 123.73'

Conc. Gen. Pad

Bayberry Woods Sign

Conc. Pad w/Mailboxes

S65° 04' 17"W 122.74'

Water Valve (Typ.)

Water Meter

96.20'

S24° 55' 43"E

S85° 34' 20"W 306.40'

40' FRONT YARD

Ex. Flared End
15" RCP Inv.=200.95(E)

Ex. Flared End
15" RCP Inv.=200.52(W)

Ex. Lamp w/Elect. Box (Typ.)

Existing Drainage Easement In Favor of the Town of Southington

200' Vernal Pool Setback

Vernal Pool

N/F TOWN OF SOUTHINGTON

EX. MON (TYP.)

METALS DRIVE

S4° 25' 40"E 679.84'

15' SIDE YARD

S6° 15' 40"E 124.48'

S0° 40' 50"E 135.56'

N/F CARRINGTON PROPERTIES LLC

LEGEND

- = Existing utility pole
- = Existing light pole
- = Existing fire hydrant
- WV = Existing water valve
- GV = Existing gas valve
- = Existing underground pipe
- = Existing edge of pavement
- = Existing bituminous concrete lip curb
- W = Existing well
- = Existing catch basin
- D = Existing drainage manhole
- S = Existing sanitary manhole
- = Existing utility box
- 000 = Existing contour
- x000.0 = Existing spot elevation
- = Existing iron pin
- = Existing drill hole
- = Existing monument

SURVEY NOTES:

1. This map has been prepared pursuant to the Regulation of Connecticut State Agencies Sections 20-300b-1 through 20-300b-20 and the "Standards for Surveys and Maps in the State of Connecticut" as adopted by the Connecticut Association of Land Surveyors, Inc. on September 26, 1996.

   Type of survey performed: Existing Conditions

2. Boundary determination category: Resurvey
   Class of accuracy:
   Horizontal: A-2
   Vertical: T-2

3. The intent of this map is to depict the position horizontally and, where required vertically, between particular existing or proposed improvements with respect to the applicable municipal or statutory requirements.

4. Map References:

   a.)"As Built Site Plan, Zoning Location Survey - Record, Bayberry Woods, Prepared for Wonk Road Partnership, LLC; Scale:1"=60'; Dated: August 10, 2021; Last Revised: Feb. 18, 2022 by Harry E. Cole & Son."

5. No boundary corners were set by this survey unless noted hereon.

7. Zone: R-12

DATE	REVISION

To the best of my knowledge and belief, this map is substantially correct as noted hereon.

#70145
Stephen M. Giudice, L.S. Reg. No.

NOT VALID UNLESS EMBOSSED SEAL OR STAMP IS AFFIXED HERETO

EXISTING CONDITIONS PLAN
Prepared For
SOLLI ENGINEERING, LLC
37 Hunters Lane
Southington, Connecticut
May 23, 2023 Scale: 1" = 60'
60' 30' 0 30' 60'

F.B. #: PROJECT #: 0978C

cole
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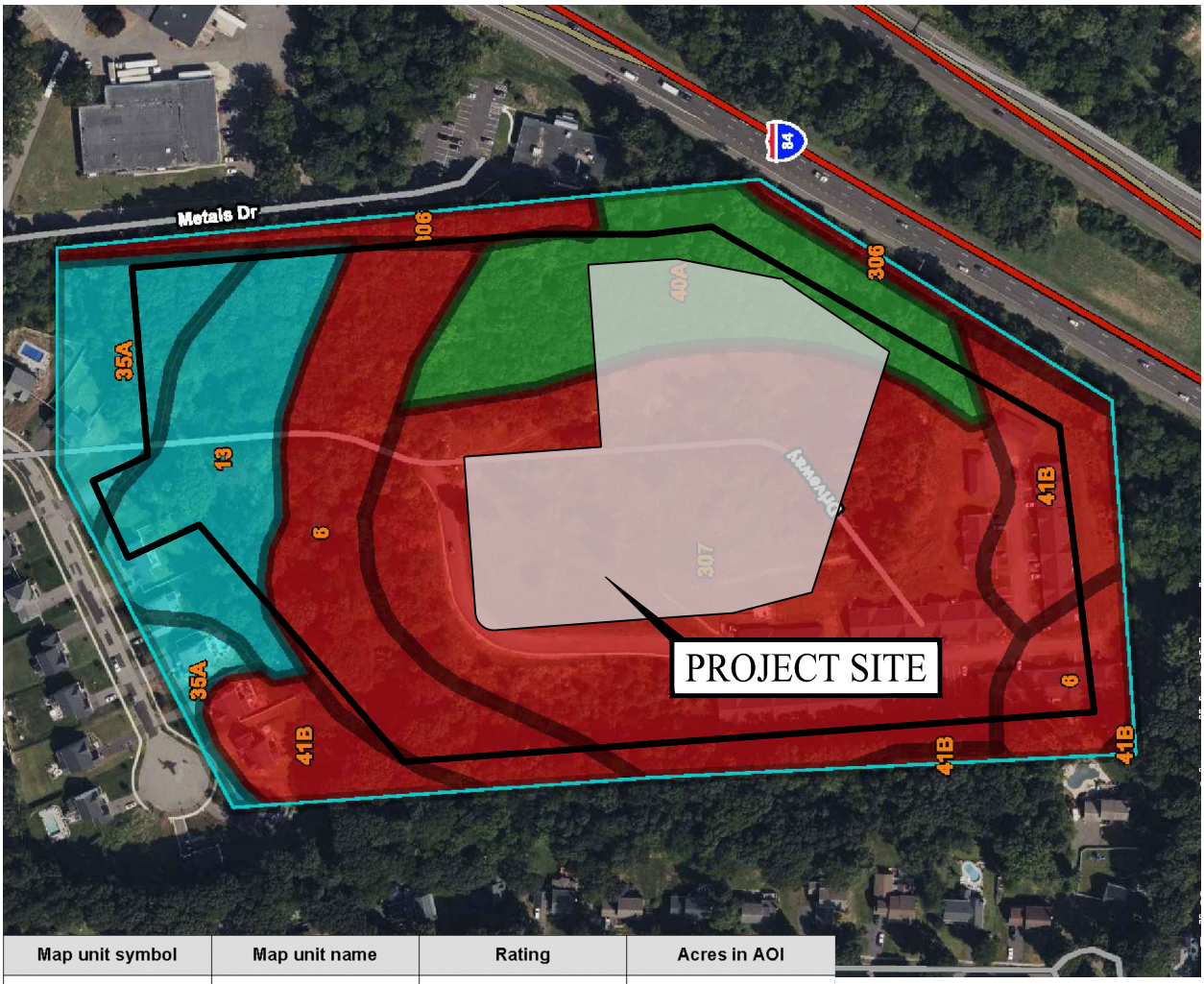

Map unit symbol	Map unit name	Rating	Acres in AOI
6	Wilbraham and Menlo soils, 0 to 8 percent slopes, extremely stony	C/D	5.5
13	Walpole sandy loam, 0 to 3 percent slopes	B/D	2.7
35A	Penwood loamy sand, 0 to 3 percent slopes	A	2.8
40A	Ludlow silt loam, 0 to 3 percent slopes	C	3.7
41B	Ludlow silt loam, 2 to 8 percent slopes, very stony	C	4.6
306	Udorthents-Urban land complex	B	1.7
307	Urban land	D	11.5

NOTE: BASE MAP INFORMATION TAKEN FROM THE NATURAL RESOURCES CONSERVATION SERVICE, URL: https://websoilsurvey.sc.egov.usda.gov

300 0 150 300

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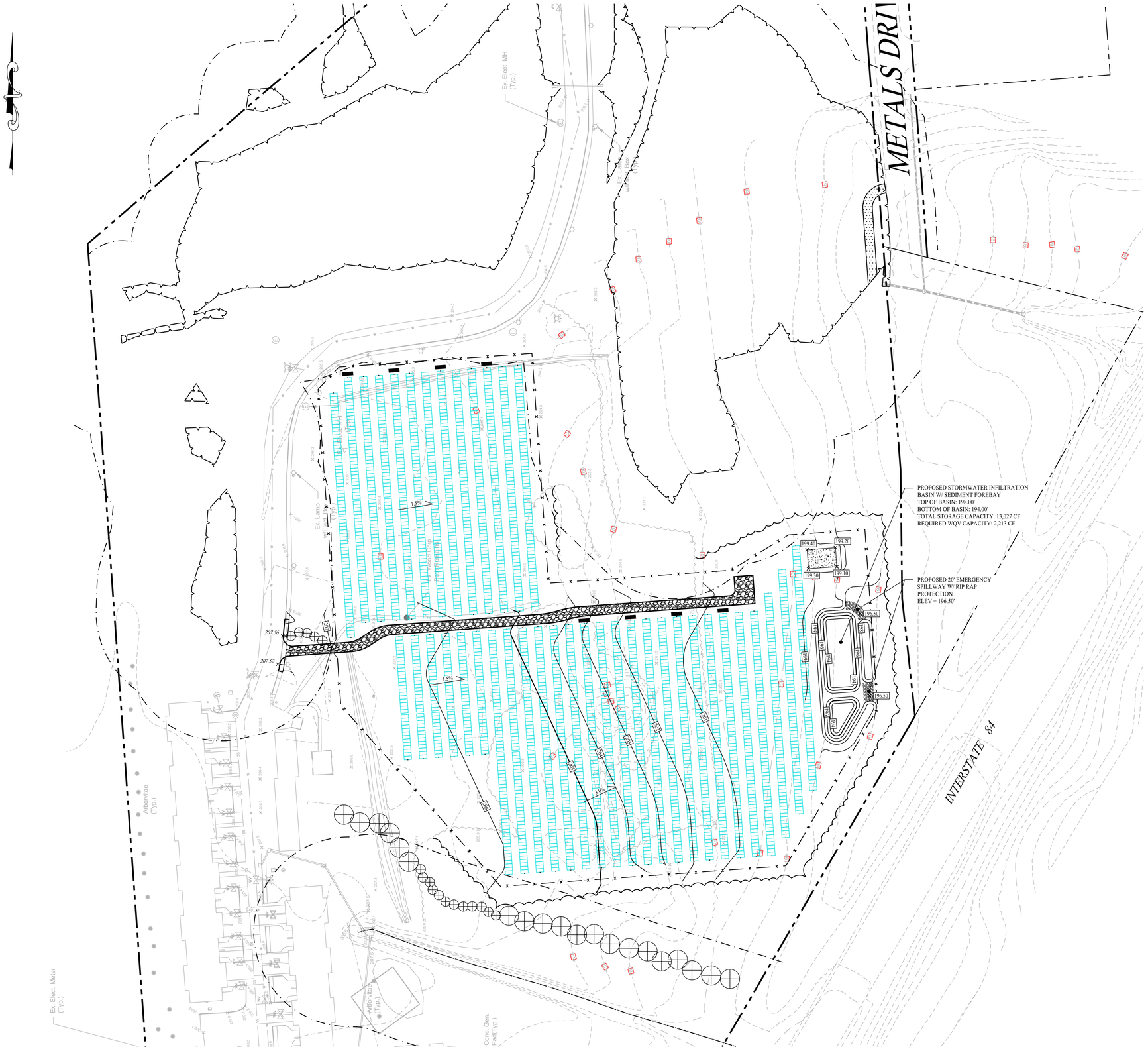
SOIL SURVEY MAP

37 HUNTERS LANE
SOUTHINGTON, CONNECTICUT

Project #:	22108701
Plan Date:	02/14/23
Scale:	1" = 300'
Figure:	8



GENERAL NOTES

1. THIS DRAWING IS INTENDED TO DESCRIBE GRADING AND DRAINAGE ONLY. REFER TO SITE PLAN FOR GENERAL INFORMATION, AND DETAIL SHEETS FOR CONSTRUCTION DETAILS.
2. THE CONTRACTOR SHALL PRESERVE EXISTING VEGETATION WHERE POSSIBLE AND/OR AS NOTED ON DRAWINGS. REFER TO EROSION CONTROL PLAN FOR LIMIT OF DISTURBANCE AND EROSION CONTROL NOTES.
3. TOPSOIL SHALL BE STRIPPED AND STOCKPILED ON SITE FOR USE IN FINAL LANDSCAPING.
4. THE OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS REQUIRED BY GOVERNMENT AND LOCAL AGENCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY CONSTRUCTION PERMITS FROM THE TOWN OF SOUTHINGTON REQUIRED TO PERFORM ALL WORK. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.
5. THE CONTRACTOR SHALL COMPACT FILL IN 12" MAXIMUM LIFTS UNDER ALL PARKING, BUILDING, AND DRIVE AREAS TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557 (MODIFIED PROCTOR TEST)
6. UNDERDRAINS SHALL BE ADDED, IF DETERMINED NECESSARY IN THE FIELD BY THE ENGINEER OF RECORD, AFTER SUBGRADE IS ROUGH GRADED.
7. ALL DISTURBANCE INCURRED TO TOWN OR STATE PROPERTY DUE TO CONSTRUCTION SHALL BE RESTORED TO ITS PREVIOUS CONDITION OR BETTER, TO THE SATISFACTION OF THE TOWN OF MONTVILLE AUTHORITY.
8. IF IMPACTED OR CONTAMINATED SOIL IS ENCOUNTERED BY THE CONTRACTOR, THE CONTRACTOR SHALL SUSPEND EXCAVATION WORK OF IMPACTED SOIL AND NOTIFY THE OWNER AND/OR OWNER'S ENVIRONMENTAL CONSULTANT PRIOR TO PROCEEDING WITH FURTHER WORK IN THE IMPACTED SOIL LOCATION UNTIL FURTHER INSTRUCTED BY THE OWNER AND/OR OWNER'S ENVIRONMENTAL CONSULTANT.
9. ALL PIPE LENGTHS ARE HORIZONTAL DISTANCES AND ARE APPROXIMATE.
10. ALL DISTURBED AREAS TO BE RESEEDED WITH ERNMX-147 WITHIN THE ARRAY AREA. ERNMX-610 WILL BE USED OUTSIDE FENCELINE AND IN NON-ARRAY AREAS.

LEGEND

- PROPERTY LINE
- 420 MAJOR CONTOURS
- 421 MINOR CONTOURS
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- 568.85 PROPOSED SPOT ELEVATION
- *568.85* EXISTING SPOT ELEVATION
- RIP RAP

VOLUME SUMMARY

AREA	CUT (CY)	FILL (CY)	NET (CY)
PROJECT AREA	2,030	780	1,250 (CUT)

Rev. #:	Date	Description

Graphic Scale: 50 0 50 100

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11 Vanderbilt Ave, Norwood, MA 02062 T: (781) 352-8491 | F: (203) 880-9695

Drawn By:	AWC
Checked By:	CJB
Approved By:	KMS
Project #:	22108701
Plan Date:	12/13/23
Scale:	1" = 50'

STATE OF CONNECTICUT · KEVIN M. SOLLI · 25759 · LICENSED PROFESSIONAL ENGINEER

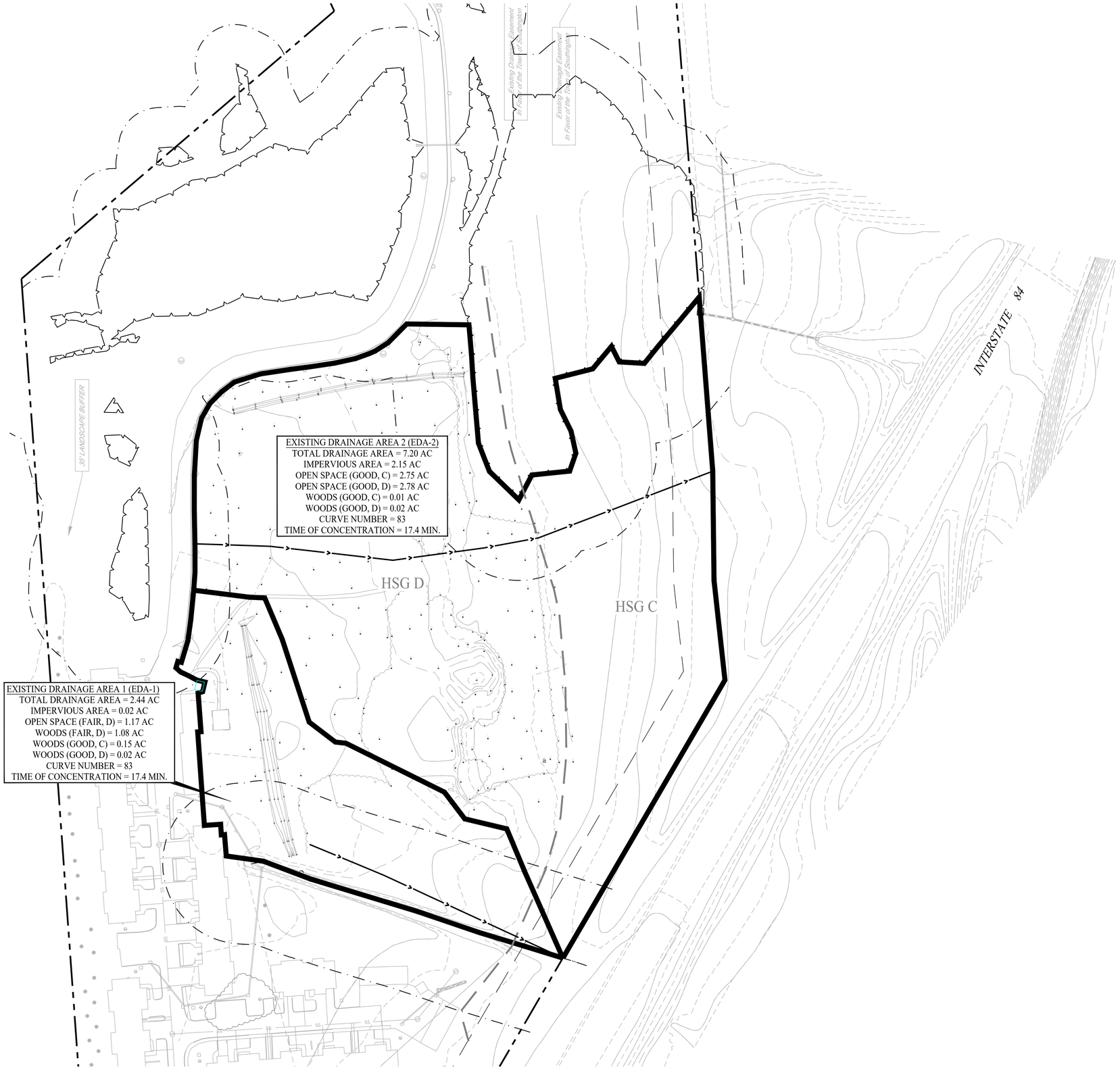
Kevin Solli, P.E.
CT 25759

Project:

PROPOSED SOLAR PHOTOVOLTAIC ARRAY

37 HUNTERS LANE
SOUTHINGTON, CONNECTICUT

Sheet Title:	Sheet #:
GRADING & DRAINAGE PLAN	2.21



GENERAL NOTES

1. THE STORMWATER MANAGEMENT PLAN AND DESIGN IS INTENDED TO BE IN COMPLIANCE WITH THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION STORMWATER QUALITY MANUAL AND THE TOWN OF SOUTHINGTON, CONNECTICUT STORMWATER REGULATIONS.
2. STORMWATER RUNOFF ANALYSIS WAS CALCULATED USING THE SCS TR-55 METHODOLOGY.

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJOINING LOT LINE
- LIMIT OF DRAINAGE AREA
- FLOW PATH

Rev. #:	Date	Description

Graphic Scale: 60 0 60 120

SOLLI ENGINEERING
501 Main Street, Monroe, CT 06468 T: (203) 880-5455 F: (203) 880-9695
11 Vanderbilt Ave, Norwood, MA 02062 T: (781) 352-8491 F: (203) 880-9695

Drawn By:	SFU
Checked By:	AWC
Approved By:	KMS
Project #:	22108701
Plan Date:	12/13/23
Scale:	1" = 60'

Kevin Solli, P.E.
CT 25759

Project:

PROPOSED SOLAR PHOTOVOLTAIC ARRAY

37 HUNTERS LANE
SOUTHINGTON, CONNECTICUT

Sheet Title: EXISTING DRAINAGE AREA MAP

Sheet #: DA-1

GENERAL NOTES

1. THE STORMWATER MANAGEMENT PLAN AND DESIGN IS INTENDED TO BE IN COMPLIANCE WITH THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION STORMWATER QUALITY MANUAL AND THE TOWN OF SOUTHINGTON, CONNECTICUT STORMWATER REGULATIONS.
2. STORMWATER RUNOFF ANALYSIS WAS CALCULATED USING THE SCS TR-55 METHODOLOGY.

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJOINING LOT LINE
- LIMIT OF DRAINAGE AREA
- FLOW PATH

Rev. #:	Date	Description

Graphic Scale: 60 0 60 120

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Project:

PROPOSED SOLAR PHOTOVOLTAIC ARRAY

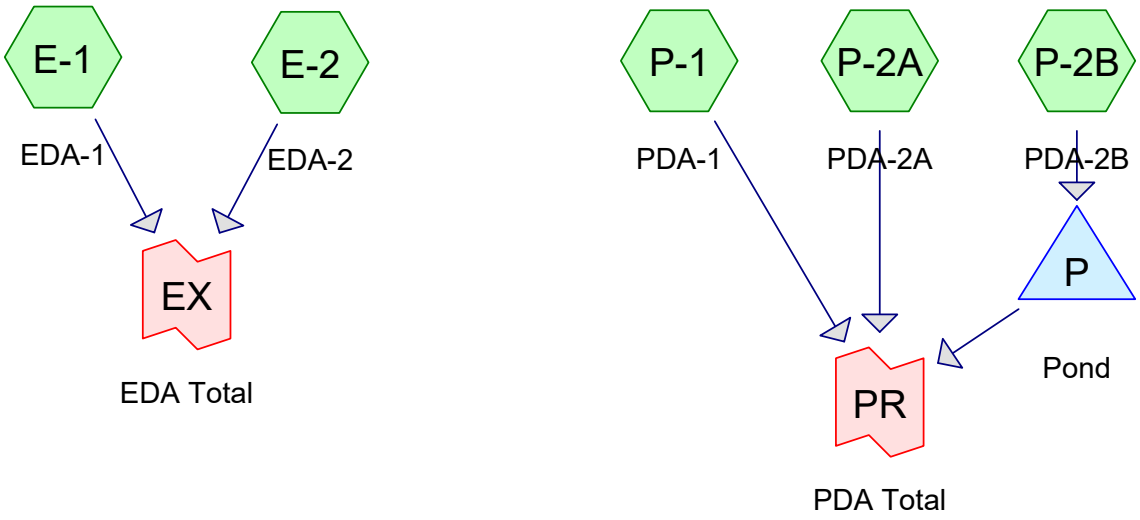
37 HUNTERS LANE
SOUTHINGTON, CONNECTICUT

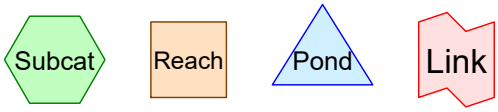
Sheet Title: PROPOSED DRAINAGE AREA MAP

Sheet #: DA-2

Appendix B – Stormwater Calculations

- Hydrology Calculations (2-, 25-, 50-, 100-year storm events)
- Water Quality Volume Calculation
- NOAA Atlas Precipitation Data





Routing Diagram for Hydrology - Southington
Prepared by Solli Engineering, LLC, Printed 12/12/2023

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E-1: EDA-1 Runoff Area=1.980 ac 1.01% Impervious Runoff Depth=1.77"
Flow Length=344' Tc=28.9 min CN=82 Runoff=2.04 cfs 0.291 af

Subcatchment E-2: EDA-2 Runoff Area=7.200 ac 0.00% Impervious Runoff Depth=1.48"
Flow Length=650' Tc=29.3 min CN=78 Runoff=6.12 cfs 0.889 af

Subcatchment P-1: PDA-1 Runoff Area=0.900 ac 0.00% Impervious Runoff Depth=1.48"
Flow Length=435' Tc=31.0 min CN=78 Runoff=0.74 cfs 0.111 af

Subcatchment P-2A: PDA-2A Runoff Area=5.170 ac 0.00% Impervious Runoff Depth=1.29"
Flow Length=650' Tc=29.3 min CN=75 Runoff=3.74 cfs 0.555 af

Subcatchment P-2B: PDA-2B Runoff Area=3.110 ac 0.32% Impervious Runoff Depth=1.55"
Flow Length=578' Tc=27.1 min CN=79 Runoff=2.90 cfs 0.402 af

Pond P: Pond Peak Elev=196.53' Storage=8,738 cf Inflow=2.90 cfs 0.402 af
Discarded=0.07 cfs 0.180 af Primary=0.52 cfs 0.131 af Outflow=0.58 cfs 0.311 af

