

EXHIBIT D

Stormwater Management Report

PROJECT NARRATIVE & STORMWATER REPORT

For the Proposed:

SOLAR PHOTOVOLTAIC ARRAY

Located At:
Riggs Street
Oxford, Connecticut

Prepared On:
January 15th, 2024

Prepared For:



888 Prospect Street, Suite 200
La Jolla, California 92037

Prepared By:



11 Vanderbilt Avenue, Suite 240
Norwood, Massachusetts 02062
T: (781) 352-8491

501 Main Street, Suite 2A
Monroe, Connecticut 06468
T: (203) 880-5455

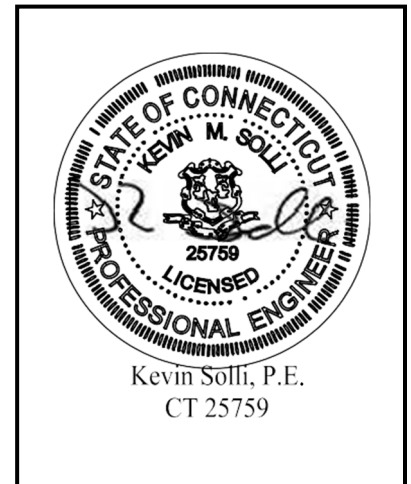


TABLE OF CONTENTS

INTRODUCTION 2
EXISTING SITE CONDITIONS 2
PROPOSED SITE CONDITIONS 2
STORMWATER MANAGEMENT..... 3
CT DEEP APPENDIX I DESIGN REGULATIONS/COMPLIANCE..... 6
SOIL EROSION & SEDIMENT CONTROL 7
CONCLUSION..... 8

LIST OF TABLES & CALCULATIONS

Table 1: Rainfall Data..... 3
Table 2: Existing Drainage Areas 4
Table 3: Proposed Drainage Areas..... 5
Table 4: Peak Flow Comparison Tables 6

APPENDICES

APPENDIX A: FIGURES

- Perimeter Survey, Prepared for The William L. Ives Revocable Trust, Riggs Street, Oxford, Connecticut
J. Edwards Associates, LLC
- NRCS Soil Survey Map
- Site Layout Plans (2.10 – 2.16)
- Existing Drainage Area Map (DA-1)
- Proposed Drainage Area Map (DA-2)

APPENDIX B: STORMWATER CALCULATIONS

- Hydrocad Reporting
 - Existing & Proposed Calcs for 2-, 25-, 50- & 100- yr storm events)
- Water Quality Volume Calculations
- NOAA Atlas Precipitation Data
- USGS StreamStats Data
- HY-8 Culvert Crossing Report

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 4.64± megawatt (MW) alternating current (AC) ground-mounted solar electric generating facility (Project/Facility) located at Riggs Street, Oxford, 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)
- Connecticut Stormwater Quality Manual (Publication Date: September 30, 2023, Effective Date: March 30, 2024)
- Connecticut Guidelines for Soil Erosion and Sediment Control (Publication Date: September 30, 2023, Effective Date: March 30, 2024)
- 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 65.87± acres located on Riggs Street, Oxford, Connecticut. The Site is bound by residential uses to the west, north, and south, and Riggs Street to the east. The entire parcel is comprised of vacant land, consisting of wooded and wetland areas with two (2) streams, an unnamed stream and Jacks Brook, that flow from north to south through the property and divides the site into three (3) main project areas.

The east Project area's topography has a ridge line that splits the area. Slopes from the ridgeline to the east range from 10%-50% and drains into Riggs Street. Slopes from the ridgeline to the west range from 10%-50% and drains into Jacks Brook. The central Project area's topography slopes between 5%-50% from the north property line of the site to the south, to the east into Jacks Brook and to the west to the unnamed stream. The west Project area's topography slopes between 3%-30% from the north property line to the south. The wetlands that are onsite are associated with the two (2) streams that flow through the site. Some work will be required within the 50' wetland buffer for access to the central project area. All other proposed work will remain outside of the 50' wetland buffer area for the other wetlands.

For more information regarding the Site, refer to the Property & Topographic Survey Map and the Field Data Location Map in Appendix A.

PROPOSED SITE CONDITIONS

The total proposed Project area is 29.95± acres, within wooded areas within the Site. The total project is broken up into three (3) solar arrays. Access to the eastern and central array will be provided at the southeastern edge of the Site, from Riggs Street, via a new 12' wide, 1,500'± long gravel road. The access drive off Riggs Street is proposed to cross over Jacks Brook to access the central array. A 20'-4" wide x 4'-6" high x 27' long open bottom aluminum box culvert is proposed to span Jacks Brook. Access to the western array will be provided at the southwestern edge of the site from Seymour Southbury Road (Rte 67), via a new 12' wide, 695'± long gravel road. The three (3) arrays 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 11,970 TrinaSolar TSM-DEG19C20 540W modules. The modules will be installed on a post-driven ground-mounted, single-axis tracking system, with no anticipated 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, perimeter grassed swales with check dams and stormwater basins are proposed to assist in mitigating peak runoff flows, as well as to treat the Water Quality Volume (WQv) per CT DEEP requirements.

The 20'-4" wide x 4'-6" high x 27' long open bottom aluminum box culvert and the 100-year streams flows for Jacks Brook were inputted into the Federal Highway Administration's HY-8 culvert analysis software. The flows from Jacks Brook were obtained from USGS StreamStats website. The proposed culvert passes the 100-year storm while providing at least 1' of freeboard.

For more information regarding the Project, refer to the Site Layout Plan (Sheet 2.10 – Sheet 2.16) in Appendix A.

STORMWATER MANAGEMENT

The Project will add approximately 32,500 square feet of impervious/gravel area. Due to some proposed modules being located on slopes greater than 15%, approximately 94,800 square feet of the modules will also be considered impervious area for the calculation of the water quality volume, per CT DEEP Appendix I requirements. The proposed stormwater management design consists of stormwater basins and drainage swales providing adequate storage for the water quality volume (WQv) that will effectively clean and treat the stormwater runoff prior to discharging from the basins.

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 a NRCC 24-hr Type D 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: 41.4438°, Longitude: -73.1205°) 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 | 3.62 |
| 25-year | 6.90 |
| 50-year | 7.83 |
| 100-year | 8.85 |

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 a reduction 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 reduction, 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”) for the site will be calculated assuming that the gravel surfaces and concrete equipment pads are effectively impervious cover.

EXISTING CONDITIONS

Approximately 84.93 acres of Off-Site and On-Site area were analyzed for stormwater management purposes. The areas analyzed contain the contributing areas which directly impact and are impacted by the proposed redevelopment. Based on existing drainage patterns, the 84.93-acre area was considered as four (4) contributing drainage areas, labeled as Existing Drainage Area 1 (EDA-1), Existing Drainage Area 2 (EDA-2), Existing Drainage Area 3 (EDA-3) and Existing Drainage Area 4 (EDA-4) with two (2) Analysis Points (AP-1 and AP-2). AP-1 is the southern property line at an unnamed stream. AP-2 is the southern property line where Jacks Brook and Riggs Street Brook converge.

EDA-1 has a contributing wooded drainage area of approximately 3.57 acres. The majority of the runoff from EDA-1 flows from north to southwest overland and off-site along the southwestern property line.

EDA-2 has a contributing wooded drainage area of approximately 32.95 acres. The majority of the runoff from EDA-2 flows from east and west overland into an unnamed stream which flows from north to south through the drainage area and discharges at the southern property line.

EDA-3 has a contributing wooded drainage area of approximately 32.95 acres. The majority of the runoff from EDA-3 flows from east and west overland into Jacks Brook which flows from north to south through the drainage area and discharges into Riggs Street Brook at the southern property line.

EDA-4 has a contributing wooded drainage area of approximately 4.26 acres. The majority of the runoff from EDA-4 flows from north to southeast overland and offsite along the eastern property line into Riggs Street and eventually into Riggs Street Brook.

Table 2: Existing Drainage Areas

| Drainage Area Label | Drainage Area | Curve Number | Time of Concentration |
|----------------------------------|---------------|--------------|-----------------------|
| Existing Drainage Area 1 (EDA-1) | 3.57 AC | 60 | 13.5 Min. |
| Existing Drainage Area 2 (EDA-2) | 32.95 AC | 70 | 16.6 Min. |
| Existing Drainage Area 3 (EDA-3) | 44.15 AC | 68 | 19.6 Min. |
| Existing Drainage Area 4 (EDA-4) | 4.26 AC | 74 | 15.8 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 five (5) stormwater basins with forebays that will provide storage for reduction in peak flows and WQV. Based on the proposed drainage patterns, the 84.93-acre area was divided into nine (9) contributing drainage areas, Proposed Drainage Area 1 (PDA-1), Proposed Drainage Area 2A (PDA-2A), Proposed Drainage Area 2B (PDA-2B), Proposed Drainage Area 2C (PDA-2C), Proposed Drainage Area 2D (PDA-2D), Proposed Drainage Area 3A (PDA-3A), Proposed Drainage Area 3B (PDA-3B), Proposed Drainage Area 3C (PDA-3C) and Proposed Drainage Area 4 (PDA-4).

PDA-1 has a contributing drainage area of approximately 2.49 acres. Similar to existing conditions, the majority of the runoff from PDA-1 from north to southwest overland and off-site along the southwestern property line.

PDA-2A has a contributing drainage area of approximately 24.11 acres. Similar to existing conditions, the majority of the runoff from PDA-2A flows from east and west overland into an unnamed stream which flows from north to south through the drainage area and discharges at the southern property line.

PDA-2B has a contributing drainage area of approximately 4.75 acres. The runoff flows south overland and into the proposed stormwater basin P-1. Stormwater eventually exits the basin through a proposed outlet control structure and emergency spillway and then flows off site along the southwestern property line.

PDA-2C has a contributing drainage area of approximately 1.88 acres. The runoff flows east overland and into the proposed stormwater basin P-2. Stormwater eventually exits the basin through a proposed outlet control structure and emergency spillway and then flows overland into an unnamed stream.

PDA-2D has a contributing drainage area of approximately 2.69 acres. The runoff flows south overland and into the proposed stormwater basin P-3. Stormwater eventually exits the basin through a proposed outlet control structure and emergency spillway and then flows overland into an unnamed stream.

PDA-3A has a contributing drainage area of approximately 34.35 acres. Similar to existing conditions, the majority of the runoff from PDA-3A flows from east and west overland into Jacks Brook which flows from north to south through the drainage area and discharges into Riggs Street Brook at the southern property line.

PDA-3B has a contributing drainage area of approximately 4.79 acres. The runoff flows south overland and into the proposed stormwater basin P-4. Stormwater eventually exits the basin through a proposed outlet control structure and emergency spillway and then flows overland into Riggs Street Brook.

PDA-3C has a contributing drainage area of approximately 5.62 acres. The runoff flows south overland and into the proposed stormwater basin P-5. Stormwater eventually exits the basin through a proposed outlet control structure and emergency spillway and then flows overland into Jacks Brook.

PDA-4 has a contributing drainage area of approximately 4.26 acres. Similar to existing conditions, The majority of the runoff from PDA-4 flows from north to southeast overland and discharges into Riggs Street and eventually into Riggs Street Brook.

All proposed areas of disturbance within the solar array will be seeded with a Fuzz & Buzz Mix – ERNMX-147 or approved equal.

Table 3: Proposed Drainage Areas

| Drainage Area Label | Drainage Area | Curve Number | Time of Concentration |
|------------------------------------|---------------|--------------|-----------------------|
| Proposed Drainage Area 1 (PDA-1) | 2.493 AC | 60 | 13.0 Min. |
| Proposed Drainage Area 2A (PDA-2A) | 24.113 AC | 72 | 16.6 Min. |
| Proposed Drainage Area 2B (PDA-2B) | 4.751 AC | 64 | 14.8 Min. |
| Proposed Drainage Area 2C (PDA-2C) | 1.88 AC | 71 | 7.3 Min. |
| Proposed Drainage Area 3A (PDA-3A) | 34.353 AC | 68 | 19.6 Min. |
| Proposed Drainage Area 3B (PDA-3B) | 4.786 AC | 65 | 16.2 Min. |
| Proposed Drainage Area 3C (PDA-3C) | 5.622 AC | 75 | 14.7 Min. |
| Proposed Drainage Area 4 (PDA-4) | 4.259 AC | 75 | 15.8 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 Tables

| AP-1 - Peak Flow (cfs) | | | |
|-------------------------------|-----------------------------|-----------------|---------------------------------------|
| Storm Event | Total Drainage Areas | | Percent Reduction in Peak Flow |
| | Existing | Proposed | |
| 2-Year | 26.91 | 22.14 | 17.7% |
| 25-Year | 96.65 | 88.31 | 8.6% |
| 50-Year | 118.54 | 108.01 | 8.9% |
| 100-Year | 143.04 | 133.77 | 6.5% |

| AP-2 - Peak Flow (cfs) | | | |
|-------------------------------|-----------------------------|-----------------|---------------------------------------|
| Storm Event | Total Drainage Areas | | Percent Reduction in Peak Flow |
| | Existing | Proposed | |
| 2-Year | 31.60 | 25.86 | 18.2% |
| 25-Year | 116.36 | 105.08 | 9.7% |
| 50-Year | 143.11 | 135.30 | 5.5% |
| 100-Year | 173.09 | 168.78 | 2.5% |

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 grassed swales and 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 facility area. 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 Soil Science and Environmental Services Inc. around 2014. The location of delineated resources, as well as buffers, are shown on the Site Layout Plans (Sheets 2.11-2.16) 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. The proposed swales have been to convey and control stormwater from a 100-year, 24-hr rainfall event.
 - b. NRCS soil mapping was used for the stormwater design.
 - c. There are no areas within the solar arrays 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 proposed plans for soil erosion and sediment control prepared for this project have been developed in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, prepared by the Connecticut Council on Soil and Water Conservation in Collaboration with the Connecticut Department of Energy and 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, dust control measures, and a temporary sediment trap. The soil erosion and sediment control measures will be implemented in two (2) phases. Phase I measures are associated with the clearing, grubbing and installation of the sediment trap and diversion swales. Phase II measures are associated with the remain clearing and grubbing, 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.

APPENDICES

Appendix A – Figures

Appendix B – Stormwater Calculations

Appendix A – Figures

Perimeter Survey Map Prepared for
The William L. Ives Revocable Trust,
Riggs Street, Oxford, Connecticut

J. Edwards Associates, LLC

NRCS Soil Survey Map

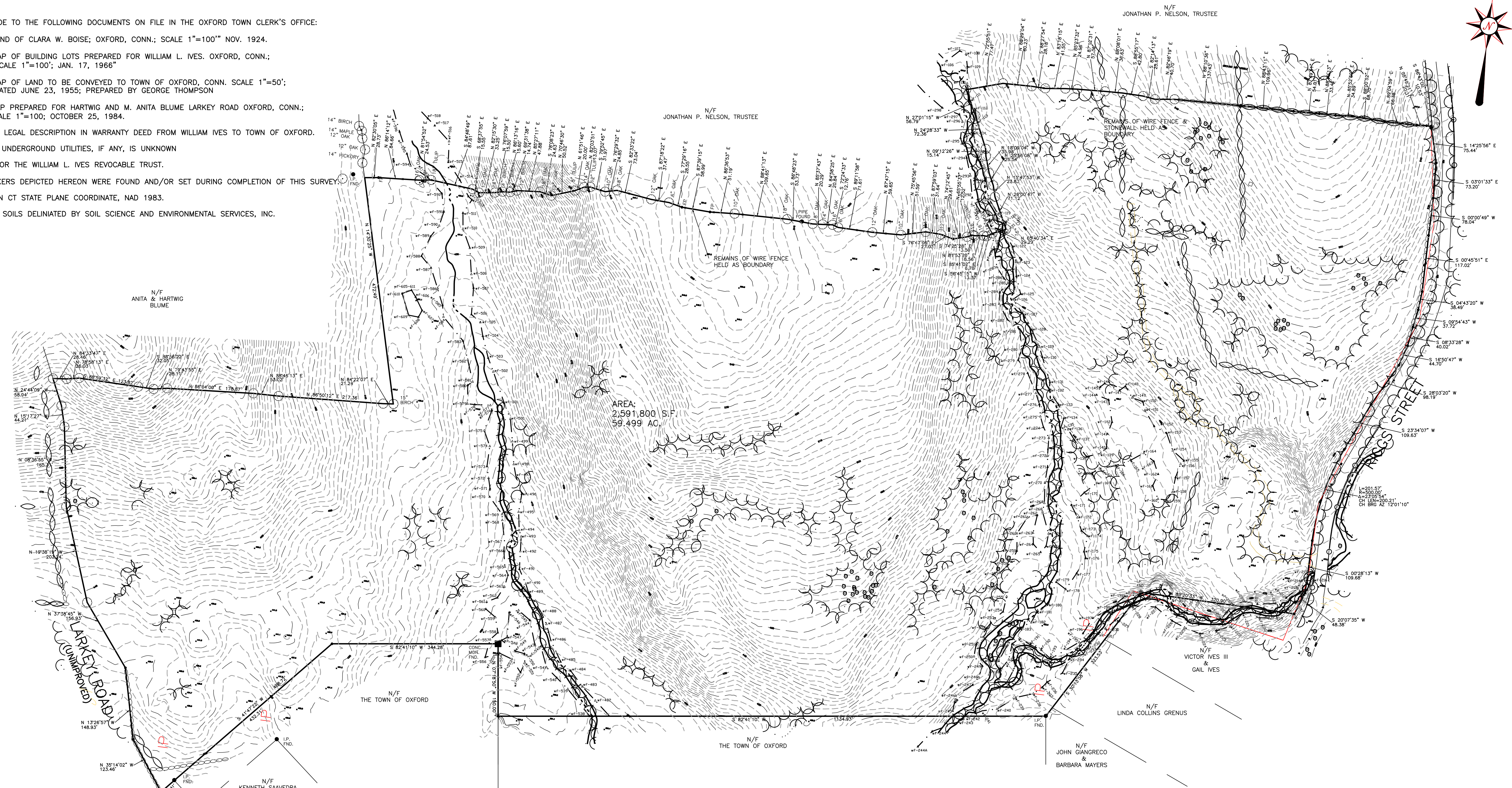
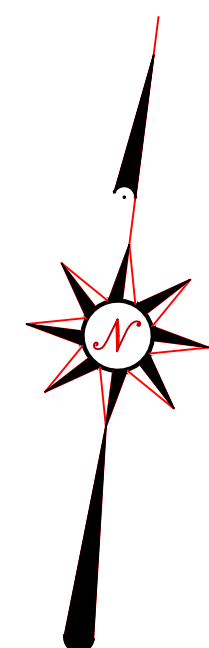
Site Layout Plans (2.10-2.16)

Existing Drainage Area Map (DA-1)

Proposed Drainage Area Map (DA-2)

NOTES:

- THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH THE SECTIONS 20-300B-1 THROUGH 20-300B-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES - "MINIMUM STANDARDS FOR SURVEY AND MAPS IN THE STATE OF CONNECTICUT" AS ENDORSED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. IT IS A PERIMETER SURVEY BASED UPON A DEPENDENT RESURVEY AND CONFORMS TO HORIZONTAL ACCURACY CLASS A-2.
- REFERENCE IS MADE TO THE FOLLOWING DOCUMENTS ON FILE IN THE OXFORD TOWN CLERK'S OFFICE:
 - 1 - 4 - "LAND OF CLARA W. BOISE; OXFORD, CONN.; SCALE 1"=100" NOV. 1924.
 - 88 "MAP OF BUILDING LOTS PREPARED FOR WILLIAM L. IVES. OXFORD, CONN.; SCALE 1"=100'; JAN. 17, 1966"
 - 30-45 "MAP OF LAND TO BE CONVEYED TO TOWN OF OXFORD, CONN. SCALE 1"=50'; DATED JUNE 23, 1955; PREPARED BY GEORGE THOMPSON
 - 15-6 - "MAP PREPARED FOR HARTWIG AND M. ANITA BLUME LARKEY ROAD OXFORD, CONN.; SCALE 1"=100; OCTOBER 25, 1984.
- THE LOCATION OF UNDERGROUND UTILITIES, IF ANY, IS UNKNOWN
- PLAN PREPARED FOR THE WILLIAM L. IVES REVOCABLE TRUST.
- LOT CORNER MARKERS DEPICTED HEREON WERE FOUND AND/OR SET DURING COMPLETION OF THIS SURVEY.
- BEARING BASED ON CT STATE PLANE COORDINATE, NAD 1983.
- LIMIT OF WETLAND SOILS DELINEATED BY SOIL SCIENCE AND ENVIRONMENTAL SERVICES, INC.



- STONEWALL
- WIRE FENCE
- TREE W/ WIRE
- WATERCOURSE
- WETLANDS
- CATCH BASIN
- UTILITY POLE
- IRON PIN
- FOUND
- IRON PIPE
- CONCRETE MONUMENT
- FENCE POST

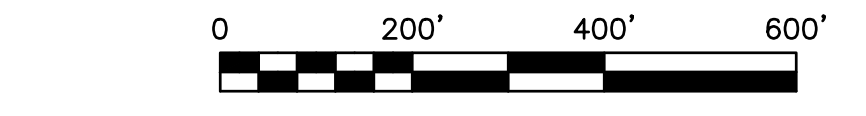
TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

THIS MAP IS NOT VALID UNLESS EMBOSSED WITH THE SEAL OR AFFIXED WITH THE LIVE STAMP OF THE SIGNATORY.

J. EDWARDS & ASSOCIATES, LLC
 Engineering and Surveying
 227 Stepney Road
 Easton, CT 06612
 (203)-268-4205
 www.leassoc.com

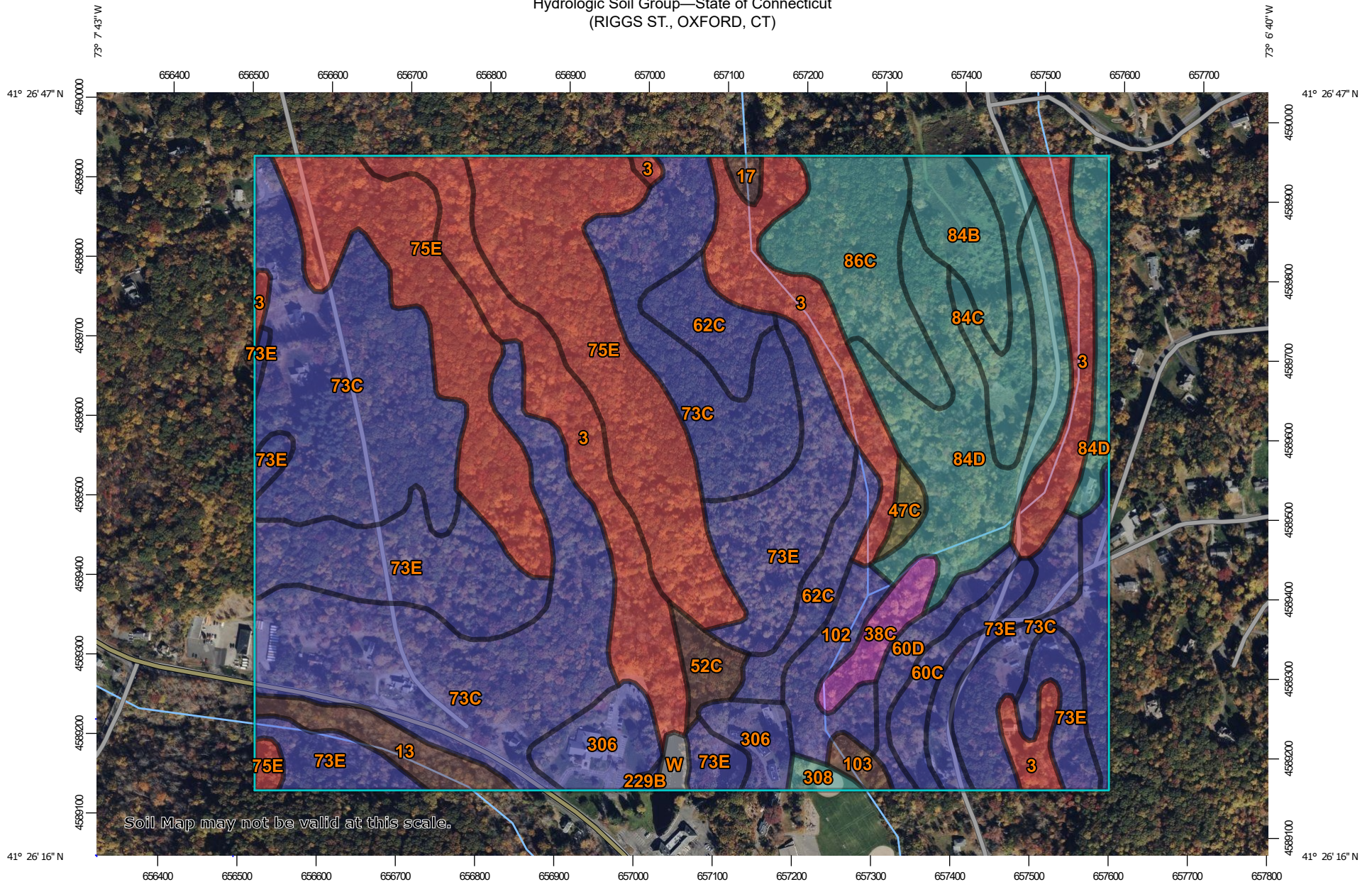
Jason Edwards
 JASON EDWARDS, L.S. No. 70308

PERIMETER SURVEY
 PREPARED FOR
 THE WILLIAM L. IVES REVOCABLE TRUST
 RIGGS STREET
 OXFORD, CONNECTICUT



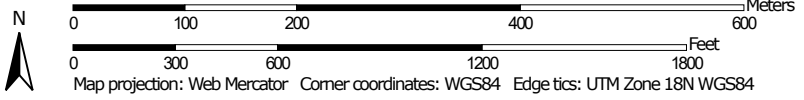
SCALE 1"= 200' AUGUST 28, 2023

Hydrologic Soil Group—State of Connecticut
(RIGGS ST., OXFORD, CT)



Soil Map may not be valid at this scale.

Map Scale: 1:6,760 if printed on A landscape (11" x 8.5") sheet.



MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





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

Soil Rating Lines


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

Soil Rating Points






 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available


Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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
 Survey Area Data: Version 22, Sep 12, 2022

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

Date(s) aerial images were photographed: Oct 21, 2022—Oct 27, 2022

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

Hydrologic Soil Group

| Map unit symbol | Map unit name | Rating | Acres in AOI | Percent of AOI |
|-----------------|---|--------|--------------|----------------|
| 3 | Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony | D | 26.5 | 12.4% |
| 13 | Walpole sandy loam, 0 to 3 percent slopes | B/D | 3.1 | 1.5% |
| 17 | Timakwa and Natchaug soils, 0 to 2 percent slopes | B/D | 0.5 | 0.2% |
| 38C | Hinckley loamy sand, 3 to 15 percent slopes | A | 2.3 | 1.1% |
| 47C | Woodbridge fine sandy loam, 3 to 15 percent slopes, extremely stony | C/D | 0.9 | 0.4% |
| 52C | Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony | B/D | 1.8 | 0.8% |
| 60C | Canton and Charlton fine sandy loams, 8 to 15 percent slopes | B | 3.1 | 1.4% |
| 60D | Canton and Charlton soils, 15 to 25 percent slopes | B | 2.8 | 1.3% |
| 62C | Canton and Charlton fine sandy loams, 3 to 15 percent slopes, extremely stony | B | 6.8 | 3.2% |
| 73C | Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky | B | 58.5 | 27.4% |
| 73E | Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky | B | 29.4 | 13.7% |
| 75E | Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes | D | 30.9 | 14.4% |
| 84B | Paxton and Montauk fine sandy loams, 3 to 8 percent slopes | C | 4.5 | 2.1% |
| 84C | Paxton and Montauk fine sandy loams, 8 to 15 percent slopes | C | 4.6 | 2.2% |

| Map unit symbol | Map unit name | Rating | Acres in AOI | Percent of AOI |
|------------------------------------|---|--------|--------------|----------------|
| 84D | Paxton and Montauk fine sandy loams, 15 to 25 percent slopes | C | 16.8 | 7.9% |
| 86C | Paxton and Montauk fine sandy loams, 3 to 15 percent slopes, extremely stony | C | 9.0 | 4.2% |
| 102 | Pootatuck fine sandy loam | B | 4.1 | 1.9% |
| 103 | Rippowam fine sandy loam | B/D | 0.8 | 0.4% |
| 229B | Agawam-Urban land complex, 0 to 8 percent slopes | B | 0.2 | 0.1% |
| 306 | Udorthents-Urban land complex | B | 5.9 | 2.8% |
| 308 | Udorthents, smoothed | C | 0.7 | 0.3% |
| W | Water | | 0.6 | 0.3% |
| Totals for Area of Interest | | | 213.6 | 100.0% |

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

SITE PLAN NOTES

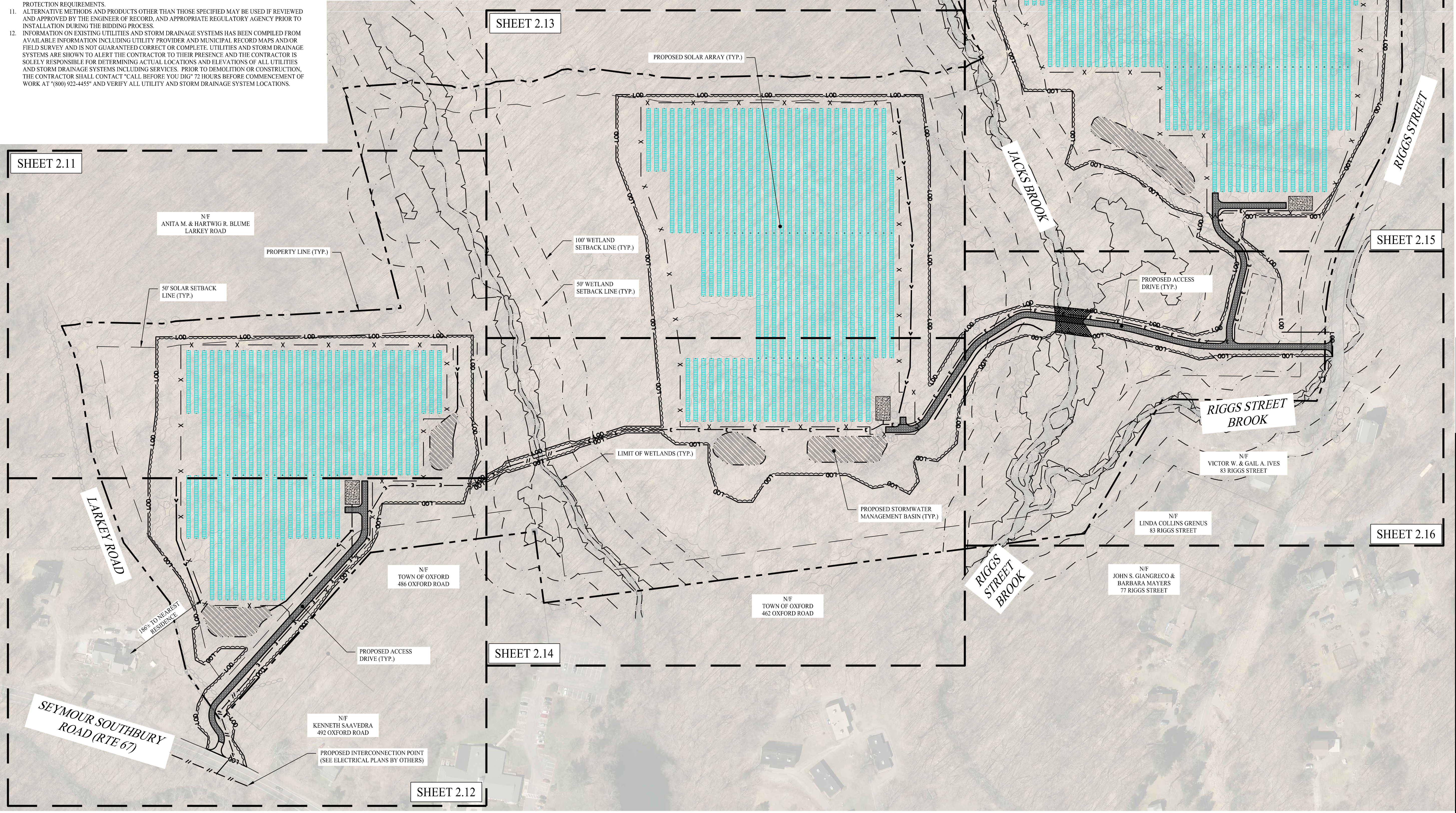
- THESE PLANS ARE FOR PERMITTING PURPOSES ONLY AND ARE NOT FOR CONSTRUCTION. NO CONSTRUCTION OR DEMOLITION SHALL BEGIN UNTIL APPROVAL OF THE FINAL PLANS IS GRANTED BY ALL GOVERNING AND REGULATORY AGENCIES.
- EXISTING BOUNDARY, TOPOGRAPHY AND SITE CONDITIONS INFORMATION TAKEN FROM A PLAN ENTITLED "PROPERTY & TOPOGRAPHIC SURVEY OF 0 RIGGS STREET, OXFORD, CONNECTICUT", SCALE 1"=60', DATED: 10/2023, BY "ACCURATE LAND SURVEYING, LLC".
- ALL CONSTRUCTION SHALL COMPLY WITH TOWN OF OXFORD STANDARDS, CONNECTICUT DEPARTMENT OF TRANSPORTATION STANDARDS, CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION STANDARDS, AND SPECIFICATIONS IN THE ABOVE REFERENCED INCREASING HIERARCHY. IF SPECIFICATIONS ARE IN CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE OSHA, FEDERAL, STATE AND LOCAL REGULATIONS.
- THE OWNER IS RESPONSIBLE FOR OBTAINING ALL NECESSARY ZONING PERMITS REQUIRED BY GOVERNMENT AGENCIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL COUNTY AND TOWN CONSTRUCTION PERMITS. THE CONTRACTOR SHALL POST ALL BONDS, PAY ALL FEES, PROVIDE PROOF OF INSURANCE AND PROVIDE TRAFFIC CONTROL NECESSARY FOR THIS WORK.
- THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS IN THE FIELD AND CONTACT THE ENGINEER OF RECORD IF THERE ARE ANY QUESTIONS OR CONFLICTS REGARDING THE CONSTRUCTION DOCUMENTS AND/OR FIELD CONDITIONS SO THAT APPROPRIATE REVISIONS CAN BE MADE PRIOR TO BIDDING. ANY CONFLICT BETWEEN THE DRAWINGS SHALL BE CONFIRMED WITH THE OWNER'S CONSTRUCTION MANAGER PRIOR TO BIDDING.
- SHOULD ANY UNCHARTED OR INCORRECTLY CHARTED, EXISTING PIPING OR OTHER UTILITY BE UNCOVERED DURING EXCAVATION, CONSULT THE ENGINEER OF RECORD IMMEDIATELY FOR DIRECTIONS BEFORE PROCEEDING FURTHER WITH WORK IN THIS AREA.
- DO NOT INTERRUPT EXISTING UTILITIES SERVING FACILITIES OCCUPIED AND USED BY THE OWNER OR OTHERS DURING OCCUPIED HOURS EXCEPT WHEN SUCH INTERRUPTIONS HAVE BEEN AUTHORIZED IN WRITING BY THE OWNER AND THE LOCAL MUNICIPALITIES. INTERRUPTIONS SHALL ONLY OCCUR AFTER ACCEPTABLE TEMPORARY SERVICE HAS BEEN PROVIDED.
- THE CONTRACTOR SHALL RESTORE ANY DRAINAGE STRUCTURE, PIPE, UTILITY, PAVEMENT, CURBS, SIDEWALKS, LANDSCAPED AREAS OR SIGNAGE DISTURBED DURING CONSTRUCTION TO THEIR ORIGINAL CONDITION OR BETTER, AS APPROVED BY THE ENGINEER OF RECORD.
- THE ENGINEER OF RECORD IS NOT RESPONSIBLE FOR SITE SAFETY MEASURES TO BE EMPLOYED DURING CONSTRUCTION. THE ENGINEER OF RECORD HAS NO CONTRACTUAL DUTY TO CONTROL THE SAFEST METHODS OR MEANS OF THE WORK, JOB SITE RESPONSIBILITIES, SUPERVISION OR TO SUPERVISE SAFETY AND DOES NOT VOLUNTARILY ASSUME ANY SUCH DUTY OR RESPONSIBILITY.
- THE CONTRACTOR SHALL COMPLY WITH CFR 29 PART 1926 FOR EXCAVATION TRENCHING AND TRENCH PROTECTION REQUIREMENTS.
- ALTERNATIVE METHODS AND PRODUCTS OTHER THAN THOSE SPECIFIED MAY BE USED IF REVIEWED AND APPROVED BY THE ENGINEER OF RECORD, AND APPROPRIATE REGULATORY AGENCY PRIOR TO INSTALLATION DURING THE BIDDING PROCESS.
- INFORMATION ON EXISTING UTILITIES AND STORM DRAINAGE SYSTEMS HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING UTILITY PROVIDER AND MUNICIPAL RECORD MAPS AND/OR FIELD SURVEY AND IS NOT GUARANTEED CORRECT OR COMPLETE. UTILITIES AND STORM DRAINAGE SYSTEMS ARE SHOWN TO ALERT THE CONTRACTOR TO THEIR PRESENCE AND THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES AND STORM DRAINAGE SYSTEMS INCLUDING SERVICES. PRIOR TO DEMOLITION OR CONSTRUCTION, THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" 72 HOURS BEFORE COMMENCEMENT OF WORK AT (800) 922-4455 AND VERIFY ALL UTILITY AND STORM DRAINAGE SYSTEM LOCATIONS.

LEGEND

| | |
|--|-----------------------------|
| | PROPERTY LINE |
| | LIMIT OF WETLANDS |
| | STREAM CENTERLINE |
| | UPLAND REVIEW AREA |
| | STORMWATER BASIN AREA |
| | 7 TALL CHAIN LINK FENCE |
| | GRAVEL ROAD |
| | TRINA 540W MODULES |
| | UTILITY POLE |
| | OVERHEAD ELECTRIC LINE |
| | ELECTRIC CONDUIT |
| | LIMIT OF TREE CLEARING |
| | LIMIT OF DISTURBANCE |
| | GRASS LINED SWALE |
| | GRAVEL ACCESS DRIVE |
| | CONCRETE EQUIPMENT PAD |
| | STORMWATER MANAGEMENT BASIN |

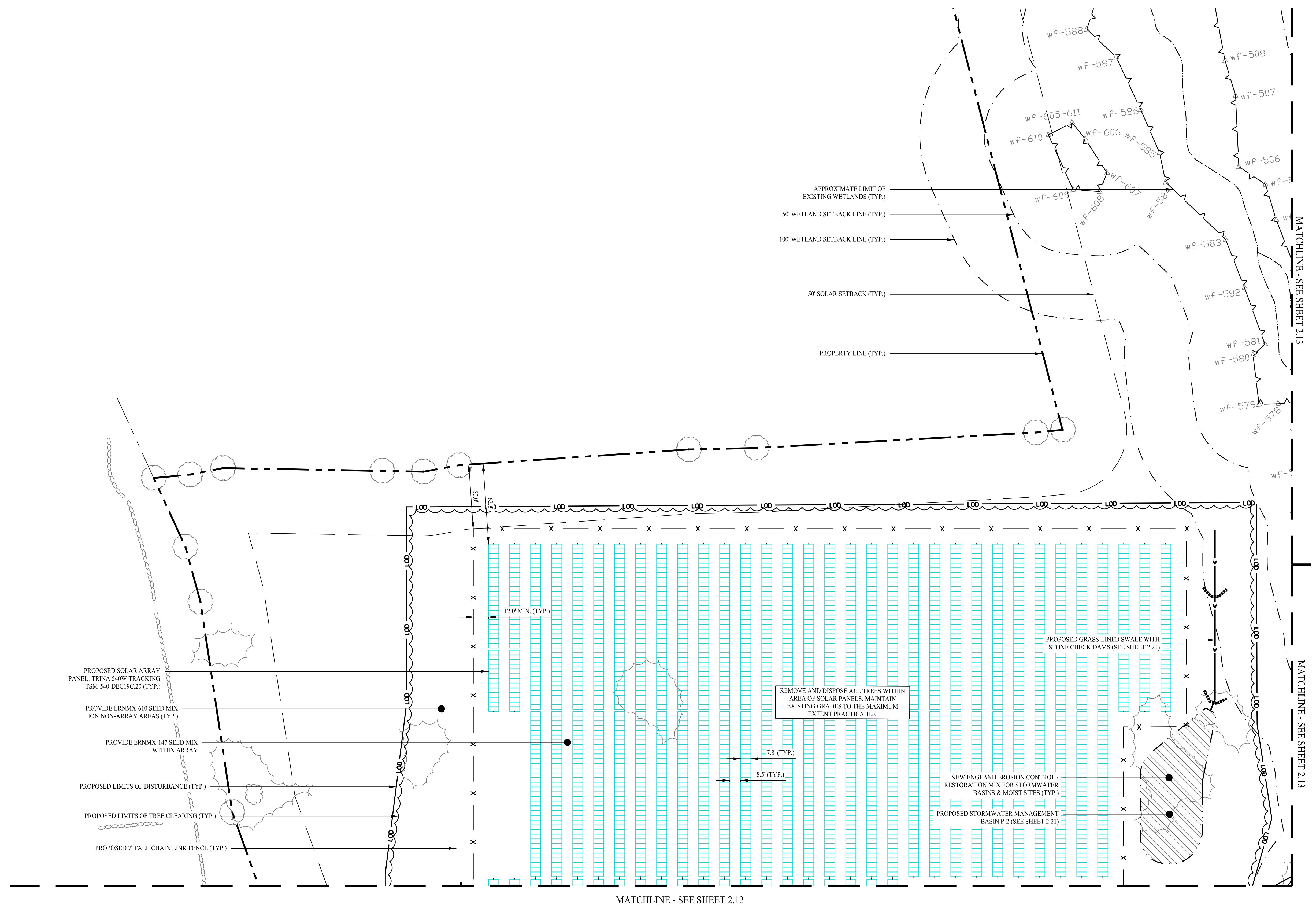
SOLAR ARRAY SYSTEM INFORMATION

| | TOTAL OUTPUT |
|---------------------|--|
| SIZE DC | 6.41 MW |
| SIZE AC | 4.93 MW |
| INVERTER LOAD RATIO | 1.30 |
| MODULE TYPE | TRACKING TRINASOLAR TSM-540-DEG19C.20 (540W) |
| MODULE QUANTITY | 11,865 |
| INVERTER | SUNGROW SG125HV 125KW |
| UTILITY | EVERSOURCE |



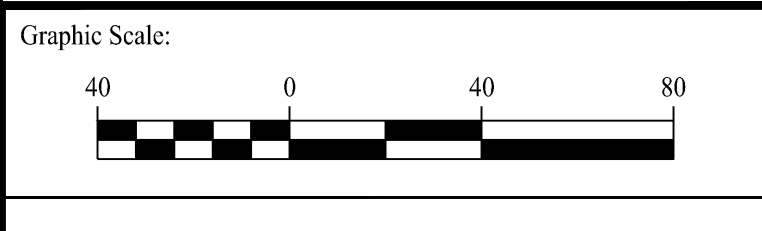
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| Rev. #: | Date: | Description: |
| Graphic Scale: | | |
| | | |
| | | |
| <small>501 Main Street, Monroe, CT 06468 T: (203) 880-5455 F: (203) 880-9695 11 Vanderbilt Ave, Norwood, MA 02062 T: (781) 352-8491 F: (203) 880-9695</small> | | |
| Drawn By: | CSH | |
| Checked By: | EEL | |
| Approved By: | KMS | |
| Project #: | 22108801 | |
| Plan Date: | 01/15/24 | |
| Scale: | 1" = 100' | |
| Project: | | |
| <p align="center">PROPOSED SOLAR PHOTOVOLTAIC ARRAY RIGGS STREET OXFORD, CONNECTICUT</p> | | |
| Sheet Title: | Sheet #: | |
| OVERALL SITE LAYOUT PLAN | | 2.10 |

Feb 06, 2024 - 9:47am chmddy
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Feb 06, 2024 - 9:47am chendy
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| Rev. #: | Date | Description |
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Drawn By: CSH
 Checked By: EEL
 Approved By: KMS
 Project #: 22108801
 Plan Date: 01/15/24
 Scale: 1" = 40'

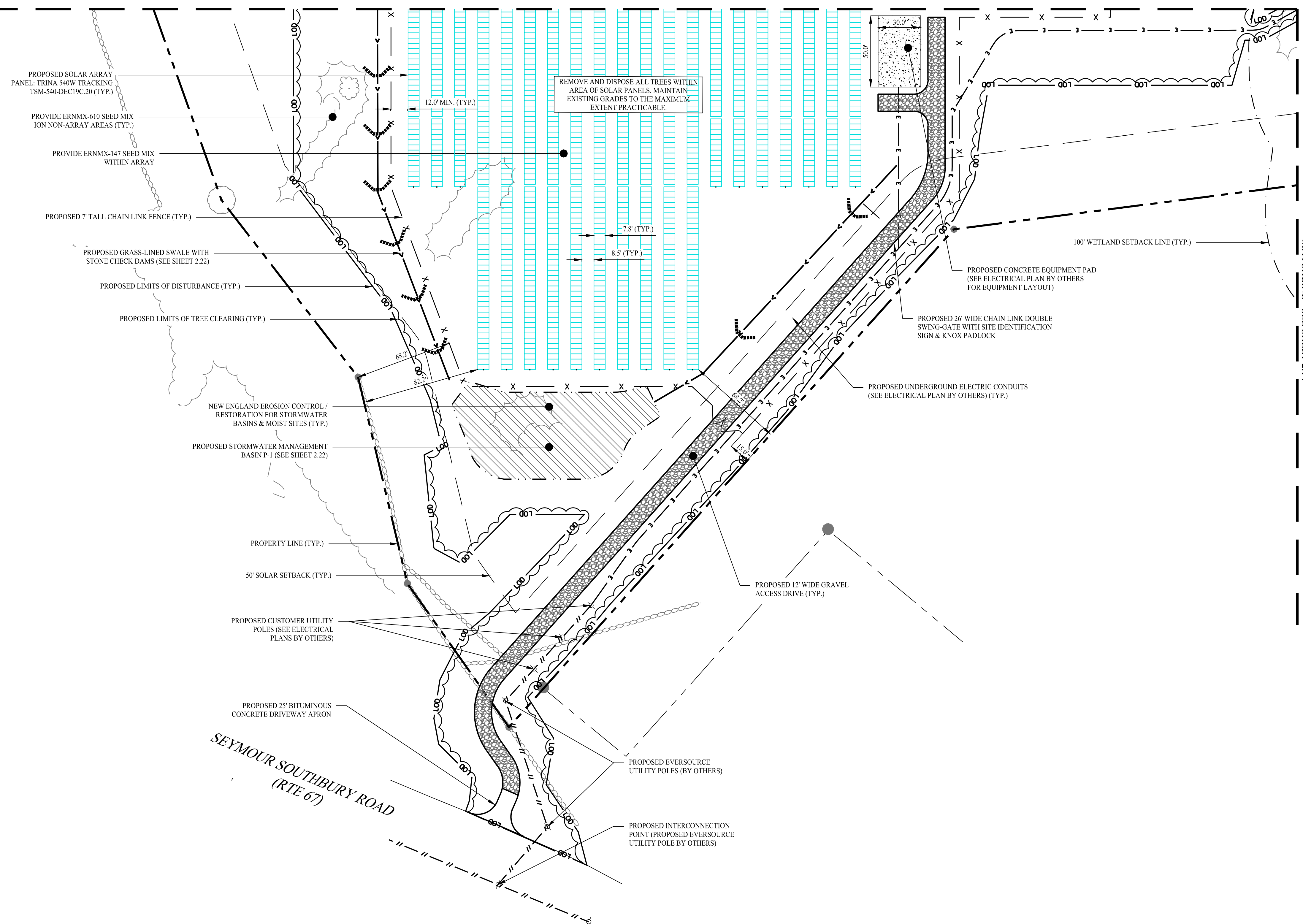


PROPOSED SOLAR PHOTOVOLTAIC ARRAY
 RIGGS STREET
 OXFORD, CONNECTICUT

Sheet Title: **SITE LAYOUT PLAN (1 OF 6)**
 Sheet #: **2.11**



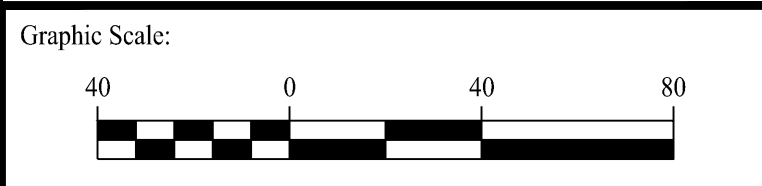
MATCHLINE - SEE SHEET 2.11



MATCHLINE - SEE SHEET 2.14

SEYMOUR SOUTHBURY ROAD
(RTE 67)

| Rev. #: | Date | Description |
|---------|------|-------------|
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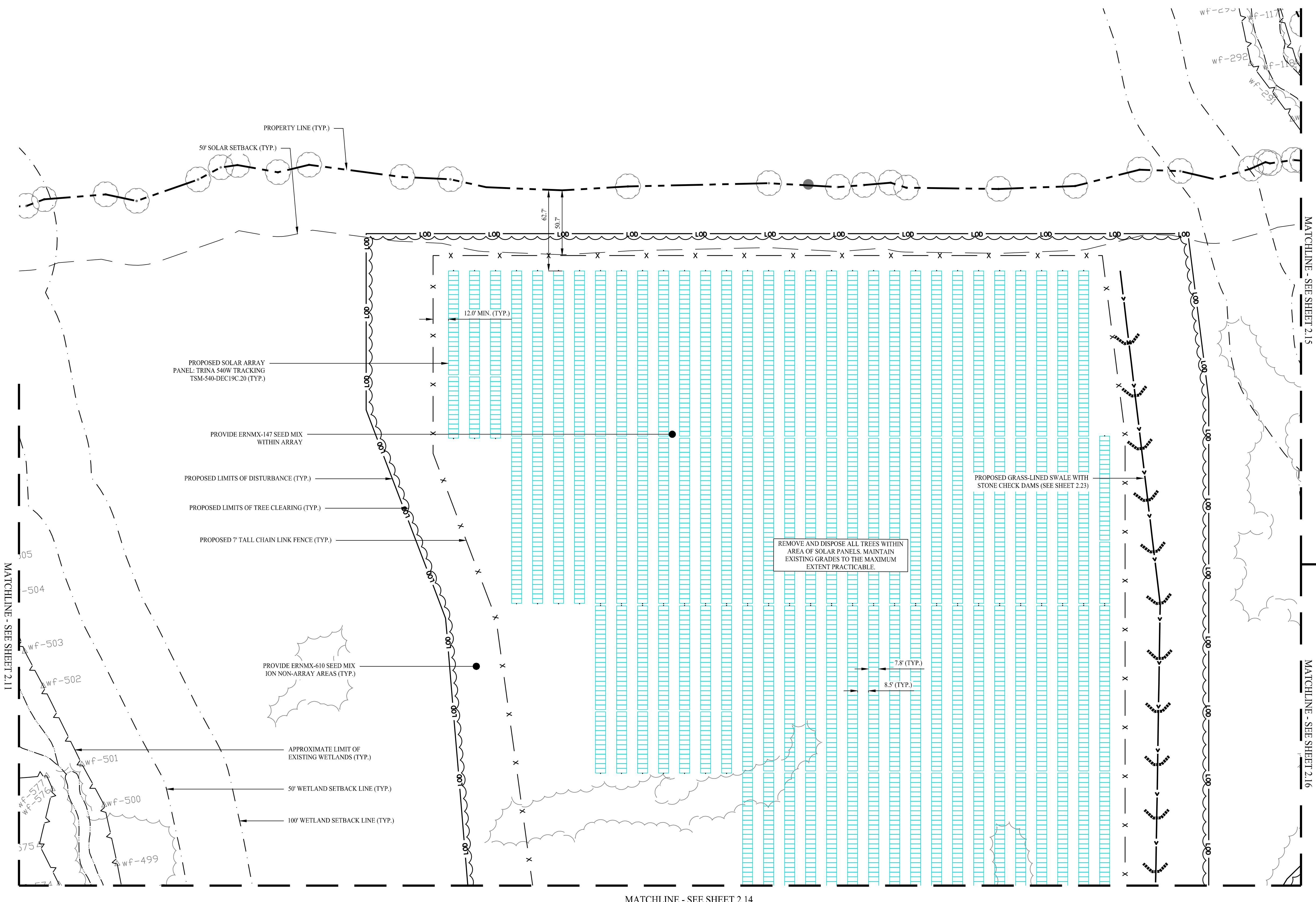
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Drawn By: CSH
 Checked By: EEL
 Approved By: KMS
 Project #: 22108801
 Plan Date: 01/15/24
 Scale: 1" = 40'



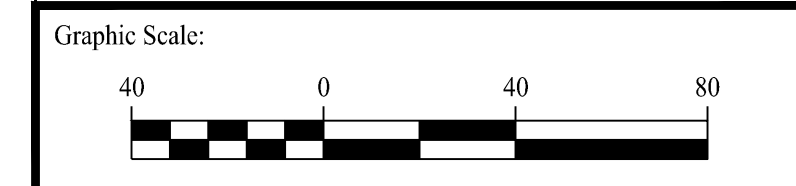
Project:
PROPOSED SOLAR PHOTOVOLTAIC ARRAY
 RIGGS STREET
 OXFORD, CONNECTICUT

Sheet Title: **SITE LAYOUT PLAN (2 OF 6)**
 Sheet #: **2.12**



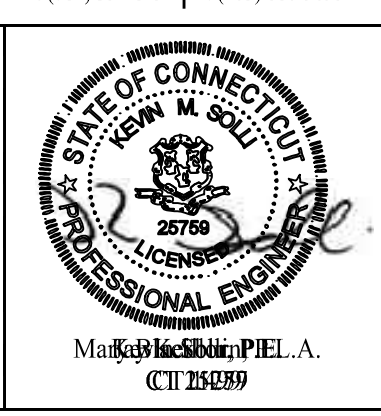
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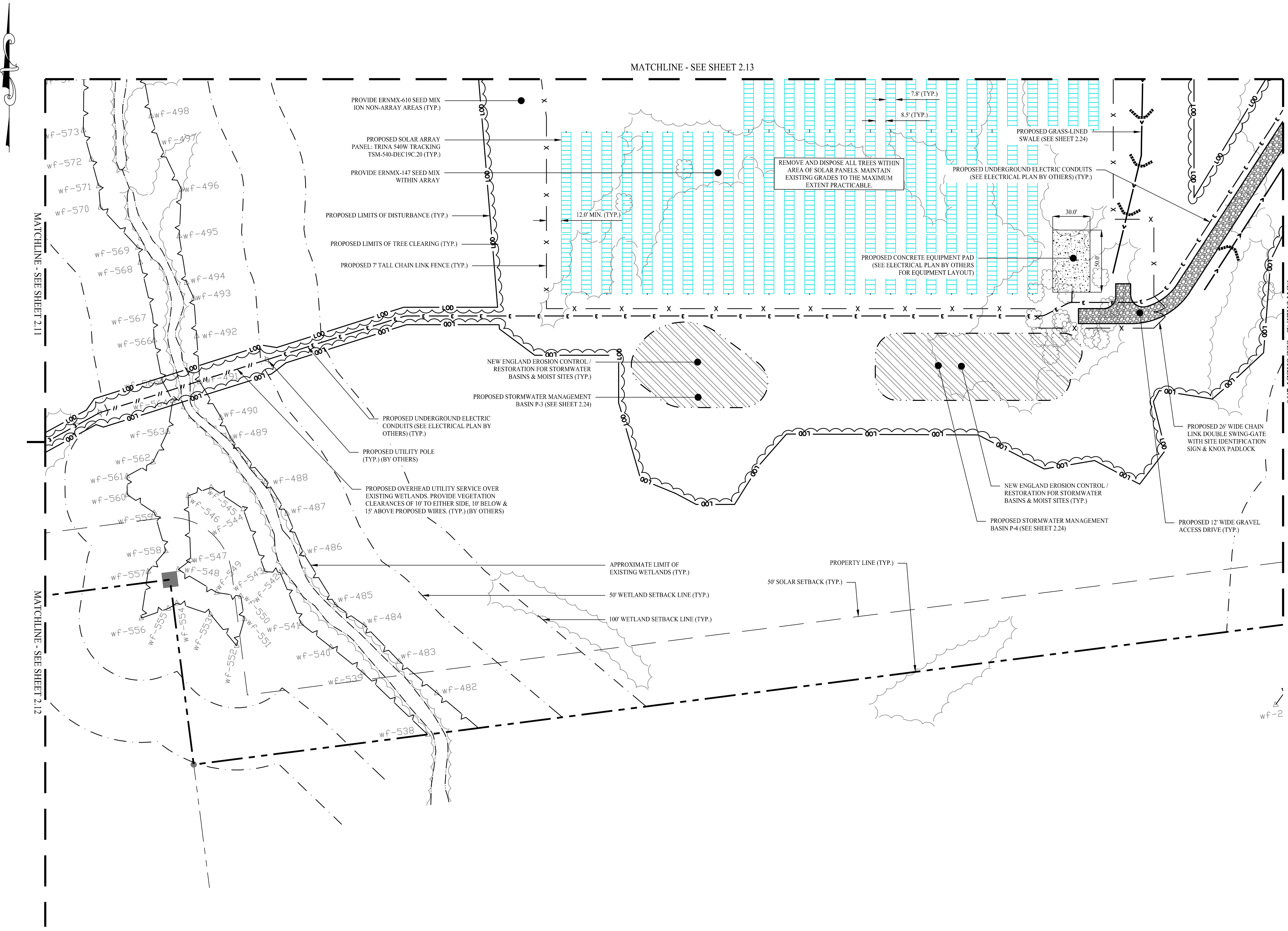
SOLLI ENGINEERING
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| Drawn By: | CSH |
| Checked By: | EEL |
| Approved By: | KMS |
| Project #: | 22108801 |
| Plan Date: | 01/15/24 |
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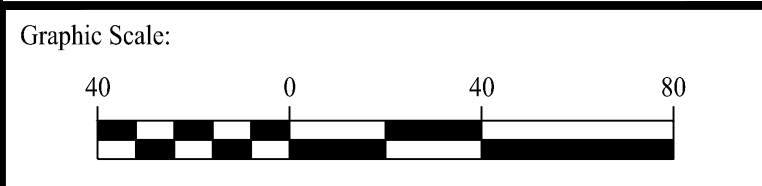


PROPOSED SOLAR PHOTOVOLTAIC ARRAY
 RIGGS STREET
 OXFORD, CONNECTICUT

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|---------------------------|----------|
| Sheet Title: | Sheet #: |
| SITE LAYOUT PLAN (3 OF 6) | 2.13 |



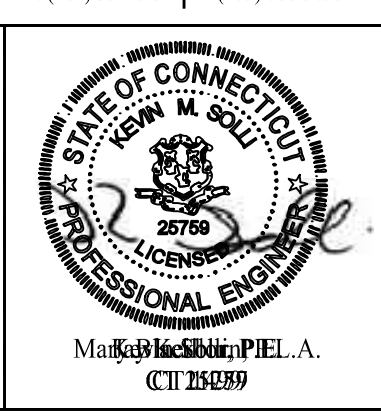
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|--------------|----------|
| Drawn By: | CSH |
| Checked By: | EEL |
| Approved By: | KMS |
| Project #: | 22108801 |
| Plan Date: | 01/15/24 |
| Scale: | 1" = 40' |



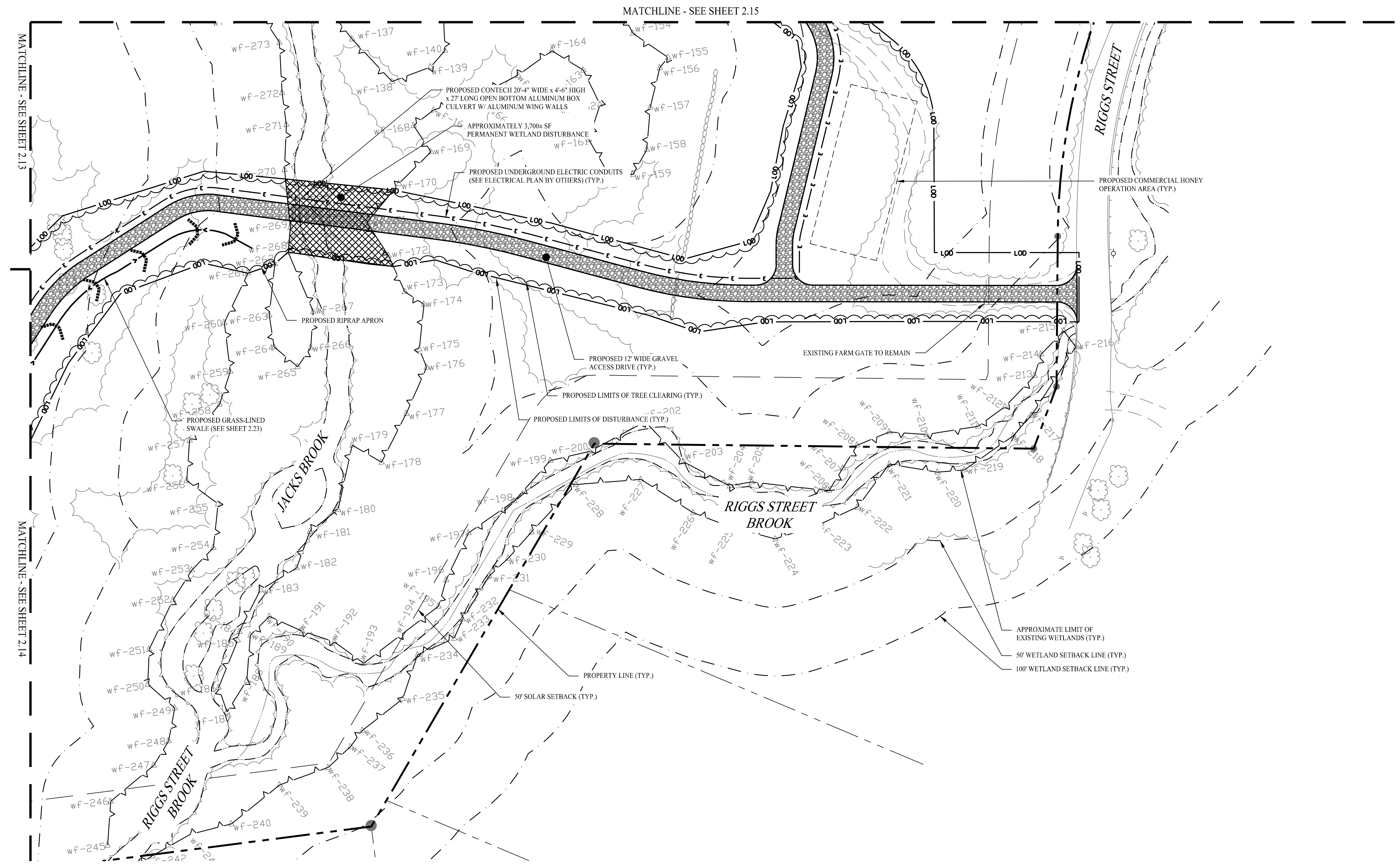
Project:

PROPOSED SOLAR PHOTOVOLTAIC ARRAY
 RIGGS STREET
 OXFORD, CONNECTICUT

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|----------------------------------|-------------|
| Sheet Title: | Sheet #: |
| SITE LAYOUT PLAN (4 OF 6) | 2.14 |

Feb 06, 2024 - 8:47am chendy
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Feb 06, 2024 - 9:47am chendy
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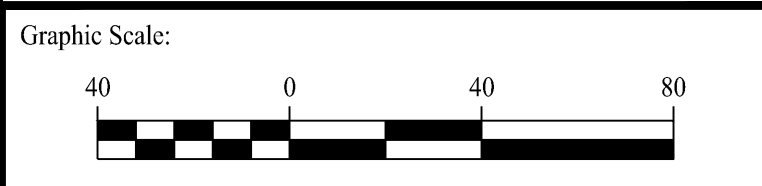


MATCHLINE - SEE SHEET 2.15

MATCHLINE - SEE SHEET 2.13

MATCHLINE - SEE SHEET 2.14

| Rev. #: | Date | Description |
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 Checked By: EEL
 Approved By: KMS
 Project #: 22108801
 Plan Date: 01/15/24
 Scale: 1" = 40'








Project:
PROPOSED SOLAR PHOTOVOLTAIC ARRAY
 RIGGS STREET
 OXFORD, CONNECTICUT

Sheet Title: **SITE LAYOUT PLAN (6 OF 6)**
 Sheet #: **2.16**

GENERAL NOTES

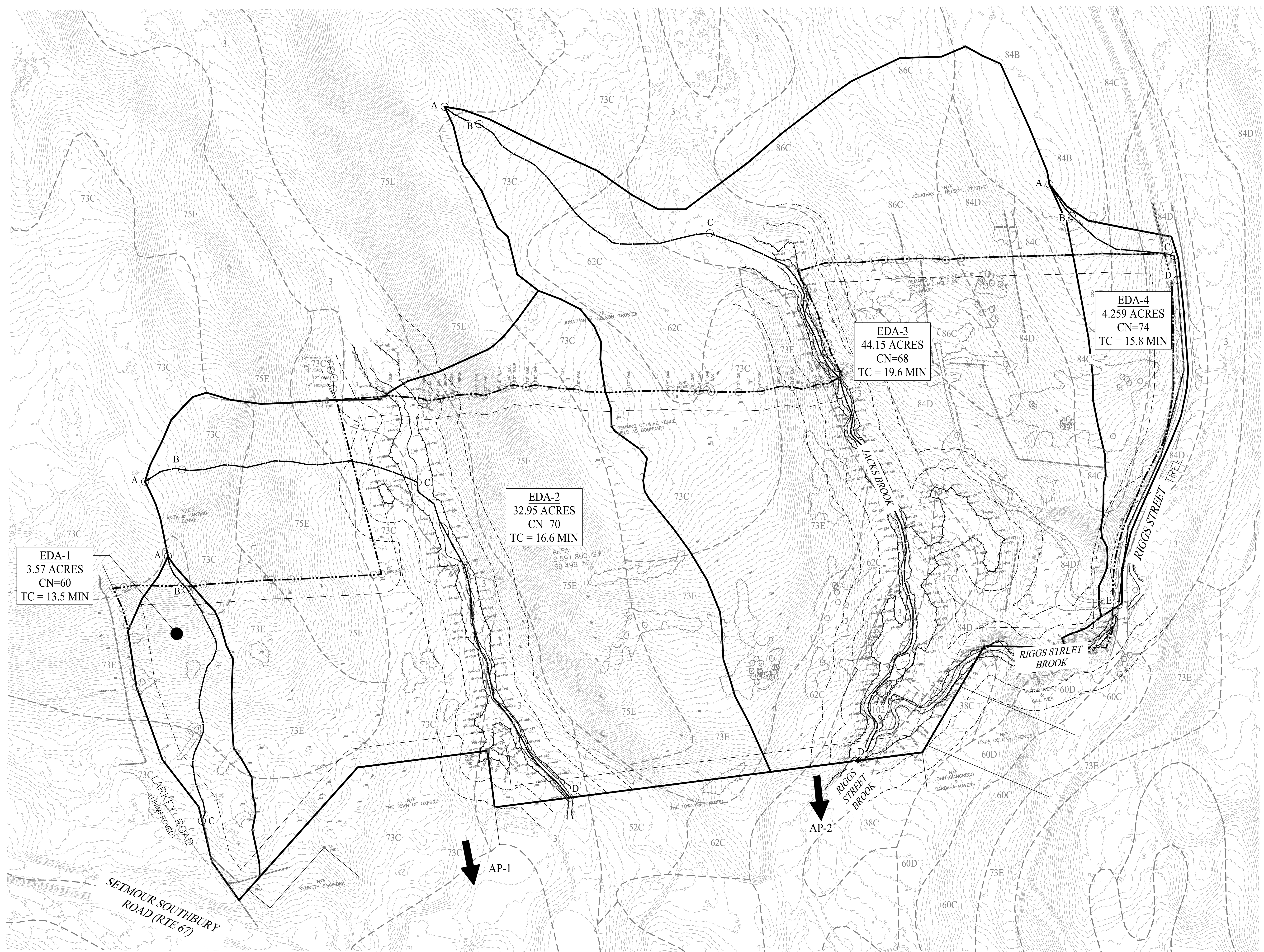
1. THE STORMWATER MANAGEMENT PLAN AND DESIGN IS INTENDED TO BE IN COMPLIANCE WITH THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION STORMWATER QUALITY MANUAL AND THE TOWN OF SUFFIELD, CONNECTICUT STORMWATER REGULATIONS.
2. STORMWATER RUNOFF ANALYSIS WAS CALCULATED USING THE SCS TR-55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

LEGEND

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

EXISTING CONDITIONS PEAK FLOWS

| ANALYSIS POINT | 2-YEAR (CFS) | 25-YEAR (CFS) | 50-YEAR (CFS) | 100-YEAR (CFS) |
|----------------|--------------|---------------|---------------|----------------|
| AP-1 | 26.91 | 96.65 | 118.54 | 143.04 |
| AP-2 | 31.60 | 116.36 | 143.11 | 173.09 |



EDA-1
3.57 ACRES
CN=60
TC = 13.5 MIN

EDA-2
32.95 ACRES
CN=70
TC = 16.6 MIN

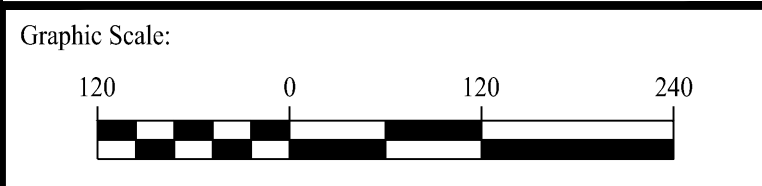
EDA-3
44.15 ACRES
CN=68
TC = 19.6 MIN

EDA-4
4.259 ACRES
CN=74
TC = 15.8 MIN

AP-1

AP-2

| Rev. #: | Date | Description |
|---------|------|-------------|
| | | |



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| | | |
|--------------|-----------|-------------------------------|
| Drawn By: | CSH | Kevin Solli, P.E. CT 25759 |
| Checked By: | EEL | |
| Approved By: | KMS | |
| Project #: | 22108801 | |
| Plan Date: | 01/15/24 | |
| Scale: | 1" = 120' | |






PROPOSED SOLAR PHOTOVOLTAIC ARRAY
RIGGS STREET
OXFORD, CONNECTICUT

| | |
|----------------------------|----------|
| Sheet Title: | Sheet #: |
| EXISTING DRAINAGE AREA MAP | DA-1 |