Link EX: EDA Total Inflow=8.16 cfs 1.181 af
Primary=8.16 cfs 1.181 af

Link PR: PDA Total Inflow=4.48 cfs 0.797 af
Primary=4.48 cfs 0.797 af

Total Runoff Area = 18.360 ac Runoff Volume = 2.248 af Average Runoff Depth = 1.47"
99.84% Pervious = 18.330 ac 0.16% Impervious = 0.030 ac

Summary for Subcatchment E-1: EDA-1

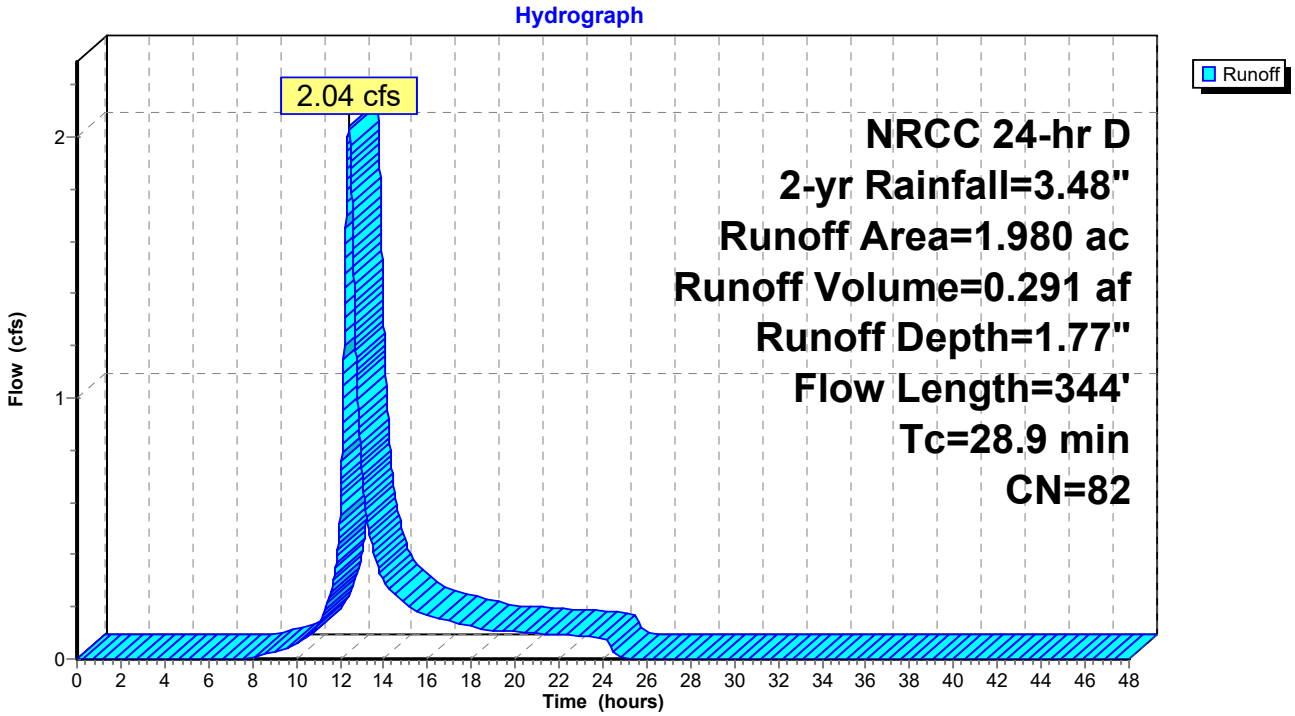
Runoff = 2.04 cfs @ 12.42 hrs, Volume= 0.291 af, Depth= 1.77"
Routed to Link EX : EDA Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-yr Rainfall=3.48"

Area (ac)	CN	Description
0.020	98	Paved parking, HSG D
1.010	84	50-75% Grass cover, Fair, HSG D
0.890	79	Woods, Fair, HSG D
0.050	70	Woods, Good, HSG C
0.010	77	Woods, Good, HSG D
1.980	82	Weighted Average
1.960		98.99% Pervious Area
0.020		1.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.1	100	0.0150	0.07		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.48"
5.8	244	0.0200	0.71		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
28.9	344	Total			

Subcatchment E-1: EDA-1



Summary for Subcatchment E-2: EDA-2

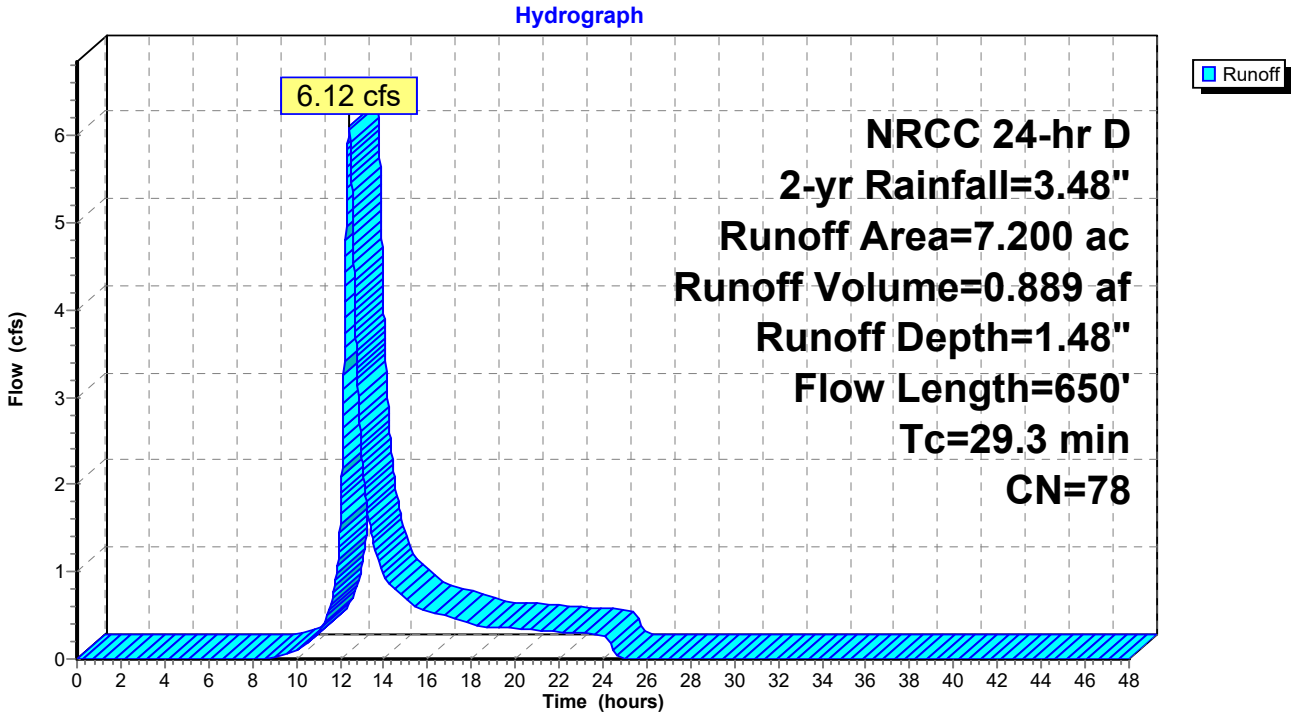
Runoff = 6.12 cfs @ 12.41 hrs, Volume= 0.889 af, Depth= 1.48"
Routed to Link EX : EDA Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-yr Rainfall=3.48"

Area (ac)	CN	Description
3.300	84	50-75% Grass cover, Fair, HSG D
0.840	79	Woods, Fair, HSG D
2.710	70	Woods, Good, HSG C
0.350	77	Woods, Good, HSG D
7.200	78	Weighted Average
7.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	100	0.0100	0.09		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.48"
6.4	330	0.0150	0.86		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
4.8	220	0.0230	0.76		**Shallow Concentrated Flow, CD** Woodland Kv= 5.0 fps
29.3	650	Total			

Subcatchment E-2: EDA-2



Summary for Subcatchment P-1: PDA-1

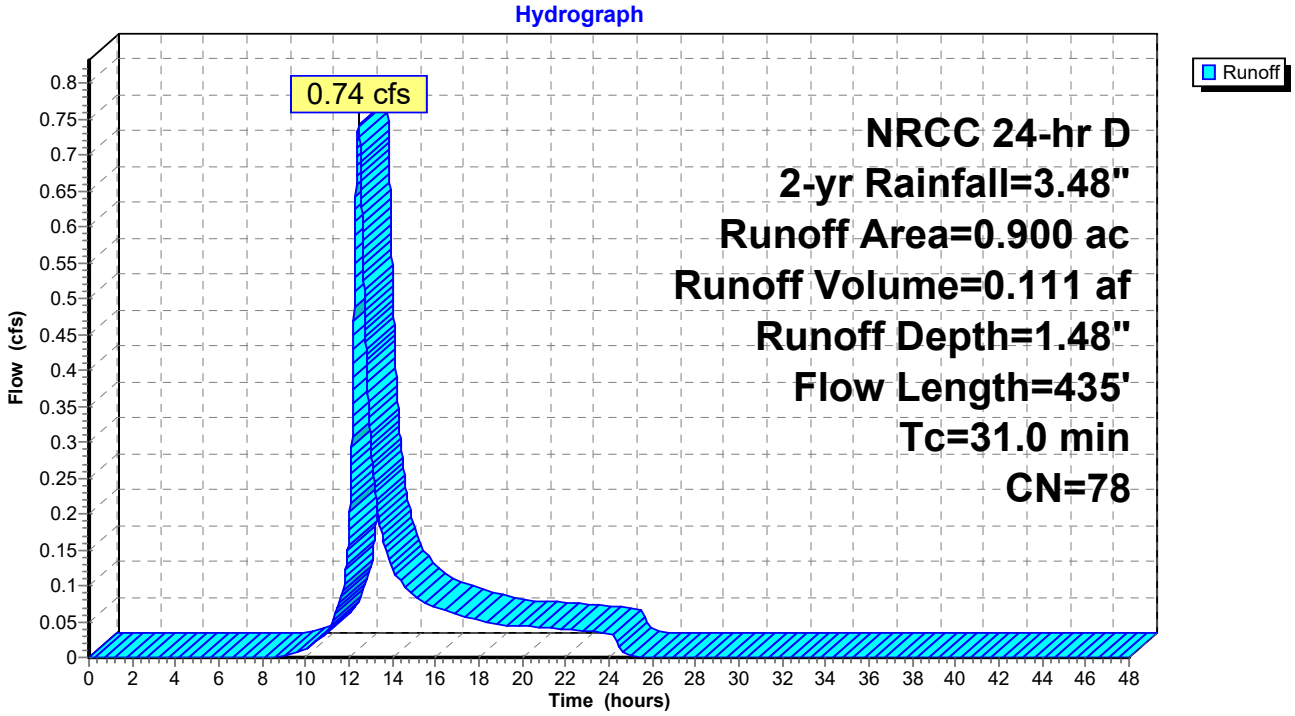
Runoff = 0.74 cfs @ 12.44 hrs, Volume= 0.111 af, Depth= 1.48"
Routed to Link PR : PDA Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-yr Rainfall=3.48"

Area (ac)	CN	Description
0.090	78	Meadow, non-grazed, HSG D
0.760	79	Woods, Fair, HSG D
0.050	70	Woods, Good, HSG C
0.900	78	Weighted Average
0.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.1	100	0.0150	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.48"
7.9	335	0.0200	0.71		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
31.0	435	Total			

Subcatchment P-1: PDA-1



Summary for Subcatchment P-2A: PDA-2A

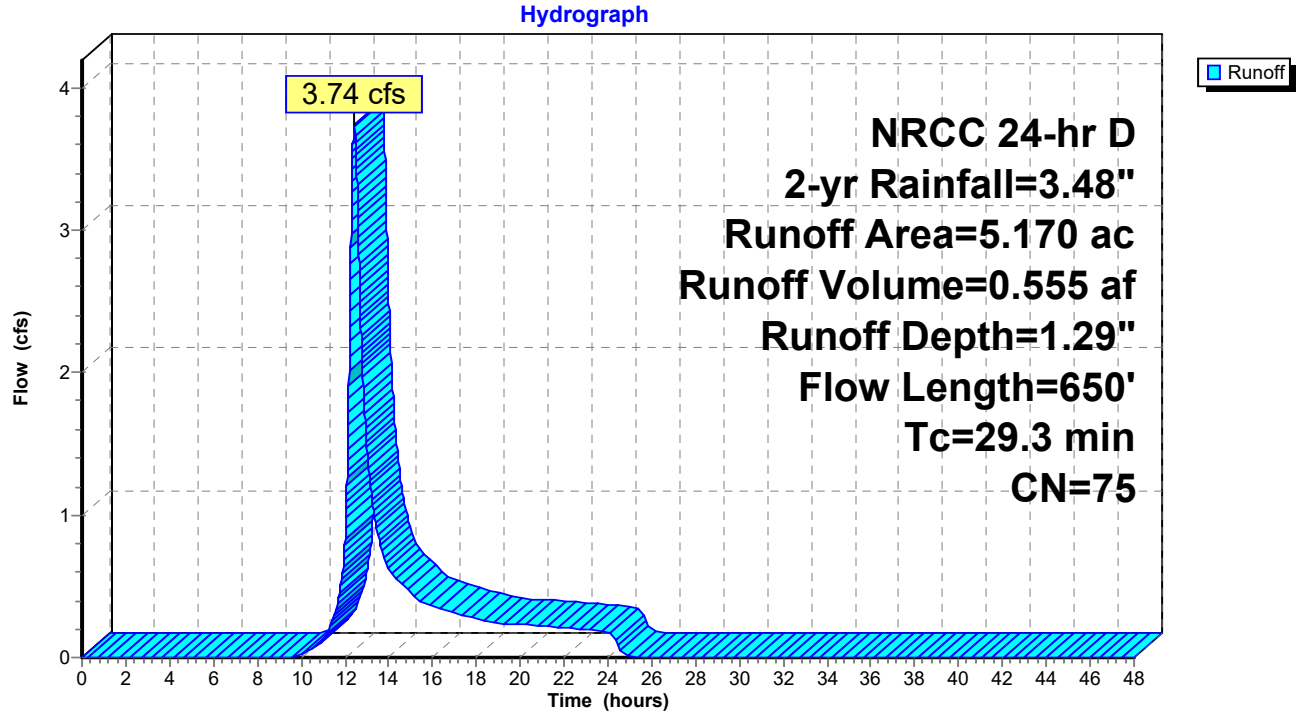
Runoff = 3.74 cfs @ 12.41 hrs, Volume= 0.555 af, Depth= 1.29"
Routed to Link PR : PDA Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-yr Rainfall=3.48"

	Area (ac)	CN	Description
	2.820	78	Meadow, non-grazed, HSG D
	0.210	77	Woods, Good, HSG D
	0.070	79	Woods, Fair, HSG D
*	0.360	75	Meadow, non-grazed, HSG C/D
	1.710	70	Woods, Good, HSG C
	5.170	75	Weighted Average
	5.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	100	0.0100	0.09		**Sheet Flow, 100** Grass: Dense n= 0.240 P2= 3.48"
6.4	330	0.0150	0.86		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
4.8	220	0.0230	0.76		**Shallow Concentrated Flow, CD** Woodland Kv= 5.0 fps
29.3	650	Total			

Subcatchment P-2A: PDA-2A



Summary for Subcatchment P-2B: PDA-2B

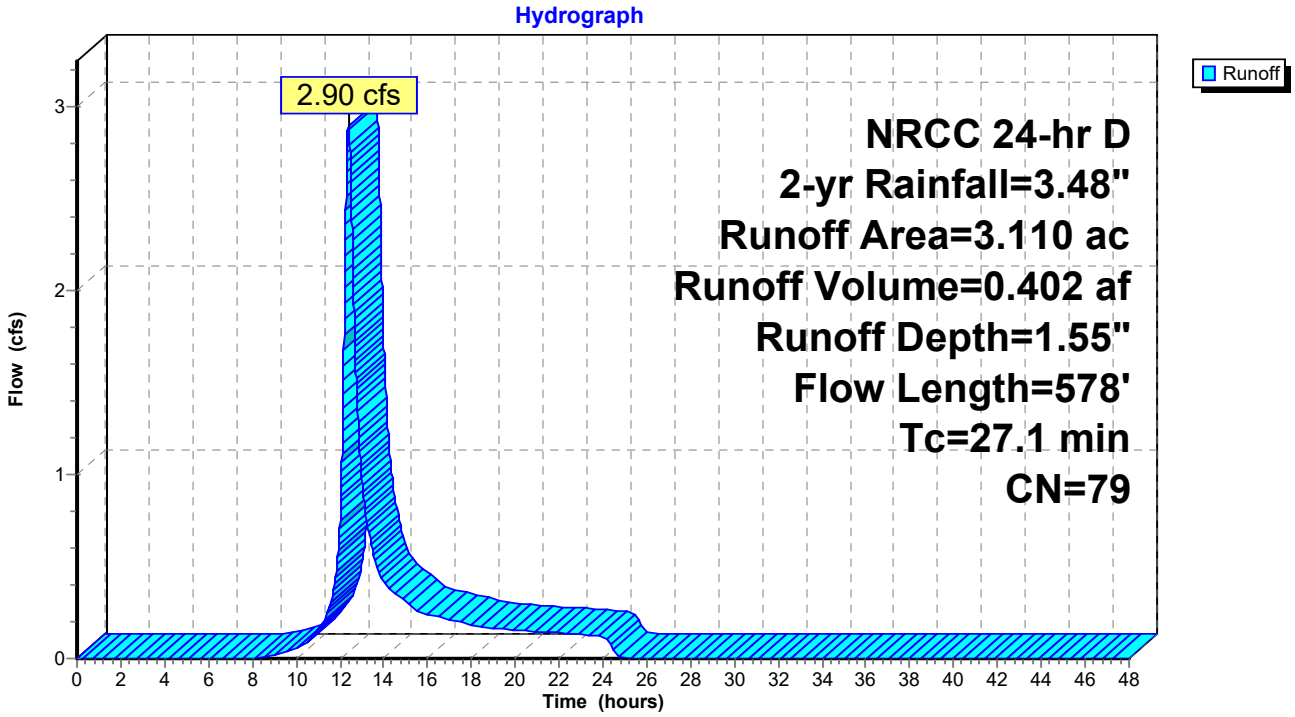
Runoff = 2.90 cfs @ 12.38 hrs, Volume= 0.402 af, Depth= 1.55"
Routed to Pond P : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-yr Rainfall=3.48"

	Area (ac)	CN	Description
	0.350	84	50-75% Grass cover, Fair, HSG D
	0.010	98	Paved parking, HSG D
	1.990	78	Meadow, non-grazed, HSG D
*	0.630	75	Meadow, non-grazed, HSG C/D
	0.130	96	Gravel surface, HSG D
	3.110	79	Weighted Average
	3.100		99.68% Pervious Area
	0.010		0.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	100	0.0100	0.09		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.48"
4.8	200	0.0100	0.70		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
4.2	278	0.0250	1.11		**Shallow Concentrated Flow, CD** Short Grass Pasture Kv= 7.0 fps
27.1	578	Total			

Subcatchment P-2B: PDA-2B



Summary for Pond P: Pond

Inflow Area = 3.110 ac, 0.32% Impervious, Inflow Depth = 1.55" for 2-yr event
Inflow = 2.90 cfs @ 12.38 hrs, Volume= 0.402 af
Outflow = 0.58 cfs @ 13.50 hrs, Volume= 0.311 af, Atten= 80%, Lag= 67.2 min
Discarded = 0.07 cfs @ 13.50 hrs, Volume= 0.180 af
Primary = 0.52 cfs @ 13.50 hrs, Volume= 0.131 af
Routed to Link PR : PDA Total

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 196.53' @ 13.50 hrs Surf.Area= 4,816 sf Storage= 8,738 cf

Plug-Flow detention time= 623.1 min calculated for 0.311 af (78% of inflow)
Center-of-Mass det. time= 524.2 min (1,412.8 - 888.6)

Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	17,031 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

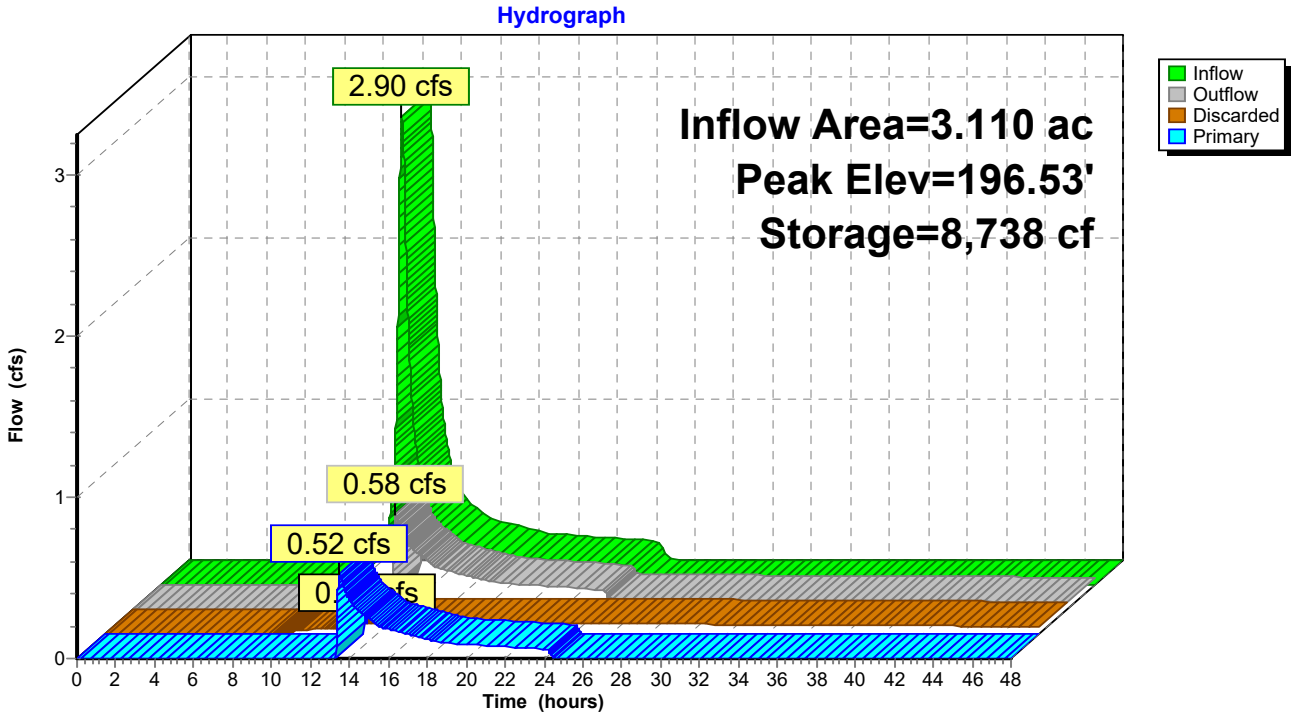
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	2,257	0	0
195.00	3,154	2,706	2,706
196.00	4,165	3,660	6,365
197.00	5,398	4,782	11,147
198.00	6,370	5,884	17,031

Device	Routing	Invert	Outlet Devices
#1	Discarded	194.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 185.00'
#2	Primary	196.50'	**20.0' long x 8.0' breadth Broad-Crested Rectangular Weir X 2.00** 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.07 cfs @ 13.50 hrs HW=196.53' (Free Discharge)
1=Exfiltration (Controls 0.07 cfs)

Primary OutFlow Max=0.46 cfs @ 13.50 hrs HW=196.53' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 0.46 cfs @ 0.41 fps)

Pond P: Pond


Hydrograph
2.90 cfs
0.58 cfs
0.52 cfs
Inflow Area=3.110 ac
Peak Elev=196.53'
Storage=8,738 cf
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)
0 1 2 3
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Stage-Discharge for Pond P: Pond