GENERAL NOTES

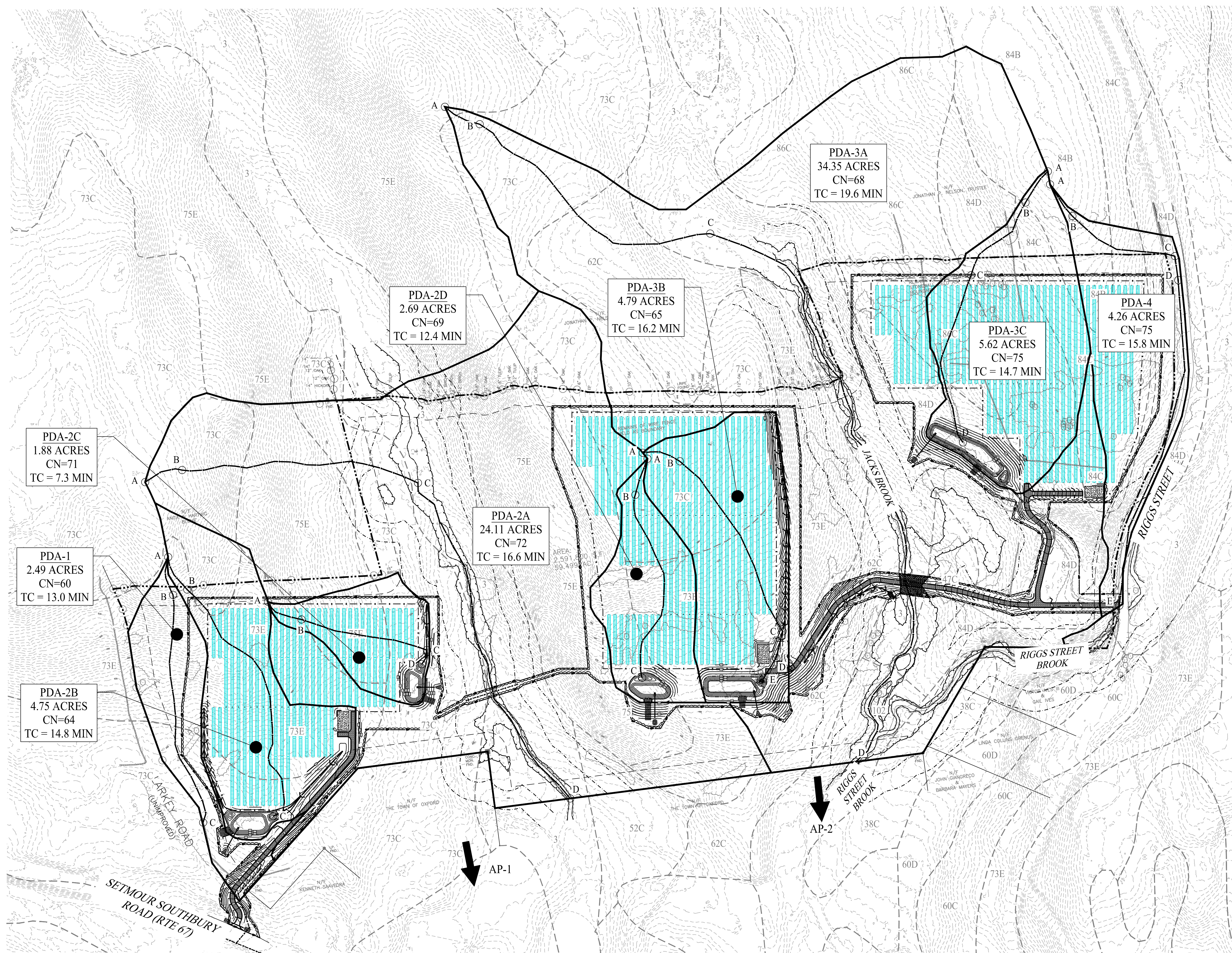
1. THE STORMWATER MANAGEMENT PLAN AND DESIGN IS INTENDED TO BE IN COMPLIANCE WITH THE CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION STORMWATER QUALITY MANUAL AND THE TOWN OF SUFFIELD, CONNECTICUT STORMWATER REGULATIONS.
2. STORMWATER RUNOFF ANALYSIS WAS CALCULATED USING THE SCS TR-55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

LEGEND

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

PROPOSED CONDITIONS PEAK FLOWS

| ANALYSIS POINT | 2-YEAR (CFS) | 25-YEAR (CFS) | 50-YEAR (CFS) | 100-YEAR (CFS) |
|----------------|--------------|---------------|---------------|----------------|
| AP-1 | 22.14 | 88.31 | 108.01 | 133.77 |
| AP-2 | 25.86 | 105.08 | 135.30 | 168.78 |



PDA-2C
1.88 ACRES
CN=71
TC = 7.3 MIN

PDA-1
2.49 ACRES
CN=60
TC = 13.0 MIN

PDA-2B
4.75 ACRES
CN=64
TC = 14.8 MIN

PDA-2D
2.69 ACRES
CN=69
TC = 12.4 MIN

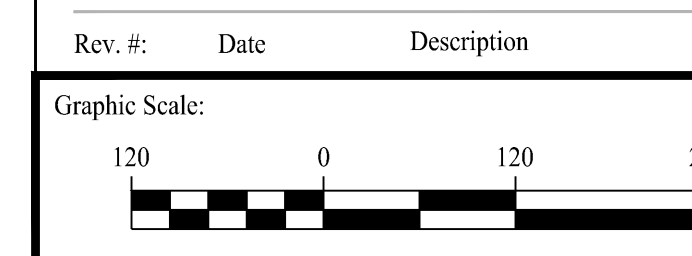
PDA-2A
24.11 ACRES
CN=72
TC = 16.6 MIN

PDA-3B
4.79 ACRES
CN=65
TC = 16.2 MIN

PDA-3A
34.35 ACRES
CN=68
TC = 19.6 MIN

PDA-3C
5.62 ACRES
CN=75
TC = 14.7 MIN

PDA-4
4.26 ACRES
CN=75
TC = 15.8 MIN



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 Checked By: EEL
 Approved By: KMS
 Project #: 22108801
 Plan Date: 01/15/24
 Scale: 1" = 120'

Kevin Solli, P.E.
 CT 25759

PROPOSED SOLAR PHOTOVOLTAIC ARRAY
 RIGGS STREET
 OXFORD, CONNECTICUT

Sheet Title: **PROPOSED DRAINAGE AREA MAP** Sheet #: **DA-2**

Feb 06, 2024 - 9:59am chenm7y X:\SE Files\Project Data\2022\22108801 - Riggs Street - Oxford, CT\Coord Data\22108801-DA-2.dwg

Appendix B – Stormwater Calculations

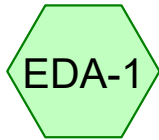
Hydrology Calculations (2-, 25-, 50-, 100-year storm events)

Water Quality Volume Calculations

NOAA Atlas Precipitation Data

USGS StreamStats Data

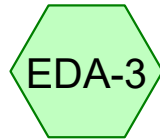
HY-8 Culvert Crossing Report



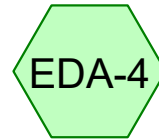
EDA-1



EDA-2



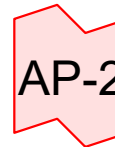
EDA-3



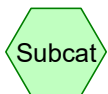
EDA-4



AP-1



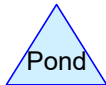
AP-2



Subcat



Reach



Pond



Link

Routing Diagram for Riggs St_Exist.
 Prepared by Solli Engineering, Printed 11/28/2023
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Riggs St_Exist.

Prepared by Solli Engineering

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Page 2

Rainfall Events Listing

| Event# | Event Name | Storm Type | Curve | Mode | Duration (hours) | B/B | Depth (inches) | AMC |
|--------|------------|------------|-------|---------|------------------|-----|----------------|-----|
| 1 | 2-yr | NRCC 24-hr | D | Default | 24.00 | 1 | 3.62 | 2 |
| 2 | 25-yr | NRCC 24-hr | D | Default | 24.00 | 1 | 6.90 | 2 |
| 3 | 50-yr | NRCC 24-hr | D | Default | 24.00 | 1 | 7.83 | 2 |
| 4 | 100-yr | NRCC 24-hr | D | Default | 24.00 | 1 | 8.85 | 2 |

Riggs St_Exist.

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Page 3

Area Listing (all nodes)

| Area (acres) | CN | Description (subcatchment-numbers) |
|-----------------|-----------|---|
| 0.220 | 98 | Paved roads w/curbs & sewers, HSG C (EDA-4) |
| 0.018 | 98 | Paved roads w/curbs & sewers, HSG D (EDA-4) |
| 0.515 | 36 | Woods, Fair, HSG A (EDA-3) |
| 38.277 | 60 | Woods, Fair, HSG B (EDA-1, EDA-2, EDA-3) |
| 23.267 | 73 | Woods, Fair, HSG C (EDA-3, EDA-4) |
| 22.633 | 79 | Woods, Fair, HSG D (EDA-2, EDA-3, EDA-4) |
| 84.930 | 69 | TOTAL AREA |

Riggs St_Exist.

Prepared by Solli Engineering

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Page 4

Soil Listing (all nodes)

| Area (acres) | Soil Group | Subcatchment Numbers |
|-----------------|---------------|-------------------------|
| 0.515 | HSG A | EDA-3 |
| 38.277 | HSG B | EDA-1, EDA-2, EDA-3 |
| 23.487 | HSG C | EDA-3, EDA-4 |
| 22.651 | HSG D | EDA-2, EDA-3, EDA-4 |
| 0.000 | Other | |
| 84.930 | | TOTAL AREA |

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Page 5

Ground Covers (all nodes)

| HSG-A (acres) | HSG-B (acres) | HSG-C (acres) | HSG-D (acres) | Other (acres) | Total (acres) | Ground Cover | Subcatchment Numbers |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------------------|---|
| 0.000 | 0.000 | 0.220 | 0.018 | 0.000 | 0.238 | Paved roads w/curbs & sewers | ED A-4 |
| 0.515 | 38.277 | 23.267 | 22.633 | 0.000 | 84.692 | Woods, Fair | ED A-1 , ED A-2 , ED A-3 , ED A-4 |
| 0.515 | 38.277 | 23.487 | 22.651 | 0.000 | 84.930 | TOTAL AREA | |

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Page 6

Pipe Listing (all nodes)

| Line# | Node Number | In-Invert (feet) | Out-Invert (feet) | Length (feet) | Slope (ft/ft) | n | Width (inches) | Diam/Height (inches) | Inside-Fill (inches) | Node Name |
|-------|-------------|------------------|-------------------|---------------|---------------|-------|----------------|----------------------|----------------------|-----------|
| 1 | EDA-4 | 0.00 | 0.00 | 885.0 | 0.0575 | 0.012 | 0.0 | 15.0 | 0.0 | |

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NRCC 24-hr D 2-yr Rainfall=3.62"

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Page 7

Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEDA-1: EDA-1

Runoff Area=3.573 ac 0.00% Impervious Runoff Depth=0.58"
Flow Length=753' Tc=13.5 min CN=60 Runoff=1.26 cfs 0.174 af

SubcatchmentEDA-2: EDA-2

Runoff Area=32.950 ac 0.00% Impervious Runoff Depth=1.08"
Flow Length=1,686' Tc=16.6 min CN=70 Runoff=25.66 cfs 2.974 af

SubcatchmentEDA-3: EDA-3

Runoff Area=44.148 ac 0.00% Impervious Runoff Depth=0.97"
Flow Length=2,518' Tc=19.6 min CN=68 Runoff=27.61 cfs 3.575 af

SubcatchmentEDA-4: EDA-4

Runoff Area=4.259 ac 5.59% Impervious Runoff Depth=1.32"
Flow Length=1,349' Tc=15.8 min CN=74 Runoff=4.28 cfs 0.470 af

Link AP-1: AP-1

Inflow=26.91 cfs 3.148 af
Primary=26.91 cfs 3.148 af

Link AP-2: AP-2

Inflow=31.60 cfs 4.045 af
Primary=31.60 cfs 4.045 af

Total Runoff Area = 84.930 ac Runoff Volume = 7.192 af Average Runoff Depth = 1.02"
99.72% Pervious = 84.692 ac 0.28% Impervious = 0.238 ac

Riggs St_Exist.

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NRCC 24-hr D 2-yr Rainfall=3.62"

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Page 8

Summary for Subcatchment EDA-1: EDA-1

Runoff = 1.26 cfs @ 12.25 hrs, Volume= 0.174 af, Depth= 0.58"
Routed to Link AP-1 : AP-1

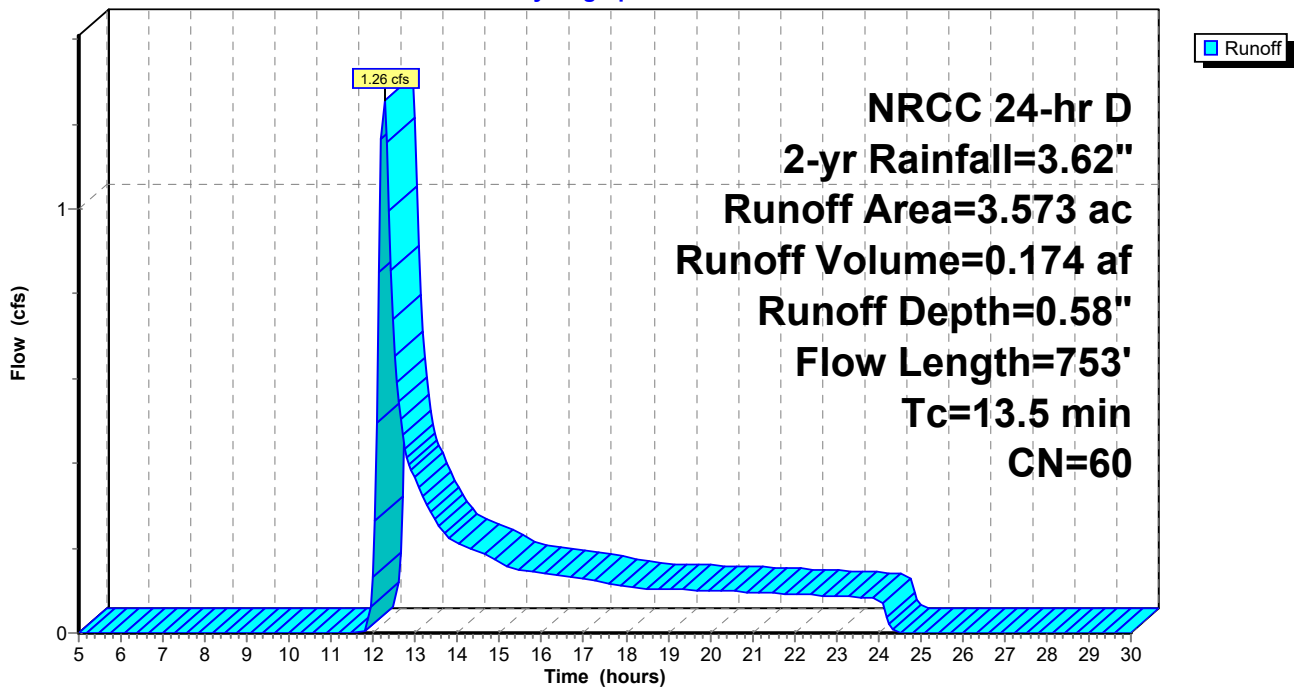
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-yr Rainfall=3.62"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| 3.573 | 60 | Woods, Fair, HSG B |
| 3.573 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 8.0 | 100 | 0.2000 | 0.21 | | Sheet Flow, A-B |
| | | | | | Woods: Light underbrush n= 0.400 P2= 3.62" |
| 5.5 | 653 | 0.1593 | 2.00 | | Shallow Concentrated Flow, B-C |
| | | | | | Woodland Kv= 5.0 fps |
| 13.5 | 753 | Total | | | |

Subcatchment EDA-1: EDA-1

Hydrograph



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NRCC 24-hr D 2-yr Rainfall=3.62"

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Page 9

Summary for Subcatchment EDA-2: EDA-2

Runoff = 25.66 cfs @ 12.26 hrs, Volume= 2.974 af, Depth= 1.08"
 Routed to Link AP-1 : AP-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 2-yr Rainfall=3.62"

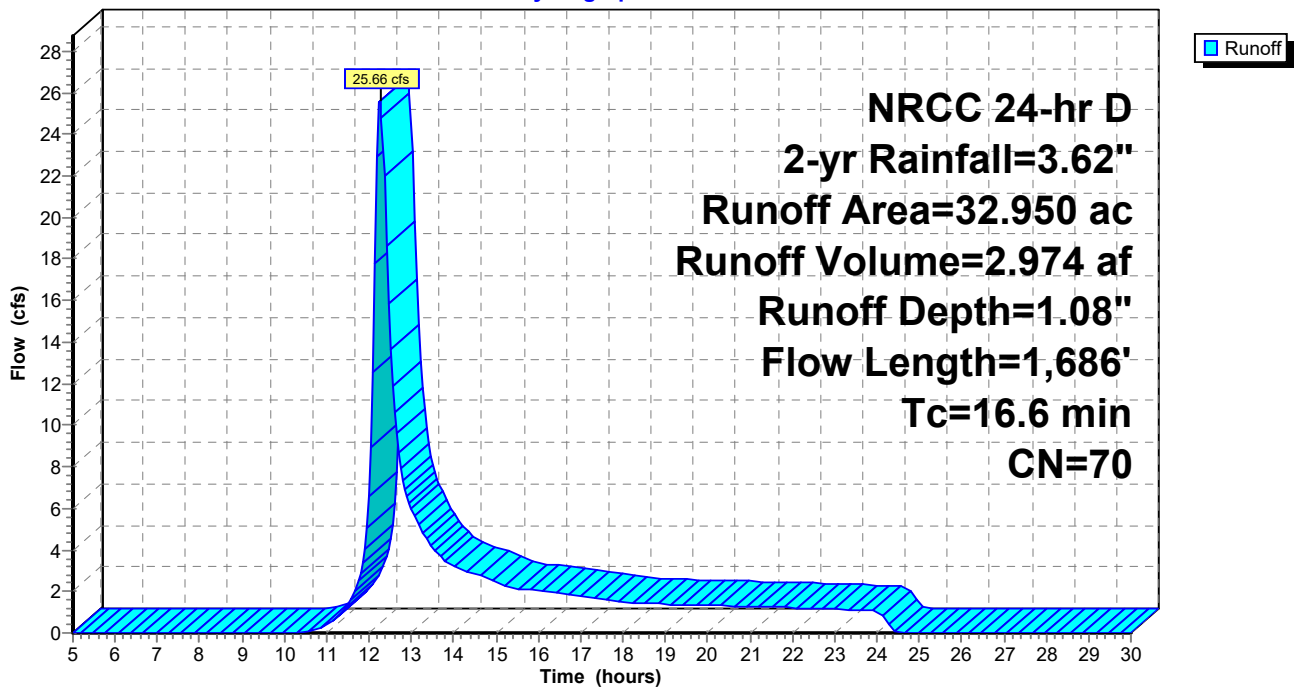
| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| 16.153 | 60 | Woods, Fair, HSG B |
| 16.797 | 79 | Woods, Fair, HSG D |
| 32.950 | 70 | Weighted Average |
| 32.950 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 10.2 | 100 | 0.1100 | 0.16 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 4.7 | 635 | 0.2000 | 2.24 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 1.7 | 951 | 0.0421 | 9.10 | 151.99 | Channel Flow, C-D Area= 16.7 sf Perim= 12.8' r= 1.30' n= 0.040 Winding stream, pools & shoals |

16.6 1,686 Total

Subcatchment EDA-2: EDA-2

Hydrograph



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NRCC 24-hr D 2-yr Rainfall=3.62"

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Page 10

Summary for Subcatchment EDA-3: EDA-3

Runoff = 27.61 cfs @ 12.31 hrs, Volume= 3.575 af, Depth= 0.97"
 Routed to Link AP-2 : AP-2

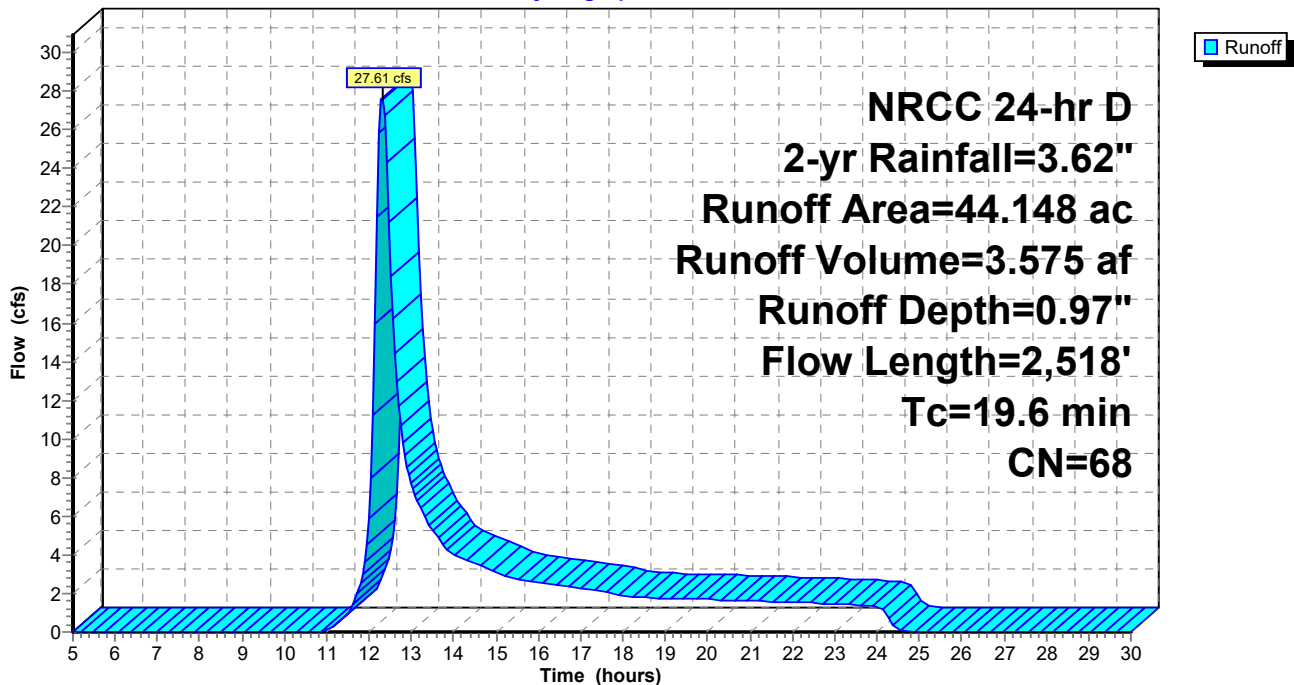
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 2-yr Rainfall=3.62"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| 0.515 | 36 | Woods, Fair, HSG A |
| 18.551 | 60 | Woods, Fair, HSG B |
| 19.257 | 73 | Woods, Fair, HSG C |
| 5.825 | 79 | Woods, Fair, HSG D |
| 44.148 | 68 | Weighted Average |
| 44.148 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 8.8 | 100 | 0.1600 | 0.19 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 8.1 | 735 | 0.0912 | 1.51 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 2.7 | 1,683 | 0.0552 | 10.50 | 346.60 | Channel Flow, C-D Area= 33.0 sf Perim= 25.0' r= 1.32' n= 0.040 Winding stream, pools & shoals |
| 19.6 | 2,518 | Total | | | |

Subcatchment EDA-3: EDA-3

Hydrograph



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NRCC 24-hr D 2-yr Rainfall=3.62"

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Page 11

Summary for Subcatchment EDA-4: EDA-4

Runoff = 4.28 cfs @ 12.25 hrs, Volume= 0.470 af, Depth= 1.32"
 Routed to Link AP-2 : AP-2

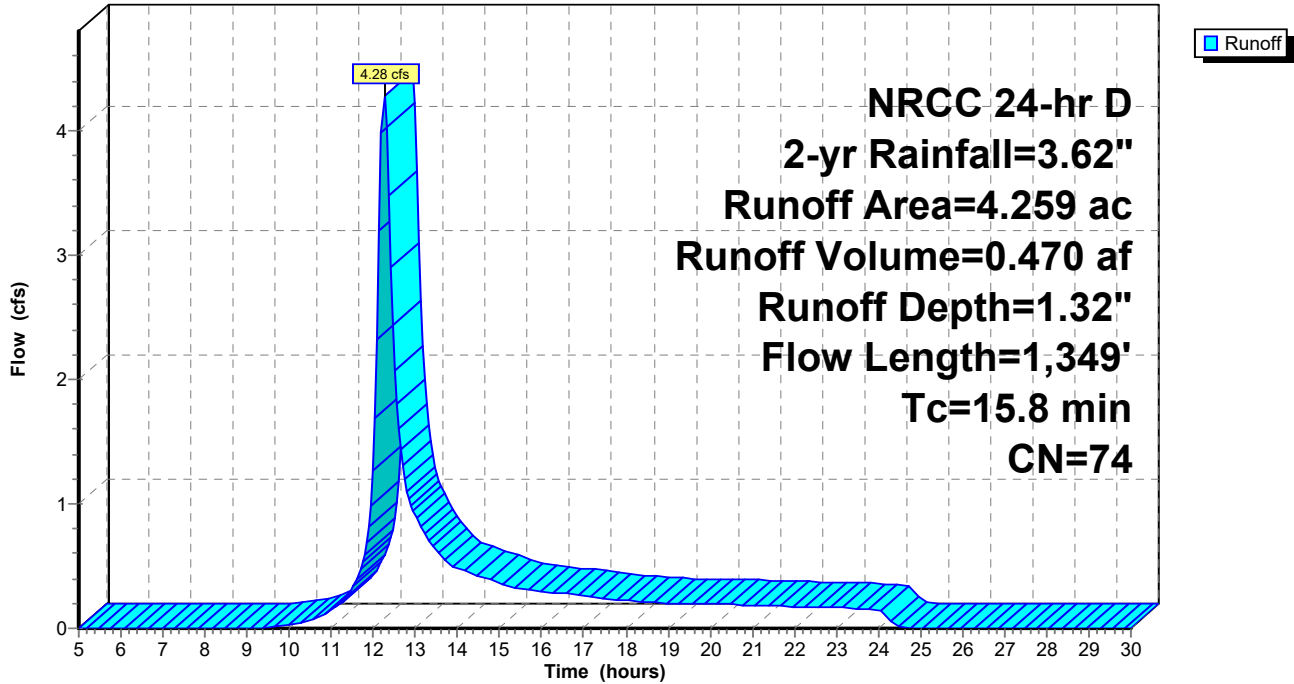
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 2-yr Rainfall=3.62"

| Area (ac) | CN | Description |
|-----------|----|-------------------------------------|
| 4.010 | 73 | Woods, Fair, HSG C |
| 0.011 | 79 | Woods, Fair, HSG D |
| 0.220 | 98 | Paved roads w/curbs & sewers, HSG C |
| 0.018 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4.259 | 74 | Weighted Average |
| 4.021 | | 94.41% Pervious Area |
| 0.238 | | 5.59% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 12.2 | 100 | 0.0700 | 0.14 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 2.3 | 301 | 0.1827 | 2.14 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 0.2 | 63 | 0.0635 | 5.12 | | Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps |
| 1.1 | 885 | 0.0575 | 13.67 | 16.78 | Pipe Channel, D-E 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Corrugated PP, smooth interior |
| 15.8 | 1,349 | Total | | | |

Subcatchment EDA-4: EDA-4

Hydrograph



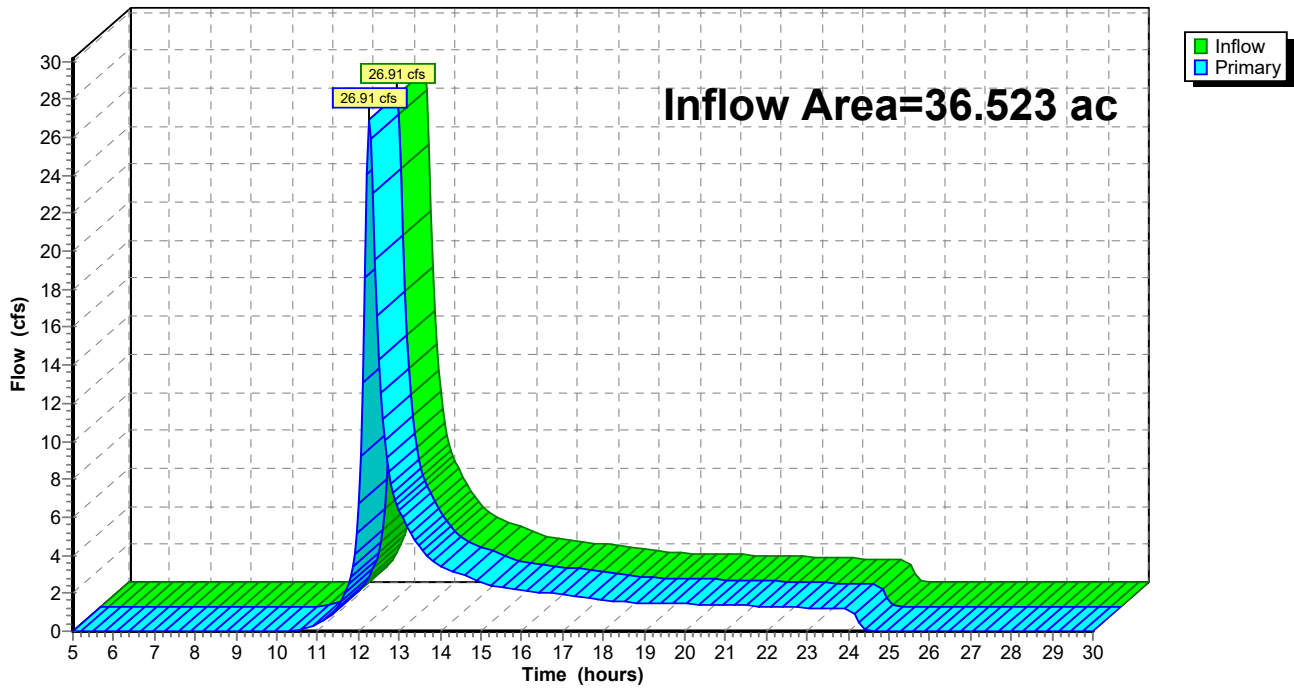
Summary for Link AP-1: AP-1

Inflow Area = 36.523 ac, 0.00% Impervious, Inflow Depth = 1.03" for 2-yr event
Inflow = 26.91 cfs @ 12.26 hrs, Volume= 3.148 af
Primary = 26.91 cfs @ 12.26 hrs, Volume= 3.148 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Link AP-1: AP-1

Hydrograph



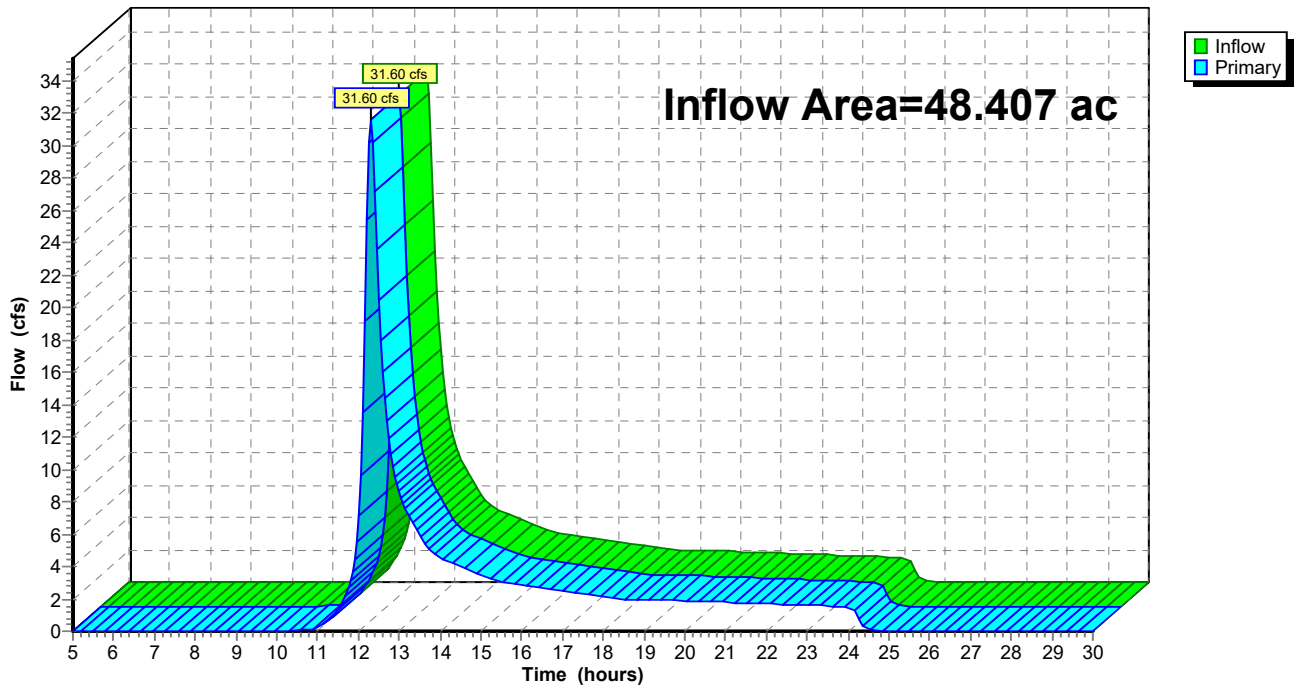
Summary for Link AP-2: AP-2

Inflow Area = 48.407 ac, 0.49% Impervious, Inflow Depth = 1.00" for 2-yr event
Inflow = 31.60 cfs @ 12.30 hrs, Volume= 4.045 af
Primary = 31.60 cfs @ 12.30 hrs, Volume= 4.045 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Link AP-2: AP-2

Hydrograph



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Page 15

Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEDA-1: EDA-1

Runoff Area=3.573 ac 0.00% Impervious Runoff Depth=2.53"
Flow Length=753' Tc=13.5 min CN=60 Runoff=7.38 cfs 0.754 af

SubcatchmentEDA-2: EDA-2

Runoff Area=32.950 ac 0.00% Impervious Runoff Depth=3.54"
Flow Length=1,686' Tc=16.6 min CN=70 Runoff=89.51 cfs 9.708 af

SubcatchmentEDA-3: EDA-3

Runoff Area=44.148 ac 0.00% Impervious Runoff Depth=3.33"
Flow Length=2,518' Tc=19.6 min CN=68 Runoff=103.95 cfs 12.249 af

SubcatchmentEDA-4: EDA-4

Runoff Area=4.259 ac 5.59% Impervious Runoff Depth=3.96"
Flow Length=1,349' Tc=15.8 min CN=74 Runoff=13.16 cfs 1.404 af

Link AP-1: AP-1

Inflow=96.65 cfs 10.462 af
Primary=96.65 cfs 10.462 af

Link AP-2: AP-2

Inflow=116.36 cfs 13.653 af
Primary=116.36 cfs 13.653 af

Total Runoff Area = 84.930 ac Runoff Volume = 24.115 af Average Runoff Depth = 3.41"
99.72% Pervious = 84.692 ac 0.28% Impervious = 0.238 ac

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NRCC 24-hr D 25-yr Rainfall=6.90"

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Page 16

Summary for Subcatchment EDA-1: EDA-1

Runoff = 7.38 cfs @ 12.22 hrs, Volume= 0.754 af, Depth= 2.53"
Routed to Link AP-1 : AP-1

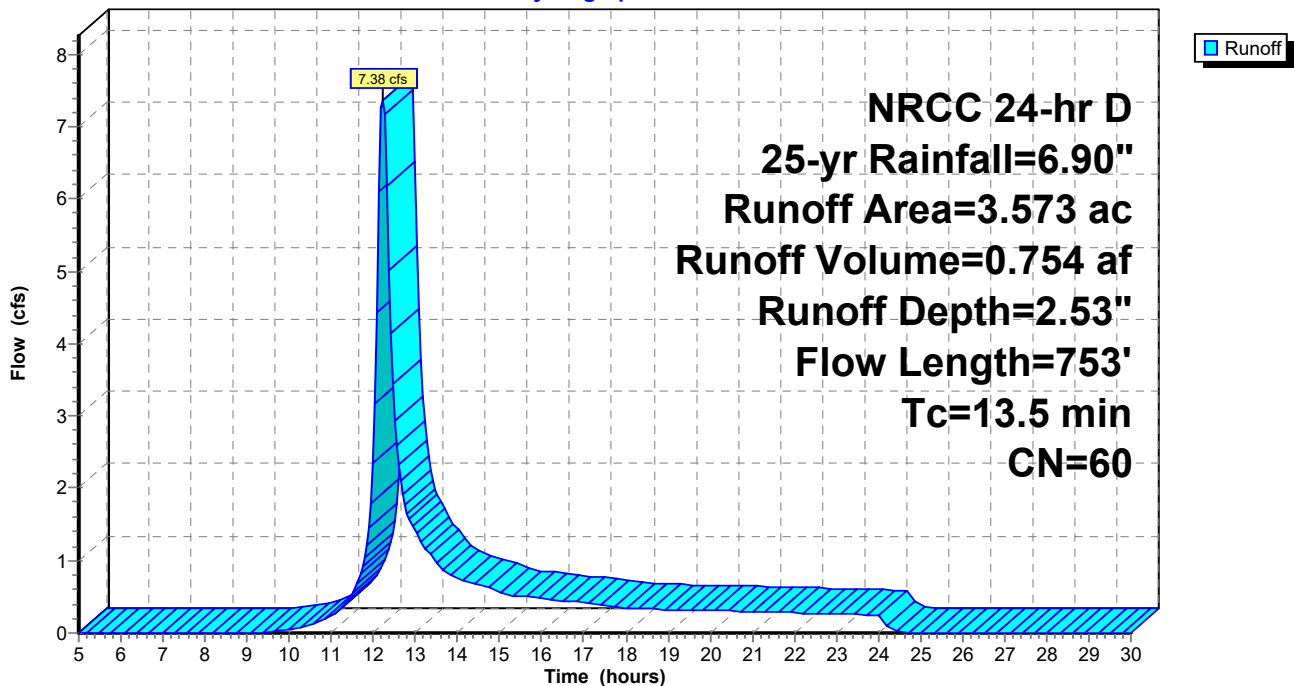
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-yr Rainfall=6.90"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| 3.573 | 60 | Woods, Fair, HSG B |
| 3.573 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 8.0 | 100 | 0.2000 | 0.21 | | Sheet Flow, A-B |
| | | | | | Woods: Light underbrush n= 0.400 P2= 3.62" |
| 5.5 | 653 | 0.1593 | 2.00 | | Shallow Concentrated Flow, B-C |
| | | | | | Woodland Kv= 5.0 fps |
| 13.5 | 753 | Total | | | |

Subcatchment EDA-1: EDA-1

Hydrograph



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NRCC 24-hr D 25-yr Rainfall=6.90"

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Page 17

Summary for Subcatchment EDA-2: EDA-2

Runoff = 89.51 cfs @ 12.25 hrs, Volume= 9.708 af, Depth= 3.54"
Routed to Link AP-1 : AP-1

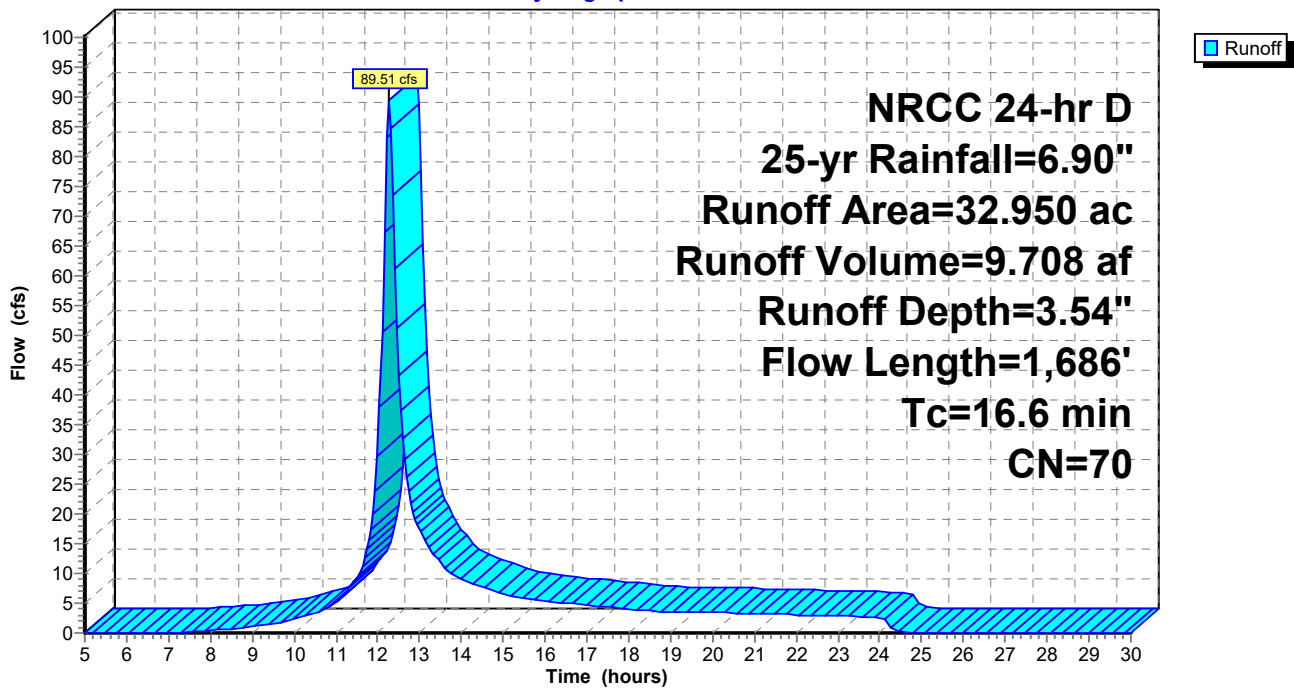
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-yr Rainfall=6.90"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| 16.153 | 60 | Woods, Fair, HSG B |
| 16.797 | 79 | Woods, Fair, HSG D |
| 32.950 | 70 | Weighted Average |
| 32.950 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 10.2 | 100 | 0.1100 | 0.16 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 4.7 | 635 | 0.2000 | 2.24 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 1.7 | 951 | 0.0421 | 9.10 | 151.99 | Channel Flow, C-D Area= 16.7 sf Perim= 12.8' r= 1.30' n= 0.040 Winding stream, pools & shoals |
| 16.6 | 1,686 | Total | | | |

Subcatchment EDA-2: EDA-2

Hydrograph



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NRCC 24-hr D 25-yr Rainfall=6.90"

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Page 18

Summary for Subcatchment EDA-3: EDA-3

Runoff = 103.95 cfs @ 12.29 hrs, Volume= 12.249 af, Depth= 3.33"
 Routed to Link AP-2 : AP-2

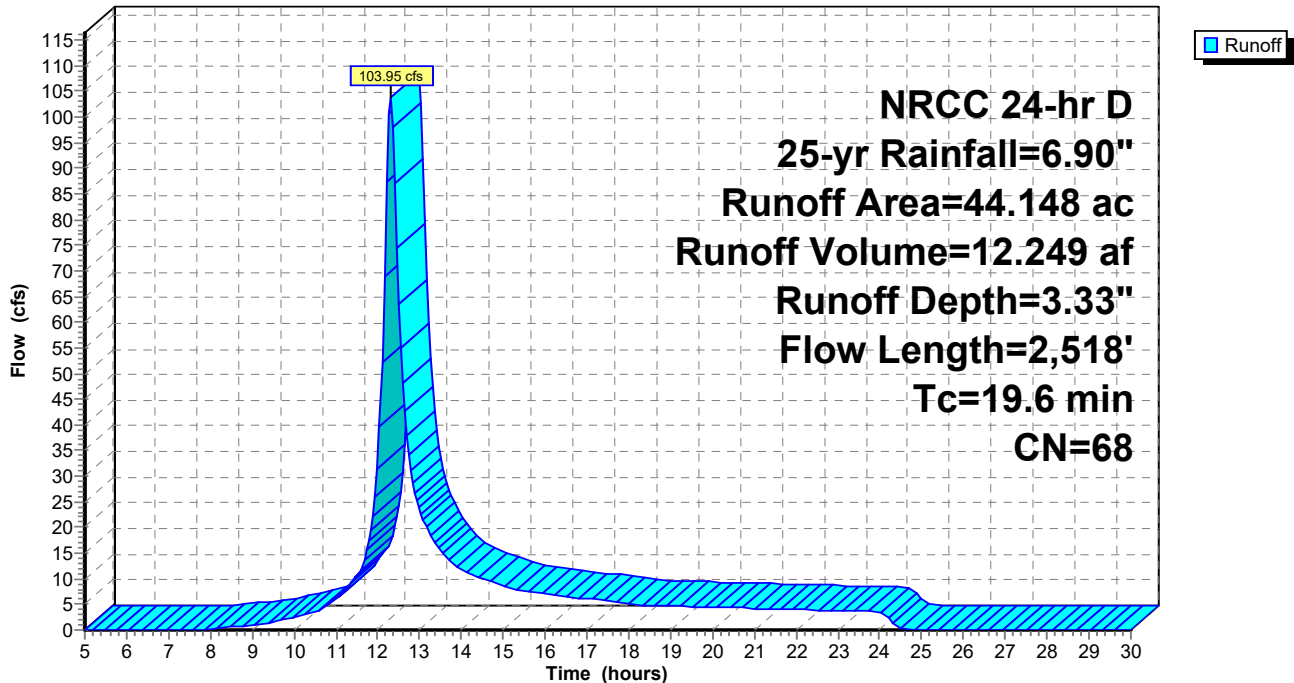
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 25-yr Rainfall=6.90"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| 0.515 | 36 | Woods, Fair, HSG A |
| 18.551 | 60 | Woods, Fair, HSG B |
| 19.257 | 73 | Woods, Fair, HSG C |
| 5.825 | 79 | Woods, Fair, HSG D |
| 44.148 | 68 | Weighted Average |
| 44.148 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 8.8 | 100 | 0.1600 | 0.19 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 8.1 | 735 | 0.0912 | 1.51 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 2.7 | 1,683 | 0.0552 | 10.50 | 346.60 | Channel Flow, C-D Area= 33.0 sf Perim= 25.0' r= 1.32' n= 0.040 Winding stream, pools & shoals |
| 19.6 | 2,518 | Total | | | |

Subcatchment EDA-3: EDA-3

Hydrograph



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NRCC 24-hr D 25-yr Rainfall=6.90"

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Page 19

Summary for Subcatchment EDA-4: EDA-4

Runoff = 13.16 cfs @ 12.24 hrs, Volume= 1.404 af, Depth= 3.96"
Routed to Link AP-2 : AP-2

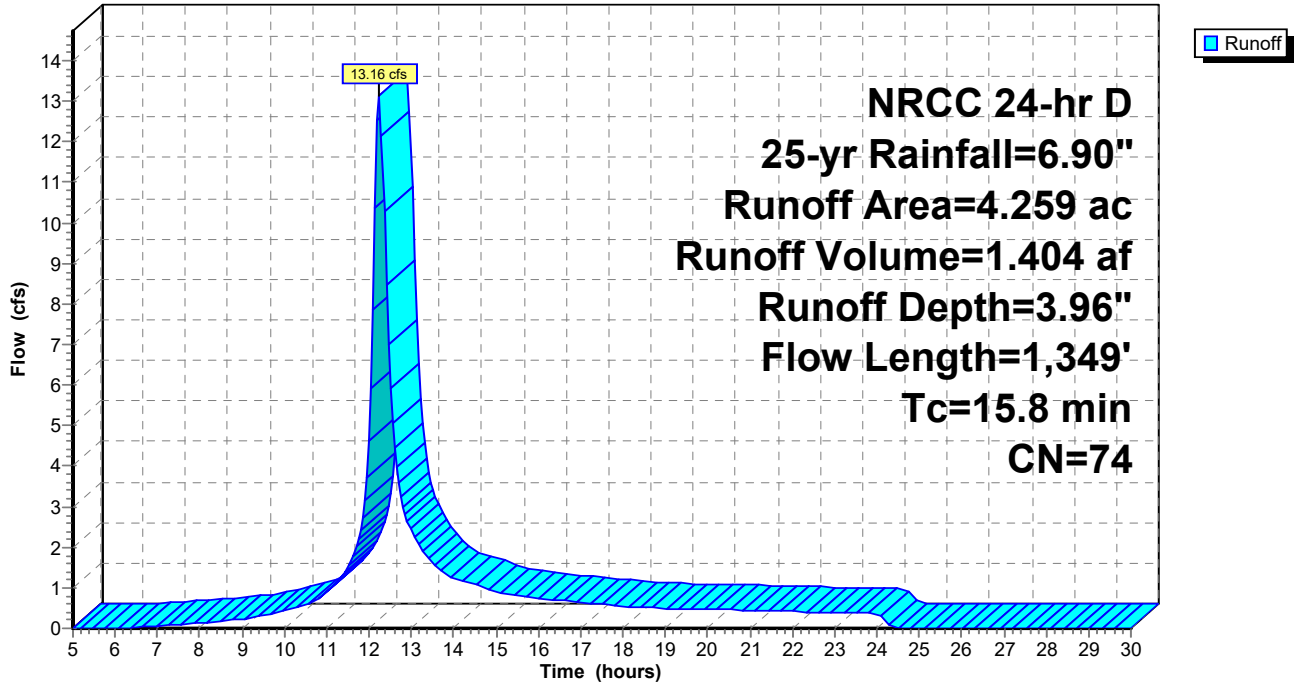
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-yr Rainfall=6.90"

| Area (ac) | CN | Description |
|-----------|----|-------------------------------------|
| 4.010 | 73 | Woods, Fair, HSG C |
| 0.011 | 79 | Woods, Fair, HSG D |
| 0.220 | 98 | Paved roads w/curbs & sewers, HSG C |
| 0.018 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4.259 | 74 | Weighted Average |
| 4.021 | | 94.41% Pervious Area |
| 0.238 | | 5.59% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 12.2 | 100 | 0.0700 | 0.14 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 2.3 | 301 | 0.1827 | 2.14 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 0.2 | 63 | 0.0635 | 5.12 | | Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps |
| 1.1 | 885 | 0.0575 | 13.67 | 16.78 | Pipe Channel, D-E 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Corrugated PP, smooth interior |
| 15.8 | 1,349 | Total | | | |

Subcatchment EDA-4: EDA-4

Hydrograph



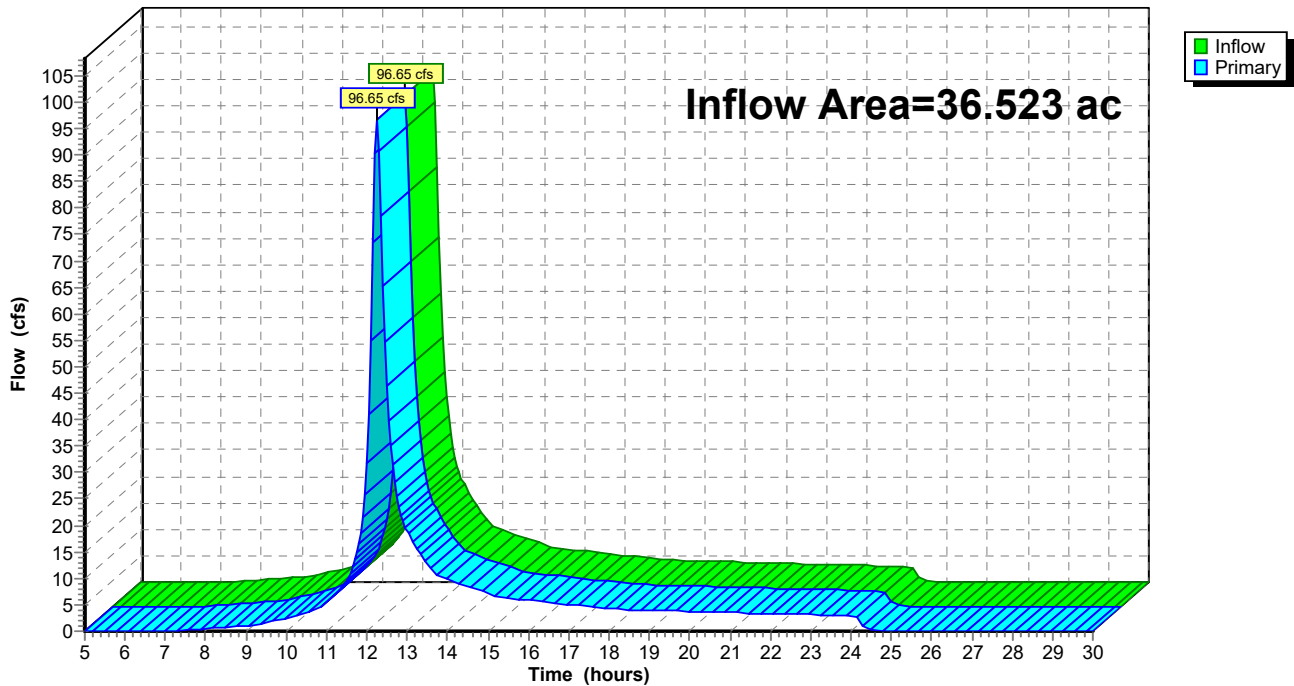
Summary for Link AP-1: AP-1

Inflow Area = 36.523 ac, 0.00% Impervious, Inflow Depth = 3.44" for 25-yr event
Inflow = 96.65 cfs @ 12.25 hrs, Volume= 10.462 af
Primary = 96.65 cfs @ 12.25 hrs, Volume= 10.462 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Link AP-1: AP-1

Hydrograph



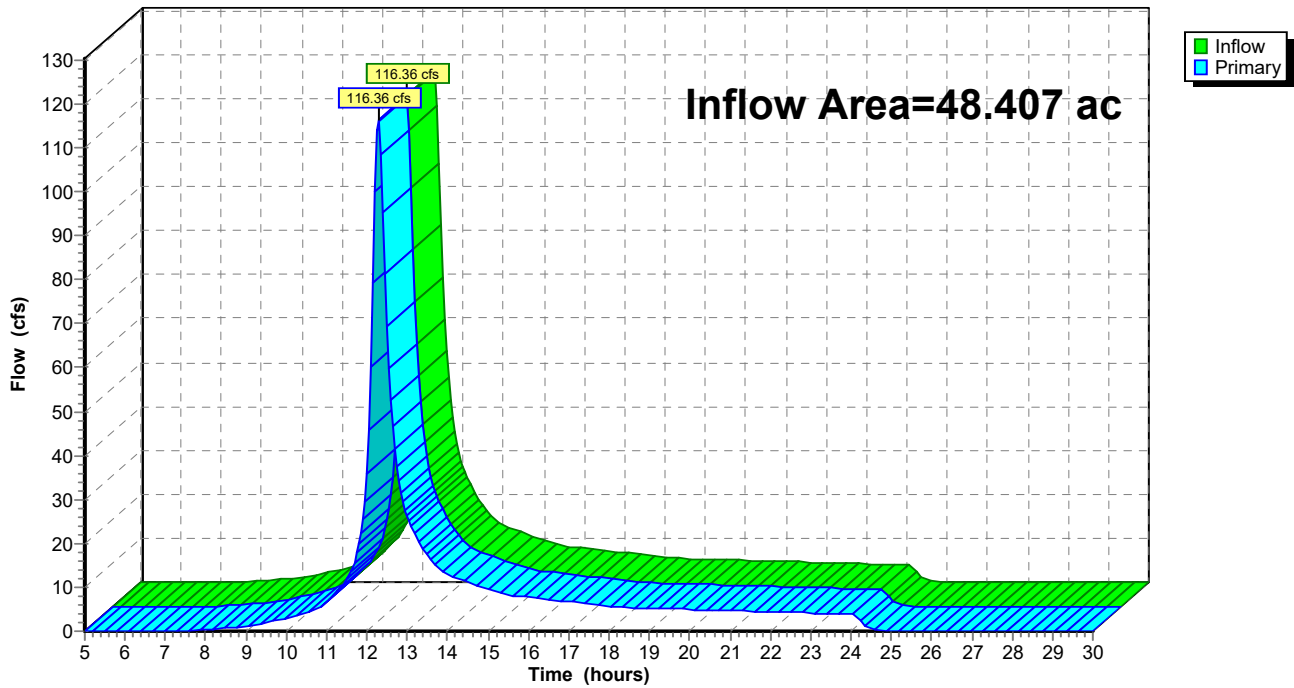
Summary for Link AP-2: AP-2

Inflow Area = 48.407 ac, 0.49% Impervious, Inflow Depth = 3.38" for 25-yr event
Inflow = 116.36 cfs @ 12.29 hrs, Volume= 13.653 af
Primary = 116.36 cfs @ 12.29 hrs, Volume= 13.653 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Link AP-2: AP-2

Hydrograph



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NRCC 24-hr D 50-yr Rainfall=7.83"

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Page 23

Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEDA-1: EDA-1

Runoff Area=3.573 ac 0.00% Impervious Runoff Depth=3.21"
Flow Length=753' Tc=13.5 min CN=60 Runoff=9.46 cfs 0.955 af

SubcatchmentEDA-2: EDA-2

Runoff Area=32.950 ac 0.00% Impervious Runoff Depth=4.32"
Flow Length=1,686' Tc=16.6 min CN=70 Runoff=109.39 cfs 11.858 af

SubcatchmentEDA-3: EDA-3

Runoff Area=44.148 ac 0.00% Impervious Runoff Depth=4.09"
Flow Length=2,518' Tc=19.6 min CN=68 Runoff=128.15 cfs 15.058 af

SubcatchmentEDA-4: EDA-4

Runoff Area=4.259 ac 5.59% Impervious Runoff Depth=4.77"
Flow Length=1,349' Tc=15.8 min CN=74 Runoff=15.84 cfs 1.694 af

Link AP-1: AP-1

Inflow=118.54 cfs 12.813 af
Primary=118.54 cfs 12.813 af

Link AP-2: AP-2

Inflow=143.11 cfs 16.752 af
Primary=143.11 cfs 16.752 af

Total Runoff Area = 84.930 ac Runoff Volume = 29.565 af Average Runoff Depth = 4.18"
99.72% Pervious = 84.692 ac 0.28% Impervious = 0.238 ac

Riggs St_Exist.

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NRCC 24-hr D 50-yr Rainfall=7.83"

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Page 24

Summary for Subcatchment EDA-1: EDA-1

Runoff = 9.46 cfs @ 12.22 hrs, Volume= 0.955 af, Depth= 3.21"
 Routed to Link AP-1 : AP-1

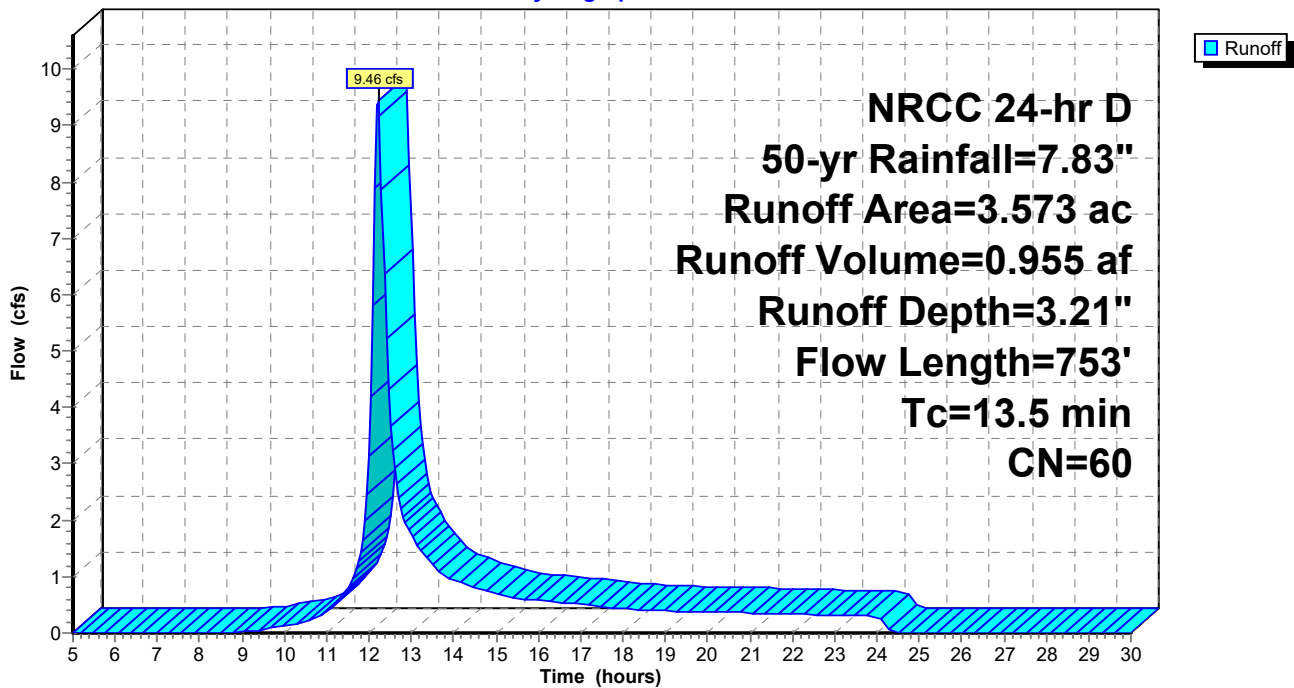
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 50-yr Rainfall=7.83"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| 3.573 | 60 | Woods, Fair, HSG B |
| 3.573 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 8.0 | 100 | 0.2000 | 0.21 | | Sheet Flow, A-B |
| | | | | | Woods: Light underbrush n= 0.400 P2= 3.62" |
| 5.5 | 653 | 0.1593 | 2.00 | | Shallow Concentrated Flow, B-C |
| | | | | | Woodland Kv= 5.0 fps |
| 13.5 | 753 | Total | | | |

Subcatchment EDA-1: EDA-1

Hydrograph



Riggs St_Exist.

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NRCC 24-hr D 50-yr Rainfall=7.83"

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Page 25

Summary for Subcatchment EDA-2: EDA-2

Runoff = 109.39 cfs @ 12.25 hrs, Volume= 11.858 af, Depth= 4.32"
 Routed to Link AP-1 : AP-1

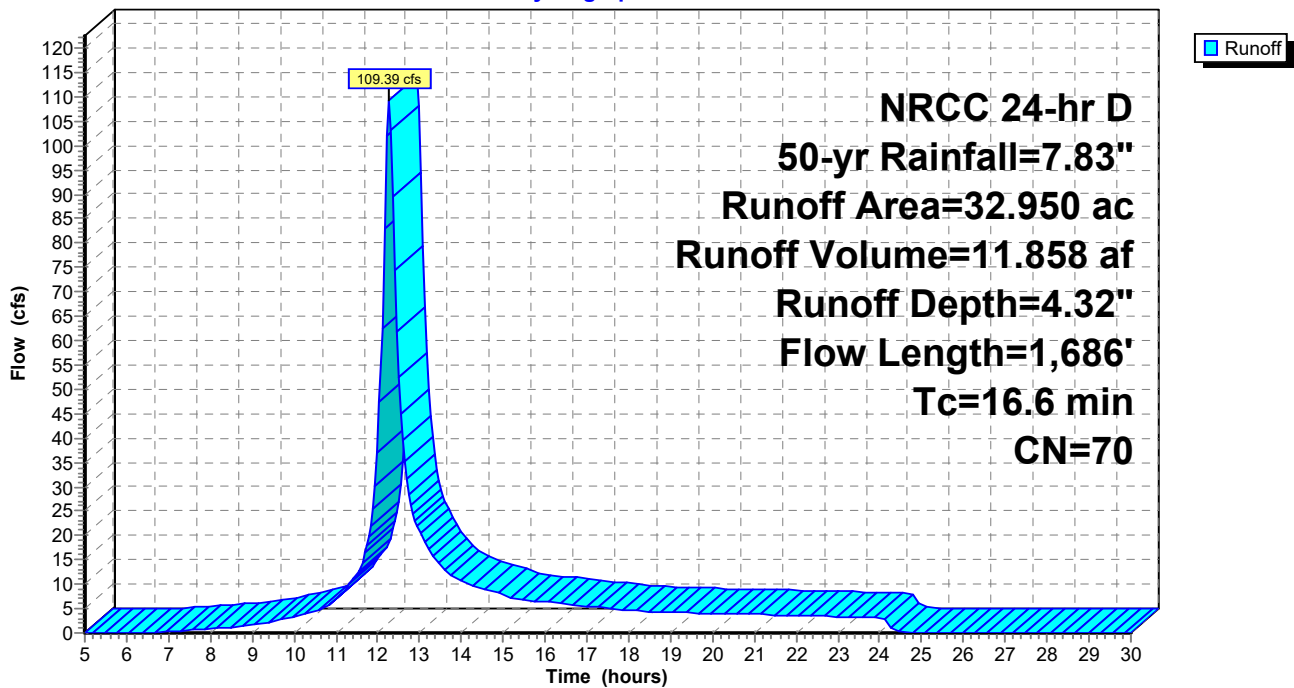
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 50-yr Rainfall=7.83"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| 16.153 | 60 | Woods, Fair, HSG B |
| 16.797 | 79 | Woods, Fair, HSG D |
| 32.950 | 70 | Weighted Average |
| 32.950 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 10.2 | 100 | 0.1100 | 0.16 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 4.7 | 635 | 0.2000 | 2.24 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 1.7 | 951 | 0.0421 | 9.10 | 151.99 | Channel Flow, C-D Area= 16.7 sf Perim= 12.8' r= 1.30' n= 0.040 Winding stream, pools & shoals |
| 16.6 | 1,686 | Total | | | |

Subcatchment EDA-2: EDA-2

Hydrograph



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NRCC 24-hr D 50-yr Rainfall=7.83"

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Page 26

Summary for Subcatchment EDA-3: EDA-3

Runoff = 128.15 cfs @ 12.29 hrs, Volume= 15.058 af, Depth= 4.09"
 Routed to Link AP-2 : AP-2

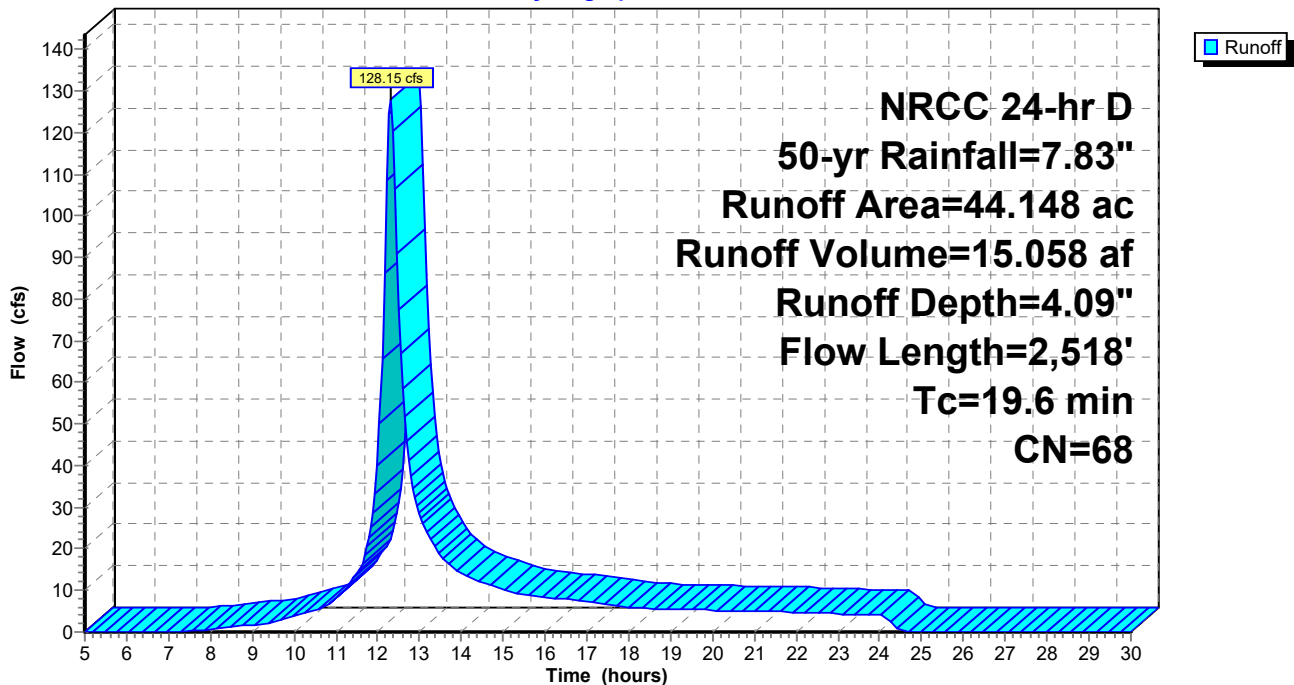
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 50-yr Rainfall=7.83"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| 0.515 | 36 | Woods, Fair, HSG A |
| 18.551 | 60 | Woods, Fair, HSG B |
| 19.257 | 73 | Woods, Fair, HSG C |
| 5.825 | 79 | Woods, Fair, HSG D |
| 44.148 | 68 | Weighted Average |
| 44.148 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 8.8 | 100 | 0.1600 | 0.19 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 8.1 | 735 | 0.0912 | 1.51 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 2.7 | 1,683 | 0.0552 | 10.50 | 346.60 | Channel Flow, C-D Area= 33.0 sf Perim= 25.0' r= 1.32' n= 0.040 Winding stream, pools & shoals |
| 19.6 | 2,518 | Total | | | |

Subcatchment EDA-3: EDA-3

Hydrograph



Riggs St_Exist.