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
194.00	0.00	0.00	0.00
194.05	0.03	0.03	0.00
194.10	0.03	0.03	0.00
194.15	0.03	0.03	0.00
194.20	0.03	0.03	0.00
194.25	0.03	0.03	0.00
194.30	0.03	0.03	0.00
194.35	0.03	0.03	0.00
194.40	0.03	0.03	0.00
194.45	0.03	0.03	0.00
194.50	0.03	0.03	0.00
194.55	0.03	0.03	0.00
194.60	0.03	0.03	0.00
194.65	0.03	0.03	0.00
194.70	0.04	0.04	0.00
194.75	0.04	0.04	0.00
194.80	0.04	0.04	0.00
194.85	0.04	0.04	0.00
194.90	0.04	0.04	0.00
194.95	0.04	0.04	0.00
195.00	0.04	0.04	0.00
195.05	0.04	0.04	0.00
195.10	0.04	0.04	0.00
195.15	0.04	0.04	0.00
195.20	0.04	0.04	0.00
195.25	0.04	0.04	0.00
195.30	0.04	0.04	0.00
195.35	0.05	0.05	0.00
195.40	0.05	0.05	0.00
195.45	0.05	0.05	0.00
195.50	0.05	0.05	0.00
195.55	0.05	0.05	0.00
195.60	0.05	0.05	0.00
195.65	0.05	0.05	0.00
195.70	0.05	0.05	0.00
195.75	0.05	0.05	0.00
195.80	0.05	0.05	0.00
195.85	0.05	0.05	0.00
195.90	0.05	0.05	0.00
195.95	0.06	0.06	0.00
196.00	0.06	0.06	0.00
196.05	0.06	0.06	0.00
196.10	0.06	0.06	0.00
196.15	0.06	0.06	0.00
196.20	0.06	0.06	0.00
196.25	0.06	0.06	0.00
196.30	0.06	0.06	0.00
196.35	0.06	0.06	0.00
196.40	0.06	0.06	0.00
196.45	0.07	0.07	0.00
196.50	0.07	0.07	0.00
196.55	1.15	0.07	1.09
196.60	3.14	0.07	3.07
196.65	5.72	0.07	5.65
196.70	8.76	0.07	8.69
196.75	12.36	0.07	12.29
196.80	16.41	0.07	16.33
196.85	20.88	0.07	20.81
196.90	25.78	0.07	25.70
196.95	31.23	0.08	31.15
197.00	37.13	0.08	37.05
197.05	43.48	0.08	43.40
197.10	50.27	0.08	50.19
197.15	56.62	0.08	56.54
197.20	63.21	0.08	63.13
197.25	70.03	0.08	69.95
197.30	77.07	0.08	76.99
197.35	84.33	0.08	84.24
197.40	91.78	0.08	91.70
197.45	99.44	0.08	99.35
197.50	107.29	0.09	107.20
197.55	115.43	0.09	115.34
197.60	123.76	0.09	123.68
197.65	132.29	0.09	132.20
197.70	141.01	0.09	140.92
197.75	149.63	0.09	149.54
197.80	158.39	0.09	158.30
197.85	167.30	0.09	167.21
197.90	176.34	0.09	176.25
197.95	185.52	0.09	185.43
198.00	**194.83**	**0.09**	**194.73**

Stage-Area-Storage for Pond P: Pond

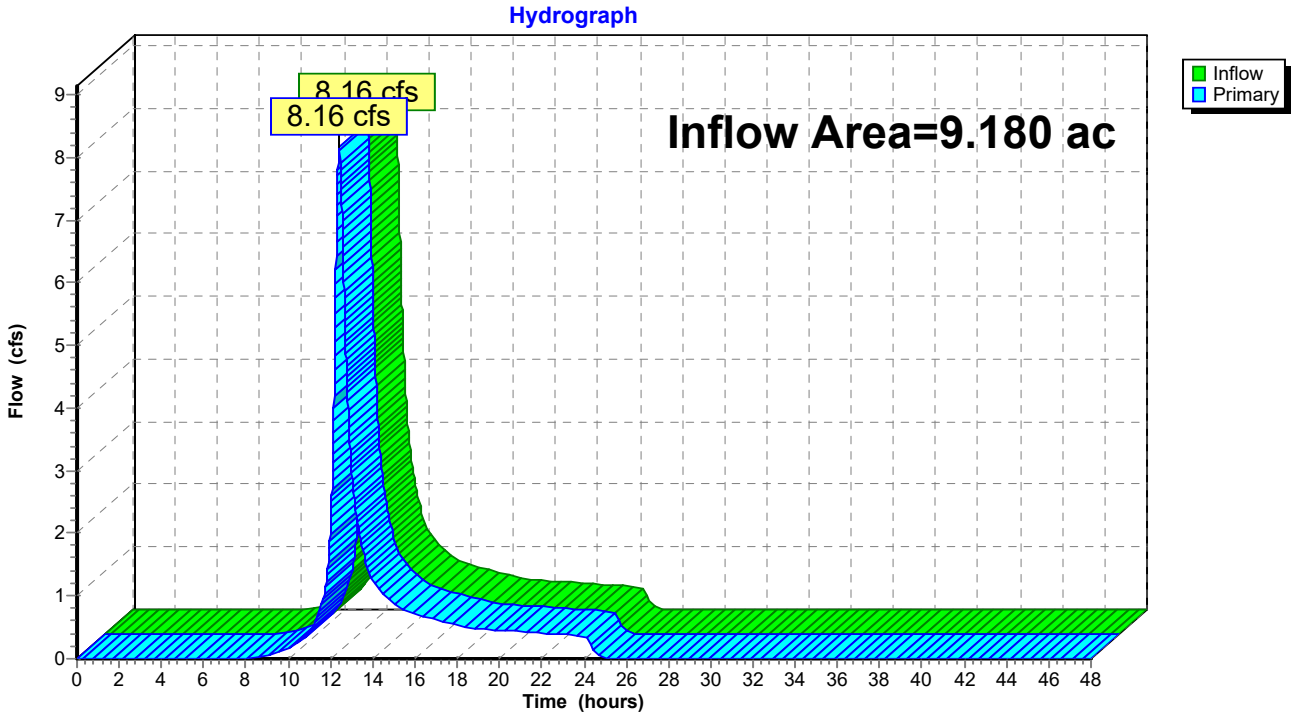
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
194.00	2,257	0
194.05	2,302	114
194.10	2,347	230
194.15	2,392	349
194.20	2,436	469
194.25	2,481	592
194.30	2,526	717
194.35	2,571	845
194.40	2,616	975
194.45	2,661	1,106
194.50	2,706	1,241
194.55	2,750	1,377
194.60	2,795	1,516
194.65	2,840	1,657
194.70	2,885	1,800
194.75	2,930	1,945
194.80	2,975	2,093
194.85	3,019	2,242
194.90	3,064	2,395
194.95	3,109	2,549
195.00	3,154	2,706
195.05	3,205	2,864
195.10	3,255	3,026
195.15	3,306	3,190
195.20	3,356	3,357
195.25	3,407	3,526
195.30	3,457	3,697
195.35	3,508	3,871
195.40	3,558	4,048
195.45	3,609	4,227
195.50	3,660	4,409
195.55	3,710	4,593
195.60	3,761	4,780
195.65	3,811	4,969
195.70	3,862	5,161
195.75	3,912	5,355
195.80	3,963	5,552
195.85	4,013	5,752
195.90	4,064	5,954
195.95	4,114	6,158
196.00	4,165	6,365
196.05	4,227	6,575
196.10	4,288	6,788
196.15	4,350	7,004
196.20	4,412	7,223
196.25	4,473	7,445
196.30	4,535	7,670
196.35	4,597	7,898
196.40	4,658	8,130
196.45	4,720	8,364
196.50	4,782	8,602
196.55	4,843	8,842
196.60	4,905	9,086
196.65	4,966	9,333
196.70	5,028	9,583
196.75	5,090	9,836
196.80	5,151	10,092
196.85	5,213	10,351
196.90	5,275	10,613
196.95	5,336	10,878
197.00	5,398	11,147
197.05	5,447	11,418
197.10	5,495	11,691
197.15	5,544	11,967
197.20	5,592	12,246
197.25	5,641	12,526
197.30	5,690	12,810
197.35	5,738	13,095
197.40	5,787	13,383
197.45	5,835	13,674
197.50	5,884	13,967
197.55	5,933	14,262
197.60	5,981	14,560
197.65	6,030	14,861
197.70	6,078	15,163
197.75	6,127	15,468
197.80	6,176	15,776
197.85	6,224	16,086
197.90	6,273	16,398
197.95	6,321	16,713
198.00	**6,370**	**17,031**

Summary for Link EX: EDA Total

Inflow Area = 9.180 ac, 0.22% Impervious, Inflow Depth = 1.54" for 2-yr event
Inflow = 8.16 cfs @ 12.41 hrs, Volume= 1.181 af
Primary = 8.16 cfs @ 12.41 hrs, Volume= 1.181 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link EX: EDA Total

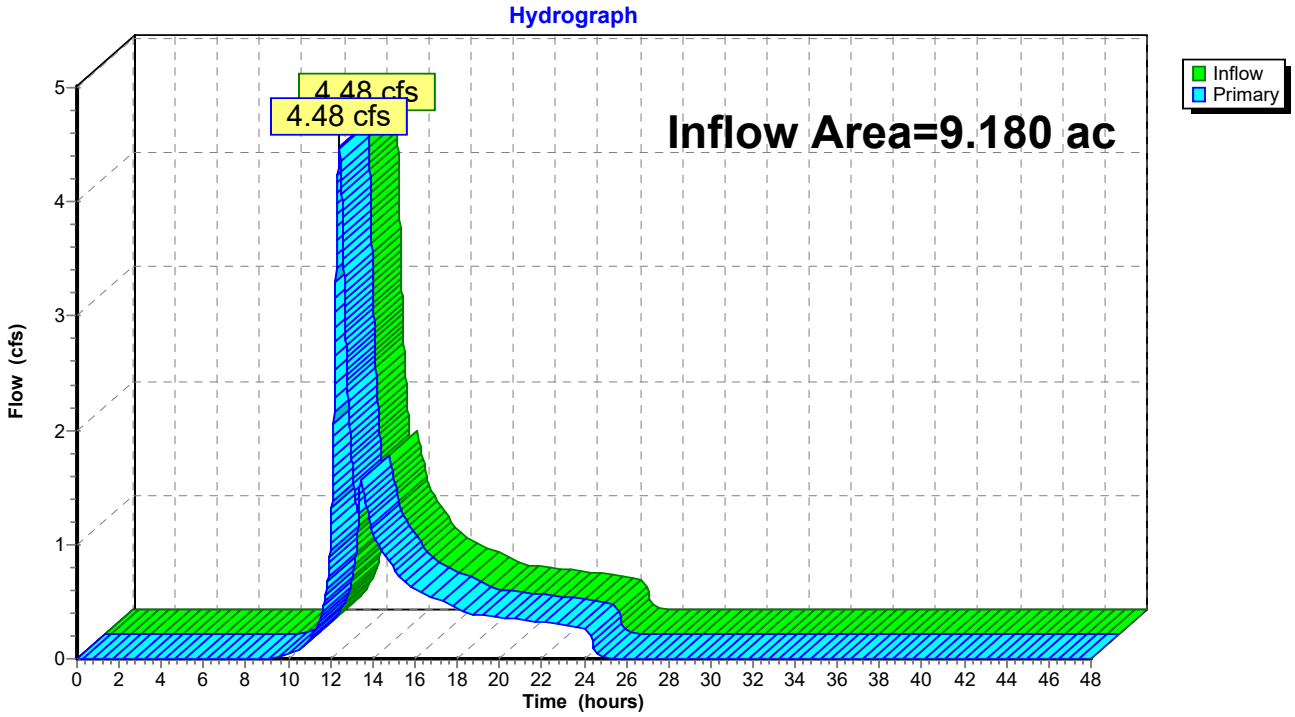


Summary for Link PR: PDA Total

Inflow Area = 9.180 ac, 0.11% Impervious, Inflow Depth = 1.04" for 2-yr event
Inflow = 4.48 cfs @ 12.43 hrs, Volume= 0.797 af
Primary = 4.48 cfs @ 12.43 hrs, Volume= 0.797 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link PR: PDA Total



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E-1: EDA-1 Runoff Area=1.980 ac 1.01% Impervious Runoff Depth=4.67"
Flow Length=344' Tc=28.9 min CN=82 Runoff=5.35 cfs 0.771 af

Subcatchment E-2: EDA-2 Runoff Area=7.200 ac 0.00% Impervious Runoff Depth=4.24"
Flow Length=650' Tc=29.3 min CN=78 Runoff=17.76 cfs 2.544 af

Subcatchment P-1: PDA-1 Runoff Area=0.900 ac 0.00% Impervious Runoff Depth=4.24"
Flow Length=435' Tc=31.0 min CN=78 Runoff=2.15 cfs 0.318 af

Subcatchment P-2A: PDA-2A Runoff Area=5.170 ac 0.00% Impervious Runoff Depth=3.92"
Flow Length=650' Tc=29.3 min CN=75 Runoff=11.82 cfs 1.689 af

Subcatchment P-2B: PDA-2B Runoff Area=3.110 ac 0.32% Impervious Runoff Depth=4.35"
Flow Length=578' Tc=27.1 min CN=79 Runoff=8.18 cfs 1.127 af

Pond P: Pond Peak Elev=196.69' Storage=9,530 cf Inflow=8.18 cfs 1.127 af
Discarded=0.07 cfs 0.194 af Primary=8.06 cfs 0.842 af Outflow=8.13 cfs 1.036 af

Link EX: EDA Total Inflow=23.11 cfs 3.315 af
Primary=23.11 cfs 3.315 af

Link PR: PDA Total Inflow=22.01 cfs 2.849 af
Primary=22.01 cfs 2.849 af

Total Runoff Area = 18.360 ac Runoff Volume = 6.449 af Average Runoff Depth = 4.21"
99.84% Pervious = 18.330 ac 0.16% Impervious = 0.030 ac

Summary for Subcatchment E-1: EDA-1

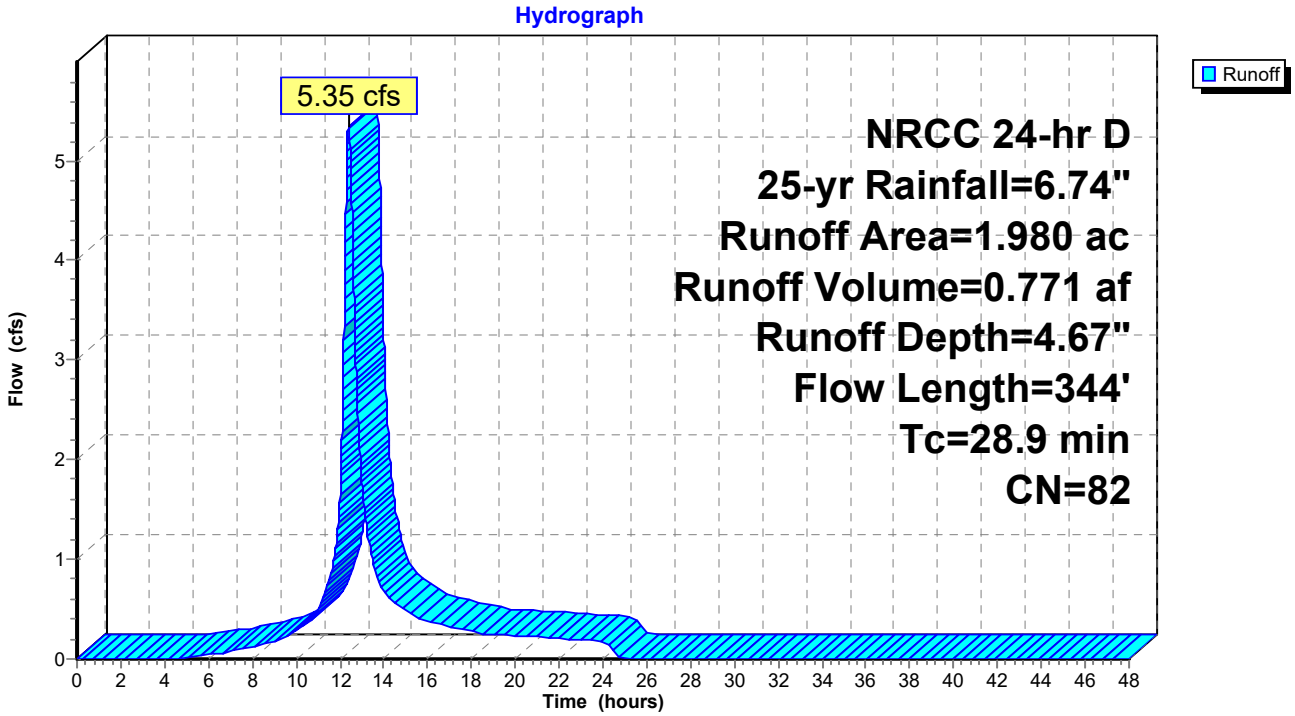
Runoff = 5.35 cfs @ 12.40 hrs, Volume= 0.771 af, Depth= 4.67"
Routed to Link EX : EDA Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-yr Rainfall=6.74"

Area (ac)	CN	Description
0.020	98	Paved parking, HSG D
1.010	84	50-75% Grass cover, Fair, HSG D
0.890	79	Woods, Fair, HSG D
0.050	70	Woods, Good, HSG C
0.010	77	Woods, Good, HSG D
1.980	82	Weighted Average
1.960		98.99% Pervious Area
0.020		1.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.1	100	0.0150	0.07		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.48"
5.8	244	0.0200	0.71		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
28.9	344	Total			

Subcatchment E-1: EDA-1



Summary for Subcatchment E-2: EDA-2

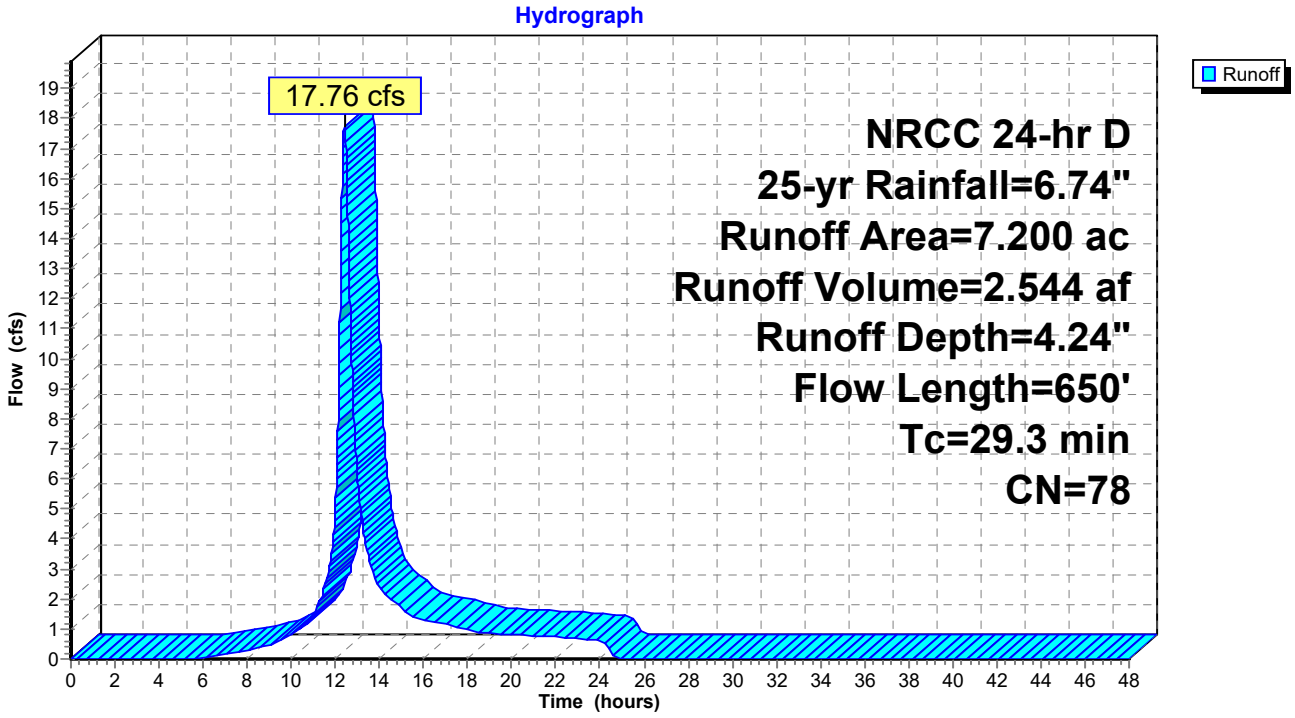
Runoff = 17.76 cfs @ 12.40 hrs, Volume= 2.544 af, Depth= 4.24"
Routed to Link EX : EDA Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-yr Rainfall=6.74"

Area (ac)	CN	Description
3.300	84	50-75% Grass cover, Fair, HSG D
0.840	79	Woods, Fair, HSG D
2.710	70	Woods, Good, HSG C
0.350	77	Woods, Good, HSG D
7.200	78	Weighted Average
7.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	100	0.0100	0.09		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.48"
6.4	330	0.0150	0.86		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
4.8	220	0.0230	0.76		**Shallow Concentrated Flow, CD** Woodland Kv= 5.0 fps
29.3	650	Total			

Subcatchment E-2: EDA-2



Summary for Subcatchment P-1: PDA-1

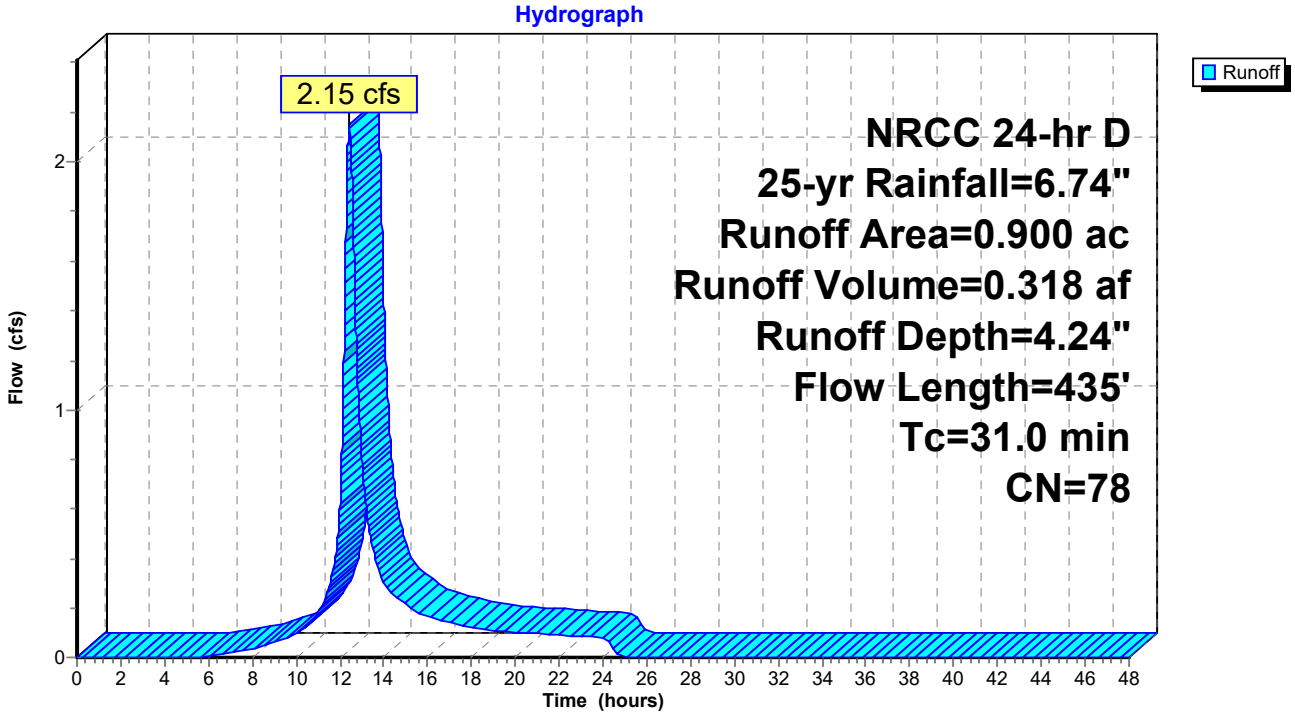
Runoff = 2.15 cfs @ 12.43 hrs, Volume= 0.318 af, Depth= 4.24"
Routed to Link PR : PDA Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-yr Rainfall=6.74"

Area (ac)	CN	Description
0.090	78	Meadow, non-grazed, HSG D
0.760	79	Woods, Fair, HSG D
0.050	70	Woods, Good, HSG C
0.900	78	Weighted Average
0.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.1	100	0.0150	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.48"
7.9	335	0.0200	0.71		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
31.0	435	Total			