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NRCC 24-hr D 50-yr Rainfall=7.83"

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Page 27

Summary for Subcatchment EDA-4: EDA-4

Runoff = 15.84 cfs @ 12.24 hrs, Volume= 1.694 af, Depth= 4.77"
 Routed to Link AP-2 : AP-2

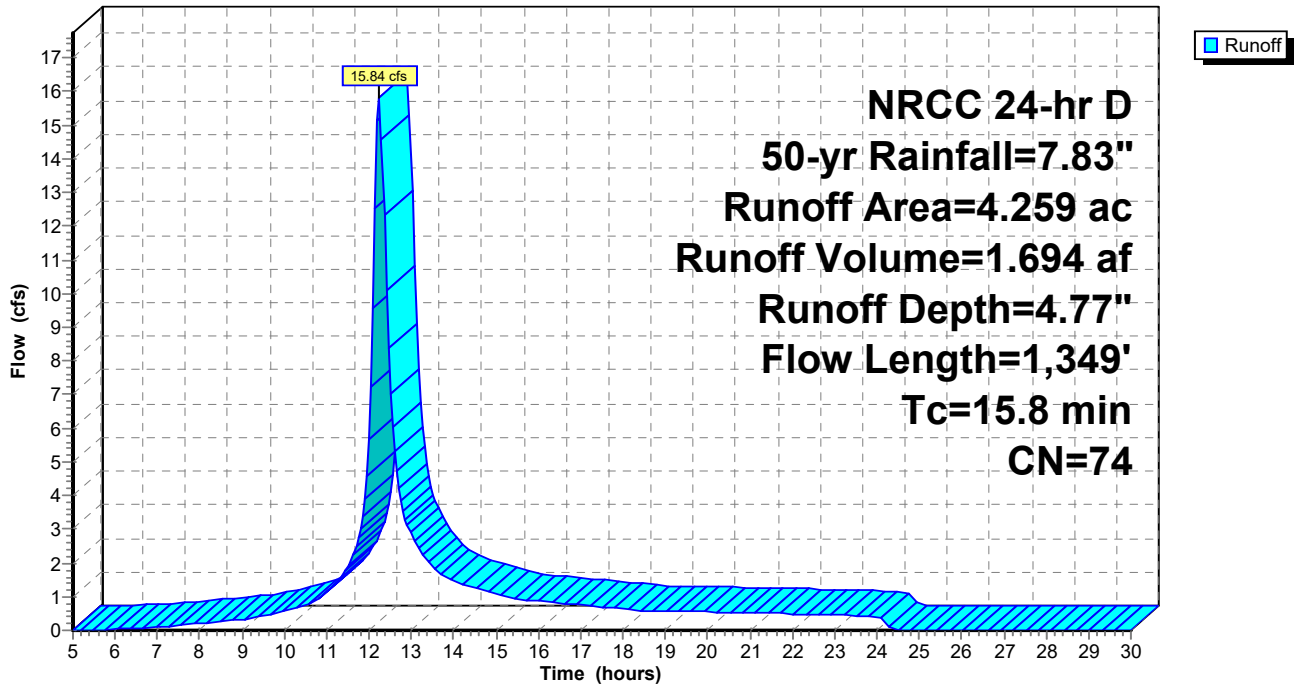
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 50-yr Rainfall=7.83"

| Area (ac) | CN | Description |
|-----------|----|-------------------------------------|
| 4.010 | 73 | Woods, Fair, HSG C |
| 0.011 | 79 | Woods, Fair, HSG D |
| 0.220 | 98 | Paved roads w/curbs & sewers, HSG C |
| 0.018 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4.259 | 74 | Weighted Average |
| 4.021 | | 94.41% Pervious Area |
| 0.238 | | 5.59% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 12.2 | 100 | 0.0700 | 0.14 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 2.3 | 301 | 0.1827 | 2.14 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 0.2 | 63 | 0.0635 | 5.12 | | Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps |
| 1.1 | 885 | 0.0575 | 13.67 | 16.78 | Pipe Channel, D-E 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Corrugated PP, smooth interior |
| 15.8 | 1,349 | Total | | | |

Subcatchment EDA-4: EDA-4

Hydrograph



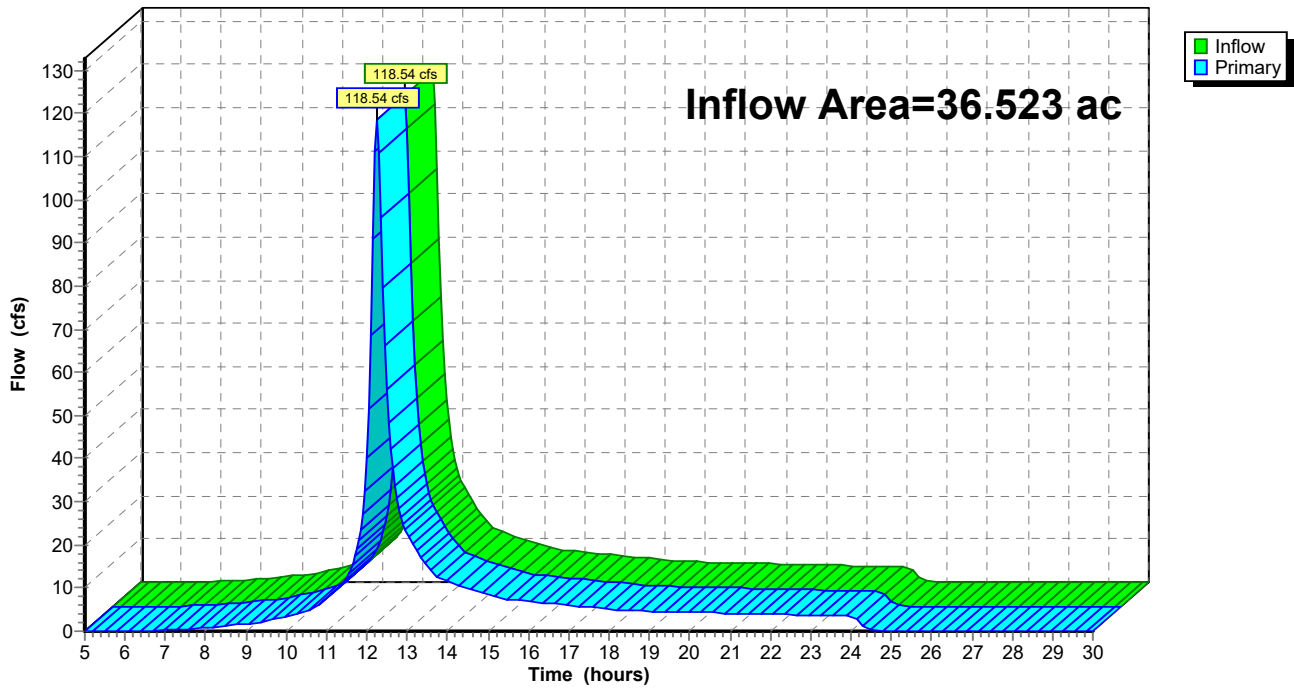
Summary for Link AP-1: AP-1

Inflow Area = 36.523 ac, 0.00% Impervious, Inflow Depth = 4.21" for 50-yr event
Inflow = 118.54 cfs @ 12.25 hrs, Volume= 12.813 af
Primary = 118.54 cfs @ 12.25 hrs, Volume= 12.813 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Link AP-1: AP-1

Hydrograph



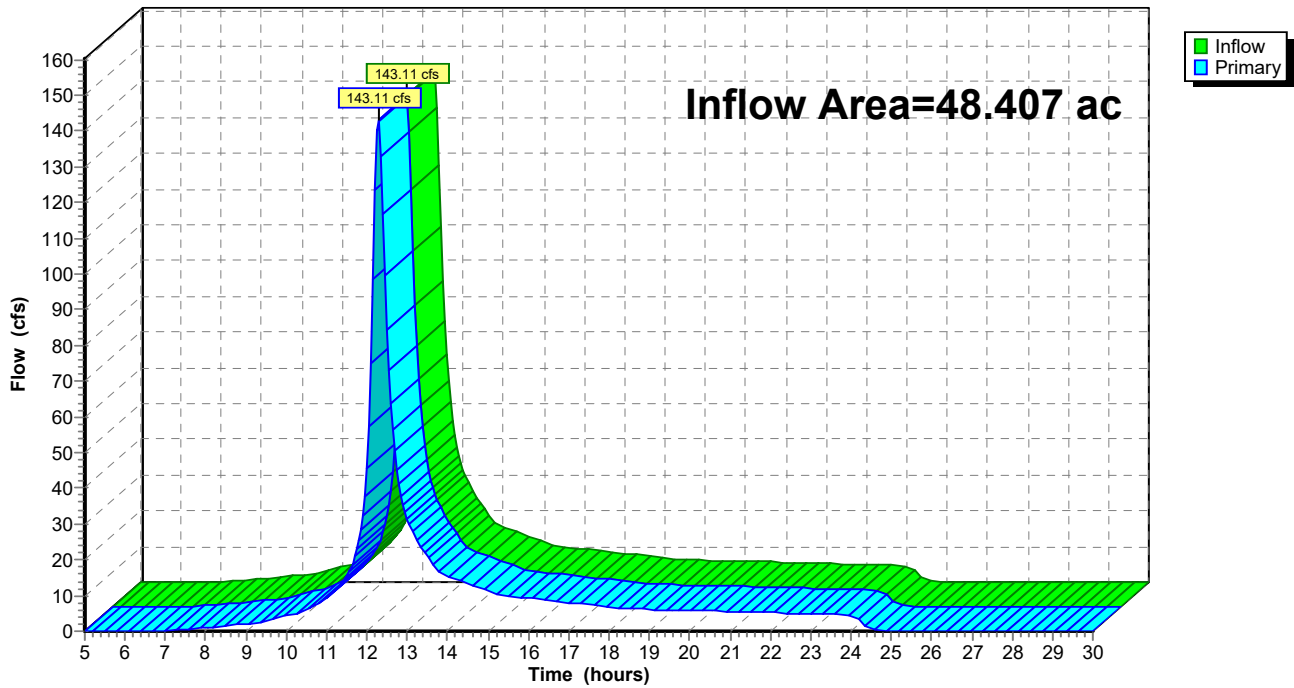
Summary for Link AP-2: AP-2

Inflow Area = 48.407 ac, 0.49% Impervious, Inflow Depth = 4.15" for 50-yr event
Inflow = 143.11 cfs @ 12.28 hrs, Volume= 16.752 af
Primary = 143.11 cfs @ 12.28 hrs, Volume= 16.752 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Link AP-2: AP-2

Hydrograph



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NRCC 24-hr D 100-yr Rainfall=8.85"

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Page 31

Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentEDA-1: EDA-1

Runoff Area=3.573 ac 0.00% Impervious Runoff Depth=3.98"
Flow Length=753' Tc=13.5 min CN=60 Runoff=11.85 cfs 1.186 af

SubcatchmentEDA-2: EDA-2

Runoff Area=32.950 ac 0.00% Impervious Runoff Depth=5.20"
Flow Length=1,686' Tc=16.6 min CN=70 Runoff=131.60 cfs 14.287 af

SubcatchmentEDA-3: EDA-3

Runoff Area=44.148 ac 0.00% Impervious Runoff Depth=4.96"
Flow Length=2,518' Tc=19.6 min CN=68 Runoff=155.30 cfs 18.242 af

SubcatchmentEDA-4: EDA-4

Runoff Area=4.259 ac 5.59% Impervious Runoff Depth>5.69"
Flow Length=1,349' Tc=15.8 min CN=74 Runoff=18.80 cfs 2.020 af

Link AP-1: AP-1

Inflow=143.04 cfs 15.473 af
Primary=143.04 cfs 15.473 af

Link AP-2: AP-2

Inflow=173.09 cfs 20.263 af
Primary=173.09 cfs 20.263 af

Total Runoff Area = 84.930 ac Runoff Volume = 35.735 af Average Runoff Depth = 5.05"
99.72% Pervious = 84.692 ac 0.28% Impervious = 0.238 ac

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NRCC 24-hr D 100-yr Rainfall=8.85"

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Page 32

Summary for Subcatchment EDA-1: EDA-1

Runoff = 11.85 cfs @ 12.22 hrs, Volume= 1.186 af, Depth= 3.98"
 Routed to Link AP-1 : AP-1

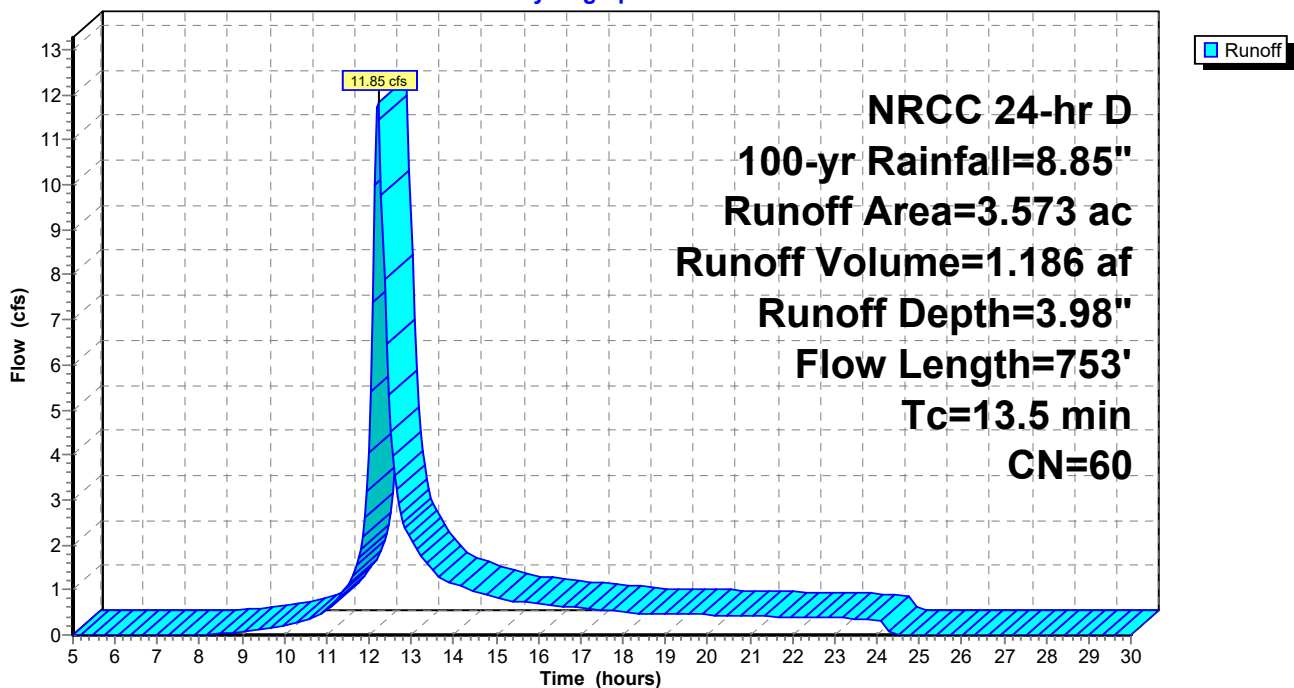
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 100-yr Rainfall=8.85"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| 3.573 | 60 | Woods, Fair, HSG B |
| 3.573 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 8.0 | 100 | 0.2000 | 0.21 | | Sheet Flow, A-B |
| | | | | | Woods: Light underbrush n= 0.400 P2= 3.62" |
| 5.5 | 653 | 0.1593 | 2.00 | | Shallow Concentrated Flow, B-C |
| | | | | | Woodland Kv= 5.0 fps |
| 13.5 | 753 | Total | | | |

Subcatchment EDA-1: EDA-1

Hydrograph



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NRCC 24-hr D 100-yr Rainfall=8.85"

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Page 33

Summary for Subcatchment EDA-2: EDA-2

Runoff = 131.60 cfs @ 12.25 hrs, Volume= 14.287 af, Depth= 5.20"
Routed to Link AP-1 : AP-1

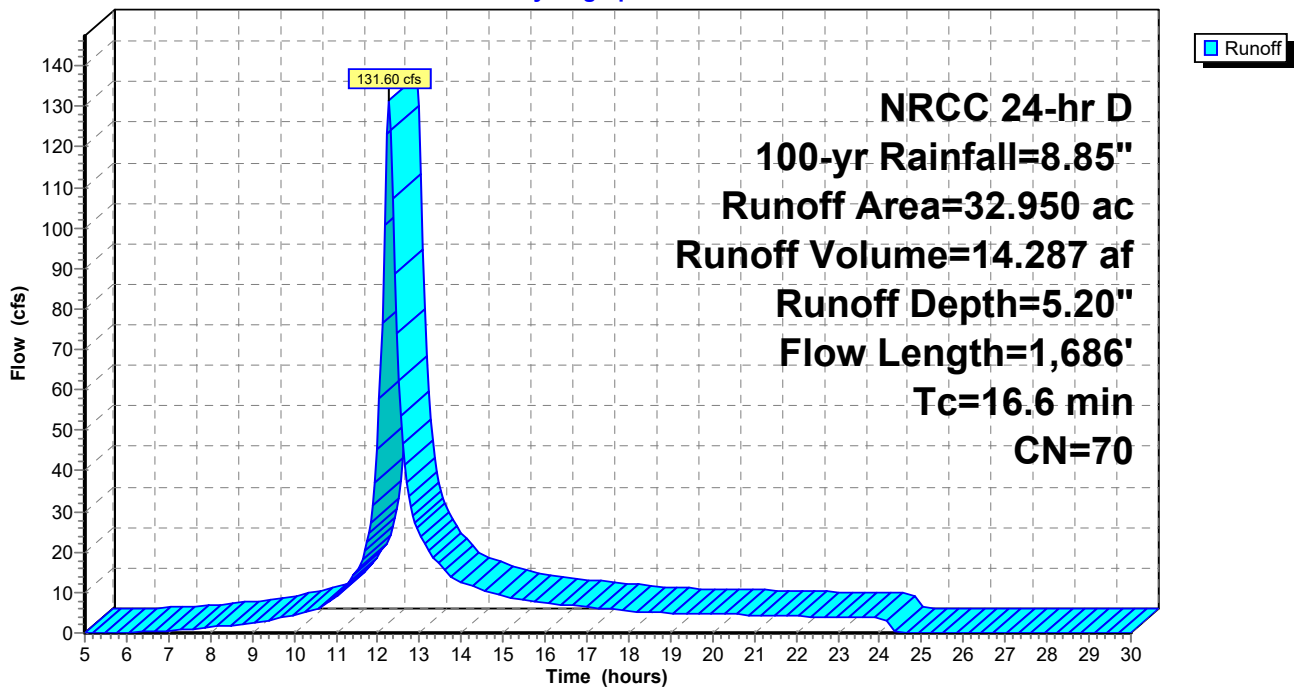
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-yr Rainfall=8.85"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| 16.153 | 60 | Woods, Fair, HSG B |
| 16.797 | 79 | Woods, Fair, HSG D |
| 32.950 | 70 | Weighted Average |
| 32.950 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 10.2 | 100 | 0.1100 | 0.16 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 4.7 | 635 | 0.2000 | 2.24 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 1.7 | 951 | 0.0421 | 9.10 | 151.99 | Channel Flow, C-D Area= 16.7 sf Perim= 12.8' r= 1.30' n= 0.040 Winding stream, pools & shoals |
| 16.6 | 1,686 | Total | | | |

Subcatchment EDA-2: EDA-2

Hydrograph



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NRCC 24-hr D 100-yr Rainfall=8.85"

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Page 34

Summary for Subcatchment EDA-3: EDA-3

Runoff = 155.30 cfs @ 12.29 hrs, Volume= 18.242 af, Depth= 4.96"
 Routed to Link AP-2 : AP-2

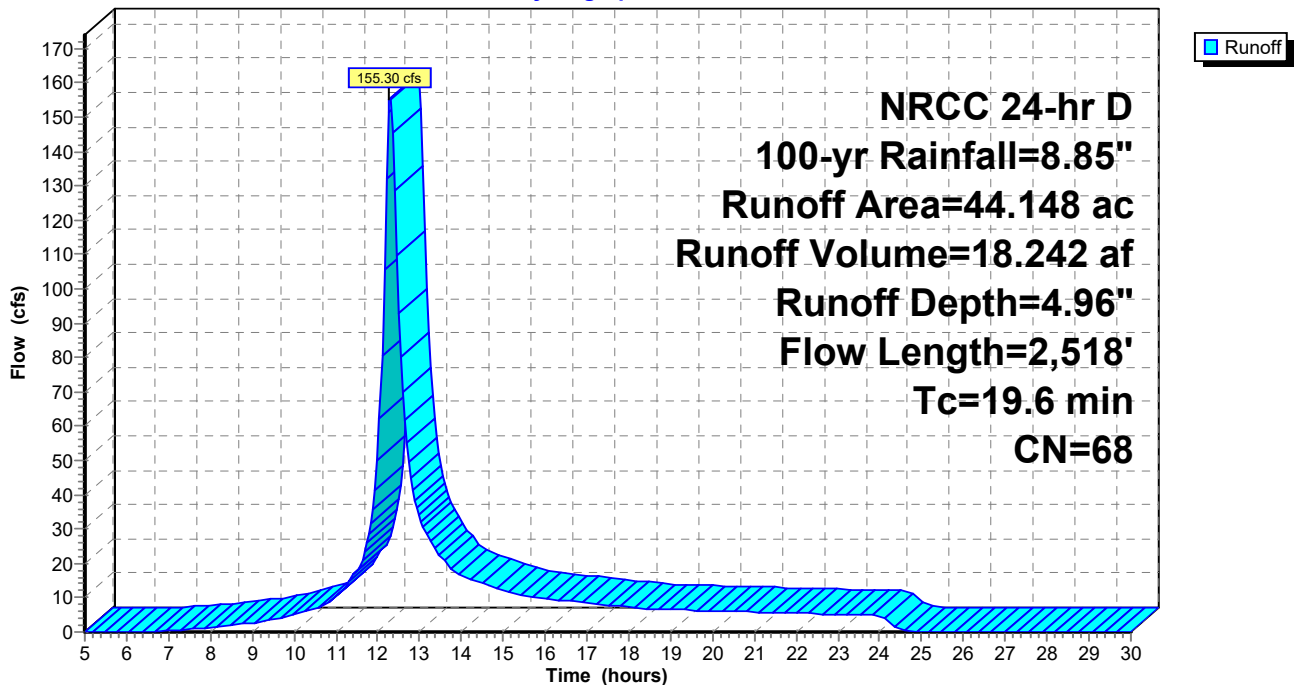
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 100-yr Rainfall=8.85"

| Area (ac) | CN | Description |
|-----------|----|-----------------------|
| 0.515 | 36 | Woods, Fair, HSG A |
| 18.551 | 60 | Woods, Fair, HSG B |
| 19.257 | 73 | Woods, Fair, HSG C |
| 5.825 | 79 | Woods, Fair, HSG D |
| 44.148 | 68 | Weighted Average |
| 44.148 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 8.8 | 100 | 0.1600 | 0.19 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 8.1 | 735 | 0.0912 | 1.51 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 2.7 | 1,683 | 0.0552 | 10.50 | 346.60 | Channel Flow, C-D Area= 33.0 sf Perim= 25.0' r= 1.32' n= 0.040 Winding stream, pools & shoals |
| 19.6 | 2,518 | Total | | | |

Subcatchment EDA-3: EDA-3

Hydrograph



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NRCC 24-hr D 100-yr Rainfall=8.85"

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Page 35

Summary for Subcatchment EDA-4: EDA-4

[47] Hint: Peak is 112% of capacity of segment #4

Runoff = 18.80 cfs @ 12.24 hrs, Volume= 2.020 af, Depth> 5.69"
 Routed to Link AP-2 : AP-2

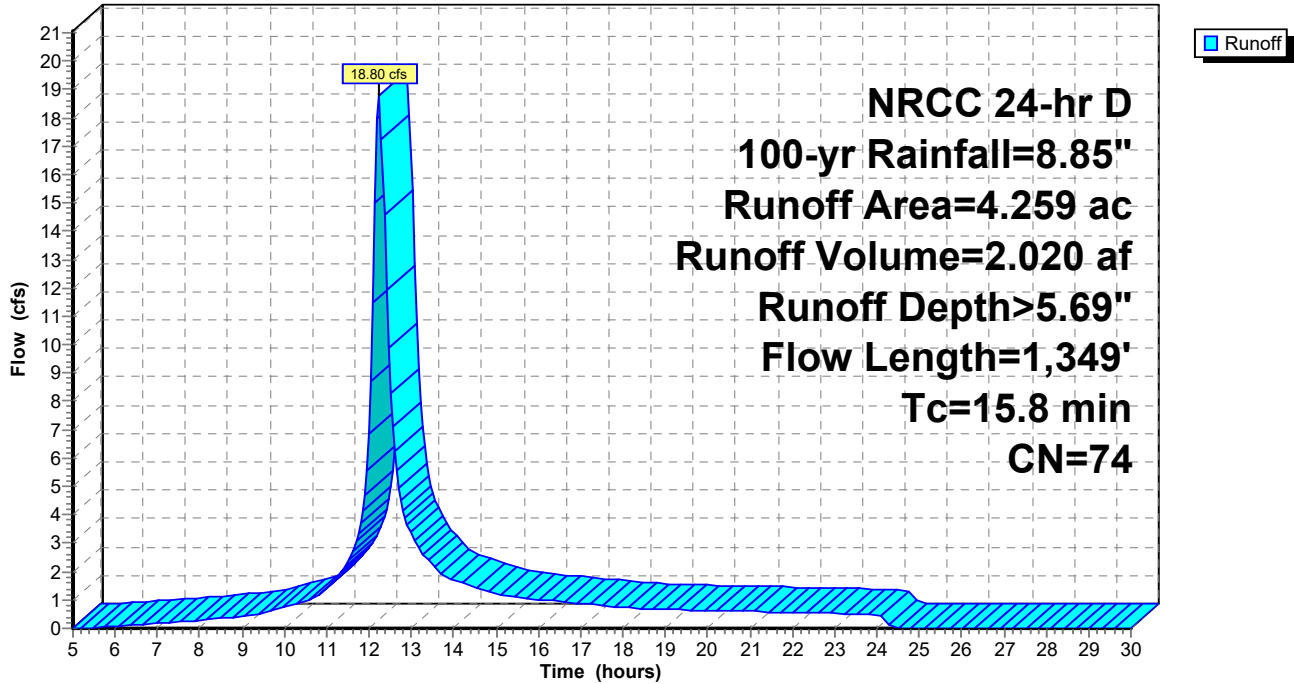
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 100-yr Rainfall=8.85"

| Area (ac) | CN | Description |
|-----------|----|-------------------------------------|
| 4.010 | 73 | Woods, Fair, HSG C |
| 0.011 | 79 | Woods, Fair, HSG D |
| 0.220 | 98 | Paved roads w/curbs & sewers, HSG C |
| 0.018 | 98 | Paved roads w/curbs & sewers, HSG D |
| 4.259 | 74 | Weighted Average |
| 4.021 | | 94.41% Pervious Area |
| 0.238 | | 5.59% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 12.2 | 100 | 0.0700 | 0.14 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 2.3 | 301 | 0.1827 | 2.14 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 0.2 | 63 | 0.0635 | 5.12 | | Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps |
| 1.1 | 885 | 0.0575 | 13.67 | 16.78 | Pipe Channel, D-E 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Corrugated PP, smooth interior |
| 15.8 | 1,349 | Total | | | |

Subcatchment EDA-4: EDA-4

Hydrograph



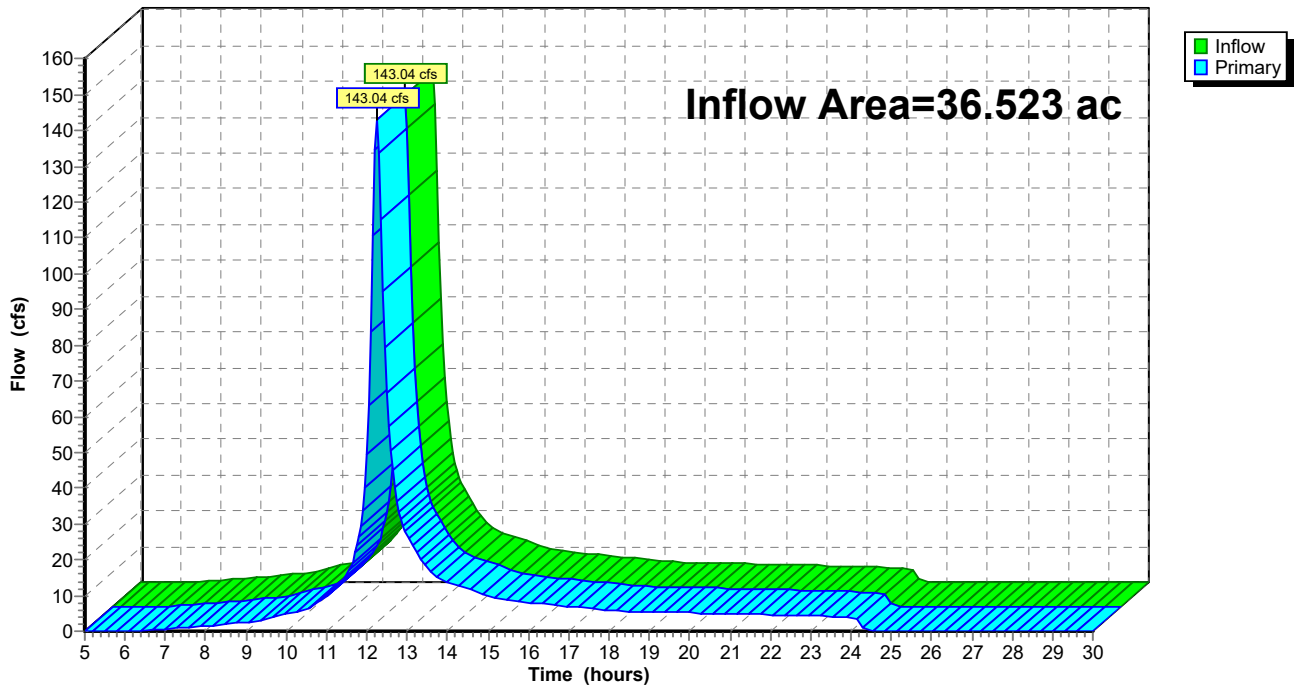
Summary for Link AP-1: AP-1

Inflow Area = 36.523 ac, 0.00% Impervious, Inflow Depth = 5.08" for 100-yr event
Inflow = 143.04 cfs @ 12.25 hrs, Volume= 15.473 af
Primary = 143.04 cfs @ 12.25 hrs, Volume= 15.473 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Link AP-1: AP-1

Hydrograph



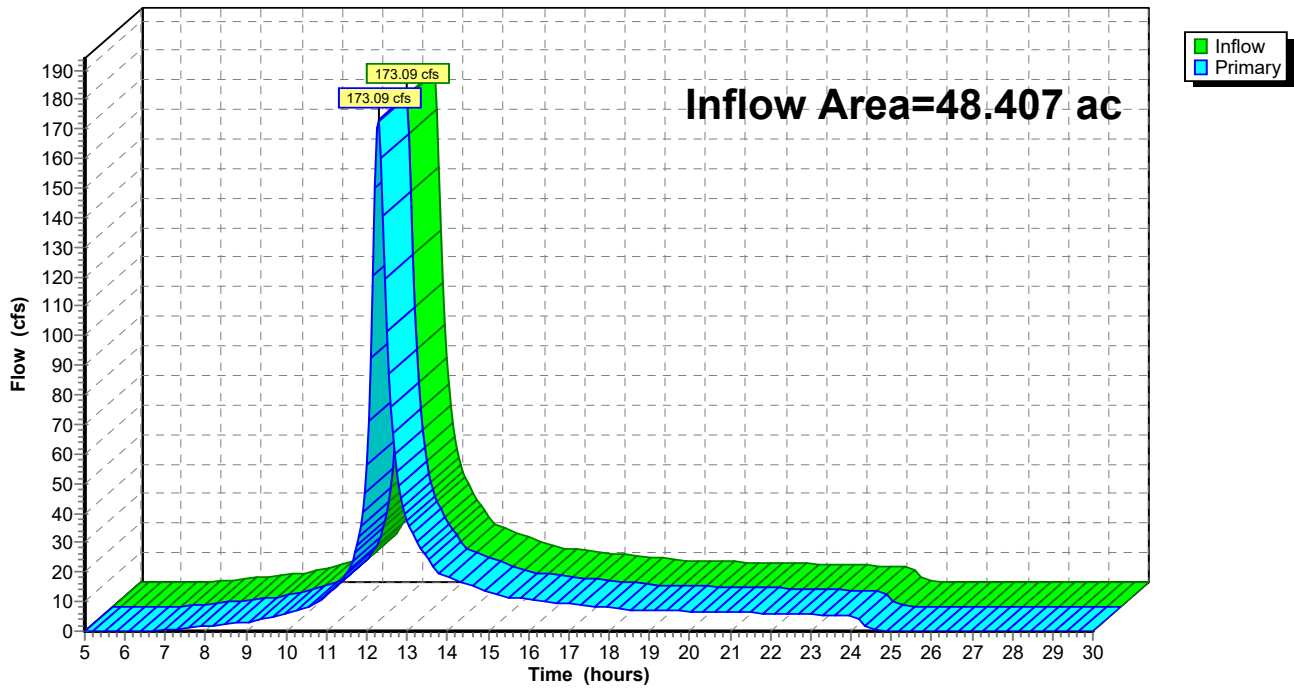
Summary for Link AP-2: AP-2

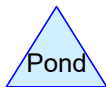
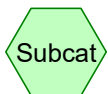
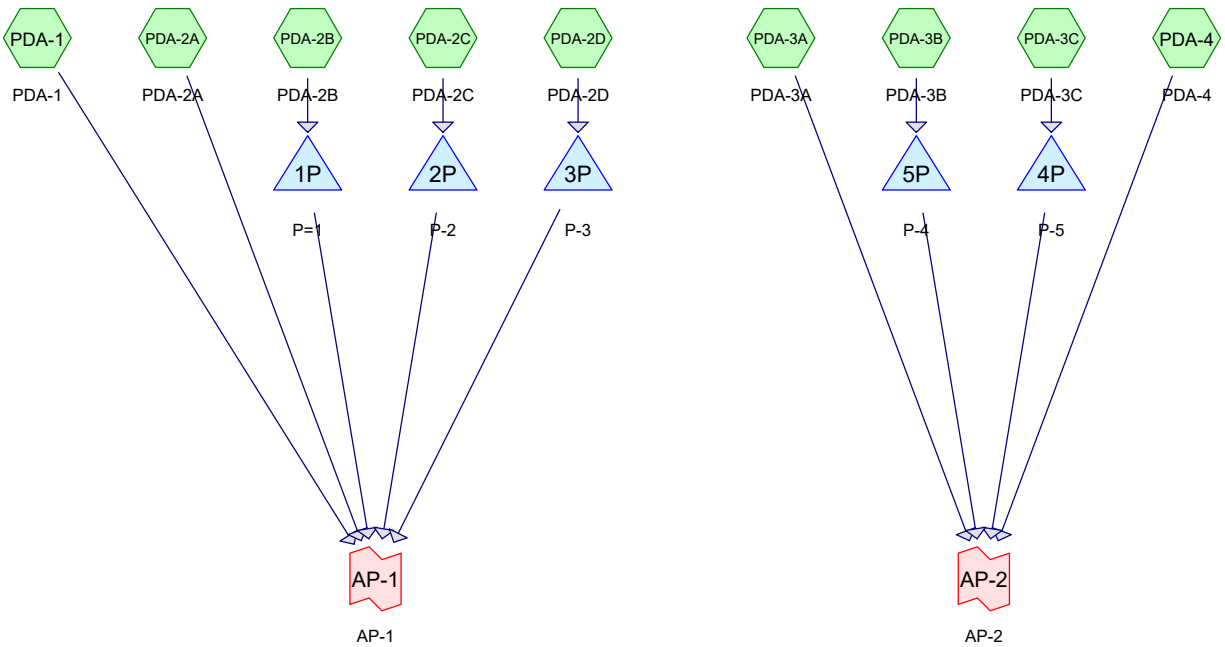
Inflow Area = 48.407 ac, 0.49% Impervious, Inflow Depth = 5.02" for 100-yr event
Inflow = 173.09 cfs @ 12.28 hrs, Volume= 20.263 af
Primary = 173.09 cfs @ 12.28 hrs, Volume= 20.263 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Link AP-2: AP-2

Hydrograph





Routing Diagram for Riggs St_Prop.
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Riggs St_Prop.

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Page 2

Rainfall Events Listing

| Event# | Event Name | Storm Type | Curve | Mode | Duration (hours) | B/B | Depth (inches) | AMC |
|--------|------------|------------|-------|---------|------------------|-----|----------------|-----|
| 1 | 2-yr | NRCC 24-hr | D | Default | 24.00 | 1 | 3.62 | 2 |
| 2 | 25-yr | NRCC 24-hr | D | Default | 24.00 | 1 | 6.90 | 2 |
| 3 | 50-yr | NRCC 24-hr | D | Default | 24.00 | 1 | 7.83 | 2 |
| 4 | 100-yr | NRCC 24-hr | D | Default | 24.00 | 1 | 8.85 | 2 |

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Page 3

Area Listing (all nodes)

| Area (acres) | CN | Description (subcatchment-numbers) |
|-----------------|-----------|--|
| 0.186 | 96 | Gravel surface, HSG B (PDA-1, PDA-2B, PDA-3B) |
| 0.407 | 96 | Gravel surface, HSG C (PDA-3A, PDA-4) |
| 0.003 | 96 | Gravel surface, HSG D (PDA-4) |
| 3.415 | 58 | Meadow, non-grazed, HSG B (PDA-1, PDA-2A, PDA-2B, PDA-2C, PDA-3A) |
| 12.330 | 65 | Meadow, non-grazed, HSG B/C (PDA-2A, PDA-2B, PDA-2C, PDA-2D, PDA-3A, PDA-3B) |
| 1.876 | 71 | Meadow, non-grazed, HSG C (PDA-3A, PDA-3C, PDA-4) |
| 7.866 | 75 | Meadow, non-grazed, HSG C/D (PDA-3A, PDA-3C, PDA-4) |
| 3.980 | 78 | Meadow, non-grazed, HSG D (PDA-2A, PDA-2C, PDA-2D, PDA-3A, PDA-4) |
| 0.220 | 98 | Paved roads w/curbs & sewers, HSG C (PDA-4) |
| 0.018 | 98 | Paved roads w/curbs & sewers, HSG D (PDA-4) |
| 0.034 | 98 | Unconnected pavement, HSG B (PDA-3B) |
| 0.034 | 98 | Unconnected pavement, HSG D (PDA-3A) |
| 0.034 | 98 | Unconnected roofs, HSG B/C (PDA-2B) |
| 0.515 | 36 | Woods, Fair, HSG A (PDA-3A) |
| 22.155 | 60 | Woods, Fair, HSG B (PDA-1, PDA-2A, PDA-2B, PDA-2C, PDA-3A) |
| 13.305 | 73 | Woods, Fair, HSG C (PDA-3A, PDA-3C, PDA-4) |
| 18.567 | 79 | Woods, Fair, HSG D (PDA-2A, PDA-2B, PDA-2C, PDA-3A, PDA-4) |
| 84.945 | 70 | TOTAL AREA |

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Page 4

Soil Listing (all nodes)

| Area (acres) | Soil Group | Subcatchment Numbers |
|-----------------|---------------|---|
| 0.515 | HSG A | PDA-3A |
| 38.154 | HSG B | PDA-1, PDA-2A, PDA-2B, PDA-2C, PDA-2D, PDA-3A, PDA-3B |
| 23.674 | HSG C | PDA-3A, PDA-3C, PDA-4 |
| 22.602 | HSG D | PDA-2A, PDA-2B, PDA-2C, PDA-2D, PDA-3A, PDA-4 |
| 0.000 | Other | |
| 84.945 | | TOTAL AREA |

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Page 5

Ground Covers (all nodes)

| HSG-A (acres) | HSG-B (acres) | HSG-C (acres) | HSG-D (acres) | Other (acres) | Total (acres) | Ground Cover | Subcatchment Numbers |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------------------|--|
| 0.000 | 0.186 | 0.407 | 0.003 | 0.000 | 0.596 | Gravel surface | PD A-1 , PD A-2 B, PD A-3 A, PD A-3 B, PD A-4 |
| 0.000 | 15.745 | 9.742 | 3.980 | 0.000 | 29.467 | Meadow, non-grazed | PD A-1 , PD A-2 A, PD A-2 B, PD A-2 C, PD A-2 D, PD A-3 A, PD A-3 B, PD A-3 C, PD A-4 |
| 0.000 | 0.000 | 0.220 | 0.018 | 0.000 | 0.238 | Paved roads w/curbs & sewers | PD A-4 |

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Page 6

Ground Covers (all nodes) (continued)

| HSG-A (acres) | HSG-B (acres) | HSG-C (acres) | HSG-D (acres) | Other (acres) | Total (acres) | Ground Cover | Subcatchment Numbers |
|------------------|------------------|------------------|------------------|------------------|------------------|----------------------|--|
| 0.000 | 0.034 | 0.000 | 0.034 | 0.000 | 0.068 | Unconnected pavement | PD A-3 A, PD A-3 B |
| 0.000 | 0.034 | 0.000 | 0.000 | 0.000 | 0.034 | Unconnected roofs | PD A-2 B |
| 0.515 | 22.155 | 13.305 | 18.567 | 0.000 | 54.542 | Woods, Fair | PD A-1 , PD A-2 A, PD A-2 B, PD A-2 C, PD A-3 A, PD A-3 C, PD A-4 |
| 0.515 | 38.154 | 23.674 | 22.602 | 0.000 | 84.945 | TOTAL AREA | |

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Page 7

Pipe Listing (all nodes)

| Line# | Node Number | In-Invert (feet) | Out-Invert (feet) | Length (feet) | Slope (ft/ft) | n | Width (inches) | Diam/Height (inches) | Inside-Fill (inches) | Node Name |
|-------|-------------|------------------|-------------------|---------------|---------------|-------|----------------|----------------------|----------------------|-----------|
| 1 | PDA-3B | 0.00 | 0.00 | 55.0 | 0.0100 | 0.013 | 0.0 | 18.0 | 0.0 | |
| 2 | PDA-4 | 0.00 | 0.00 | 885.0 | 0.0575 | 0.012 | 0.0 | 15.0 | 0.0 | |
| 3 | 1P | 426.00 | 425.00 | 65.0 | 0.0154 | 0.013 | 0.0 | 18.0 | 0.0 | |
| 4 | 2P | 416.00 | 414.00 | 40.0 | 0.0500 | 0.013 | 0.0 | 18.0 | 0.0 | |
| 5 | 3P | 456.00 | 445.00 | 60.0 | 0.1833 | 0.013 | 0.0 | 18.0 | 0.0 | |
| 6 | 4P | 478.00 | 476.00 | 50.0 | 0.0400 | 0.013 | 0.0 | 18.0 | 0.0 | |
| 7 | 5P | 460.00 | 458.00 | 50.0 | 0.0400 | 0.013 | 0.0 | 18.0 | 0.0 | |

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Page 8

Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

| | |
|-----------------------------------|---|
| SubcatchmentPDA-1: PDA-1 | Runoff Area=2.493 ac 0.00% Impervious Runoff Depth=0.58" Flow Length=720' Tc=13.0 min CN=60 Runoff=0.89 cfs 0.121 af |
| SubcatchmentPDA-2A: PDA-2A | Runoff Area=24.113 ac 0.00% Impervious Runoff Depth=1.20" Flow Length=1,686' Tc=16.6 min CN=72 Runoff=21.26 cfs 2.412 af |
| SubcatchmentPDA-2B: PDA-2B | Runoff Area=4.751 ac 0.72% Impervious Runoff Depth=0.77" Flow Length=813' Tc=14.8 min CN=64 Runoff=2.47 cfs 0.304 af |
| SubcatchmentPDA-2C: PDA-2C | Runoff Area=1.880 ac 0.00% Impervious Runoff Depth=1.14" Flow Length=482' Tc=7.3 min CN=71 Runoff=2.15 cfs 0.179 af |
| SubcatchmentPDA-2D: PDA-2D | Runoff Area=2.688 ac 0.00% Impervious Runoff Depth=1.03" Flow Length=618' Tc=12.3 min CN=69 Runoff=2.23 cfs 0.230 af |
| SubcatchmentPDA-3A: PDA-3A | Runoff Area=34.353 ac 0.10% Impervious Runoff Depth=0.97" Flow Length=2,518' Tc=19.6 min CN=68 Runoff=21.48 cfs 2.782 af |
| SubcatchmentPDA-3B: PDA-3B | Runoff Area=4.786 ac 0.71% Impervious Runoff Depth=0.82" Flow Length=774' Tc=16.2 min CN=65 Runoff=2.60 cfs 0.325 af |
| SubcatchmentPDA-3C: PDA-3C | Runoff Area=5.622 ac 0.00% Impervious Runoff Depth=1.39" Flow Length=812' Tc=14.7 min CN=75 Runoff=6.14 cfs 0.650 af |
| SubcatchmentPDA-4: PDA-4 | Runoff Area=4.259 ac 5.59% Impervious Runoff Depth=1.39" Flow Length=1,349' Tc=15.8 min CN=75 Runoff=4.52 cfs 0.492 af |
| Pond 1P: P=1 | Peak Elev=427.32' Storage=4,593 cf Inflow=2.47 cfs 0.304 af Outflow=0.47 cfs 0.226 af |
| Pond 2P: P-2 | Peak Elev=417.91' Storage=3,903 cf Inflow=2.15 cfs 0.179 af Outflow=0.18 cfs 0.101 af |
| Pond 3P: P-3 | Peak Elev=457.27' Storage=3,953 cf Inflow=2.23 cfs 0.230 af Outflow=0.36 cfs 0.161 af |
| Pond 4P: P-5 | Peak Elev=479.58' Storage=10,551 cf Inflow=6.14 cfs 0.650 af Outflow=1.45 cfs 0.506 af |
| Pond 5P: P-4 | Peak Elev=461.29' Storage=5,767 cf Inflow=2.60 cfs 0.325 af Outflow=0.39 cfs 0.225 af |
| Link AP-1: AP-1 | Inflow=22.14 cfs 3.021 af Primary=22.14 cfs 3.021 af |
| Link AP-2: AP-2 | Inflow=25.86 cfs 4.006 af Primary=25.86 cfs 4.006 af |

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Page 9

Total Runoff Area = 84.945 ac Runoff Volume = 7.495 af Average Runoff Depth = 1.06"
99.60% Pervious = 84.605 ac 0.40% Impervious = 0.340 ac

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Page 10

Summary for Subcatchment PDA-1: PDA-1

Runoff = 0.89 cfs @ 12.24 hrs, Volume= 0.121 af, Depth= 0.58"
 Routed to Link AP-1 : AP-1

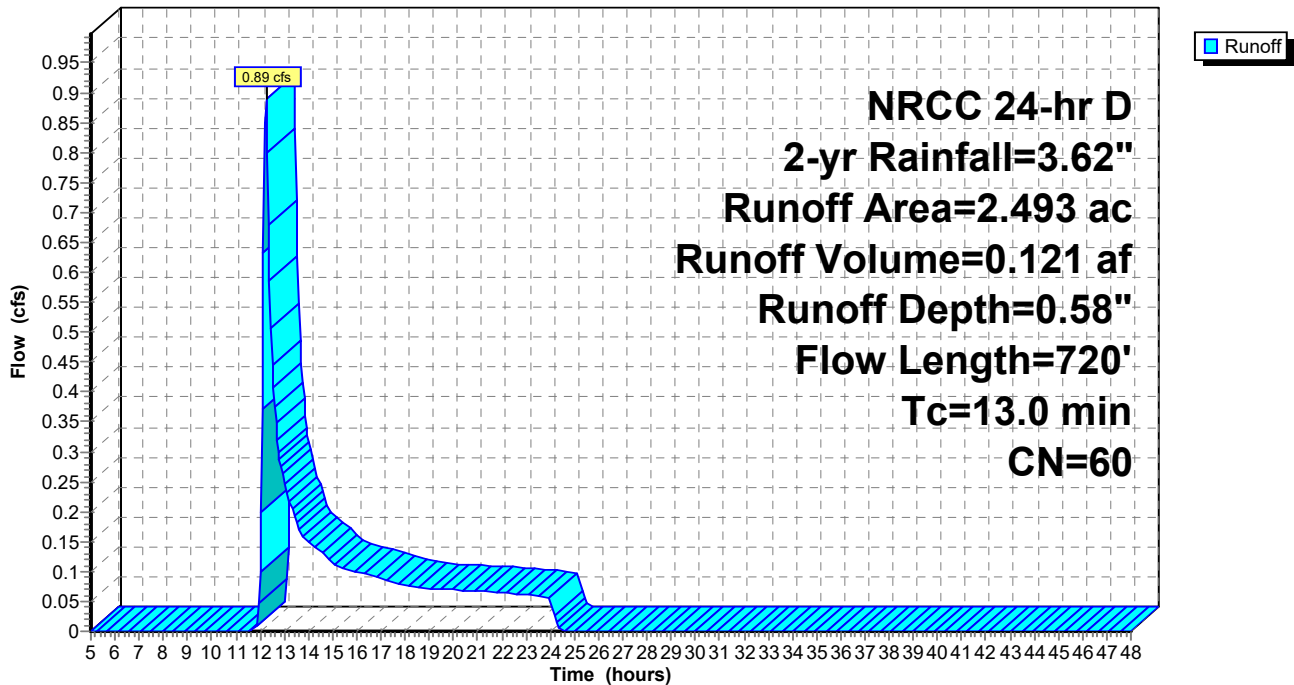
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 2-yr Rainfall=3.62"

| Area (ac) | CN | Description |
|-----------|----|---------------------------|
| 1.713 | 60 | Woods, Fair, HSG B |
| 0.730 | 58 | Meadow, non-grazed, HSG B |
| 0.050 | 96 | Gravel surface, HSG B |
| 2.493 | 60 | Weighted Average |
| 2.493 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|---|
| 8.0 | 100 | 0.2000 | 0.21 | | Sheet Flow, A-B |
| 5.0 | 620 | 0.1710 | 2.07 | | Woods: Light underbrush n= 0.400 P2= 3.62" Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 13.0 | 720 | Total | | | |

Subcatchment PDA-1: PDA-1

Hydrograph



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Page 11

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

Runoff = 21.26 cfs @ 12.26 hrs, Volume= 2.412 af, Depth= 1.20"
 Routed to Link AP-1 : AP-1

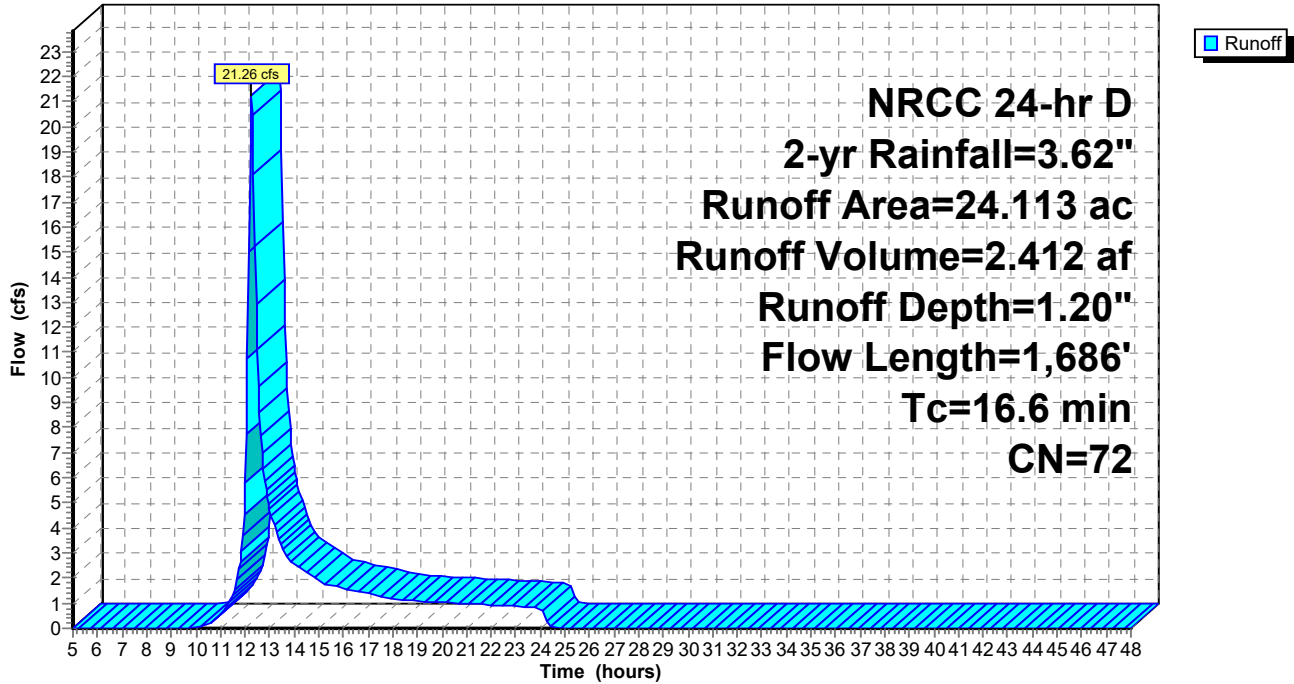
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 2-yr Rainfall=3.62"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 6.774 | 60 | Woods, Fair, HSG B |
| 13.166 | 79 | Woods, Fair, HSG D |
| 1.006 | 58 | Meadow, non-grazed, HSG B |
| * 1.425 | 65 | Meadow, non-grazed, HSG B/C |
| 1.742 | 78 | Meadow, non-grazed, HSG D |
| 24.113 | 72 | Weighted Average |
| 24.113 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 10.2 | 100 | 0.1100 | 0.16 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 4.7 | 635 | 0.2000 | 2.24 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 1.7 | 951 | 0.0421 | 9.10 | 151.99 | Channel Flow, C-D Area= 16.7 sf Perim= 12.8' r= 1.30' n= 0.040 Winding stream, pools & shoals |
| 16.6 | 1,686 | Total | | | |

Subcatchment PDA-2A: PDA-2A

Hydrograph



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Page 13

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

Runoff = 2.47 cfs @ 12.25 hrs, Volume= 0.304 af, Depth= 0.77"
 Routed to Pond 1P : P=1

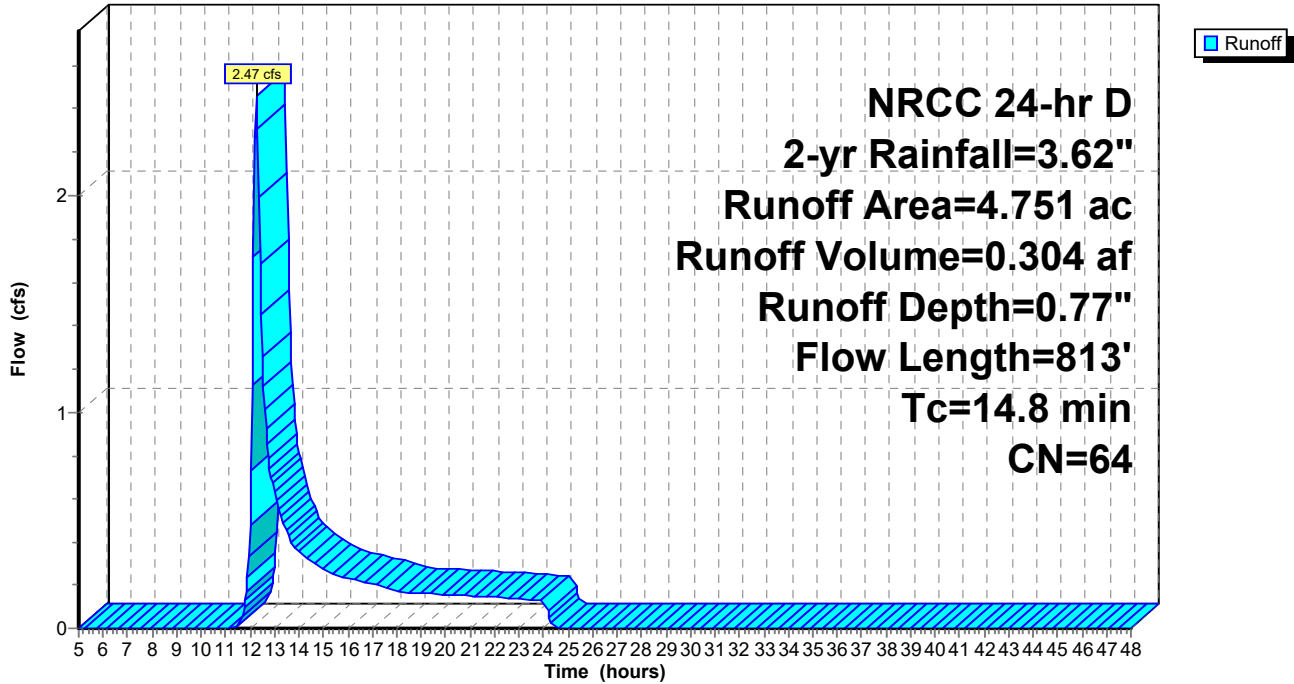
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 2-yr Rainfall=3.62"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 0.959 | 60 | Woods, Fair, HSG B |
| 0.012 | 79 | Woods, Fair, HSG D |
| 0.395 | 58 | Meadow, non-grazed, HSG B |
| * 3.239 | 65 | Meadow, non-grazed, HSG B/C |
| * 0.034 | 98 | Unconnected roofs, HSG B/C |
| 0.112 | 96 | Gravel surface, HSG B |
| 4.751 | 64 | Weighted Average |
| 4.717 | | 99.28% Pervious Area |
| 0.034 | | 0.72% Impervious Area |
| 0.034 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 10.2 | 100 | 0.1100 | 0.16 | | Sheet Flow, A-B |
| | | | | | Woods: Light underbrush n= 0.400 P2= 3.62" |
| 0.2 | 33 | 0.3000 | 2.74 | | Shallow Concentrated Flow, B-C |
| | | | | | Woodland Kv= 5.0 fps |
| 4.4 | 680 | 0.1367 | 2.59 | | Shallow Concentrated Flow, C-D |
| | | | | | Short Grass Pasture Kv= 7.0 fps |
| 14.8 | 813 | Total | | | |

Subcatchment PDA-2B: PDA-2B

Hydrograph



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Page 15

Summary for Subcatchment PDA-2C: PDA-2C

Runoff = 2.15 cfs @ 12.15 hrs, Volume= 0.179 af, Depth= 1.14"
 Routed to Pond 2P : P-2

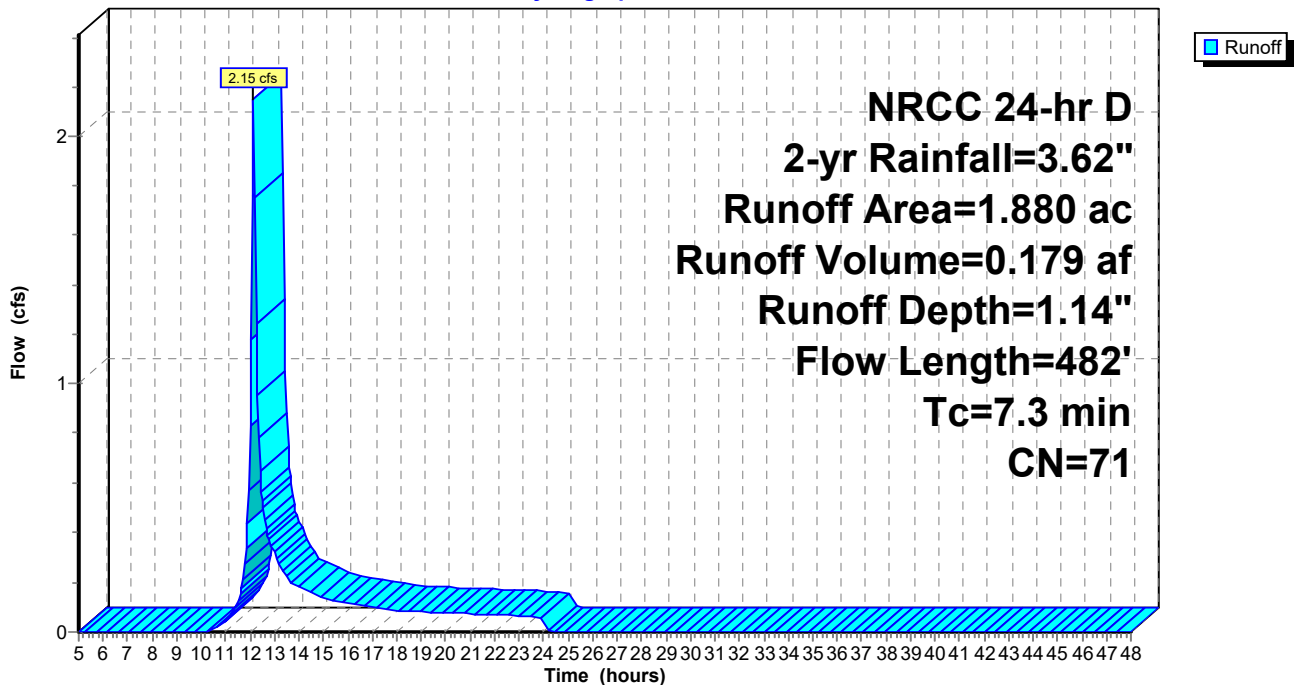
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 2-yr Rainfall=3.62"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 0.089 | 58 | Meadow, non-grazed, HSG B |
| * 0.667 | 65 | Meadow, non-grazed, HSG B/C |
| 0.930 | 78 | Meadow, non-grazed, HSG D |
| 0.105 | 60 | Woods, Fair, HSG B |
| 0.089 | 79 | Woods, Fair, HSG D |
| 1.880 | 71 | Weighted Average |
| 1.880 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 5.1 | 100 | 0.2200 | 0.32 | | Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.62" |
| 2.0 | 340 | 0.1647 | 2.84 | | Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps |
| 0.2 | 42 | 0.0476 | 3.27 | | Shallow Concentrated Flow, C-D Grassed Waterway Kv= 15.0 fps |
| 7.3 | 482 | Total | | | |

Subcatchment PDA-2C: PDA-2C

Hydrograph



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Page 16

Summary for Subcatchment PDA-2D: PDA-2D

Runoff = 2.23 cfs @ 12.21 hrs, Volume= 0.230 af, Depth= 1.03"
 Routed to Pond 3P : P-3

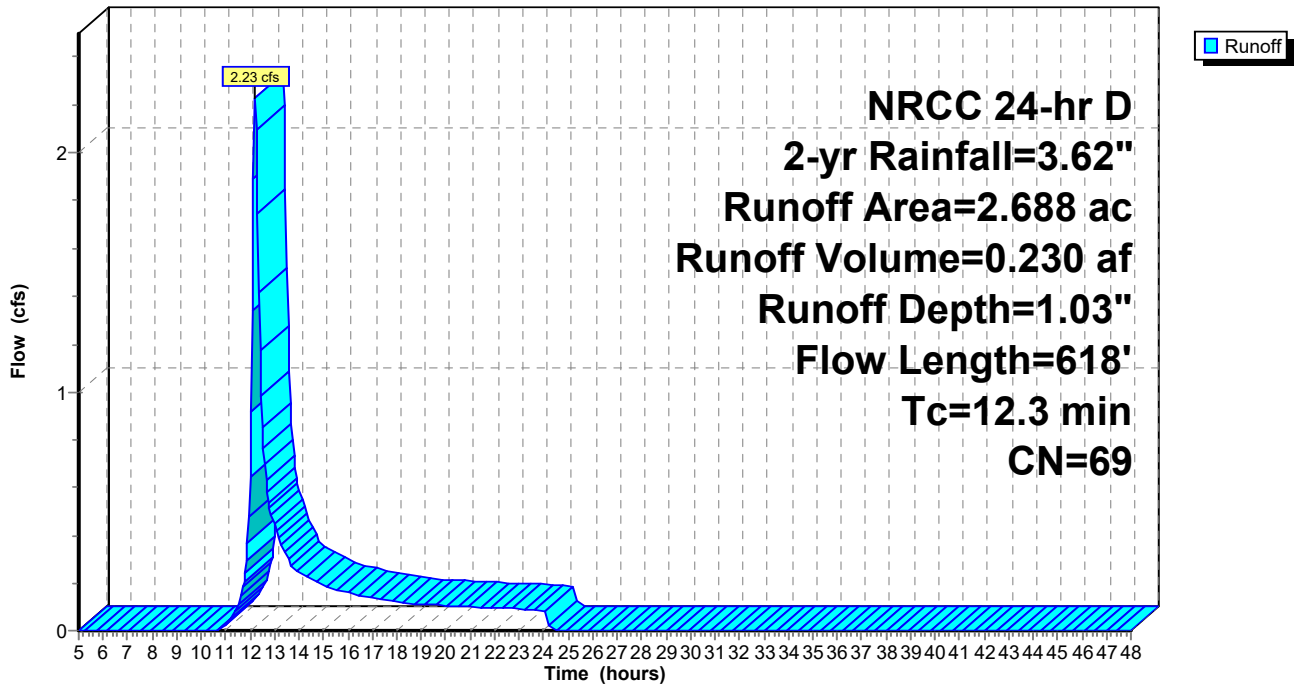
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 2-yr Rainfall=3.62"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| * 1.831 | 65 | Meadow, non-grazed, HSG B/C |
| 0.857 | 78 | Meadow, non-grazed, HSG D |
| 2.688 | 69 | Weighted Average |
| 2.688 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 9.3 | 100 | 0.0500 | 0.18 | | Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.62" |
| 3.0 | 518 | 0.1654 | 2.85 | | Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps |
| 12.3 | 618 | Total | | | |

Subcatchment PDA-2D: PDA-2D

Hydrograph



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Page 17

Summary for Subcatchment PDA-3A: PDA-3A

Runoff = 21.48 cfs @ 12.31 hrs, Volume= 2.782 af, Depth= 0.97"
 Routed to Link AP-2 : AP-2

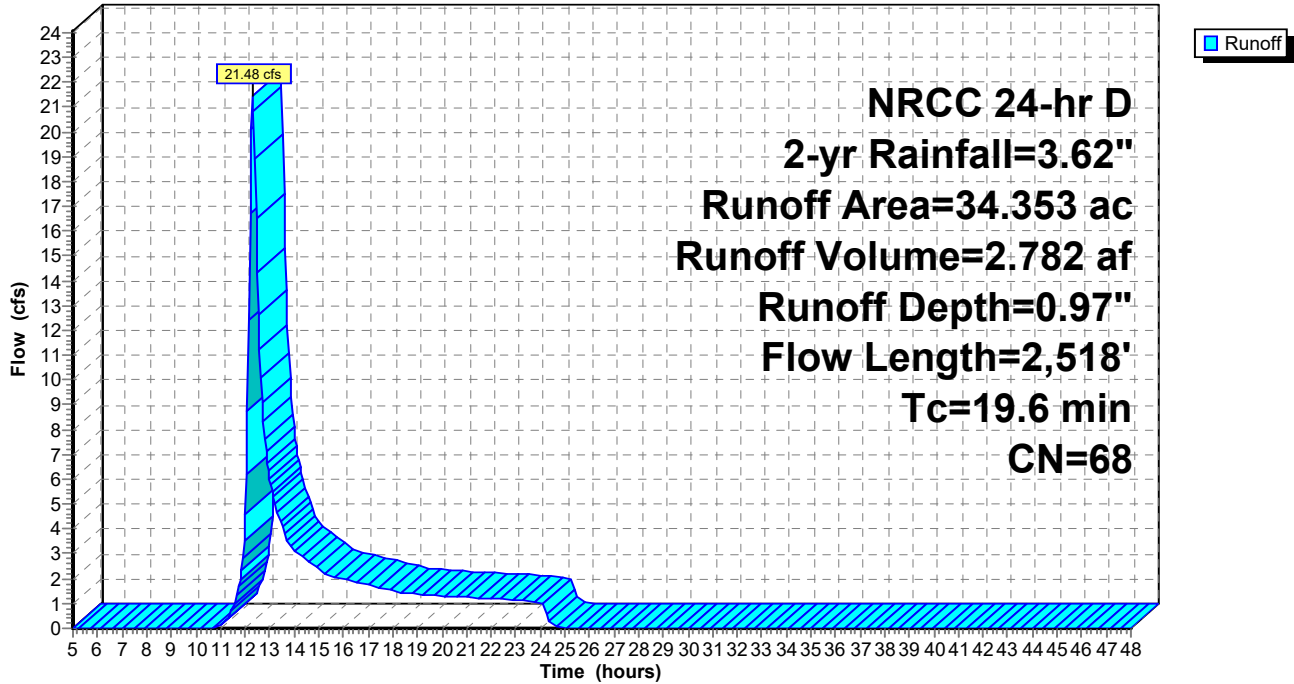
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 2-yr Rainfall=3.62"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 0.515 | 36 | Woods, Fair, HSG A |
| 12.604 | 60 | Woods, Fair, HSG B |
| 10.470 | 73 | Woods, Fair, HSG C |
| 5.295 | 79 | Woods, Fair, HSG D |
| * 2.024 | 75 | Meadow, non-grazed, HSG C/D |
| 0.034 | 98 | Unconnected pavement, HSG D |
| 0.397 | 96 | Gravel surface, HSG C |
| 1.195 | 58 | Meadow, non-grazed, HSG B |
| 0.931 | 71 | Meadow, non-grazed, HSG C |
| 0.448 | 78 | Meadow, non-grazed, HSG D |
| * 0.440 | 65 | Meadow, non-grazed, HSG B/C |
| 34.353 | 68 | Weighted Average |
| 34.319 | | 99.90% Pervious Area |
| 0.034 | | 0.10% Impervious Area |
| 0.034 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 8.8 | 100 | 0.1600 | 0.19 | | Sheet Flow, A-B |
| | | | | | Woods: Light underbrush n= 0.400 P2= 3.62" |
| 8.1 | 735 | 0.0912 | 1.51 | | Shallow Concentrated Flow, B-C |
| | | | | | Woodland Kv= 5.0 fps |
| 2.7 | 1,683 | 0.0552 | 10.50 | 346.60 | Channel Flow, C-D |
| | | | | | Area= 33.0 sf Perim= 25.0' r= 1.32' |
| | | | | | n= 0.040 Winding stream, pools & shoals |
| 19.6 | 2,518 | Total | | | |

Subcatchment PDA-3A: PDA-3A

Hydrograph



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Page 19

Summary for Subcatchment PDA-3B: PDA-3B

Runoff = 2.60 cfs @ 12.27 hrs, Volume= 0.325 af, Depth= 0.82"
 Routed to Pond 5P : P-4

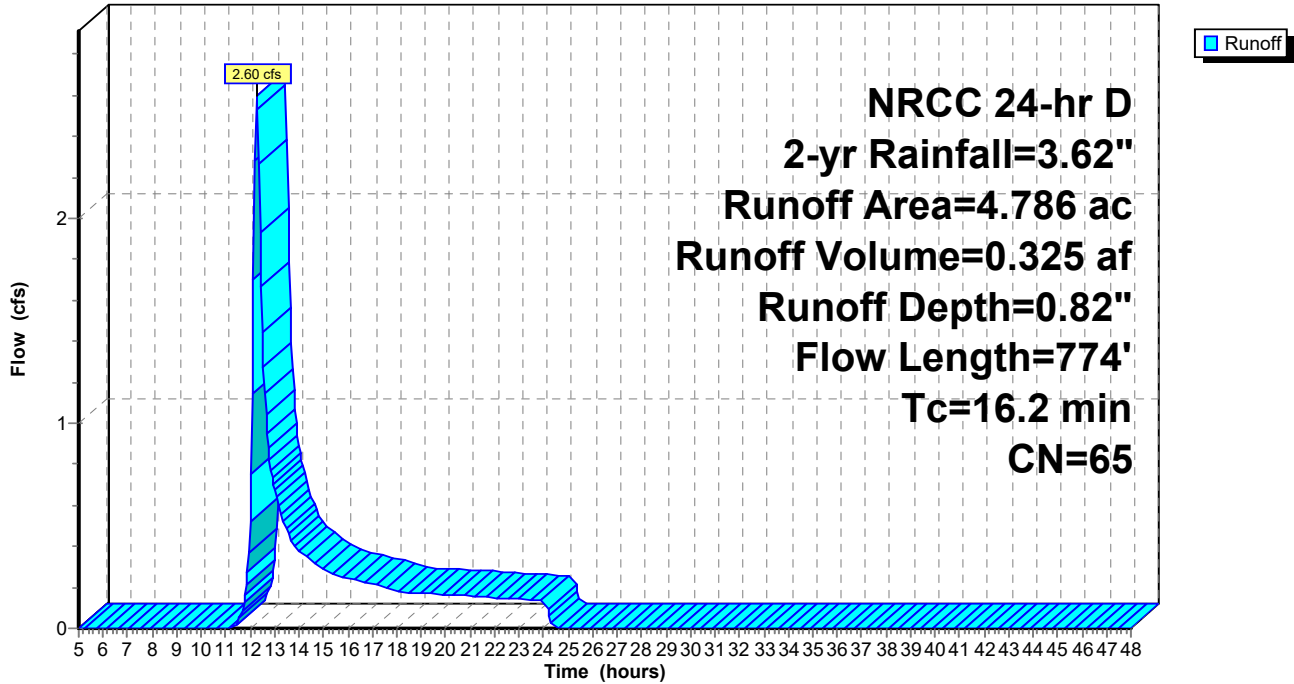
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 2-yr Rainfall=3.62"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| * 4.728 | 65 | Meadow, non-grazed, HSG B/C |
| 0.024 | 96 | Gravel surface, HSG B |
| 0.034 | 98 | Unconnected pavement, HSG B |
| 4.786 | 65 | Weighted Average |
| 4.752 | | 99.29% Pervious Area |
| 0.034 | | 0.71% Impervious Area |
| 0.034 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 10.6 | 100 | 0.1000 | 0.16 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 5.0 | 547 | 0.1334 | 1.83 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 0.4 | 72 | 0.0444 | 3.16 | | Shallow Concentrated Flow, C-D Grassed Waterway Kv= 15.0 fps |
| 0.2 | 55 | 0.0100 | 5.94 | 10.50 | Pipe Channel, D-E 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior |
| 16.2 | 774 | Total | | | |

Subcatchment PDA-3B: PDA-3B

Hydrograph



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Page 21

Summary for Subcatchment PDA-3C: PDA-3C

Runoff = 6.14 cfs @ 12.24 hrs, Volume= 0.650 af, Depth= 1.39"
 Routed to Pond 4P : P-5

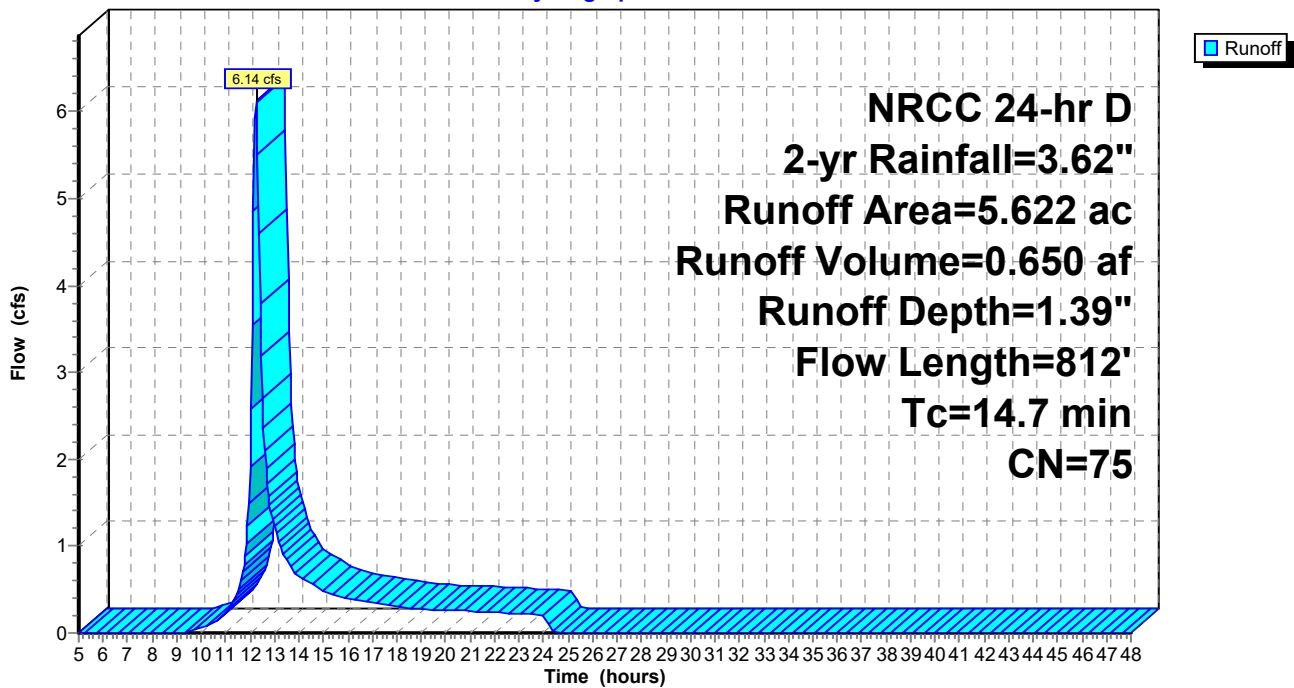
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 2-yr Rainfall=3.62"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 1.062 | 73 | Woods, Fair, HSG C |
| 0.126 | 71 | Meadow, non-grazed, HSG C |
| * 4.434 | 75 | Meadow, non-grazed, HSG C/D |
| 5.622 | 75 | Weighted Average |
| 5.622 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 9.5 | 100 | 0.1300 | 0.17 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 2.0 | 249 | 0.1687 | 2.05 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 3.2 | 463 | 0.1210 | 2.43 | | Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps |
| 14.7 | 812 | Total | | | |