Subcatchment P-1: PDA-1



Summary for Subcatchment P-2A: PDA-2A

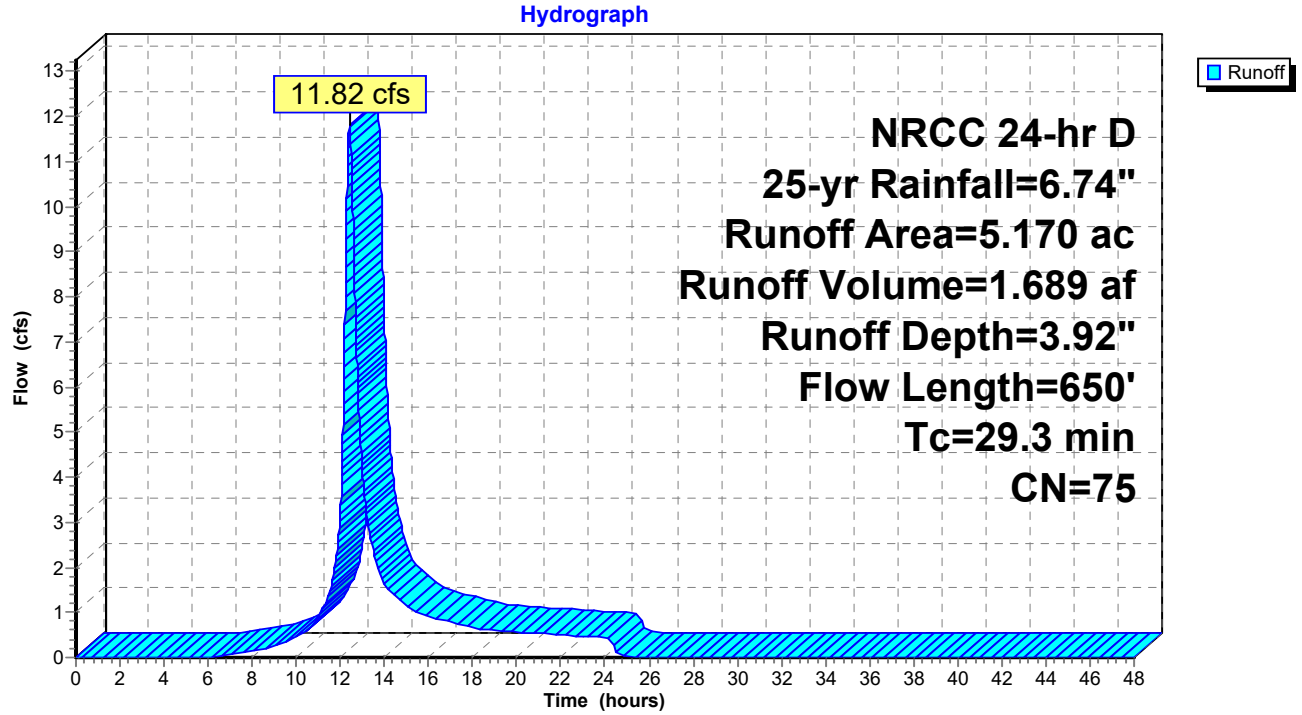
Runoff = 11.82 cfs @ 12.40 hrs, Volume= 1.689 af, Depth= 3.92"
Routed to Link PR : PDA Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-yr Rainfall=6.74"

	Area (ac)	CN	Description
	2.820	78	Meadow, non-grazed, HSG D
	0.210	77	Woods, Good, HSG D
	0.070	79	Woods, Fair, HSG D
*	0.360	75	Meadow, non-grazed, HSG C/D
	1.710	70	Woods, Good, HSG C
	5.170	75	Weighted Average
	5.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	100	0.0100	0.09		**Sheet Flow, 100** Grass: Dense n= 0.240 P2= 3.48"
6.4	330	0.0150	0.86		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
4.8	220	0.0230	0.76		**Shallow Concentrated Flow, CD** Woodland Kv= 5.0 fps
29.3	650	Total			

Subcatchment P-2A: PDA-2A



Summary for Subcatchment P-2B: PDA-2B

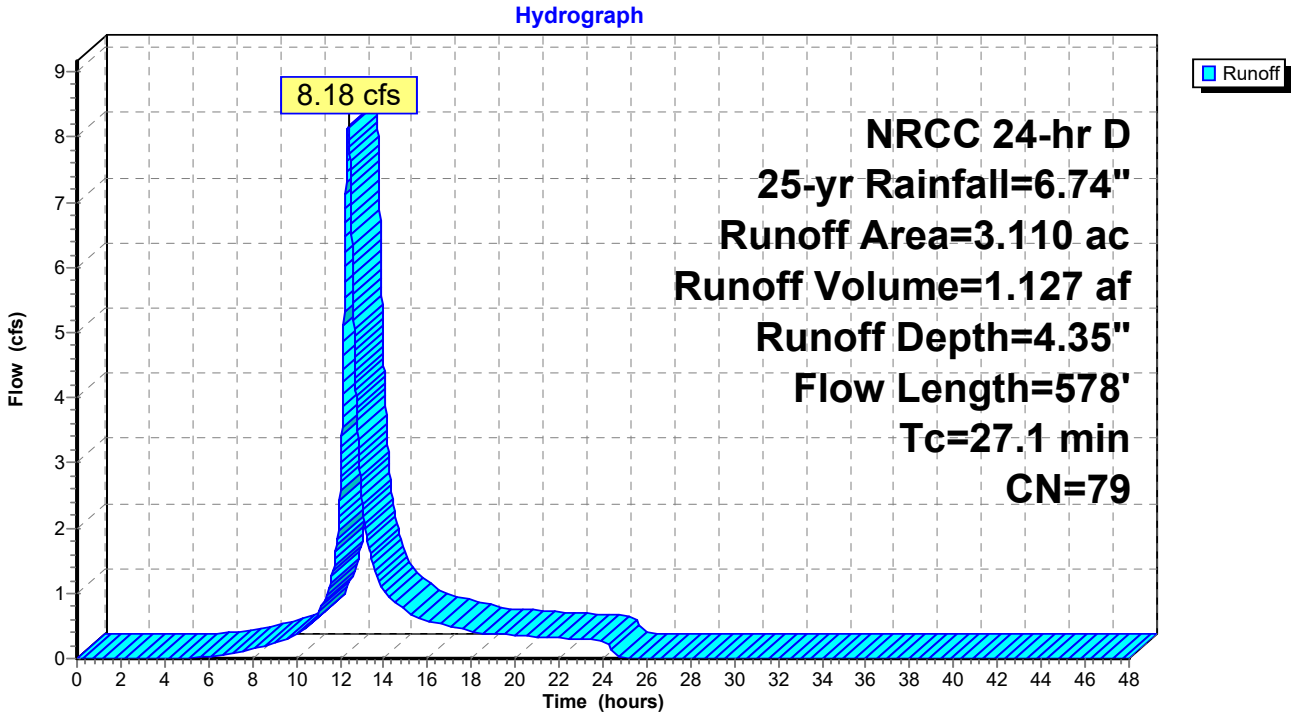
Runoff = 8.18 cfs @ 12.38 hrs, Volume= 1.127 af, Depth= 4.35"
Routed to Pond P : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-yr Rainfall=6.74"

	Area (ac)	CN	Description
	0.350	84	50-75% Grass cover, Fair, HSG D
	0.010	98	Paved parking, HSG D
	1.990	78	Meadow, non-grazed, HSG D
*	0.630	75	Meadow, non-grazed, HSG C/D
	0.130	96	Gravel surface, HSG D
	3.110	79	Weighted Average
	3.100		99.68% Pervious Area
	0.010		0.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	100	0.0100	0.09		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.48"
4.8	200	0.0100	0.70		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
4.2	278	0.0250	1.11		**Shallow Concentrated Flow, CD** Short Grass Pasture Kv= 7.0 fps
27.1	578	Total			

Subcatchment P-2B: PDA-2B



Summary for Pond P: Pond

Inflow Area = 3.110 ac, 0.32% Impervious, Inflow Depth = 4.35" for 25-yr event
Inflow = 8.18 cfs @ 12.38 hrs, Volume= 1.127 af
Outflow = 8.13 cfs @ 12.39 hrs, Volume= 1.036 af, Atten= 1%, Lag= 1.1 min
Discarded = 0.07 cfs @ 12.39 hrs, Volume= 0.194 af
Primary = 8.06 cfs @ 12.39 hrs, Volume= 0.842 af
Routed to Link PR : PDA Total

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 196.69' @ 12.39 hrs Surf.Area= 5,015 sf Storage= 9,530 cf

Plug-Flow detention time= 218.3 min calculated for 1.036 af (92% of inflow)
Center-of-Mass det. time= 174.1 min (1,024.4 - 850.3)

Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	17,031 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

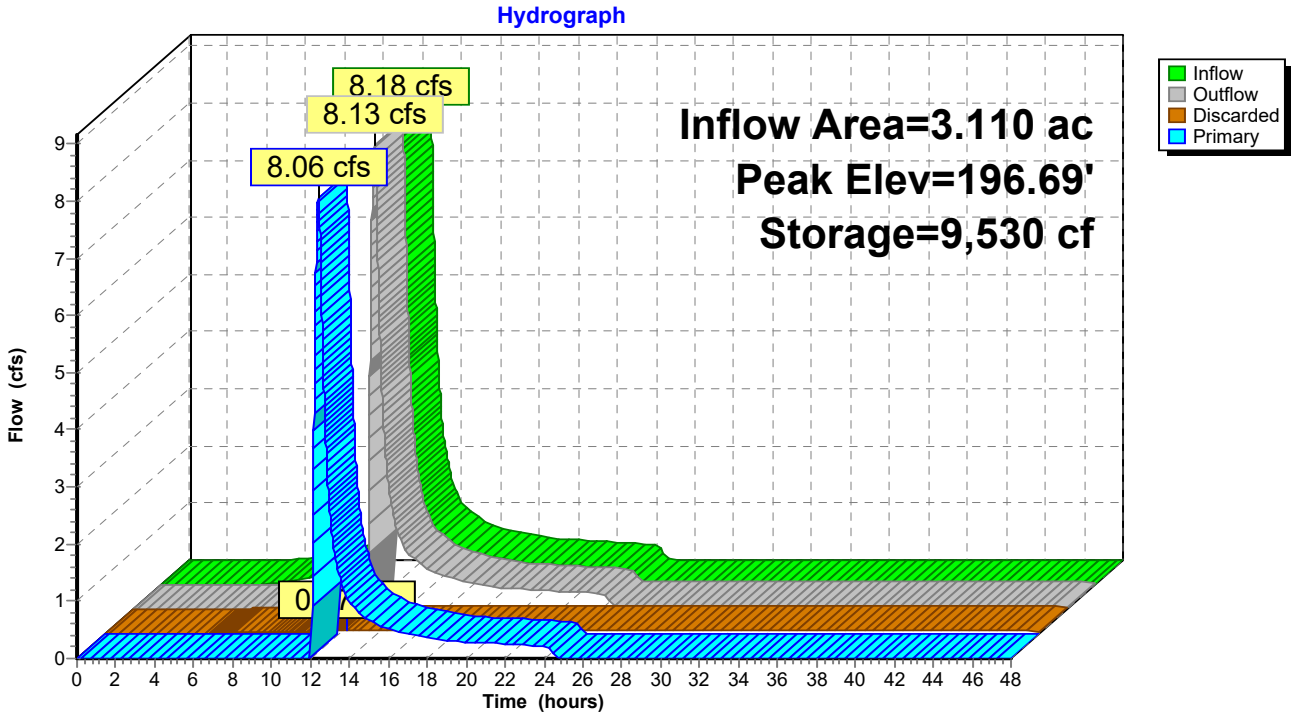
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	2,257	0	0
195.00	3,154	2,706	2,706
196.00	4,165	3,660	6,365
197.00	5,398	4,782	11,147
198.00	6,370	5,884	17,031

Device	Routing	Invert	Outlet Devices
#1	Discarded	194.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 185.00'
#2	Primary	196.50'	**20.0' long x 8.0' breadth Broad-Crested Rectangular Weir X 2.00** 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.07 cfs @ 12.39 hrs HW=196.69' (Free Discharge)
1=Exfiltration (Controls 0.07 cfs)

Primary OutFlow Max=8.02 cfs @ 12.39 hrs HW=196.69' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 8.02 cfs @ 1.06 fps)

Pond P: Pond


Hydrograph
8.18 cfs
8.13 cfs
8.06 cfs
Inflow Area=3.110 ac
Peak Elev=196.69'
Storage=9,530 cf
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Stage-Discharge for Pond P: Pond

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
194.00	0.00	0.00	0.00
194.05	0.03	0.03	0.00
194.10	0.03	0.03	0.00
194.15	0.03	0.03	0.00
194.20	0.03	0.03	0.00
194.25	0.03	0.03	0.00
194.30	0.03	0.03	0.00
194.35	0.03	0.03	0.00
194.40	0.03	0.03	0.00
194.45	0.03	0.03	0.00
194.50	0.03	0.03	0.00
194.55	0.03	0.03	0.00
194.60	0.03	0.03	0.00
194.65	0.03	0.03	0.00
194.70	0.04	0.04	0.00
194.75	0.04	0.04	0.00
194.80	0.04	0.04	0.00
194.85	0.04	0.04	0.00
194.90	0.04	0.04	0.00
194.95	0.04	0.04	0.00
195.00	0.04	0.04	0.00
195.05	0.04	0.04	0.00
195.10	0.04	0.04	0.00
195.15	0.04	0.04	0.00
195.20	0.04	0.04	0.00
195.25	0.04	0.04	0.00
195.30	0.04	0.04	0.00
195.35	0.05	0.05	0.00
195.40	0.05	0.05	0.00
195.45	0.05	0.05	0.00
195.50	0.05	0.05	0.00
195.55	0.05	0.05	0.00
195.60	0.05	0.05	0.00
195.65	0.05	0.05	0.00
195.70	0.05	0.05	0.00
195.75	0.05	0.05	0.00
195.80	0.05	0.05	0.00
195.85	0.05	0.05	0.00
195.90	0.05	0.05	0.00
195.95	0.06	0.06	0.00
196.00	0.06	0.06	0.00
196.05	0.06	0.06	0.00
196.10	0.06	0.06	0.00
196.15	0.06	0.06	0.00
196.20	0.06	0.06	0.00
196.25	0.06	0.06	0.00
196.30	0.06	0.06	0.00
196.35	0.06	0.06	0.00
196.40	0.06	0.06	0.00
196.45	0.07	0.07	0.00
196.50	0.07	0.07	0.00
196.55	1.15	0.07	1.09
196.60	3.14	0.07	3.07
196.65	5.72	0.07	5.65
196.70	8.76	0.07	8.69
196.75	12.36	0.07	12.29
196.80	16.41	0.07	16.33
196.85	20.88	0.07	20.81
196.90	25.78	0.07	25.70
196.95	31.23	0.08	31.15
197.00	37.13	0.08	37.05
197.05	43.48	0.08	43.40
197.10	50.27	0.08	50.19
197.15	56.62	0.08	56.54
197.20	63.21	0.08	63.13
197.25	70.03	0.08	69.95
197.30	77.07	0.08	76.99
197.35	84.33	0.08	84.24
197.40	91.78	0.08	91.70
197.45	99.44	0.08	99.35
197.50	107.29	0.09	107.20
197.55	115.43	0.09	115.34
197.60	123.76	0.09	123.68
197.65	132.29	0.09	132.20
197.70	141.01	0.09	140.92
197.75	149.63	0.09	149.54
197.80	158.39	0.09	158.30
197.85	167.30	0.09	167.21
197.90	176.34	0.09	176.25
197.95	185.52	0.09	185.43
198.00	**194.83**	**0.09**	**194.73**

Stage-Area-Storage for Pond P: Pond

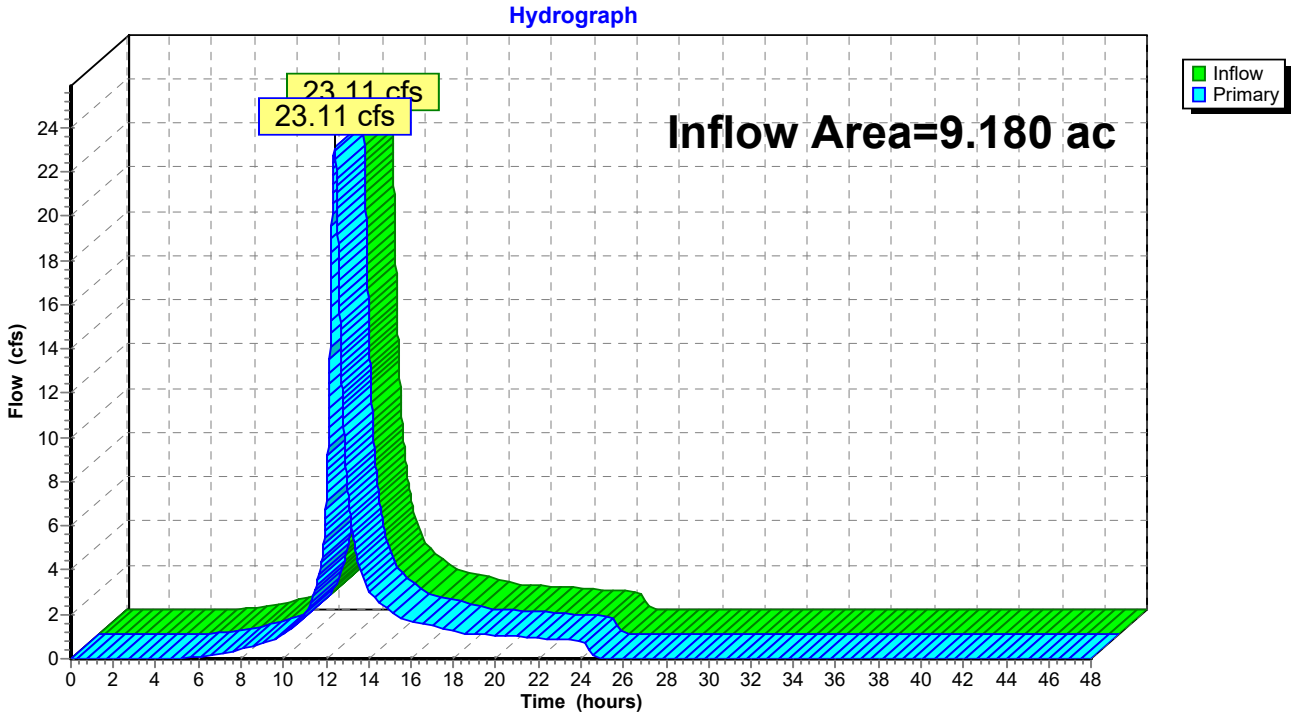
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
194.00	2,257	0
194.05	2,302	114
194.10	2,347	230
194.15	2,392	349
194.20	2,436	469
194.25	2,481	592
194.30	2,526	717
194.35	2,571	845
194.40	2,616	975
194.45	2,661	1,106
194.50	2,706	1,241
194.55	2,750	1,377
194.60	2,795	1,516
194.65	2,840	1,657
194.70	2,885	1,800
194.75	2,930	1,945
194.80	2,975	2,093
194.85	3,019	2,242
194.90	3,064	2,395
194.95	3,109	2,549
195.00	3,154	2,706
195.05	3,205	2,864
195.10	3,255	3,026
195.15	3,306	3,190
195.20	3,356	3,357
195.25	3,407	3,526
195.30	3,457	3,697
195.35	3,508	3,871
195.40	3,558	4,048
195.45	3,609	4,227
195.50	3,660	4,409
195.55	3,710	4,593
195.60	3,761	4,780
195.65	3,811	4,969
195.70	3,862	5,161
195.75	3,912	5,355
195.80	3,963	5,552
195.85	4,013	5,752
195.90	4,064	5,954
195.95	4,114	6,158
196.00	4,165	6,365
196.05	4,227	6,575
196.10	4,288	6,788
196.15	4,350	7,004
196.20	4,412	7,223
196.25	4,473	7,445
196.30	4,535	7,670
196.35	4,597	7,898
196.40	4,658	8,130
196.45	4,720	8,364
196.50	4,782	8,602
196.55	4,843	8,842
196.60	4,905	9,086
196.65	4,966	9,333
196.70	5,028	9,583
196.75	5,090	9,836
196.80	5,151	10,092
196.85	5,213	10,351
196.90	5,275	10,613
196.95	5,336	10,878
197.00	5,398	11,147
197.05	5,447	11,418
197.10	5,495	11,691
197.15	5,544	11,967
197.20	5,592	12,246
197.25	5,641	12,526
197.30	5,690	12,810
197.35	5,738	13,095
197.40	5,787	13,383
197.45	5,835	13,674
197.50	5,884	13,967
197.55	5,933	14,262
197.60	5,981	14,560
197.65	6,030	14,861
197.70	6,078	15,163
197.75	6,127	15,468
197.80	6,176	15,776
197.85	6,224	16,086
197.90	6,273	16,398
197.95	6,321	16,713
198.00	**6,370**	**17,031**

Summary for Link EX: EDA Total

Inflow Area = 9.180 ac, 0.22% Impervious, Inflow Depth = 4.33" for 25-yr event
Inflow = 23.11 cfs @ 12.40 hrs, Volume= 3.315 af
Primary = 23.11 cfs @ 12.40 hrs, Volume= 3.315 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link EX: EDA Total

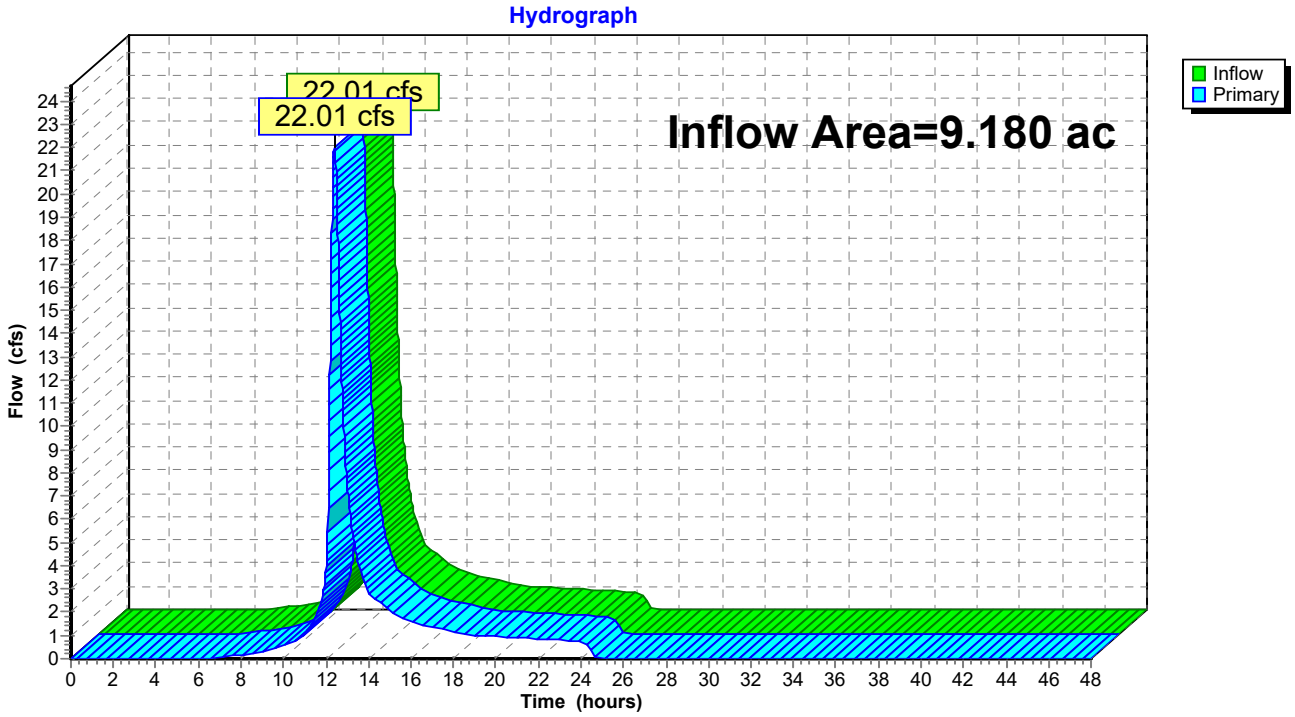


Summary for Link PR: PDA Total

Inflow Area = 9.180 ac, 0.11% Impervious, Inflow Depth = 3.72" for 25-yr event
Inflow = 22.01 cfs @ 12.40 hrs, Volume= 2.849 af
Primary = 22.01 cfs @ 12.40 hrs, Volume= 2.849 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link PR: PDA Total



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E-1: EDA-1 Runoff Area=1.980 ac 1.01% Impervious Runoff Depth=5.54"
Flow Length=344' Tc=28.9 min CN=82 Runoff=6.30 cfs 0.914 af

Subcatchment E-2: EDA-2 Runoff Area=7.200 ac 0.00% Impervious Runoff Depth=5.08"
Flow Length=650' Tc=29.3 min CN=78 Runoff=21.19 cfs 3.047 af

Subcatchment P-1: PDA-1 Runoff Area=0.900 ac 0.00% Impervious Runoff Depth=5.08"
Flow Length=435' Tc=31.0 min CN=78 Runoff=2.57 cfs 0.381 af

Subcatchment P-2A: PDA-2A Runoff Area=5.170 ac 0.00% Impervious Runoff Depth=4.74"
Flow Length=650' Tc=29.3 min CN=75 Runoff=14.26 cfs 2.040 af