Subcatchment PDA-3C: PDA-3C

Hydrograph



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Page 22

Summary for Subcatchment PDA-4: PDA-4

Runoff = 4.52 cfs @ 12.25 hrs, Volume= 0.492 af, Depth= 1.39"
 Routed to Link AP-2 : AP-2

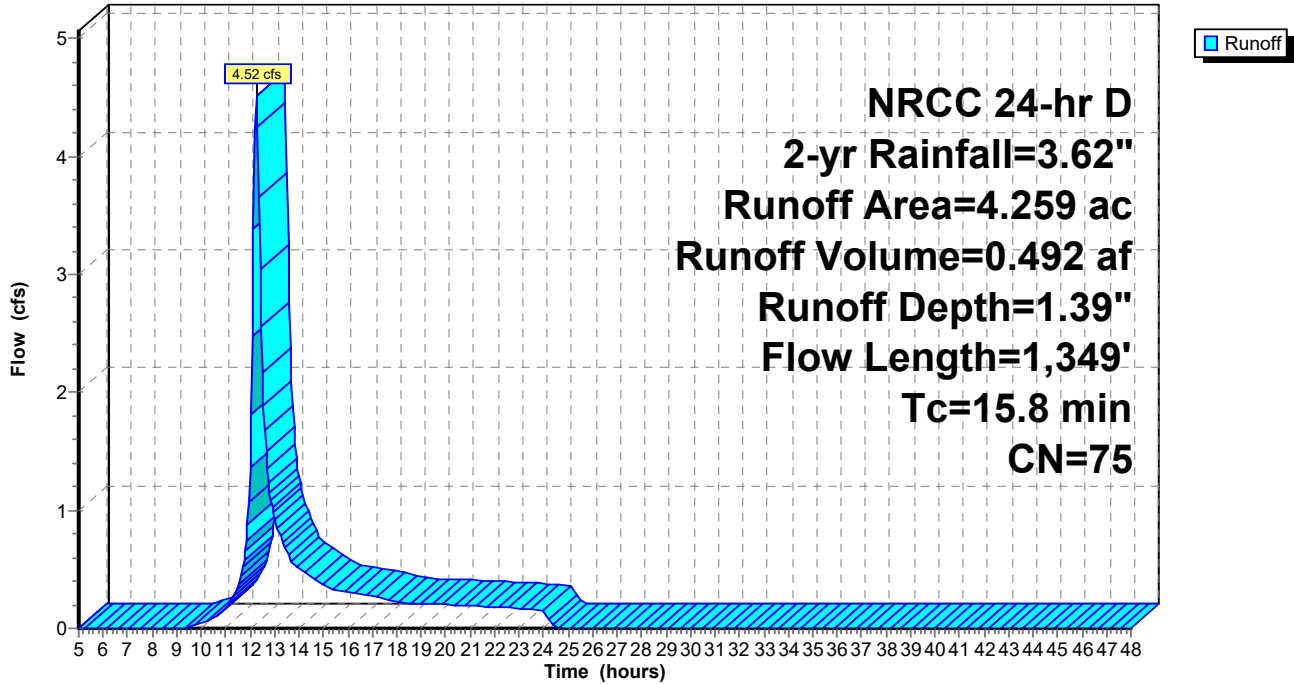
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 2-yr Rainfall=3.62"

| Area (ac) | CN | Description |
|-----------|----|-------------------------------------|
| 1.773 | 73 | Woods, Fair, HSG C |
| 0.005 | 79 | Woods, Fair, HSG D |
| 0.220 | 98 | Paved roads w/curbs & sewers, HSG C |
| 0.018 | 98 | Paved roads w/curbs & sewers, HSG D |
| * 1.408 | 75 | Meadow, non-grazed, HSG C/D |
| 0.819 | 71 | Meadow, non-grazed, HSG C |
| 0.010 | 96 | Gravel surface, HSG C |
| 0.003 | 96 | Gravel surface, HSG D |
| 0.003 | 78 | Meadow, non-grazed, HSG D |
| 4.259 | 75 | Weighted Average |
| 4.021 | | 94.41% Pervious Area |
| 0.238 | | 5.59% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 12.2 | 100 | 0.0700 | 0.14 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 2.3 | 301 | 0.1827 | 2.14 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 0.2 | 63 | 0.0635 | 5.12 | | Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps |
| 1.1 | 885 | 0.0575 | 13.67 | 16.78 | Pipe Channel, D-E 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Corrugated PP, smooth interior |
| 15.8 | 1,349 | Total | | | |

Subcatchment PDA-4: PDA-4

Hydrograph



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Page 24

Summary for Pond 1P: P=1

Inflow Area = 4.751 ac, 0.72% Impervious, Inflow Depth = 0.77" for 2-yr event
 Inflow = 2.47 cfs @ 12.25 hrs, Volume= 0.304 af
 Outflow = 0.47 cfs @ 13.42 hrs, Volume= 0.226 af, Atten= 81%, Lag= 69.9 min
 Primary = 0.47 cfs @ 13.42 hrs, Volume= 0.226 af
 Routed to Link AP-1 : AP-1

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 427.32' @ 13.42 hrs Surf.Area= 3,958 sf Storage= 4,593 cf

Plug-Flow detention time= 244.0 min calculated for 0.226 af (74% of inflow)
 Center-of-Mass det. time= 135.5 min (1,070.3 - 934.9)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 426.00' | 18,067 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) | |
| 426.00 | 3,028 | 223.1 | 0 | 0 | 3,028 | |
| 427.00 | 3,726 | 242.0 | 3,371 | 3,371 | 3,765 | |
| 428.00 | 4,480 | 260.8 | 4,097 | 7,468 | 4,558 | |
| 429.00 | 5,291 | 279.7 | 4,880 | 12,348 | 5,415 | |
| 430.00 | 6,158 | 298.5 | 5,719 | 18,067 | 6,327 | |

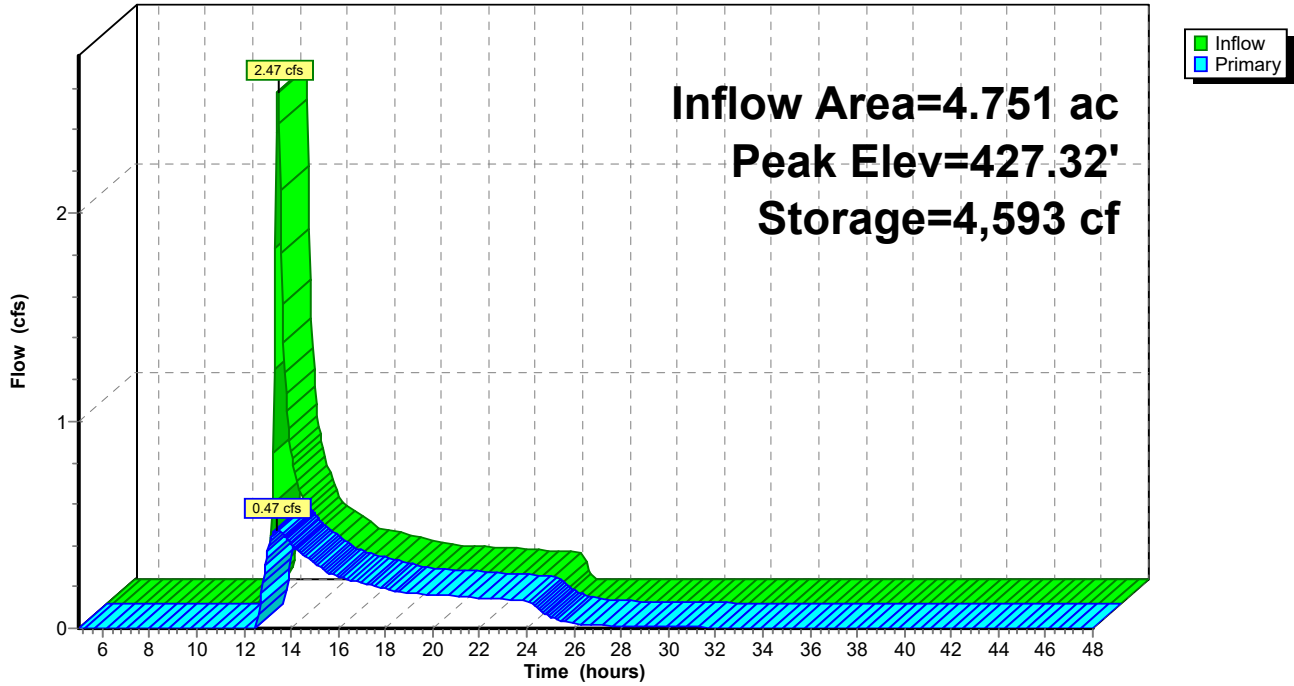
| Device | Routing | Invert | Outlet Devices | |
|--------|----------|---------|---|--|
| #1 | Primary | 426.00' | 18.0" Round Culvert L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 426.00' / 425.00' S= 0.0154 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf | |
| #2 | Device 1 | 427.00' | 15.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #3 | Device 1 | 429.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #4 | Primary | 429.00' | 25.0' long + 3.0 ' SideZ x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 | |

Primary OutFlow Max=0.47 cfs @ 13.42 hrs HW=427.32' (Free Discharge)

- 1=Culvert (Passes 0.47 cfs of 5.08 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 0.47 cfs @ 1.92 fps)
- 3=Orifice/Grate (Controls 0.00 cfs)
- 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: P=1

Hydrograph



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NRCC 24-hr D 2-yr Rainfall=3.62"

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Page 26

Summary for Pond 2P: P-2

Inflow Area = 1.880 ac, 0.00% Impervious, Inflow Depth = 1.14" for 2-yr event
 Inflow = 2.15 cfs @ 12.15 hrs, Volume= 0.179 af
 Outflow = 0.18 cfs @ 14.06 hrs, Volume= 0.101 af, Atten= 92%, Lag= 114.7 min
 Primary = 0.18 cfs @ 14.06 hrs, Volume= 0.101 af
 Routed to Link AP-1 : AP-1

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 417.91' @ 14.06 hrs Surf.Area= 2,595 sf Storage= 3,903 cf

Plug-Flow detention time= 349.9 min calculated for 0.101 af (57% of inflow)
 Center-of-Mass det. time= 198.4 min (1,096.6 - 898.3)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 416.00' | 10,757 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) | |
| 416.00 | 1,538 | 166.9 | 0 | 0 | 1,538 | |
| 417.00 | 2,067 | 185.7 | 1,796 | 1,796 | 2,094 | |
| 418.00 | 2,653 | 204.6 | 2,354 | 4,150 | 2,713 | |
| 419.00 | 3,295 | 223.4 | 2,968 | 7,118 | 3,388 | |
| 420.00 | 3,993 | 242.3 | 3,638 | 10,757 | 4,126 | |

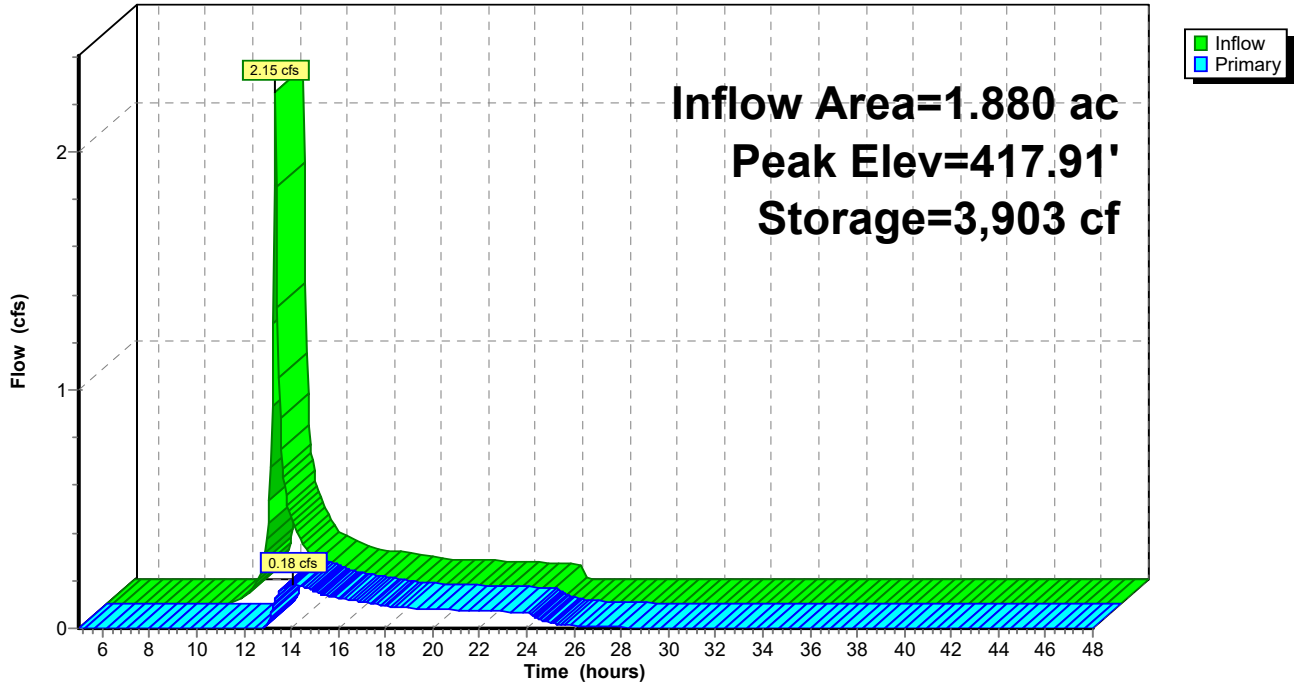
| Device | Routing | Invert | Outlet Devices | |
|--------|----------|---------|---|--|
| #1 | Primary | 416.00' | 18.0" Round Culvert L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 416.00' / 414.00' S= 0.0500 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf | |
| #2 | Device 1 | 417.70' | 12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #3 | Device 1 | 419.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #4 | Primary | 419.00' | 20.0' long + 3.0 ' SideZ x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 | |

Primary OutFlow Max=0.18 cfs @ 14.06 hrs HW=417.91' (Free Discharge)

- 1=Culvert (Passes 0.18 cfs of 7.22 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 0.18 cfs @ 1.54 fps)
- 3=Orifice/Grate (Controls 0.00 cfs)
- 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 2P: P-2

Hydrograph



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Page 28

Summary for Pond 3P: P-3

Inflow Area = 2.688 ac, 0.00% Impervious, Inflow Depth = 1.03" for 2-yr event
 Inflow = 2.23 cfs @ 12.21 hrs, Volume= 0.230 af
 Outflow = 0.36 cfs @ 13.30 hrs, Volume= 0.161 af, Atten= 84%, Lag= 65.2 min
 Primary = 0.36 cfs @ 13.30 hrs, Volume= 0.161 af
 Routed to Link AP-1 : AP-1

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 457.27' @ 13.30 hrs Surf.Area= 3,533 sf Storage= 3,953 cf

Plug-Flow detention time= 272.6 min calculated for 0.161 af (70% of inflow)
 Center-of-Mass det. time= 149.3 min (1,060.1 - 910.9)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 456.00' | 16,375 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) | |
| 456.00 | 2,689 | 209.2 | 0 | 0 | 2,689 | |
| 457.00 | 3,345 | 228.1 | 3,011 | 3,011 | 3,382 | |
| 458.00 | 4,057 | 246.9 | 3,695 | 6,706 | 4,131 | |
| 459.00 | 4,825 | 265.8 | 4,435 | 11,142 | 4,944 | |
| 460.00 | 5,652 | 284.6 | 5,233 | 16,375 | 5,812 | |

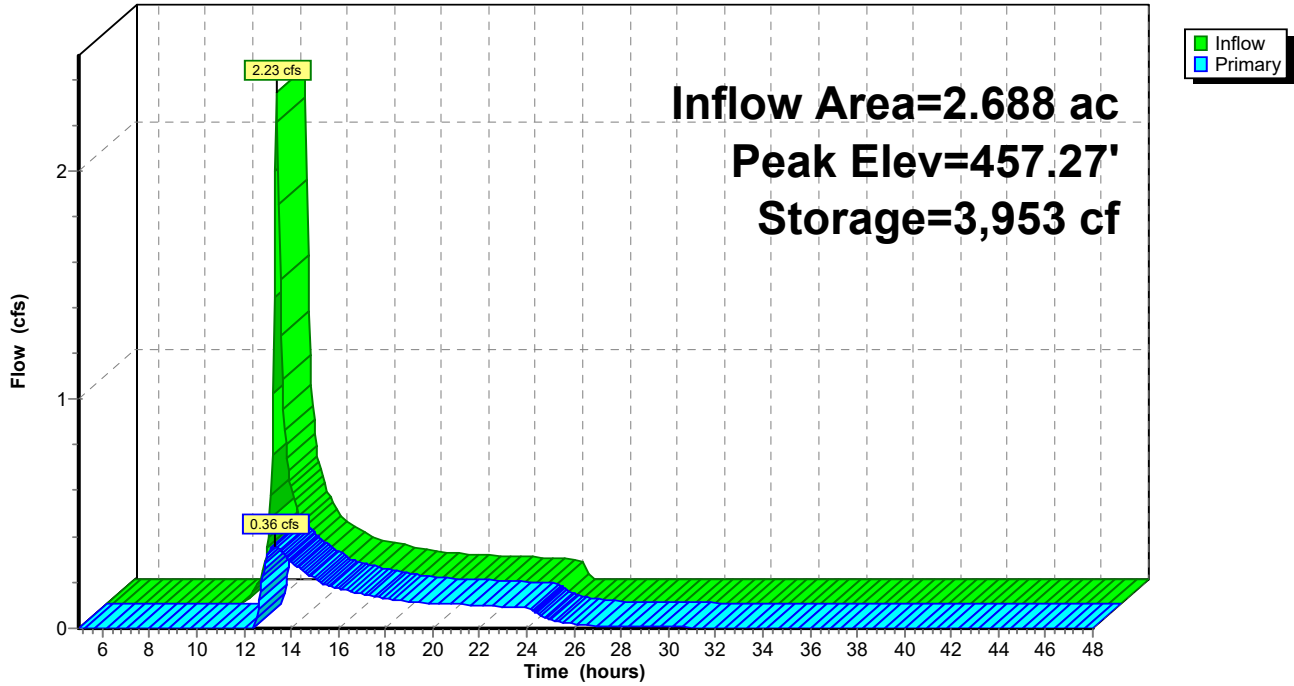
| Device | Routing | Invert | Outlet Devices | |
|--------|----------|---------|---|--|
| #1 | Primary | 456.00' | 18.0" Round Culvert L= 60.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 456.00' / 445.00' S= 0.1833 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf | |
| #2 | Device 1 | 457.00' | 15.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #3 | Device 1 | 459.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #4 | Primary | 459.00' | 16.0' long + 3.0 ' SideZ x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 | |

Primary OutFlow Max=0.36 cfs @ 13.30 hrs HW=457.27' (Free Discharge)

- 1=Culvert (Passes 0.36 cfs of 4.85 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 0.36 cfs @ 1.78 fps)
- 3=Orifice/Grate (Controls 0.00 cfs)
- 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: P-3

Hydrograph



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Page 30

Summary for Pond 4P: P-5

Inflow Area = 5.622 ac, 0.00% Impervious, Inflow Depth = 1.39" for 2-yr event
 Inflow = 6.14 cfs @ 12.24 hrs, Volume= 0.650 af
 Outflow = 1.45 cfs @ 12.81 hrs, Volume= 0.506 af, Atten= 76%, Lag= 34.5 min
 Primary = 1.45 cfs @ 12.81 hrs, Volume= 0.506 af
 Routed to Link AP-2 : AP-2

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 479.58' @ 12.81 hrs Surf.Area= 7,877 sf Storage= 10,551 cf

Plug-Flow detention time= 233.4 min calculated for 0.505 af (78% of inflow)
 Center-of-Mass det. time= 136.8 min (1,026.6 - 889.8)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 478.00' | 34,305 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) | |
| 478.00 | 5,499 | 489.1 | 0 | 0 | 5,499 | |
| 479.00 | 6,994 | 507.9 | 6,232 | 6,232 | 7,072 | |
| 480.00 | 8,546 | 526.8 | 7,757 | 13,989 | 8,712 | |
| 481.00 | 10,155 | 545.6 | 9,339 | 23,328 | 10,403 | |
| 482.00 | 11,820 | 564.5 | 10,977 | 34,305 | 12,163 | |

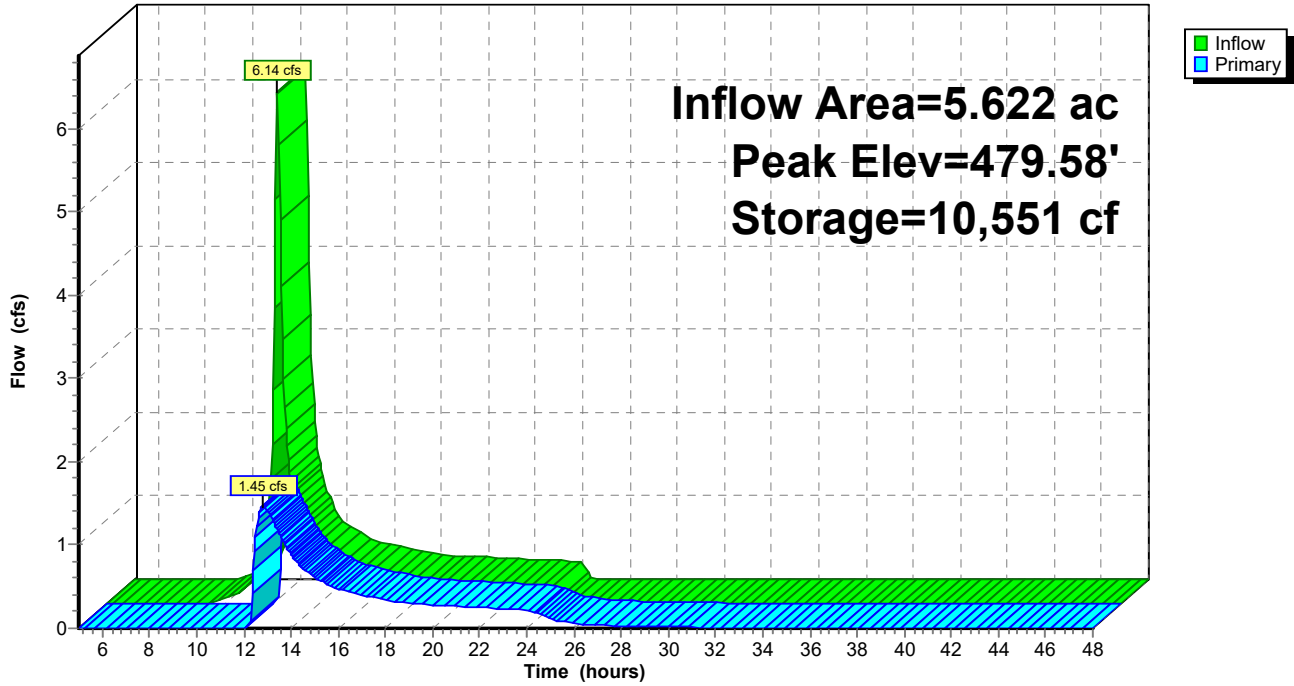
| Device | Routing | Invert | Outlet Devices |
|--------|----------|---------|---|
| #1 | Primary | 478.00' | 18.0" Round Culvert L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 478.00' / 476.00' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf |
| #2 | Device 1 | 479.00' | 15.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads |
| #3 | Device 1 | 481.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads |
| #4 | Primary | 481.00' | 20.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 |

Primary OutFlow Max=1.45 cfs @ 12.81 hrs HW=479.58' (Free Discharge)

- 1=Culvert (Passes 1.45 cfs of 6.12 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 1.45 cfs @ 2.60 fps)
- 3=Orifice/Grate (Controls 0.00 cfs)
- 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 4P: P-5

Hydrograph



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Page 32

Summary for Pond 5P: P-4

Inflow Area = 4.786 ac, 0.71% Impervious, Inflow Depth = 0.82" for 2-yr event
 Inflow = 2.60 cfs @ 12.27 hrs, Volume= 0.325 af
 Outflow = 0.39 cfs @ 13.87 hrs, Volume= 0.225 af, Atten= 85%, Lag= 96.3 min
 Primary = 0.39 cfs @ 13.87 hrs, Volume= 0.225 af
 Routed to Link AP-2 : AP-2

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 461.29' @ 13.87 hrs Surf.Area= 5,108 sf Storage= 5,767 cf

Plug-Flow detention time= 300.4 min calculated for 0.225 af (69% of inflow)
 Center-of-Mass det. time= 174.1 min (1,105.7 - 931.6)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 460.00' | 23,498 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) | |
| 460.00 | 3,869 | 309.7 | 0 | 0 | 3,869 | |
| 461.00 | 4,826 | 328.5 | 4,339 | 4,339 | 4,876 | |
| 462.00 | 5,840 | 347.4 | 5,325 | 9,664 | 5,947 | |
| 463.00 | 6,910 | 366.2 | 6,368 | 16,031 | 7,073 | |
| 464.00 | 8,037 | 385.1 | 7,466 | 23,498 | 8,263 | |

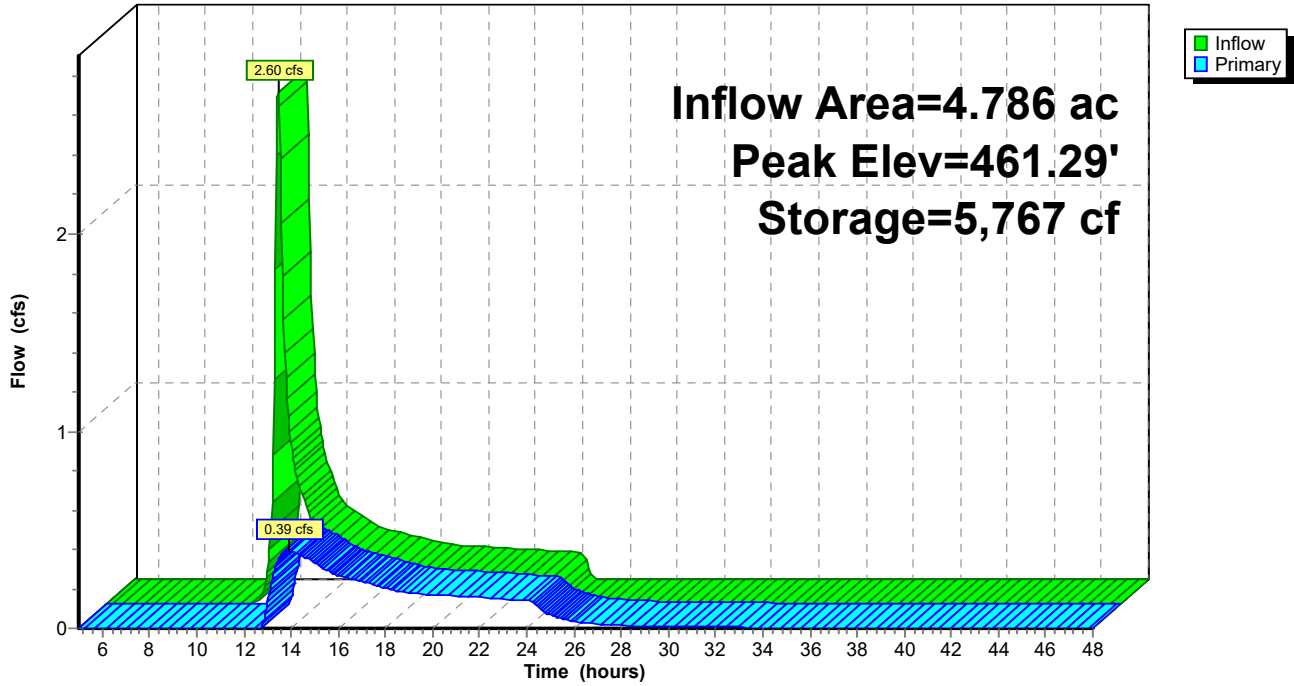
| Device | Routing | Invert | Outlet Devices |
|--------|----------|---------|---|
| #1 | Primary | 460.00' | 18.0" Round Culvert L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 460.00' / 458.00' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf |
| #2 | Device 1 | 461.00' | 15.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads |
| #3 | Device 1 | 463.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads |
| #4 | Primary | 463.00' | 15.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 |

Primary OutFlow Max=0.39 cfs @ 13.87 hrs HW=461.29' (Free Discharge)

- 1=Culvert (Passes 0.39 cfs of 4.92 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 0.39 cfs @ 1.83 fps)
- 3=Orifice/Grate (Controls 0.00 cfs)
- 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 5P: P-4

Hydrograph



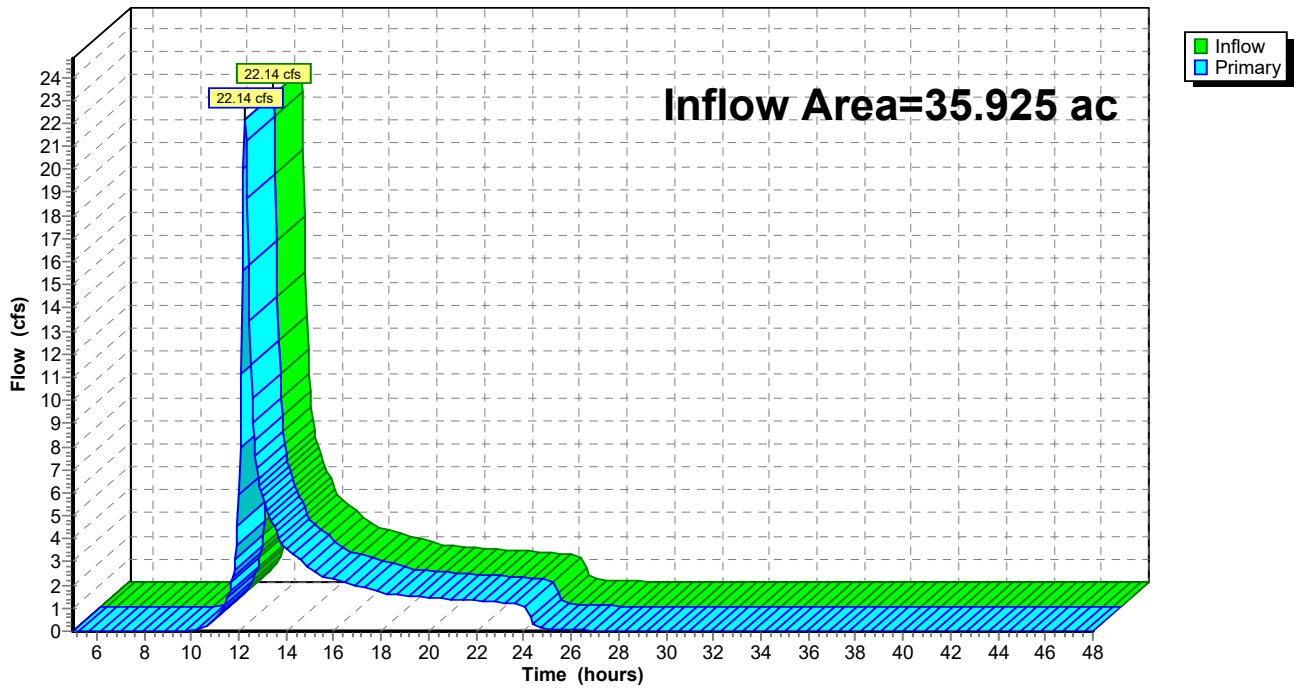
Summary for Link AP-1: AP-1

Inflow Area = 35.925 ac, 0.09% Impervious, Inflow Depth = 1.01" for 2-yr event
Inflow = 22.14 cfs @ 12.26 hrs, Volume= 3.021 af
Primary = 22.14 cfs @ 12.26 hrs, Volume= 3.021 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link AP-1: AP-1

Hydrograph



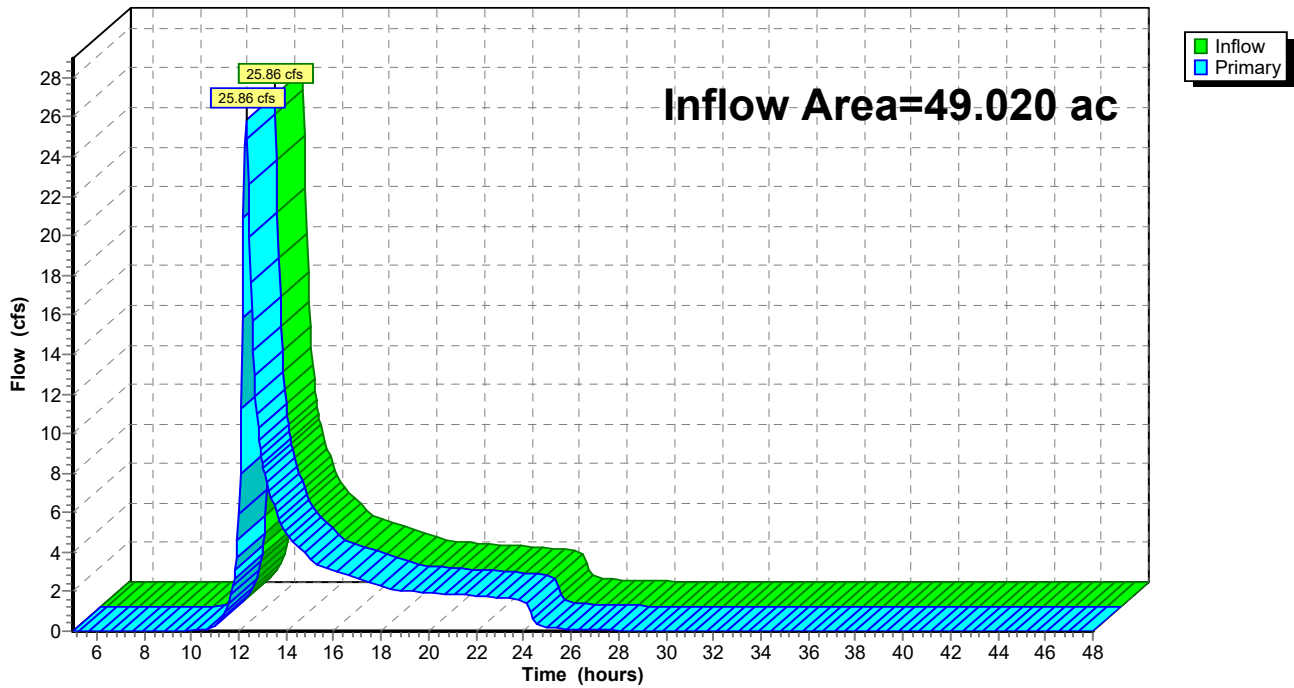
Summary for Link AP-2: AP-2

Inflow Area = 49.020 ac, 0.62% Impervious, Inflow Depth = 0.98" for 2-yr event
Inflow = 25.86 cfs @ 12.30 hrs, Volume= 4.006 af
Primary = 25.86 cfs @ 12.30 hrs, Volume= 4.006 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link AP-2: AP-2