Subcatchment P-2B: PDA-2B Runoff Area=3.110 ac 0.32% Impervious Runoff Depth=5.19"
Flow Length=578' Tc=27.1 min CN=79 Runoff=9.73 cfs 1.346 af

Pond P: Pond Peak Elev=196.71' Storage=9,647 cf Inflow=9.73 cfs 1.346 af
Discarded=0.07 cfs 0.197 af Primary=9.60 cfs 1.058 af Outflow=9.67 cfs 1.255 af

Link EX: EDA Total Inflow=27.49 cfs 3.960 af
Primary=27.49 cfs 3.960 af

Link PR: PDA Total Inflow=26.39 cfs 3.479 af
Primary=26.39 cfs 3.479 af

Total Runoff Area = 18.360 ac Runoff Volume = 7.727 af Average Runoff Depth = 5.05"
99.84% Pervious = 18.330 ac 0.16% Impervious = 0.030 ac

Summary for Subcatchment E-1: EDA-1

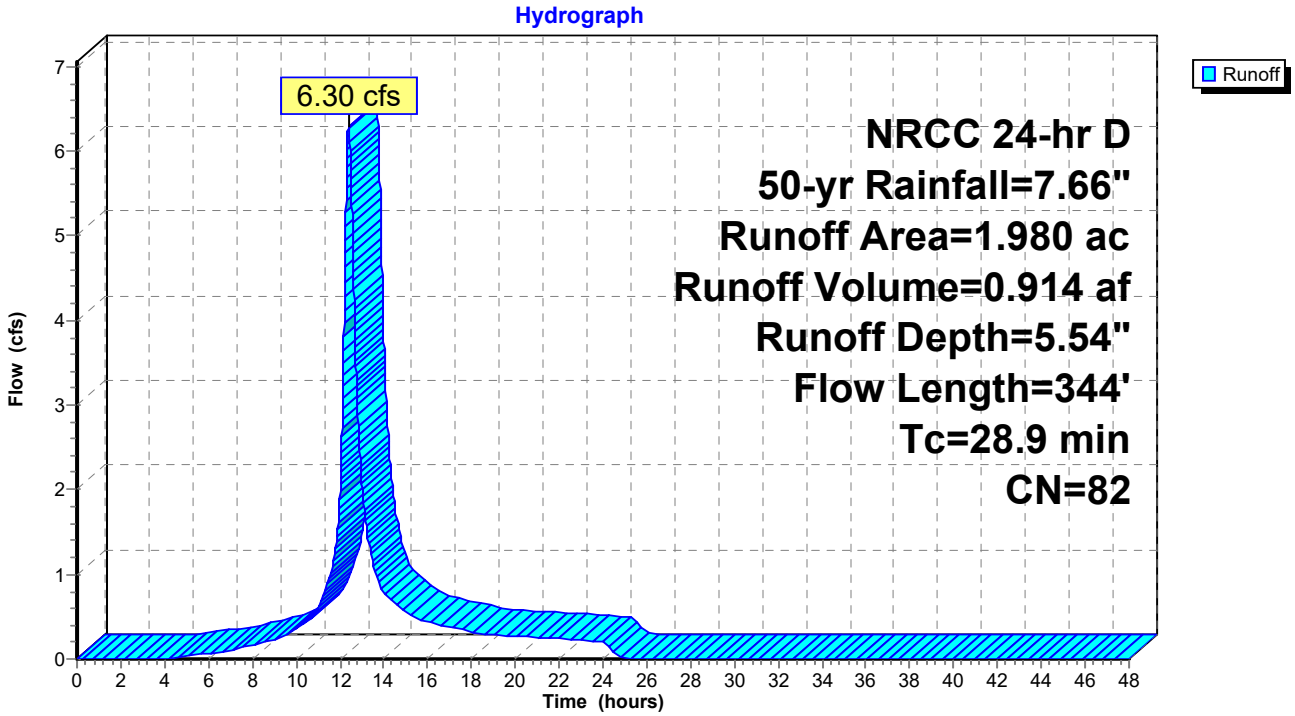
Runoff = 6.30 cfs @ 12.40 hrs, Volume= 0.914 af, Depth= 5.54"
Routed to Link EX : EDA Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 50-yr Rainfall=7.66"

Area (ac)	CN	Description
0.020	98	Paved parking, HSG D
1.010	84	50-75% Grass cover, Fair, HSG D
0.890	79	Woods, Fair, HSG D
0.050	70	Woods, Good, HSG C
0.010	77	Woods, Good, HSG D
1.980	82	Weighted Average
1.960		98.99% Pervious Area
0.020		1.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.1	100	0.0150	0.07		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.48"
5.8	244	0.0200	0.71		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
28.9	344	Total			

Subcatchment E-1: EDA-1



Summary for Subcatchment E-2: EDA-2

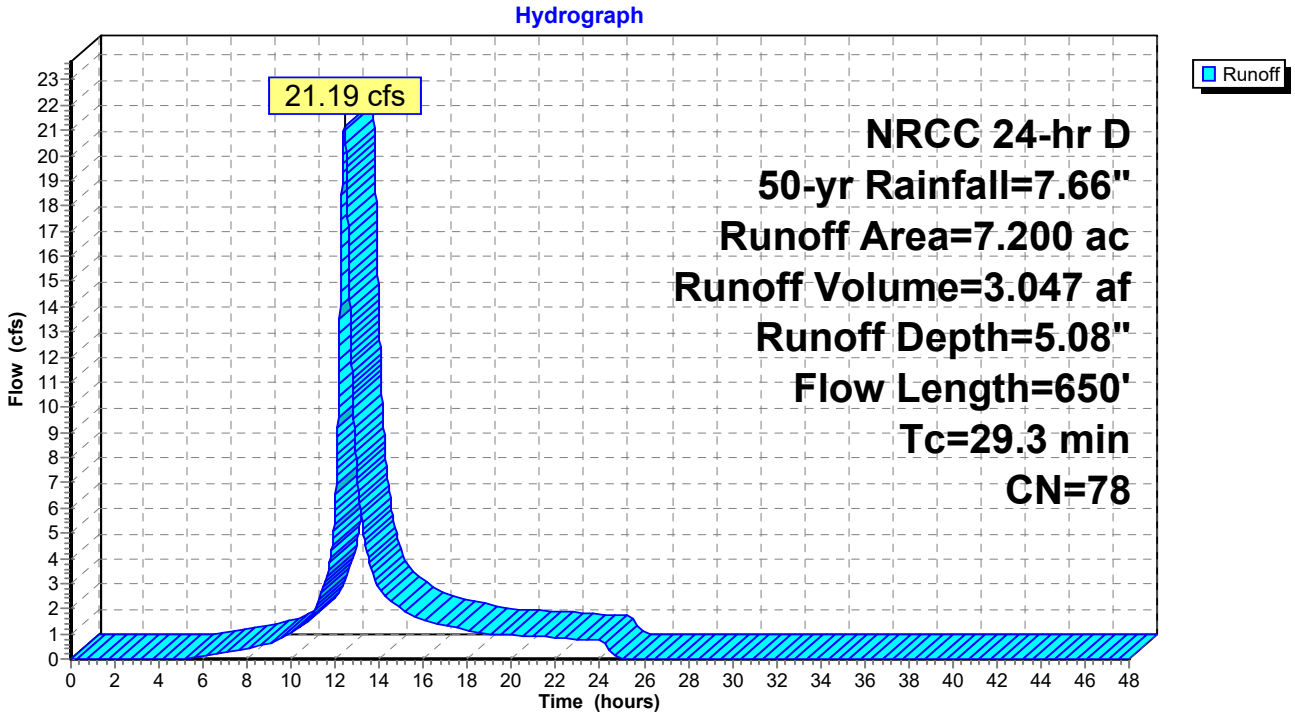
Runoff = 21.19 cfs @ 12.40 hrs, Volume= 3.047 af, Depth= 5.08"
Routed to Link EX : EDA Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 50-yr Rainfall=7.66"

Area (ac)	CN	Description
3.300	84	50-75% Grass cover, Fair, HSG D
0.840	79	Woods, Fair, HSG D
2.710	70	Woods, Good, HSG C
0.350	77	Woods, Good, HSG D
7.200	78	Weighted Average
7.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	100	0.0100	0.09		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.48"
6.4	330	0.0150	0.86		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
4.8	220	0.0230	0.76		**Shallow Concentrated Flow, CD** Woodland Kv= 5.0 fps
29.3	650	Total			

Subcatchment E-2: EDA-2



Summary for Subcatchment P-1: PDA-1

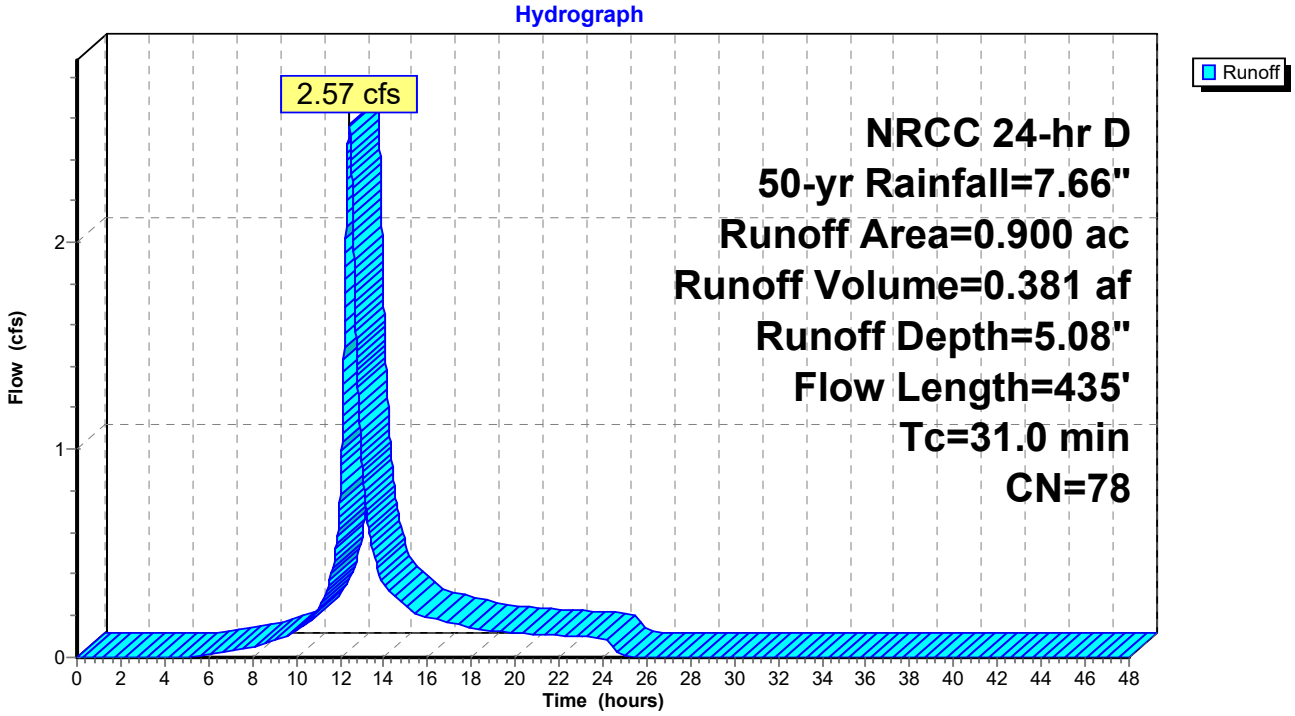
Runoff = 2.57 cfs @ 12.43 hrs, Volume= 0.381 af, Depth= 5.08"
Routed to Link PR : PDA Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 50-yr Rainfall=7.66"

Area (ac)	CN	Description
0.090	78	Meadow, non-grazed, HSG D
0.760	79	Woods, Fair, HSG D
0.050	70	Woods, Good, HSG C
0.900	78	Weighted Average
0.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.1	100	0.0150	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.48"
7.9	335	0.0200	0.71		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
31.0	435	Total			

Subcatchment P-1: PDA-1



Summary for Subcatchment P-2A: PDA-2A

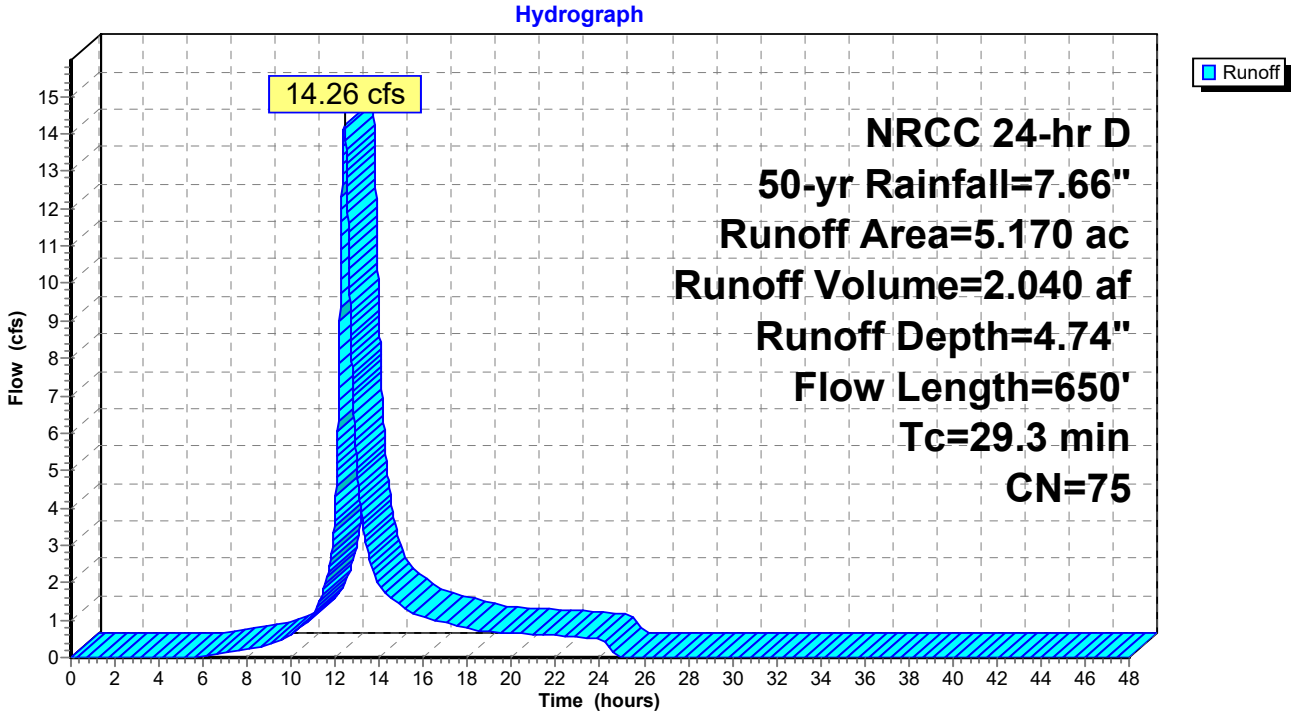
Runoff = 14.26 cfs @ 12.40 hrs, Volume= 2.040 af, Depth= 4.74"
Routed to Link PR : PDA Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 50-yr Rainfall=7.66"

	Area (ac)	CN	Description
	2.820	78	Meadow, non-grazed, HSG D
	0.210	77	Woods, Good, HSG D
	0.070	79	Woods, Fair, HSG D
*	0.360	75	Meadow, non-grazed, HSG C/D
	1.710	70	Woods, Good, HSG C
	5.170	75	Weighted Average
	5.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	100	0.0100	0.09		**Sheet Flow, 100** Grass: Dense n= 0.240 P2= 3.48"
6.4	330	0.0150	0.86		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
4.8	220	0.0230	0.76		**Shallow Concentrated Flow, CD** Woodland Kv= 5.0 fps
29.3	650	Total			

Subcatchment P-2A: PDA-2A



Summary for Subcatchment P-2B: PDA-2B

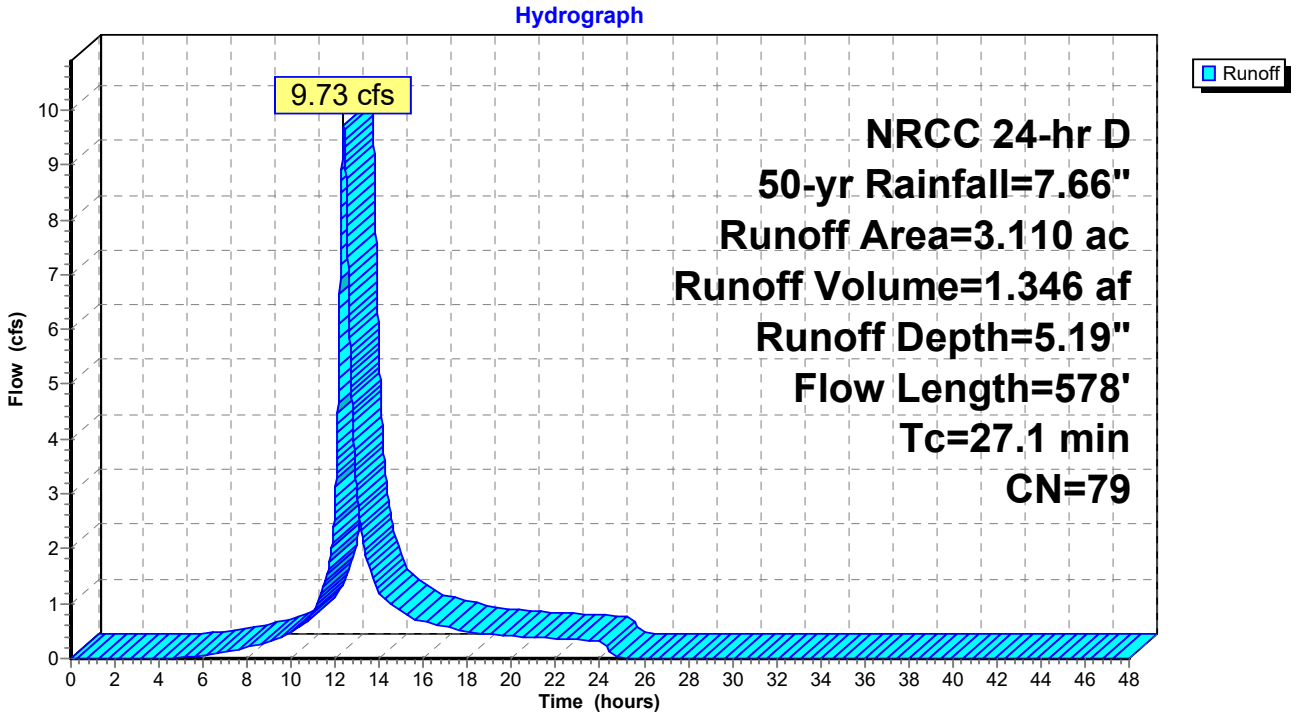
Runoff = 9.73 cfs @ 12.37 hrs, Volume= 1.346 af, Depth= 5.19"
Routed to Pond P : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 50-yr Rainfall=7.66"

	Area (ac)	CN	Description
	0.350	84	50-75% Grass cover, Fair, HSG D
	0.010	98	Paved parking, HSG D
	1.990	78	Meadow, non-grazed, HSG D
*	0.630	75	Meadow, non-grazed, HSG C/D
	0.130	96	Gravel surface, HSG D
	3.110	79	Weighted Average
	3.100		99.68% Pervious Area
	0.010		0.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	100	0.0100	0.09		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.48"
4.8	200	0.0100	0.70		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
4.2	278	0.0250	1.11		**Shallow Concentrated Flow, CD** Short Grass Pasture Kv= 7.0 fps
27.1	578	Total			

Subcatchment P-2B: PDA-2B



Summary for Pond P: Pond

Inflow Area = 3.110 ac, 0.32% Impervious, Inflow Depth = 5.19" for 50-yr event
Inflow = 9.73 cfs @ 12.37 hrs, Volume= 1.346 af
Outflow = 9.67 cfs @ 12.39 hrs, Volume= 1.255 af, Atten= 1%, Lag= 1.1 min
Discarded = 0.07 cfs @ 12.39 hrs, Volume= 0.197 af
Primary = 9.60 cfs @ 12.39 hrs, Volume= 1.058 af
Routed to Link PR : PDA Total

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 196.71' @ 12.39 hrs Surf.Area= 5,044 sf Storage= 9,647 cf

Plug-Flow detention time= 186.1 min calculated for 1.254 af (93% of inflow)
Center-of-Mass det. time= 148.4 min (992.2 - 843.8)

Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	17,031 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

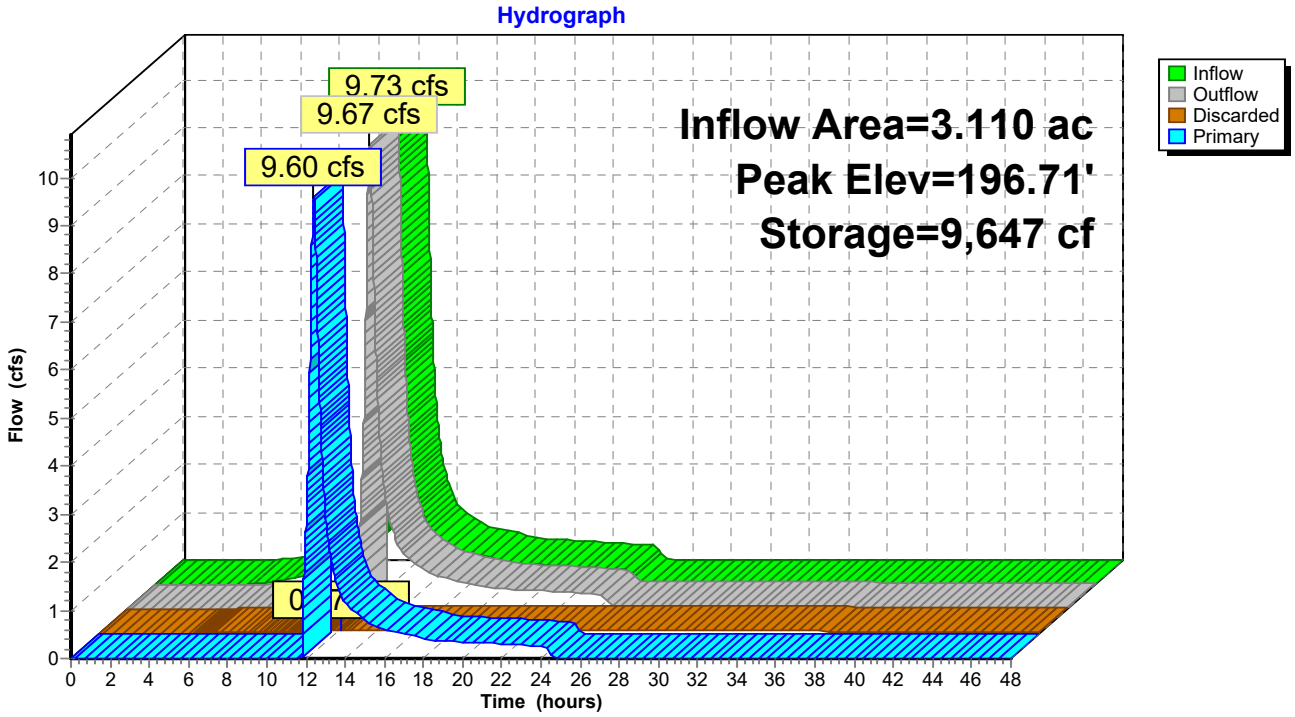
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	2,257	0	0
195.00	3,154	2,706	2,706
196.00	4,165	3,660	6,365
197.00	5,398	4,782	11,147
198.00	6,370	5,884	17,031

Device	Routing	Invert	Outlet Devices
#1	Discarded	194.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 185.00'
#2	Primary	196.50'	**20.0' long x 8.0' breadth Broad-Crested Rectangular Weir X 2.00** 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.07 cfs @ 12.39 hrs HW=196.71' (Free Discharge)
1=Exfiltration (Controls 0.07 cfs)

Primary OutFlow Max=9.56 cfs @ 12.39 hrs HW=196.71' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 9.56 cfs @ 1.12 fps)

Pond P: Pond


Hydrograph
9.73 cfs
9.67 cfs
9.60 cfs
Inflow Area=3.110 ac
Peak Elev=196.71'
Storage=9,647 cf
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48
0 1 2 3 4 5 6 7 8 9 10

Stage-Discharge for Pond P: Pond

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
194.00	0.00	0.00	0.00
194.05	0.03	0.03	0.00
194.10	0.03	0.03	0.00
194.15	0.03	0.03	0.00
194.20	0.03	0.03	0.00
194.25	0.03	0.03	0.00
194.30	0.03	0.03	0.00
194.35	0.03	0.03	0.00
194.40	0.03	0.03	0.00
194.45	0.03	0.03	0.00
194.50	0.03	0.03	0.00
194.55	0.03	0.03	0.00
194.60	0.03	0.03	0.00
194.65	0.03	0.03	0.00
194.70	0.04	0.04	0.00
194.75	0.04	0.04	0.00
194.80	0.04	0.04	0.00
194.85	0.04	0.04	0.00
194.90	0.04	0.04	0.00
194.95	0.04	0.04	0.00
195.00	0.04	0.04	0.00
195.05	0.04	0.04	0.00
195.10	0.04	0.04	0.00
195.15	0.04	0.04	0.00
195.20	0.04	0.04	0.00
195.25	0.04	0.04	0.00
195.30	0.04	0.04	0.00
195.35	0.05	0.05	0.00
195.40	0.05	0.05	0.00
195.45	0.05	0.05	0.00
195.50	0.05	0.05	0.00
195.55	0.05	0.05	0.00
195.60	0.05	0.05	0.00
195.65	0.05	0.05	0.00
195.70	0.05	0.05	0.00
195.75	0.05	0.05	0.00
195.80	0.05	0.05	0.00
195.85	0.05	0.05	0.00
195.90	0.05	0.05	0.00
195.95	0.06	0.06	0.00
196.00	0.06	0.06	0.00
196.05	0.06	0.06	0.00
196.10	0.06	0.06	0.00
196.15	0.06	0.06	0.00
196.20	0.06	0.06	0.00
196.25	0.06	0.06	0.00
196.30	0.06	0.06	0.00
196.35	0.06	0.06	0.00
196.40	0.06	0.06	0.00
196.45	0.07	0.07	0.00
196.50	0.07	0.07	0.00
196.55	1.15	0.07	1.09
196.60	3.14	0.07	3.07
196.65	5.72	0.07	5.65
196.70	8.76	0.07	8.69
196.75	12.36	0.07	12.29
196.80	16.41	0.07	16.33
196.85	20.88	0.07	20.81
196.90	25.78	0.07	25.70
196.95	31.23	0.08	31.15
197.00	37.13	0.08	37.05
197.05	43.48	0.08	43.40
197.10	50.27	0.08	50.19
197.15	56.62	0.08	56.54
197.20	63.21	0.08	63.13
197.25	70.03	0.08	69.95
197.30	77.07	0.08	76.99
197.35	84.33	0.08	84.24
197.40	91.78	0.08	91.70
197.45	99.44	0.08	99.35
197.50	107.29	0.09	107.20
197.55	115.43	0.09	115.34
197.60	123.76	0.09	123.68
197.65	132.29	0.09	132.20
197.70	141.01	0.09	140.92
197.75	149.63	0.09	149.54
197.80	158.39	0.09	158.30
197.85	167.30	0.09	167.21
197.90	176.34	0.09	176.25
197.95	185.52	0.09	185.43
198.00	**194.83**	**0.09**	**194.73**

Stage-Area-Storage for Pond P: Pond

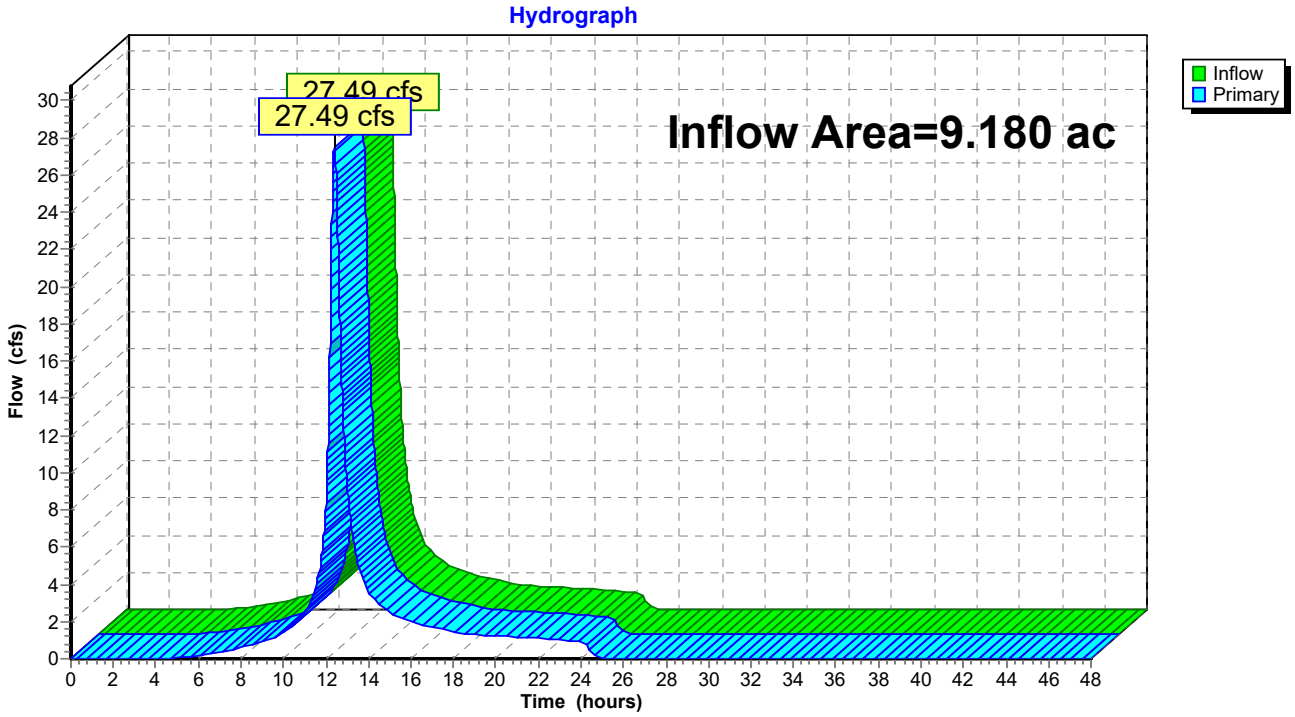
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
194.00	2,257	0
194.05	2,302	114
194.10	2,347	230
194.15	2,392	349
194.20	2,436	469
194.25	2,481	592
194.30	2,526	717
194.35	2,571	845
194.40	2,616	975
194.45	2,661	1,106
194.50	2,706	1,241
194.55	2,750	1,377
194.60	2,795	1,516
194.65	2,840	1,657
194.70	2,885	1,800
194.75	2,930	1,945
194.80	2,975	2,093
194.85	3,019	2,242
194.90	3,064	2,395
194.95	3,109	2,549
195.00	3,154	2,706
195.05	3,205	2,864
195.10	3,255	3,026
195.15	3,306	3,190
195.20	3,356	3,357
195.25	3,407	3,526
195.30	3,457	3,697
195.35	3,508	3,871
195.40	3,558	4,048
195.45	3,609	4,227
195.50	3,660	4,409
195.55	3,710	4,593
195.60	3,761	4,780
195.65	3,811	4,969
195.70	3,862	5,161
195.75	3,912	5,355
195.80	3,963	5,552
195.85	4,013	5,752
195.90	4,064	5,954
195.95	4,114	6,158
196.00	4,165	6,365
196.05	4,227	6,575
196.10	4,288	6,788
196.15	4,350	7,004
196.20	4,412	7,223
196.25	4,473	7,445
196.30	4,535	7,670
196.35	4,597	7,898
196.40	4,658	8,130
196.45	4,720	8,364
196.50	4,782	8,602
196.55	4,843	8,842
196.60	4,905	9,086
196.65	4,966	9,333
196.70	5,028	9,583
196.75	5,090	9,836
196.80	5,151	10,092
196.85	5,213	10,351
196.90	5,275	10,613
196.95	5,336	10,878
197.00	5,398	11,147
197.05	5,447	11,418
197.10	5,495	11,691
197.15	5,544	11,967
197.20	5,592	12,246
197.25	5,641	12,526
197.30	5,690	12,810
197.35	5,738	13,095
197.40	5,787	13,383
197.45	5,835	13,674
197.50	5,884	13,967
197.55	5,933	14,262
197.60	5,981	14,560
197.65	6,030	14,861
197.70	6,078	15,163
197.75	6,127	15,468
197.80	6,176	15,776
197.85	6,224	16,086
197.90	6,273	16,398
197.95	6,321	16,713
198.00	**6,370**	**17,031**

Summary for Link EX: EDA Total

Inflow Area = 9.180 ac, 0.22% Impervious, Inflow Depth = 5.18" for 50-yr event
Inflow = 27.49 cfs @ 12.40 hrs, Volume= 3.960 af
Primary = 27.49 cfs @ 12.40 hrs, Volume= 3.960 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link EX: EDA Total

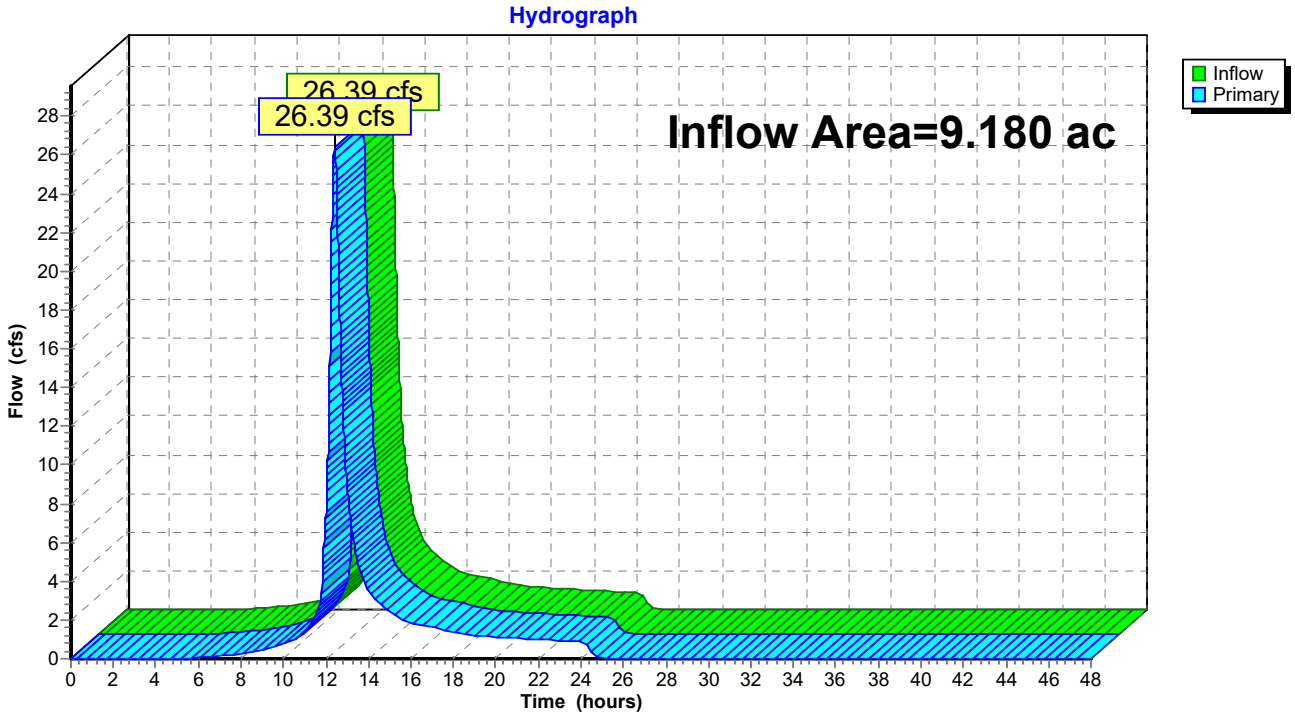


Summary for Link PR: PDA Total

Inflow Area = 9.180 ac, 0.11% Impervious, Inflow Depth = 4.55" for 50-yr event
Inflow = 26.39 cfs @ 12.40 hrs, Volume= 3.479 af
Primary = 26.39 cfs @ 12.40 hrs, Volume= 3.479 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link PR: PDA Total



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E-1: EDA-1 Runoff Area=1.980 ac 1.01% Impervious Runoff Depth=6.50"
Flow Length=344' Tc=28.9 min CN=82 Runoff=7.35 cfs 1.072 af

Subcatchment E-2: EDA-2 Runoff Area=7.200 ac 0.00% Impervious Runoff Depth=6.01"
Flow Length=650' Tc=29.3 min CN=78 Runoff=24.96 cfs 3.608 af

Subcatchment P-1: PDA-1 Runoff Area=0.900 ac 0.00% Impervious Runoff Depth=6.01"
Flow Length=435' Tc=31.0 min CN=78 Runoff=3.03 cfs 0.451 af

Subcatchment P-2A: PDA-2A Runoff Area=5.170 ac 0.00% Impervious Runoff Depth=5.65"
Flow Length=650' Tc=29.3 min CN=75 Runoff=16.95 cfs 2.434 af

Subcatchment P-2B: PDA-2B Runoff Area=3.110 ac 0.32% Impervious Runoff Depth=6.13"
Flow Length=578' Tc=27.1 min CN=79 Runoff=11.43 cfs 1.590 af

Pond P: Pond Peak Elev=196.74' Storage=9,766 cf Inflow=11.43 cfs 1.590 af
Discarded=0.07 cfs 0.200 af Primary=11.30 cfs 1.299 af Outflow=11.37 cfs 1.499 af

Link EX: EDA Total Inflow=32.31 cfs 4.680 af
Primary=32.31 cfs 4.680 af

Link PR: PDA Total Inflow=31.24 cfs 4.184 af
Primary=31.24 cfs 4.184 af

Total Runoff Area = 18.360 ac Runoff Volume = 9.155 af Average Runoff Depth = 5.98"
99.84% Pervious = 18.330 ac 0.16% Impervious = 0.030 ac

Summary for Subcatchment E-1: EDA-1

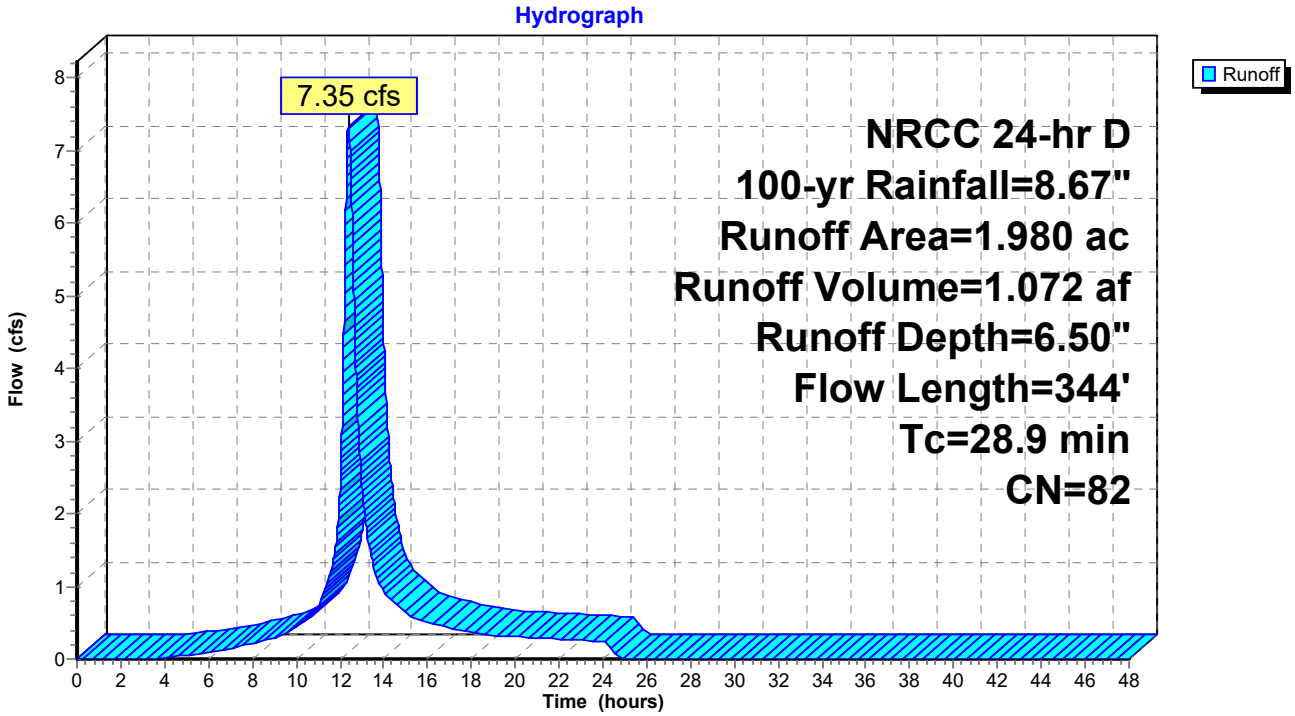
Runoff = 7.35 cfs @ 12.40 hrs, Volume= 1.072 af, Depth= 6.50"
Routed to Link EX : EDA Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 100-yr Rainfall=8.67"

Area (ac)	CN	Description
0.020	98	Paved parking, HSG D
1.010	84	50-75% Grass cover, Fair, HSG D
0.890	79	Woods, Fair, HSG D
0.050	70	Woods, Good, HSG C
0.010	77	Woods, Good, HSG D
1.980	82	Weighted Average
1.960		98.99% Pervious Area
0.020		1.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.1	100	0.0150	0.07		**Sheet Flow, AB** Woods: Light underbrush n= 0.400 P2= 3.48"
5.8	244	0.0200	0.71		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
28.9	344	Total			

Subcatchment E-1: EDA-1



Summary for Subcatchment E-2: EDA-2

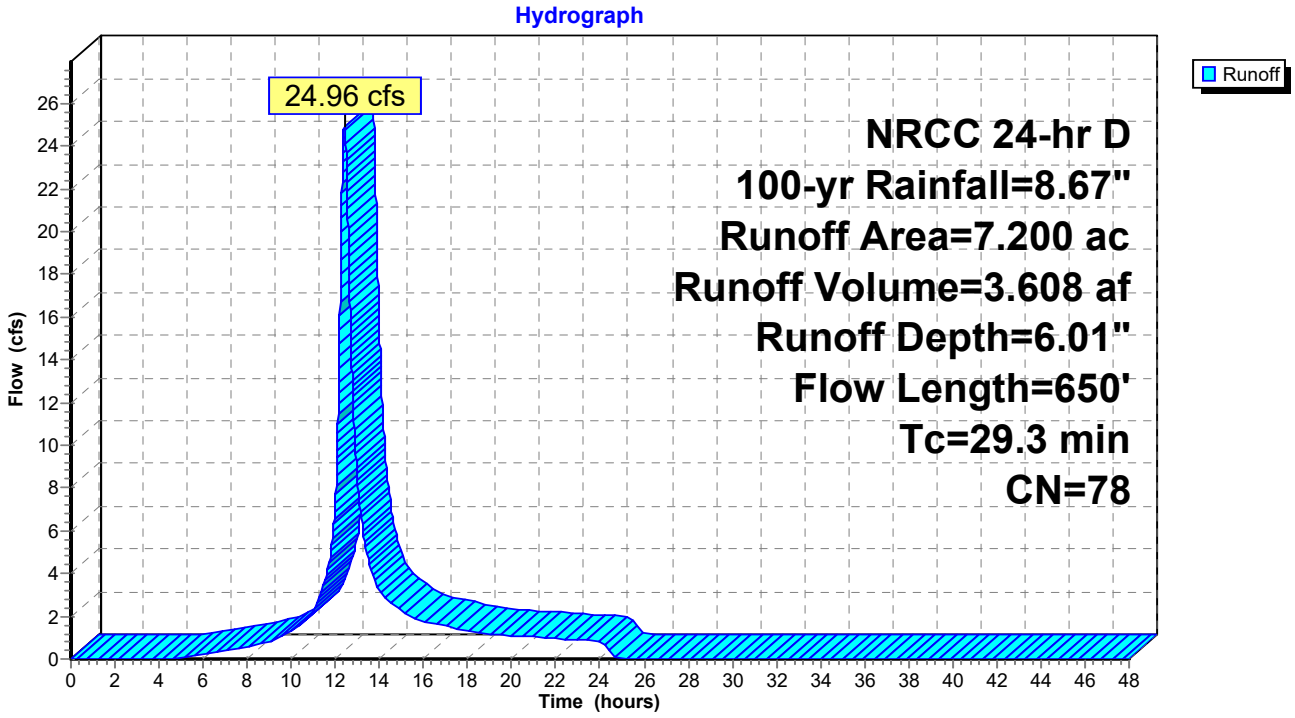
Runoff = 24.96 cfs @ 12.40 hrs, Volume= 3.608 af, Depth= 6.01"
Routed to Link EX : EDA Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 100-yr Rainfall=8.67"

Area (ac)	CN	Description
3.300	84	50-75% Grass cover, Fair, HSG D
0.840	79	Woods, Fair, HSG D
2.710	70	Woods, Good, HSG C
0.350	77	Woods, Good, HSG D
7.200	78	Weighted Average
7.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	100	0.0100	0.09		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.48"
6.4	330	0.0150	0.86		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
4.8	220	0.0230	0.76		**Shallow Concentrated Flow, CD** Woodland Kv= 5.0 fps
29.3	650	Total			

Subcatchment E-2: EDA-2



Summary for Subcatchment P-1: PDA-1

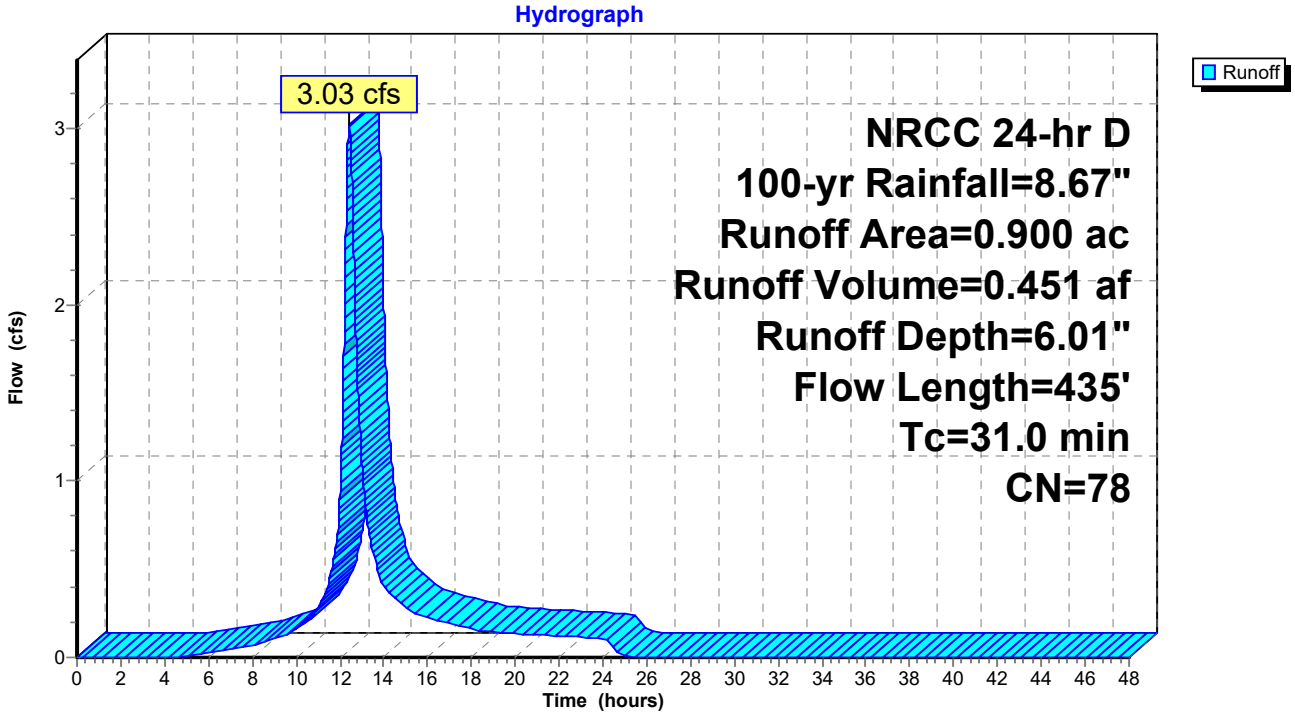
Runoff = 3.03 cfs @ 12.43 hrs, Volume= 0.451 af, Depth= 6.01"
Routed to Link PR : PDA Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 100-yr Rainfall=8.67"

Area (ac)	CN	Description
0.090	78	Meadow, non-grazed, HSG D
0.760	79	Woods, Fair, HSG D
0.050	70	Woods, Good, HSG C
0.900	78	Weighted Average
0.900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.1	100	0.0150	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.48"
7.9	335	0.0200	0.71		**Shallow Concentrated Flow, BC** Woodland Kv= 5.0 fps
31.0	435	Total			

Subcatchment P-1: PDA-1



Summary for Subcatchment P-2A: PDA-2A

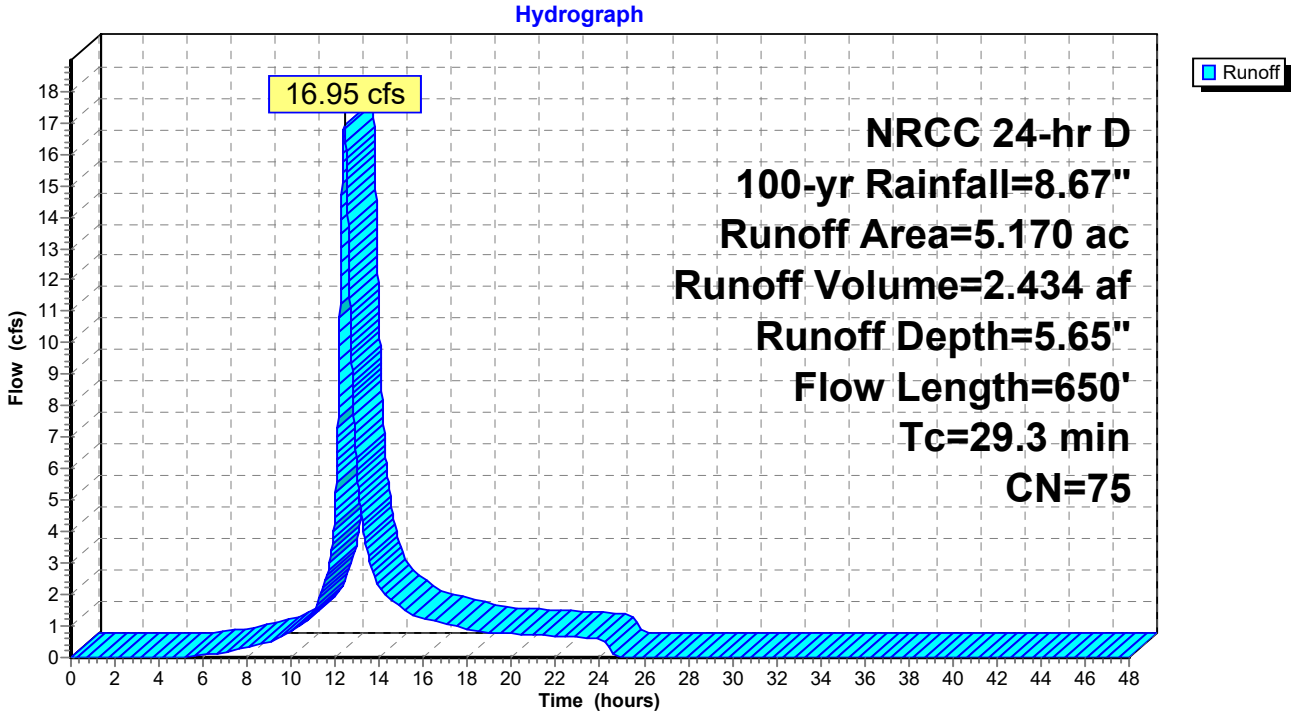
Runoff = 16.95 cfs @ 12.40 hrs, Volume= 2.434 af, Depth= 5.65"
Routed to Link PR : PDA Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 100-yr Rainfall=8.67"

	Area (ac)	CN	Description
	2.820	78	Meadow, non-grazed, HSG D
	0.210	77	Woods, Good, HSG D
	0.070	79	Woods, Fair, HSG D
*	0.360	75	Meadow, non-grazed, HSG C/D
	1.710	70	Woods, Good, HSG C
	5.170	75	Weighted Average
	5.170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	100	0.0100	0.09		**Sheet Flow, 100** Grass: Dense n= 0.240 P2= 3.48"
6.4	330	0.0150	0.86		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
4.8	220	0.0230	0.76		**Shallow Concentrated Flow, CD** Woodland Kv= 5.0 fps
29.3	650	Total			

Subcatchment P-2A: PDA-2A



Summary for Subcatchment P-2B: PDA-2B

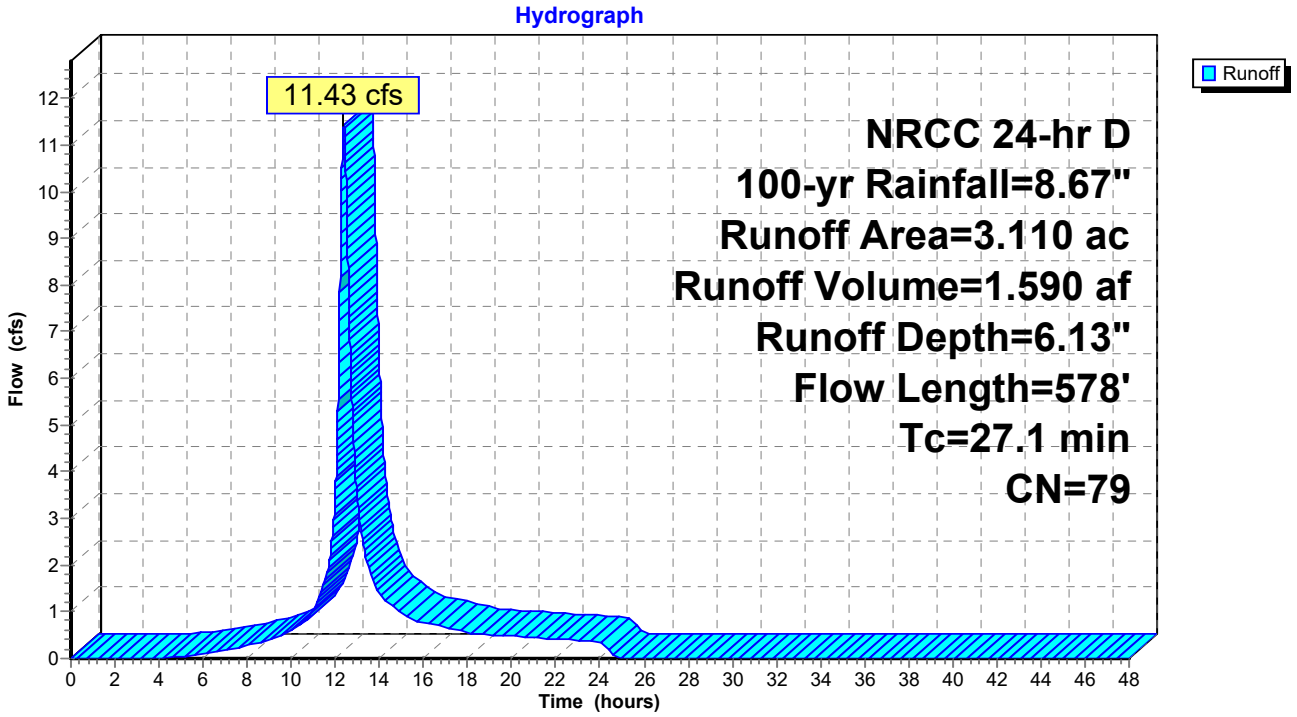
Runoff = 11.43 cfs @ 12.37 hrs, Volume= 1.590 af, Depth= 6.13"
Routed to Pond P : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 100-yr Rainfall=8.67"

	Area (ac)	CN	Description
	0.350	84	50-75% Grass cover, Fair, HSG D
	0.010	98	Paved parking, HSG D
	1.990	78	Meadow, non-grazed, HSG D
*	0.630	75	Meadow, non-grazed, HSG C/D
	0.130	96	Gravel surface, HSG D
	3.110	79	Weighted Average
	3.100		99.68% Pervious Area
	0.010		0.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	100	0.0100	0.09		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.48"
4.8	200	0.0100	0.70		**Shallow Concentrated Flow, BC** Short Grass Pasture Kv= 7.0 fps
4.2	278	0.0250	1.11		**Shallow Concentrated Flow, CD** Short Grass Pasture Kv= 7.0 fps
27.1	578	Total			

Subcatchment P-2B: PDA-2B



Summary for Pond P: Pond

Inflow Area = 3.110 ac, 0.32% Impervious, Inflow Depth = 6.13" for 100-yr event
Inflow = 11.43 cfs @ 12.37 hrs, Volume= 1.590 af
Outflow = 11.37 cfs @ 12.39 hrs, Volume= 1.499 af, Atten= 1%, Lag= 1.0 min
Discarded = 0.07 cfs @ 12.39 hrs, Volume= 0.200 af
Primary = 11.30 cfs @ 12.39 hrs, Volume= 1.299 af
Routed to Link PR : PDA Total

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 196.74' @ 12.39 hrs Surf.Area= 5,073 sf Storage= 9,766 cf

Plug-Flow detention time= 161.5 min calculated for 1.499 af (94% of inflow)
Center-of-Mass det. time= 128.6 min (966.3 - 837.7)

Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	17,031 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

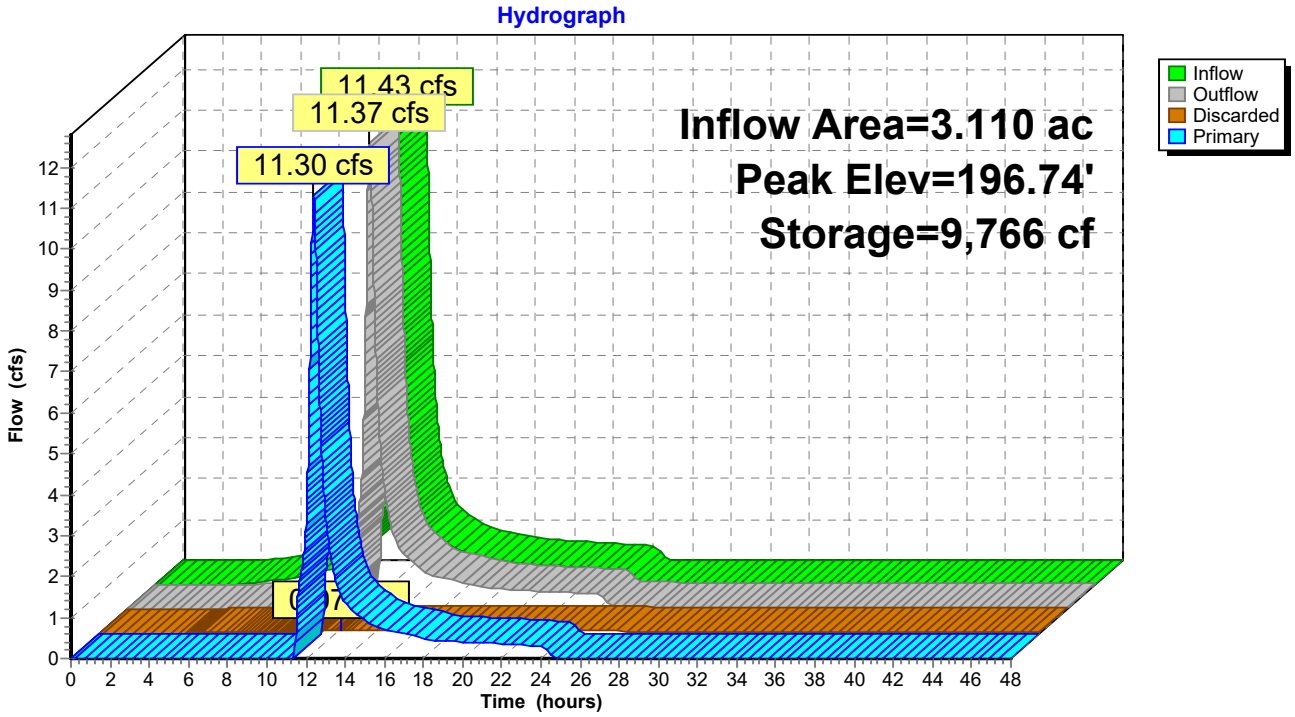
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	2,257	0	0
195.00	3,154	2,706	2,706
196.00	4,165	3,660	6,365
197.00	5,398	4,782	11,147
198.00	6,370	5,884	17,031

Device	Routing	Invert	Outlet Devices
#1	Discarded	194.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 185.00'
#2	Primary	196.50'	**20.0' long x 8.0' breadth Broad-Crested Rectangular Weir X 2.00** 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Discarded OutFlow Max=0.07 cfs @ 12.39 hrs HW=196.74' (Free Discharge)
1=Exfiltration (Controls 0.07 cfs)

Primary OutFlow Max=11.26 cfs @ 12.39 hrs HW=196.74' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 11.26 cfs @ 1.19 fps)

Pond P: Pond


Hydrograph
11.43 cfs
11.37 cfs
11.30 cfs
Inflow Area=3.110 ac
Peak Elev=196.74'
Storage=9,766 cf
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Stage-Discharge for Pond P: Pond

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
194.00	0.00	0.00	0.00
194.05	0.03	0.03	0.00
194.10	0.03	0.03	0.00
194.15	0.03	0.03	0.00
194.20	0.03	0.03	0.00
194.25	0.03	0.03	0.00
194.30	0.03	0.03	0.00
194.35	0.03	0.03	0.00
194.40	0.03	0.03	0.00
194.45	0.03	0.03	0.00
194.50	0.03	0.03	0.00
194.55	0.03	0.03	0.00
194.60	0.03	0.03	0.00
194.65	0.03	0.03	0.00
194.70	0.04	0.04	0.00
194.75	0.04	0.04	0.00
194.80	0.04	0.04	0.00
194.85	0.04	0.04	0.00
194.90	0.04	0.04	0.00
194.95	0.04	0.04	0.00
195.00	0.04	0.04	0.00
195.05	0.04	0.04	0.00
195.10	0.04	0.04	0.00
195.15	0.04	0.04	0.00
195.20	0.04	0.04	0.00
195.25	0.04	0.04	0.00
195.30	0.04	0.04	0.00
195.35	0.05	0.05	0.00
195.40	0.05	0.05	0.00
195.45	0.05	0.05	0.00
195.50	0.05	0.05	0.00
195.55	0.05	0.05	0.00
195.60	0.05	0.05	0.00
195.65	0.05	0.05	0.00
195.70	0.05	0.05	0.00
195.75	0.05	0.05	0.00
195.80	0.05	0.05	0.00
195.85	0.05	0.05	0.00
195.90	0.05	0.05	0.00
195.95	0.06	0.06	0.00
196.00	0.06	0.06	0.00
196.05	0.06	0.06	0.00
196.10	0.06	0.06	0.00
196.15	0.06	0.06	0.00
196.20	0.06	0.06	0.00
196.25	0.06	0.06	0.00
196.30	0.06	0.06	0.00
196.35	0.06	0.06	0.00
196.40	0.06	0.06	0.00
196.45	0.07	0.07	0.00
196.50	0.07	0.07	0.00
196.55	1.15	0.07	1.09
196.60	3.14	0.07	3.07
196.65	5.72	0.07	5.65
196.70	8.76	0.07	8.69
196.75	12.36	0.07	12.29
196.80	16.41	0.07	16.33
196.85	20.88	0.07	20.81
196.90	25.78	0.07	25.70
196.95	31.23	0.08	31.15
197.00	37.13	0.08	37.05
197.05	43.48	0.08	43.40
197.10	50.27	0.08	50.19
197.15	56.62	0.08	56.54
197.20	63.21	0.08	63.13
197.25	70.03	0.08	69.95
197.30	77.07	0.08	76.99
197.35	84.33	0.08	84.24
197.40	91.78	0.08	91.70
197.45	99.44	0.08	99.35
197.50	107.29	0.09	107.20
197.55	115.43	0.09	115.34
197.60	123.76	0.09	123.68
197.65	132.29	0.09	132.20
197.70	141.01	0.09	140.92
197.75	149.63	0.09	149.54
197.80	158.39	0.09	158.30
197.85	167.30	0.09	167.21
197.90	176.34	0.09	176.25
197.95	185.52	0.09	185.43
198.00	**194.83**	**0.09**	**194.73**

Stage-Area-Storage for Pond P: Pond

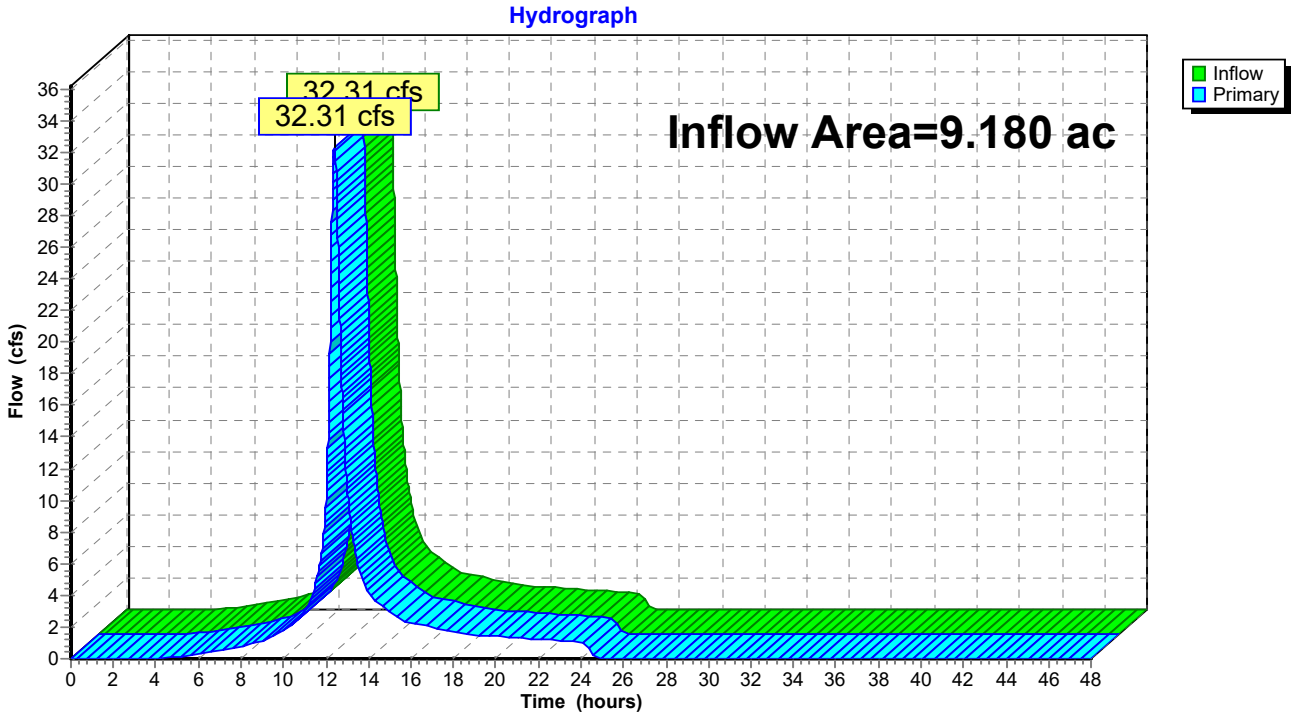
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
194.00	2,257	0
194.05	2,302	114
194.10	2,347	230
194.15	2,392	349
194.20	2,436	469
194.25	2,481	592
194.30	2,526	717
194.35	2,571	845
194.40	2,616	975
194.45	2,661	1,106
194.50	2,706	1,241
194.55	2,750	1,377
194.60	2,795	1,516
194.65	2,840	1,657
194.70	2,885	1,800
194.75	2,930	1,945
194.80	2,975	2,093
194.85	3,019	2,242
194.90	3,064	2,395
194.95	3,109	2,549
195.00	3,154	2,706
195.05	3,205	2,864
195.10	3,255	3,026
195.15	3,306	3,190
195.20	3,356	3,357
195.25	3,407	3,526
195.30	3,457	3,697
195.35	3,508	3,871
195.40	3,558	4,048
195.45	3,609	4,227
195.50	3,660	4,409
195.55	3,710	4,593
195.60	3,761	4,780
195.65	3,811	4,969
195.70	3,862	5,161
195.75	3,912	5,355
195.80	3,963	5,552
195.85	4,013	5,752
195.90	4,064	5,954
195.95	4,114	6,158
196.00	4,165	6,365
196.05	4,227	6,575
196.10	4,288	6,788
196.15	4,350	7,004
196.20	4,412	7,223
196.25	4,473	7,445
196.30	4,535	7,670
196.35	4,597	7,898
196.40	4,658	8,130
196.45	4,720	8,364
196.50	4,782	8,602
196.55	4,843	8,842
196.60	4,905	9,086
196.65	4,966	9,333
196.70	5,028	9,583
196.75	5,090	9,836
196.80	5,151	10,092
196.85	5,213	10,351
196.90	5,275	10,613
196.95	5,336	10,878
197.00	5,398	11,147
197.05	5,447	11,418
197.10	5,495	11,691
197.15	5,544	11,967
197.20	5,592	12,246
197.25	5,641	12,526
197.30	5,690	12,810
197.35	5,738	13,095
197.40	5,787	13,383
197.45	5,835	13,674
197.50	5,884	13,967
197.55	5,933	14,262
197.60	5,981	14,560
197.65	6,030	14,861
197.70	6,078	15,163
197.75	6,127	15,468
197.80	6,176	15,776
197.85	6,224	16,086
197.90	6,273	16,398
197.95	6,321	16,713
198.00	**6,370**	**17,031**

Summary for Link EX: EDA Total

Inflow Area = 9.180 ac, 0.22% Impervious, Inflow Depth = 6.12" for 100-yr event
Inflow = 32.31 cfs @ 12.40 hrs, Volume= 4.680 af
Primary = 32.31 cfs @ 12.40 hrs, Volume= 4.680 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link EX: EDA Total

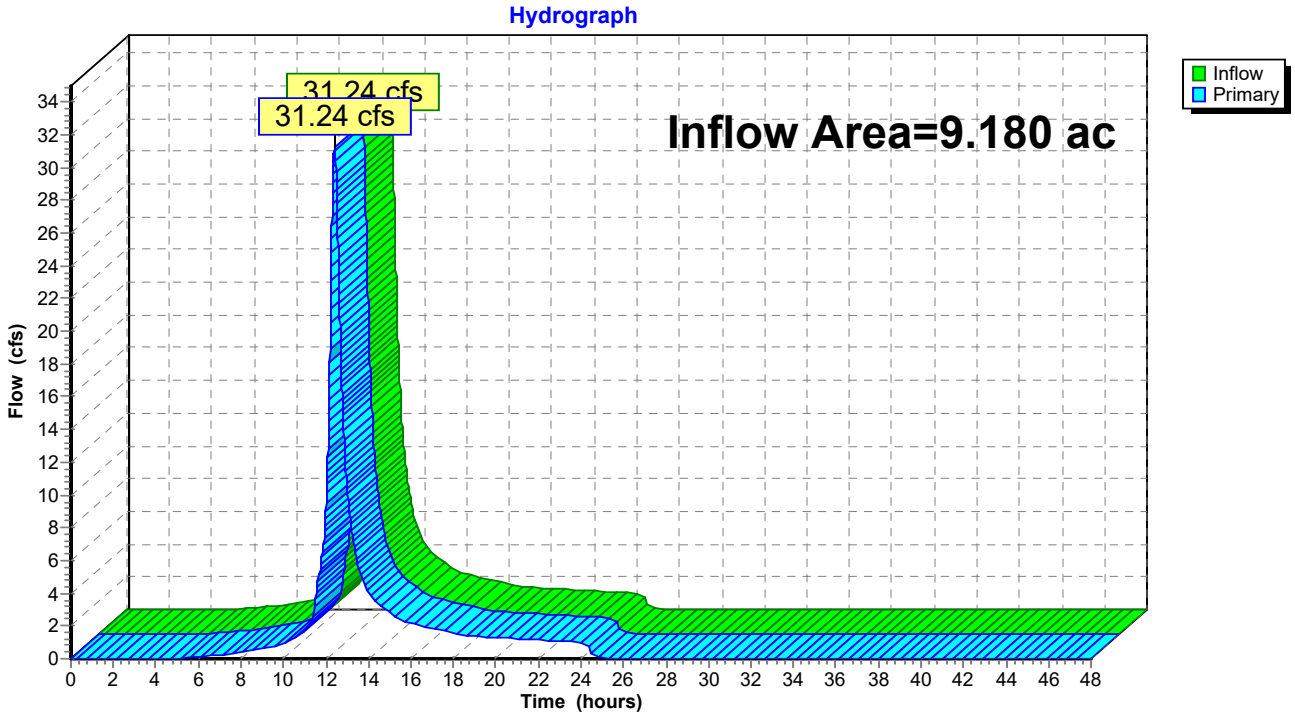


Summary for Link PR: PDA Total

Inflow Area = 9.180 ac, 0.11% Impervious, Inflow Depth = 5.47" for 100-yr event
Inflow = 31.24 cfs @ 12.40 hrs, Volume= 4.184 af
Primary = 31.24 cfs @ 12.40 hrs, Volume= 4.184 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link PR: PDA Total



WATER QUALITY VOLUME (WQV) COMPUTATIONS FOR PDA-1

Project: Proposed Solar Photovoltaic Array
Location: 37 Hunters Lane, Southington, Connecticut
Date: 12/13/23

Water Quality Volume Calculations:

$$WQV = \frac{1.3"(R)(A)}{12}$$

Where:
WQV = water quality volume (ac-ft)
R = volumentric runoff coefficient = 0.05+0.009(I)
I = percent impervious cover (see below)
A = site area in acres

$$I = \frac{A_{IMP}}{A_{TOT}} \times 100$$

Where:
I = percent impervious cover
A_{IMP} = area of impervious cover
A_{TOT} = total area of watershed

Watershed Description:	PDA-1		
Area of impervious coverage, A_{IMP}	0.14	Acres	
Total area of watershed, A_{TOT}	9.18	Acres	
Percent impverious cover, I	1.53	%	
Volumentric runoff coefficient, R	0.06		
Water Quality Volume, WQV	0.063	ac-ft	2,761 cf

Stormwater Detention Basin Forebay Storage Volume 1,512 cf (>10% of the WQv) [OK]

Summary for Pond FB: Forebay

Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	1,512 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
194.00	436	91.0	0	0	436
195.00	741	110.0	582	582	756
196.00	1,133	129.0	930	1,512	1,137

Stage-Area-Storage for Pond FB: Forebay

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
194.00	436	0
194.02	441	9
194.04	447	18
194.06	452	27
194.08	457	36
194.10	463	45
194.12	468	54
194.14	474	64
194.16	479	73
194.18	485	83
194.20	491	93
194.22	496	102
194.24	502	112
194.26	508	123
194.28	513	133
194.30	519	143
194.32	525	154
194.34	531	164
194.36	537	175
194.38	542	186
194.40	548	196
194.42	554	207
194.44	560	219
194.46	566	230
194.48	572	241
194.50	578	253
194.52	585	264
194.54	591	276
194.56	597	288
194.58	603	300
194.60	609	312
194.62	616	324
194.64	622	337
194.66	628	349
194.68	635	362
194.70	641	375
194.72	647	388
194.74	654	401
194.76	660	414
194.78	667	427
194.80	674	440
194.82	680	454
194.84	687	468
194.86	693	481
194.88	700	495
194.90	707	509
194.92	714	524
194.94	720	538
194.96	727	552
194.98	734	567
195.00	741	582
195.02	748	597
195.04	755	612
195.06	762	627
195.08	769	642
195.10	776	658
195.12	784	673
195.14	791	689
195.16	798	705
195.18	805	721
195.20	813	737
195.22	820	753
195.24	828	770
195.26	835	787
195.28	842	803
195.30	850	820
195.32	857	837
195.34	865	855
195.36	873	872
195.38	880	889
195.40	888	907
195.42	896	925
195.44	903	943
195.46	911	961
195.48	919	979
195.50	927	998
195.52	934	1,016
195.54	942	1,035
195.56	950	1,054
195.58	958	1,073
195.60	966	1,092
195.62	974	1,112
195.64	982	1,131
195.66	990	1,151
195.68	999	1,171
195.70	1,007	1,191
195.72	1,015	1,211
195.74	1,023	1,232
195.76	1,031	1,252
195.78	1,040	1,273
195.80	1,048	1,294
195.82	1,056	1,315
195.84	1,065	1,336
195.86	1,073	1,357
195.88	1,082	1,379
195.90	1,090	1,401
195.92	1,099	1,423
195.94	1,107	1,445
195.96	1,116	1,467
195.98	1,124	1,489
196.00	**1,133**	**1,512**

NOAA Atlas 14, Volume 10, Version 3
Location name: Plantsville, Connecticut, USA*
Latitude: 41.579°, Longitude: -72.9044°
Elevation: 205 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	**0.345** (0.268-0.438)	**0.416** (0.323-0.528)	**0.532** (0.412-0.679)	**0.627** (0.483-0.805)	**0.759** (0.566-1.02)	**0.859** (0.628-1.18)	**0.963** (0.683-1.38)	**1.08** (0.726-1.59)	**1.24** (0.803-1.90)	**1.37** (0.868-2.14)
10-min	**0.489** (0.380-0.620)	**0.589** (0.458-0.748)	**0.753** (0.583-0.960)	**0.889** (0.685-1.14)	**1.08** (0.802-1.45)	**1.22** (0.889-1.68)	**1.36** (0.968-1.95)	**1.53** (1.03-2.24)	**1.76** (1.14-2.68)	**1.94** (1.23-3.04)
15-min	**0.575** (0.447-0.729)	**0.693** (0.539-0.880)	**0.886** (0.686-1.13)	**1.04** (0.805-1.34)	**1.26** (0.944-1.70)	**1.43** (1.05-1.97)	**1.60** (1.14-2.30)	**1.80** (1.21-2.64)	**2.07** (1.34-3.16)	**2.29** (1.45-3.57)
30-min	**0.788** (0.613-1.00)	**0.946** (0.736-1.20)	**1.20** (0.933-1.54)	**1.42** (1.10-1.82)	**1.72** (1.28-2.31)	**1.94** (1.42-2.67)	**2.17** (1.54-3.11)	**2.43** (1.64-3.58)	**2.80** (1.82-4.28)	**3.10** (1.96-4.84)
60-min	**1.00** (0.779-1.27)	**1.20** (0.933-1.52)	**1.53** (1.18-1.95)	**1.80** (1.38-2.30)	**2.17** (1.62-2.92)	**2.45** (1.79-3.37)	**2.74** (1.95-3.93)	**3.07** (2.07-4.52)	**3.54** (2.29-5.40)	**3.92** (2.48-6.12)
2-hr	**1.31** (1.03-1.66)	**1.57** (1.22-1.98)	**1.98** (1.54-2.51)	**2.32** (1.80-2.96)	**2.80** (2.10-3.74)	**3.15** (2.32-4.31)	**3.52** (2.51-5.02)	**3.94** (2.66-5.76)	**4.54** (2.95-6.89)	**5.03** (3.19-7.81)
3-hr	**1.53** (1.20-1.92)	**1.82** (1.43-2.29)	**2.30** (1.80-2.90)	**2.70** (2.10-3.43)	**3.25** (2.45-4.33)	**3.66** (2.70-5.00)	**4.09** (2.93-5.82)	**4.58** (3.11-6.68)	**5.30** (3.45-8.02)	**5.88** (3.74-9.10)
6-hr	**1.94** (1.53-2.42)	**2.33** (1.84-2.91)	**2.96** (2.33-3.72)	**3.49** (2.73-4.40)	**4.22** (3.19-5.60)	**4.76** (3.53-6.47)	**5.34** (3.85-7.57)	**6.01** (4.08-8.71)	**7.00** (4.57-10.5)	**7.82** (4.99-12.0)
12-hr	**2.39** (1.90-2.97)	**2.91** (2.31-3.61)	**3.76** (2.98-4.69)	**4.46** (3.51-5.60)	**5.43** (4.14-7.19)	**6.15** (4.60-8.35)	**6.93** (5.04-9.83)	**7.86** (5.36-11.3)	**9.28** (6.08-13.9)	**10.5** (6.71-16.1)
24-hr	**2.81** (2.25-3.46)	**3.48** (2.78-4.29)	**4.58** (3.64-5.67)	**5.48** (4.34-6.84)	**6.74** (5.18-8.89)	**7.66** (5.77-10.4)	**8.67** (6.38-12.3)	**9.94** (6.80-14.3)	**11.9** (7.84-17.8)	**13.7** (8.77-20.8)
2-day	**3.16** (2.54-3.87)	**3.99** (3.20-4.89)	**5.34** (4.27-6.56)	**6.45** (5.14-7.99)	**7.99** (6.19-10.5)	**9.12** (6.94-12.4)	**10.4** (7.72-14.8)	**12.0** (8.24-17.2)	**14.7** (9.66-21.8)	**17.0** (11.0-25.8)
3-day	**3.43** (2.77-4.19)	**4.34** (3.50-5.30)	**5.83** (4.69-7.15)	**7.06** (5.64-8.72)	**8.76** (6.81-11.5)	**10.0** (7.64-13.5)	**11.4** (8.52-16.2)	**13.2** (9.08-18.8)	**16.2** (10.7-24.0)	**18.9** (12.2-28.5)
4-day	**3.68** (2.98-4.48)	**4.65** (3.76-5.66)	**6.24** (5.03-7.62)	**7.55** (6.05-9.29)	**9.36** (7.29-12.3)	**10.7** (8.17-14.4)	**12.2** (9.11-17.3)	**14.1** (9.71-20.0)	**17.3** (11.4-25.5)	**20.1** (13.0-30.3)
7-day	**4.39** (3.57-5.31)	**5.47** (4.45-6.63)	**7.24** (5.86-8.80)	**8.71** (7.01-10.7)	**10.7** (8.38-13.9)	**12.2** (9.36-16.3)	**13.8** (10.4-19.5)	**16.0** (11.0-22.6)	**19.4** (12.8-28.5)	**22.4** (14.5-33.6)
10-day	**5.10** (4.17-6.15)	**6.24** (5.09-7.54)	**8.11** (6.58-9.82)	**9.65** (7.79-11.8)	**11.8** (9.22-15.2)	**13.3** (10.2-17.7)	**15.1** (11.3-21.0)	**17.2** (11.9-24.3)	**20.7** (13.7-30.2)	**23.7** (15.3-35.3)
20-day	**7.33** (6.02-8.78)	**8.54** (7.01-10.2)	**10.5** (8.59-12.7)	**12.1** (9.86-14.7)	**14.4** (11.3-18.3)	**16.1** (12.3-21.0)	**17.9** (13.3-24.4)	**20.0** (13.9-27.9)	**23.1** (15.4-33.5)	**25.7** (16.7-38.1)
30-day	**9.20** (7.58-11.0)	**10.4** (8.59-12.5)	**12.5** (10.2-14.9)	**14.1** (11.5-17.0)	**16.4** (12.9-20.8)	**18.2** (13.9-23.5)	**20.0** (14.8-26.9)	**22.0** (15.4-30.5)	**24.8** (16.6-35.8)	**27.0** (17.6-40.0)
45-day	**11.5** (9.52-13.7)	**12.8** (10.6-15.2)	**14.9** (12.2-17.7)	**16.6** (13.6-19.9)	**19.0** (14.9-23.8)	**20.8** (15.9-26.6)	**22.6** (16.7-30.0)	**24.5** (17.2-33.8)	**26.9** (18.1-38.8)	**28.8** (18.8-42.5)
60-day	**13.4** (11.1-15.9)	**14.7** (12.2-17.5)	**16.9** (13.9-20.1)	**18.6** (15.3-22.4)	**21.1** (16.6-26.3)	**23.0** (17.7-29.3)	**24.9** (18.3-32.8)	**26.7** (18.8-36.7)	**28.9** (19.5-41.5)	**30.5** (20.0-45.0)

[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.

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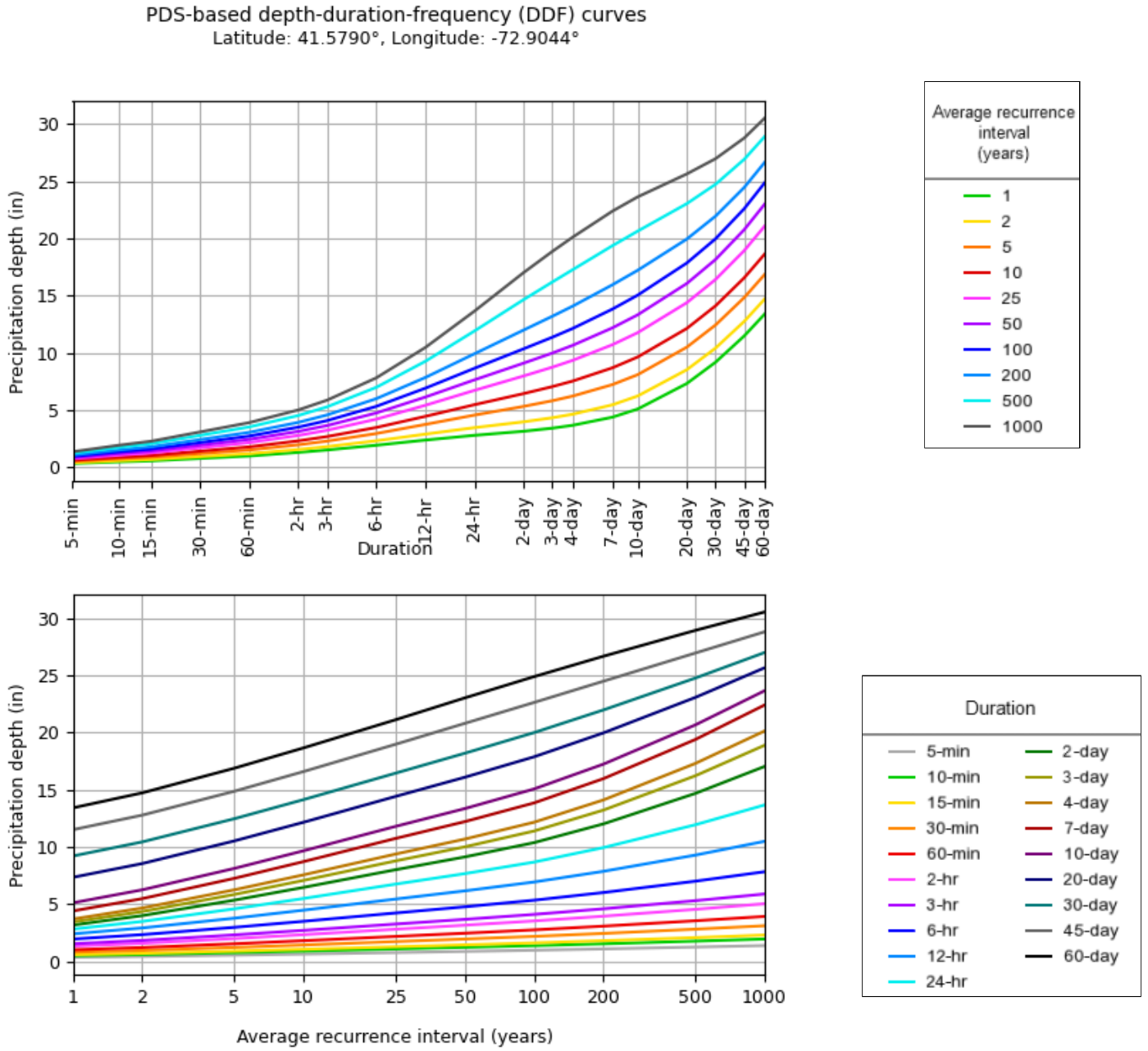
PF graphical



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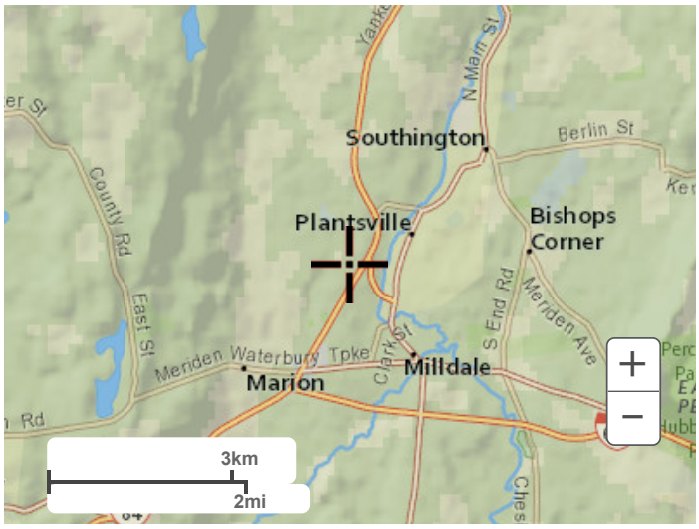
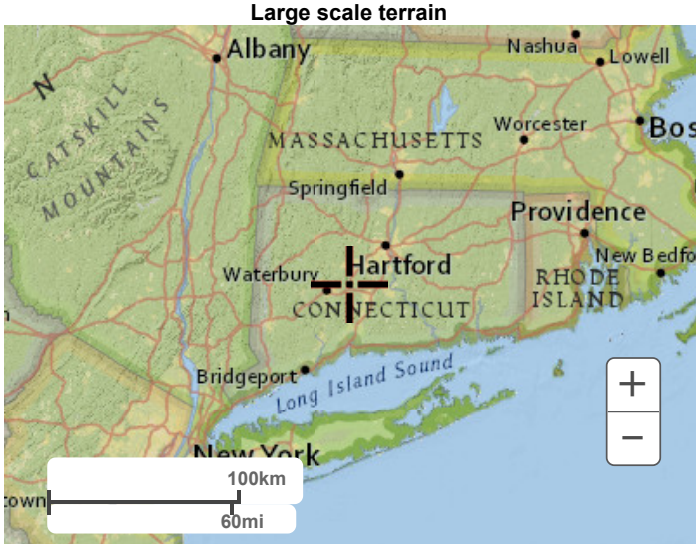
Maps & aerials

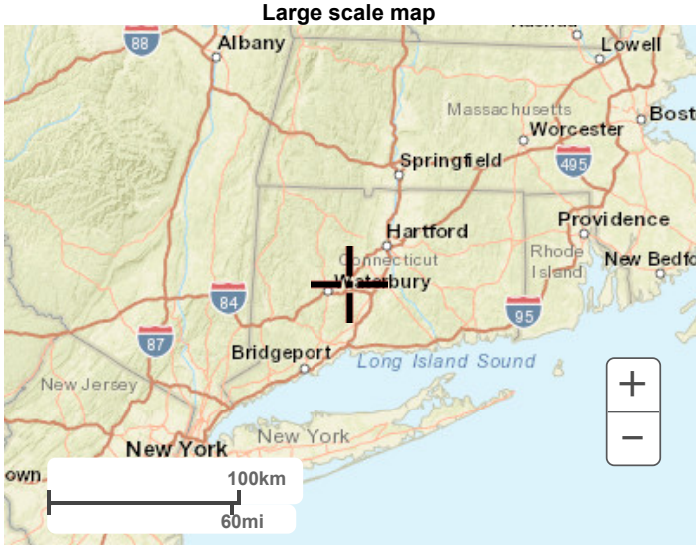
Small scale terrain



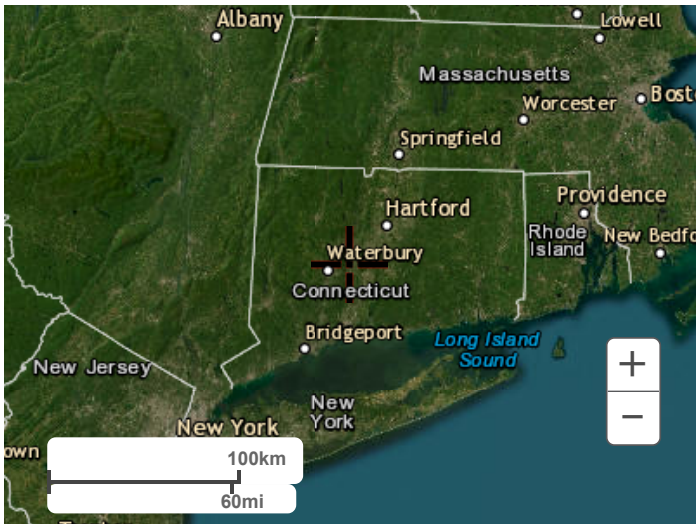
Large scale terrain



Large scale map



Large scale aerial



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National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
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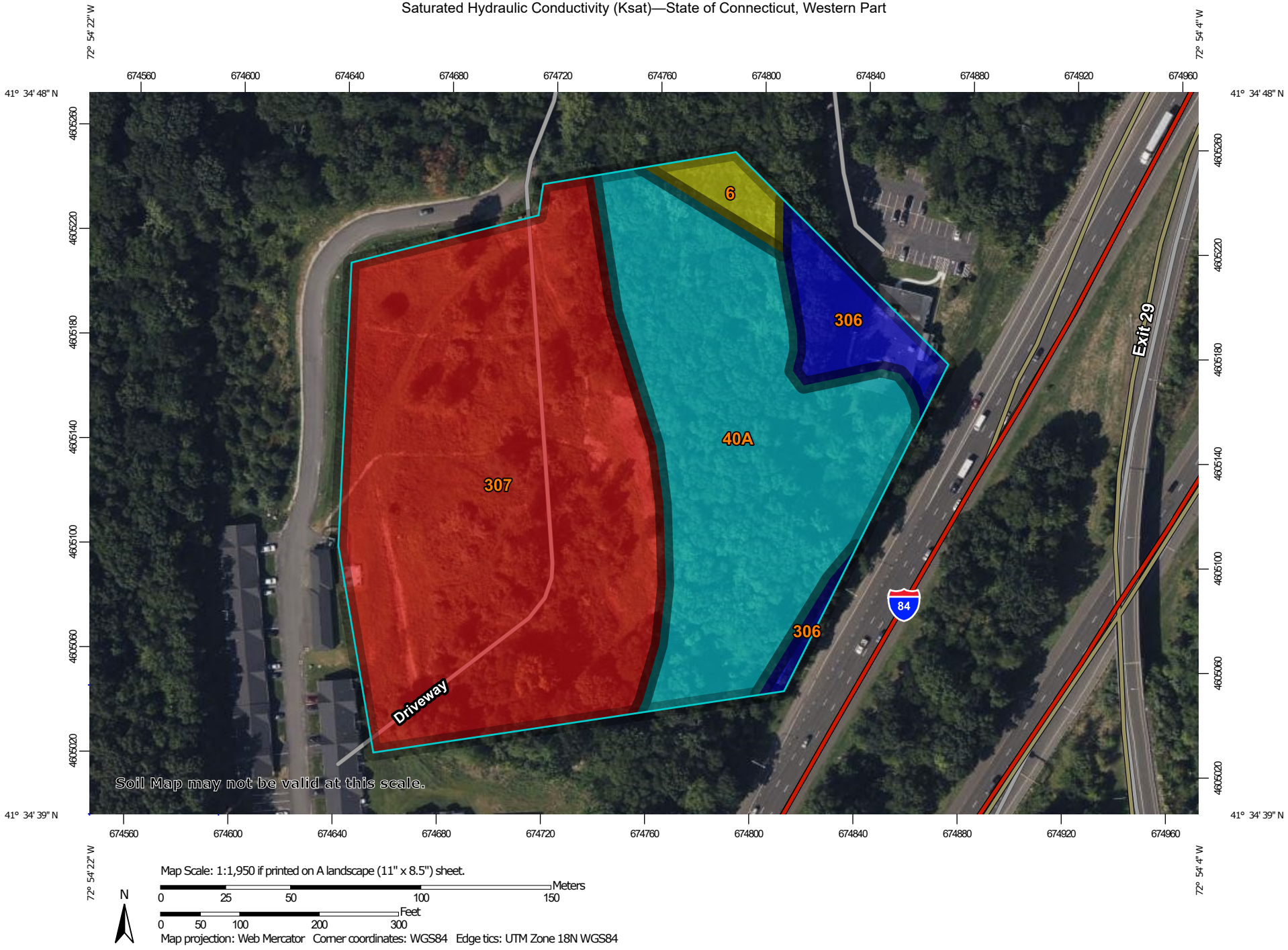
Questions?: HDSC.Questions@noaa.gov

Disclaimer



Map Scale: 1:1,950 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

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
- <= 0.4200
- > 0.4200 and <= 3.6019
- > 3.6019 and <= 3.9278
- > 3.9278 and <= 23.1320
- Not rated or not available

Soil Rating Lines
- <= 0.4200
- > 0.4200 and <= 3.6019
- > 3.6019 and <= 3.9278
- > 3.9278 and <= 23.1320
- Not rated or not available

Soil Rating Points
- <= 0.4200
- > 0.4200 and <= 3.6019
- > 3.6019 and <= 3.9278
- > 3.9278 and <= 23.1320
- 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.

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

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

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

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

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

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

Soil Survey Area: State of Connecticut, Western Part
Survey Area Data: Version 1, Sep 15, 2023

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

Date(s) aerial images were photographed: Jun 14, 2022—Oct 6, 2022

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

Saturated Hydraulic Conductivity (Ksat)

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
6	Wilbraham and Menlo soils, 0 to 8 percent slopes, extremely stony	3.6019	0.2	2.4%
40A	Ludlow silt loam, 0 to 3 percent slopes	3.9278	3.4	35.3%
306	Udorthents-Urban land complex	23.1320	0.6	6.5%
307	Urban land	0.4200	5.4	55.8%
Totals for Area of Interest			**9.8**	**100.0%**

Description

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Rating Options

Units of Measure: micrometers per second

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)

Top Depth: 1

Bottom Depth: 80

Units of Measure: Inches