Hydrograph



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Page 36

Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

| | |
|-----------------------------------|---|
| SubcatchmentPDA-1: PDA-1 | Runoff Area=2.493 ac 0.00% Impervious Runoff Depth=2.53" Flow Length=720' Tc=13.0 min CN=60 Runoff=5.24 cfs 0.526 af |
| SubcatchmentPDA-2A: PDA-2A | Runoff Area=24.113 ac 0.00% Impervious Runoff Depth=3.74" Flow Length=1,686' Tc=16.6 min CN=72 Runoff=69.41 cfs 7.523 af |
| SubcatchmentPDA-2B: PDA-2B | Runoff Area=4.751 ac 0.72% Impervious Runoff Depth=2.93" Flow Length=813' Tc=14.8 min CN=64 Runoff=11.07 cfs 1.158 af |
| SubcatchmentPDA-2C: PDA-2C | Runoff Area=1.880 ac 0.00% Impervious Runoff Depth=3.64" Flow Length=482' Tc=7.3 min CN=71 Runoff=7.12 cfs 0.570 af |
| SubcatchmentPDA-2D: PDA-2D | Runoff Area=2.688 ac 0.00% Impervious Runoff Depth=3.43" Flow Length=618' Tc=12.3 min CN=69 Runoff=8.02 cfs 0.769 af |
| SubcatchmentPDA-3A: PDA-3A | Runoff Area=34.353 ac 0.10% Impervious Runoff Depth=3.33" Flow Length=2,518' Tc=19.6 min CN=68 Runoff=80.89 cfs 9.531 af |
| SubcatchmentPDA-3B: PDA-3B | Runoff Area=4.786 ac 0.71% Impervious Runoff Depth=3.03" Flow Length=774' Tc=16.2 min CN=65 Runoff=11.12 cfs 1.207 af |
| SubcatchmentPDA-3C: PDA-3C | Runoff Area=5.622 ac 0.00% Impervious Runoff Depth=4.06" Flow Length=812' Tc=14.7 min CN=75 Runoff=18.30 cfs 1.903 af |
| SubcatchmentPDA-4: PDA-4 | Runoff Area=4.259 ac 5.59% Impervious Runoff Depth=4.06" Flow Length=1,349' Tc=15.8 min CN=75 Runoff=13.50 cfs 1.441 af |
| Pond 1P: P=1 | Peak Elev=428.77' Storage=11,135 cf Inflow=11.07 cfs 1.158 af Outflow=6.31 cfs 1.081 af |
| Pond 2P: P-2 | Peak Elev=419.03' Storage=7,224 cf Inflow=7.12 cfs 0.570 af Outflow=3.95 cfs 0.492 af |
| Pond 3P: P-3 | Peak Elev=458.32' Storage=8,064 cf Inflow=8.02 cfs 0.769 af Outflow=4.94 cfs 0.700 af |
| Pond 4P: P-5 | Peak Elev=481.10' Storage=24,343 cf Inflow=18.30 cfs 1.903 af Outflow=9.86 cfs 1.758 af |
| Pond 5P: P-4 | Peak Elev=462.60' Storage=13,346 cf Inflow=11.12 cfs 1.207 af Outflow=5.83 cfs 1.107 af |
| Link AP-1: AP-1 | Inflow=88.31 cfs 10.322 af Primary=88.31 cfs 10.322 af |
| Link AP-2: AP-2 | Inflow=105.08 cfs 13.838 af Primary=105.08 cfs 13.838 af |

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Page 37

Total Runoff Area = 84.945 ac Runoff Volume = 24.629 af Average Runoff Depth = 3.48"
99.60% Pervious = 84.605 ac 0.40% Impervious = 0.340 ac

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NRCC 24-hr D 25-yr Rainfall=6.90"

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Page 38

Summary for Subcatchment PDA-1: PDA-1

Runoff = 5.24 cfs @ 12.21 hrs, Volume= 0.526 af, Depth= 2.53"
 Routed to Link AP-1 : AP-1

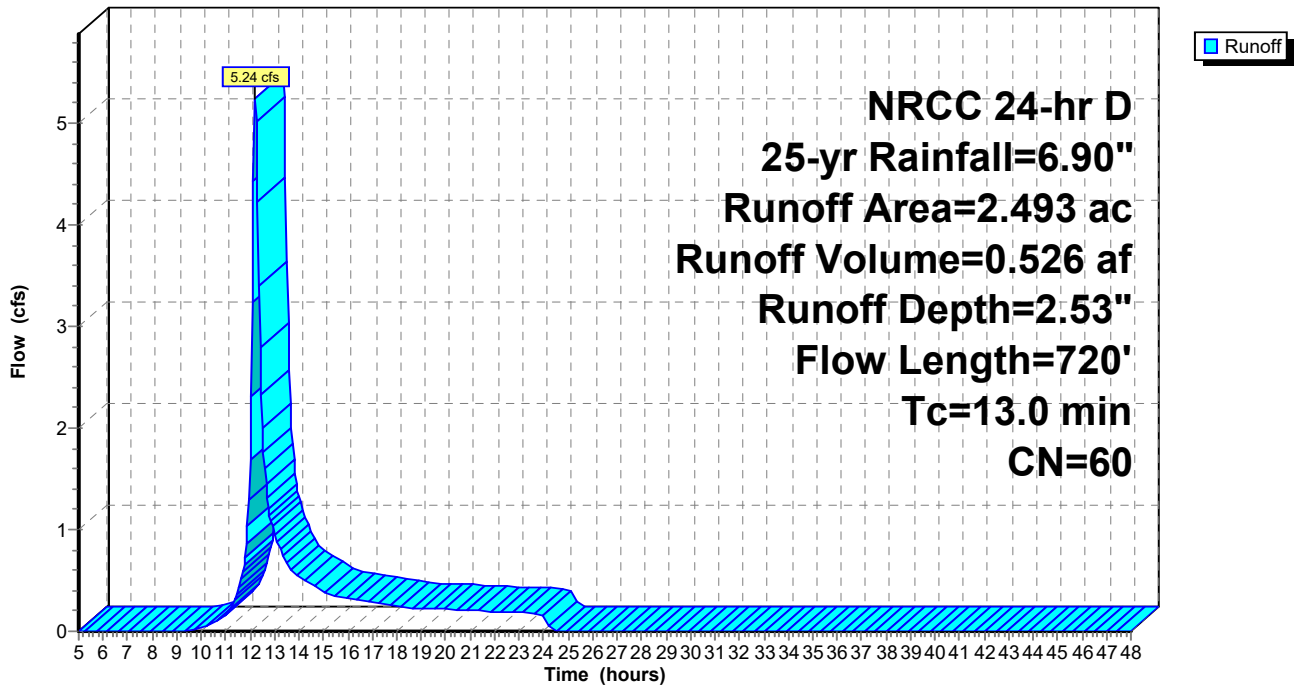
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 25-yr Rainfall=6.90"

| Area (ac) | CN | Description |
|-----------|----|---------------------------|
| 1.713 | 60 | Woods, Fair, HSG B |
| 0.730 | 58 | Meadow, non-grazed, HSG B |
| 0.050 | 96 | Gravel surface, HSG B |
| 2.493 | 60 | Weighted Average |
| 2.493 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|---|
| 8.0 | 100 | 0.2000 | 0.21 | | Sheet Flow, A-B |
| 5.0 | 620 | 0.1710 | 2.07 | | Woods: Light underbrush n= 0.400 P2= 3.62" Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 13.0 | 720 | Total | | | |

Subcatchment PDA-1: PDA-1

Hydrograph



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NRCC 24-hr D 25-yr Rainfall=6.90"

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Page 39

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

Runoff = 69.41 cfs @ 12.25 hrs, Volume= 7.523 af, Depth= 3.74"
 Routed to Link AP-1 : AP-1

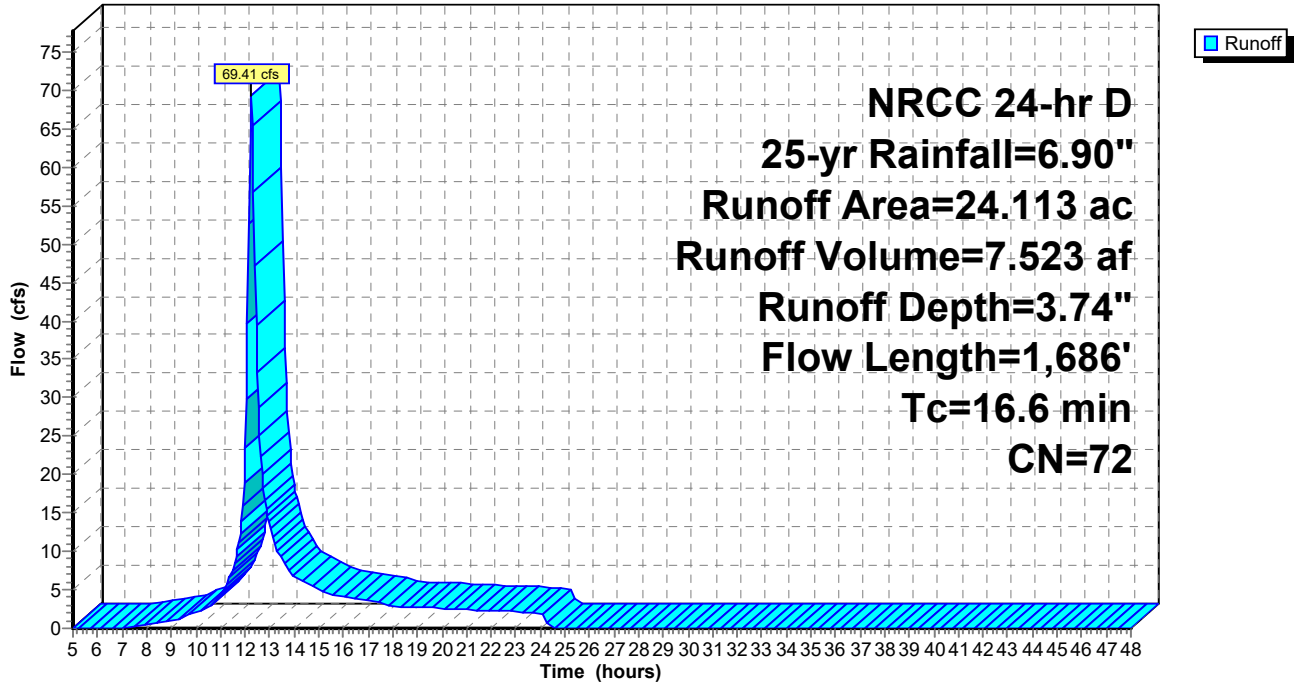
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 25-yr Rainfall=6.90"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 6.774 | 60 | Woods, Fair, HSG B |
| 13.166 | 79 | Woods, Fair, HSG D |
| 1.006 | 58 | Meadow, non-grazed, HSG B |
| * 1.425 | 65 | Meadow, non-grazed, HSG B/C |
| 1.742 | 78 | Meadow, non-grazed, HSG D |
| 24.113 | 72 | Weighted Average |
| 24.113 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 10.2 | 100 | 0.1100 | 0.16 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 4.7 | 635 | 0.2000 | 2.24 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 1.7 | 951 | 0.0421 | 9.10 | 151.99 | Channel Flow, C-D Area= 16.7 sf Perim= 12.8' r= 1.30' n= 0.040 Winding stream, pools & shoals |
| 16.6 | 1,686 | Total | | | |

Subcatchment PDA-2A: PDA-2A

Hydrograph



Riggs St_Prop.

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NRCC 24-hr D 25-yr Rainfall=6.90"

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Page 41

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

Runoff = 11.07 cfs @ 12.24 hrs, Volume= 1.158 af, Depth= 2.93"
 Routed to Pond 1P : P=1

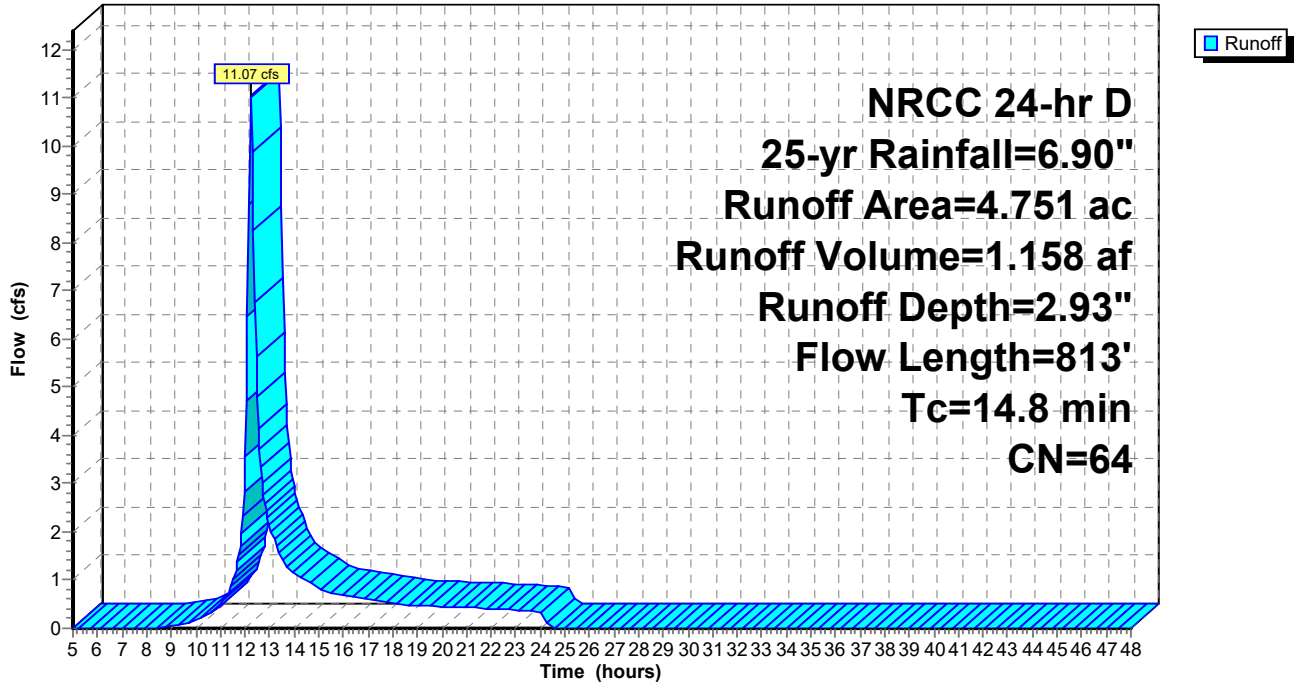
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 25-yr Rainfall=6.90"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 0.959 | 60 | Woods, Fair, HSG B |
| 0.012 | 79 | Woods, Fair, HSG D |
| 0.395 | 58 | Meadow, non-grazed, HSG B |
| * 3.239 | 65 | Meadow, non-grazed, HSG B/C |
| * 0.034 | 98 | Unconnected roofs, HSG B/C |
| 0.112 | 96 | Gravel surface, HSG B |
| 4.751 | 64 | Weighted Average |
| 4.717 | | 99.28% Pervious Area |
| 0.034 | | 0.72% Impervious Area |
| 0.034 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 10.2 | 100 | 0.1100 | 0.16 | | Sheet Flow, A-B |
| | | | | | Woods: Light underbrush n= 0.400 P2= 3.62" |
| 0.2 | 33 | 0.3000 | 2.74 | | Shallow Concentrated Flow, B-C |
| | | | | | Woodland Kv= 5.0 fps |
| 4.4 | 680 | 0.1367 | 2.59 | | Shallow Concentrated Flow, C-D |
| | | | | | Short Grass Pasture Kv= 7.0 fps |
| 14.8 | 813 | Total | | | |

Subcatchment PDA-2B: PDA-2B

Hydrograph



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Page 43

Summary for Subcatchment PDA-2C: PDA-2C

Runoff = 7.12 cfs @ 12.15 hrs, Volume= 0.570 af, Depth= 3.64"
 Routed to Pond 2P : P-2

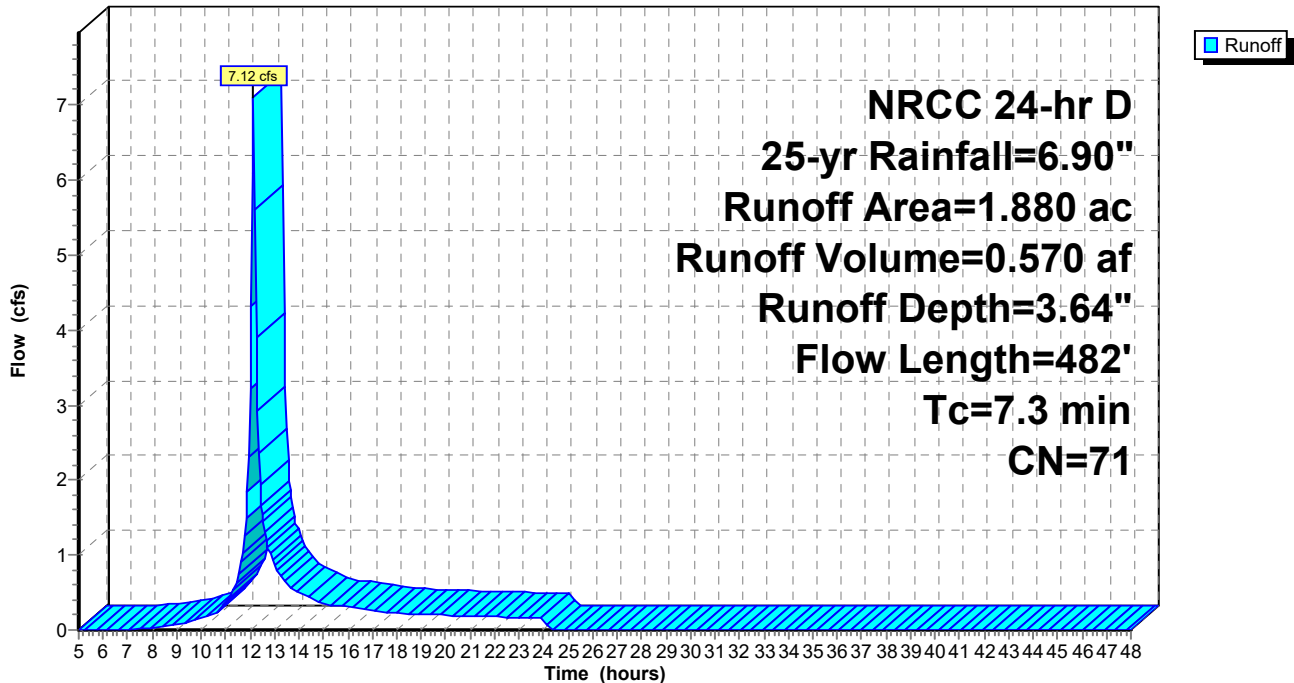
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 25-yr Rainfall=6.90"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 0.089 | 58 | Meadow, non-grazed, HSG B |
| * 0.667 | 65 | Meadow, non-grazed, HSG B/C |
| 0.930 | 78 | Meadow, non-grazed, HSG D |
| 0.105 | 60 | Woods, Fair, HSG B |
| 0.089 | 79 | Woods, Fair, HSG D |
| 1.880 | 71 | Weighted Average |
| 1.880 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 5.1 | 100 | 0.2200 | 0.32 | | Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.62" |
| 2.0 | 340 | 0.1647 | 2.84 | | Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps |
| 0.2 | 42 | 0.0476 | 3.27 | | Shallow Concentrated Flow, C-D Grassed Waterway Kv= 15.0 fps |
| 7.3 | 482 | Total | | | |

Subcatchment PDA-2C: PDA-2C

Hydrograph



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Page 44

Summary for Subcatchment PDA-2D: PDA-2D

Runoff = 8.02 cfs @ 12.20 hrs, Volume= 0.769 af, Depth= 3.43"
 Routed to Pond 3P : P-3

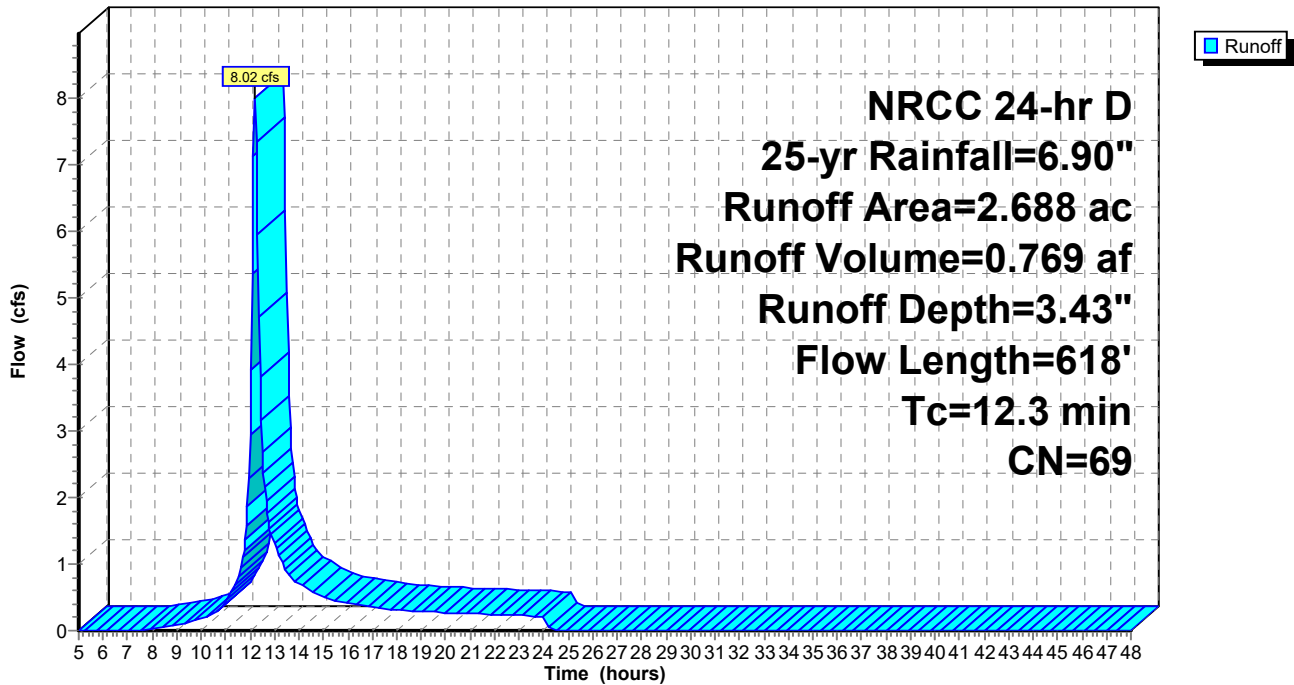
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 25-yr Rainfall=6.90"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| * 1.831 | 65 | Meadow, non-grazed, HSG B/C |
| 0.857 | 78 | Meadow, non-grazed, HSG D |
| 2.688 | 69 | Weighted Average |
| 2.688 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|---------------------------------------|
| 9.3 | 100 | 0.0500 | 0.18 | | Sheet Flow, A-B |
| | | | | | Grass: Dense n= 0.240 P2= 3.62" |
| 3.0 | 518 | 0.1654 | 2.85 | | Shallow Concentrated Flow, B-C |
| | | | | | Short Grass Pasture Kv= 7.0 fps |
| 12.3 | 618 | Total | | | |

Subcatchment PDA-2D: PDA-2D

Hydrograph



Riggs St_Prop.

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NRCC 24-hr D 25-yr Rainfall=6.90"

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Page 45

Summary for Subcatchment PDA-3A: PDA-3A

Runoff = 80.89 cfs @ 12.29 hrs, Volume= 9.531 af, Depth= 3.33"
 Routed to Link AP-2 : AP-2

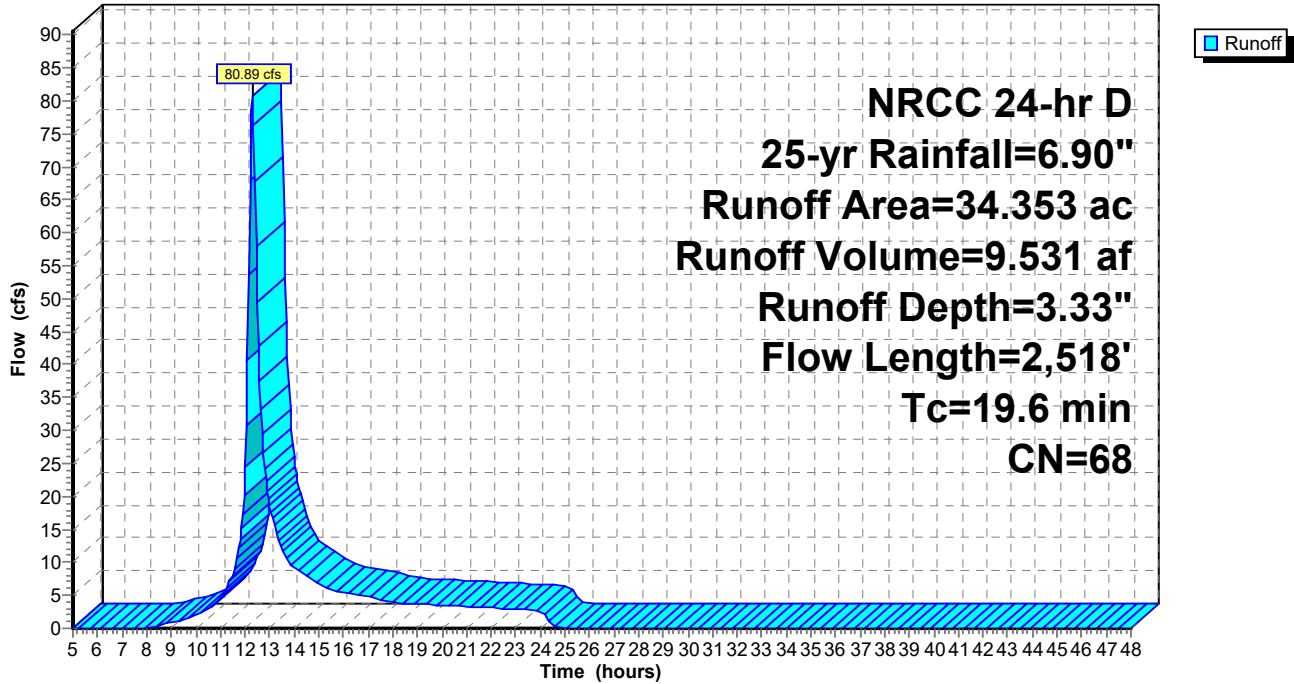
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 25-yr Rainfall=6.90"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 0.515 | 36 | Woods, Fair, HSG A |
| 12.604 | 60 | Woods, Fair, HSG B |
| 10.470 | 73 | Woods, Fair, HSG C |
| 5.295 | 79 | Woods, Fair, HSG D |
| * 2.024 | 75 | Meadow, non-grazed, HSG C/D |
| 0.034 | 98 | Unconnected pavement, HSG D |
| 0.397 | 96 | Gravel surface, HSG C |
| 1.195 | 58 | Meadow, non-grazed, HSG B |
| 0.931 | 71 | Meadow, non-grazed, HSG C |
| 0.448 | 78 | Meadow, non-grazed, HSG D |
| * 0.440 | 65 | Meadow, non-grazed, HSG B/C |
| 34.353 | 68 | Weighted Average |
| 34.319 | | 99.90% Pervious Area |
| 0.034 | | 0.10% Impervious Area |
| 0.034 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 8.8 | 100 | 0.1600 | 0.19 | | Sheet Flow, A-B |
| | | | | | Woods: Light underbrush n= 0.400 P2= 3.62" |
| 8.1 | 735 | 0.0912 | 1.51 | | Shallow Concentrated Flow, B-C |
| | | | | | Woodland Kv= 5.0 fps |
| 2.7 | 1,683 | 0.0552 | 10.50 | 346.60 | Channel Flow, C-D |
| | | | | | Area= 33.0 sf Perim= 25.0' r= 1.32' |
| | | | | | n= 0.040 Winding stream, pools & shoals |
| 19.6 | 2,518 | Total | | | |

Subcatchment PDA-3A: PDA-3A

Hydrograph



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Page 47

Summary for Subcatchment PDA-3B: PDA-3B

[47] Hint: Peak is 106% of capacity of segment #4

Runoff = 11.12 cfs @ 12.25 hrs, Volume= 1.207 af, Depth= 3.03"
 Routed to Pond 5P : P-4

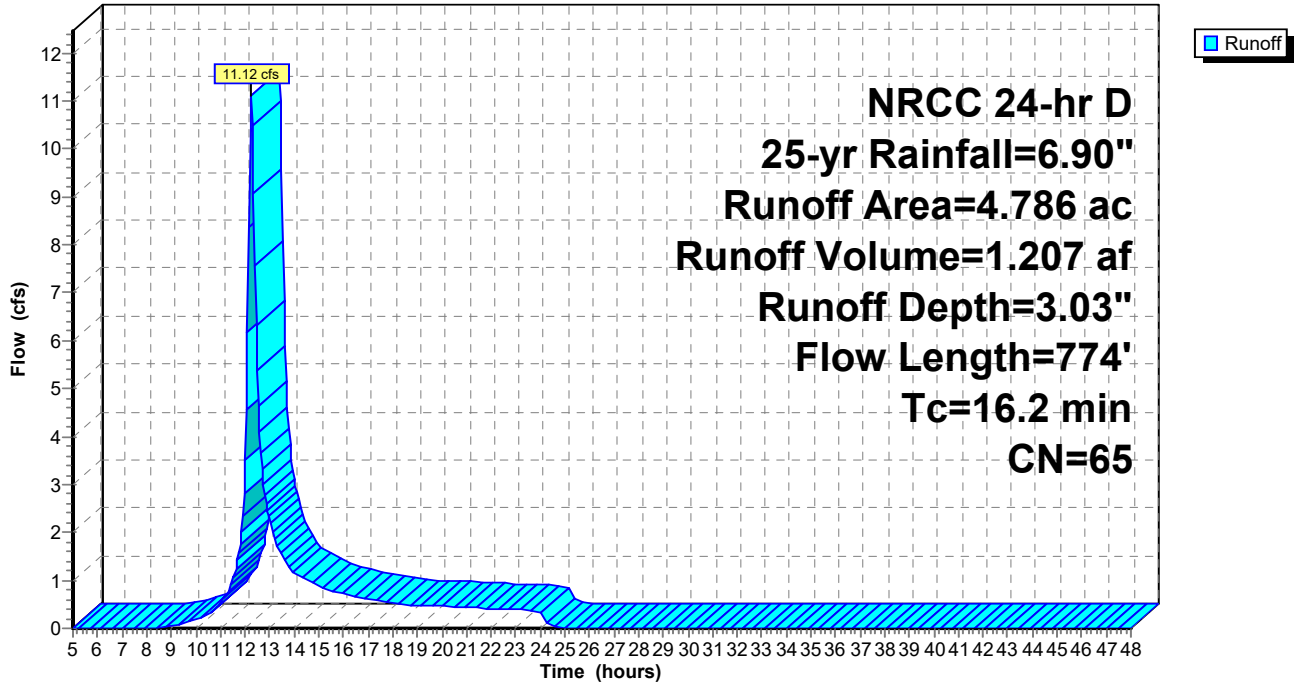
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 25-yr Rainfall=6.90"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| * 4.728 | 65 | Meadow, non-grazed, HSG B/C |
| 0.024 | 96 | Gravel surface, HSG B |
| 0.034 | 98 | Unconnected pavement, HSG B |
| 4.786 | 65 | Weighted Average |
| 4.752 | | 99.29% Pervious Area |
| 0.034 | | 0.71% Impervious Area |
| 0.034 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 10.6 | 100 | 0.1000 | 0.16 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 5.0 | 547 | 0.1334 | 1.83 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 0.4 | 72 | 0.0444 | 3.16 | | Shallow Concentrated Flow, C-D Grassed Waterway Kv= 15.0 fps |
| 0.2 | 55 | 0.0100 | 5.94 | 10.50 | Pipe Channel, D-E 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior |
| 16.2 | 774 | Total | | | |

Subcatchment PDA-3B: PDA-3B

Hydrograph



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Page 49

Summary for Subcatchment PDA-3C: PDA-3C

Runoff = 18.30 cfs @ 12.23 hrs, Volume= 1.903 af, Depth= 4.06"
 Routed to Pond 4P : P-5

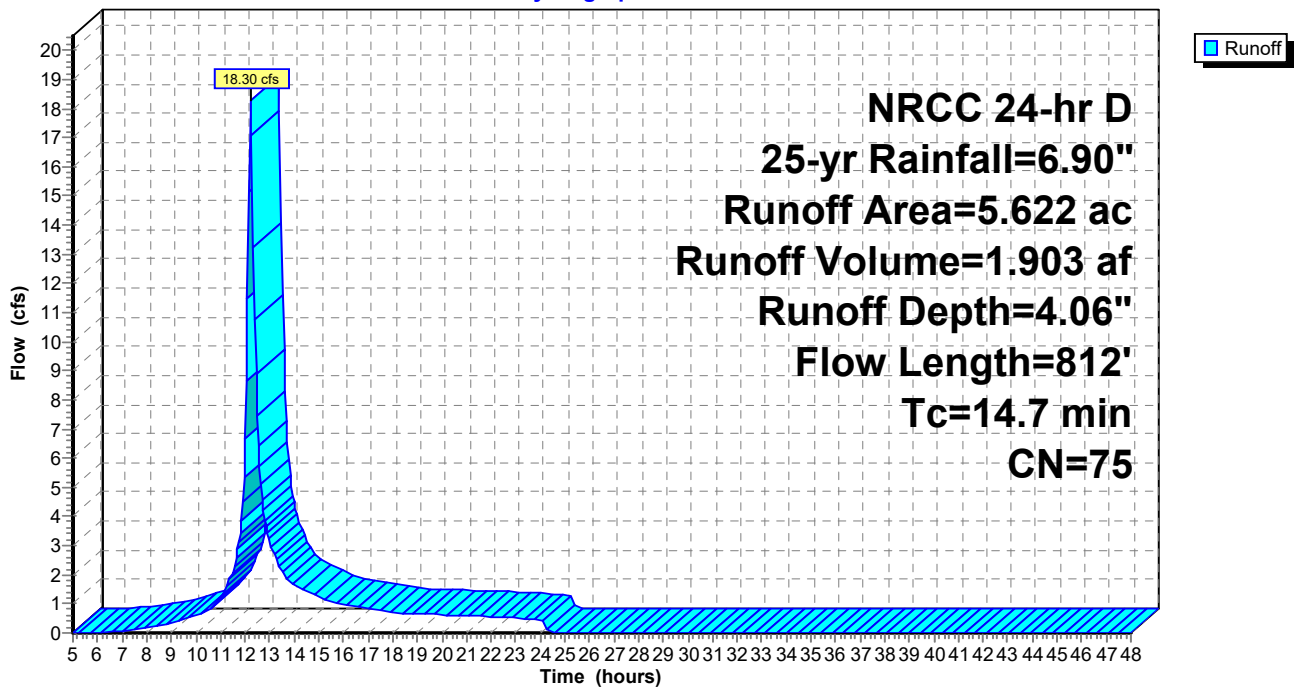
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 25-yr Rainfall=6.90"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 1.062 | 73 | Woods, Fair, HSG C |
| 0.126 | 71 | Meadow, non-grazed, HSG C |
| * 4.434 | 75 | Meadow, non-grazed, HSG C/D |
| 5.622 | 75 | Weighted Average |
| 5.622 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 9.5 | 100 | 0.1300 | 0.17 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 2.0 | 249 | 0.1687 | 2.05 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 3.2 | 463 | 0.1210 | 2.43 | | Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps |
| 14.7 | 812 | Total | | | |

Subcatchment PDA-3C: PDA-3C

Hydrograph



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Page 50

Summary for Subcatchment PDA-4: PDA-4

Runoff = 13.50 cfs @ 12.24 hrs, Volume= 1.441 af, Depth= 4.06"
 Routed to Link AP-2 : AP-2

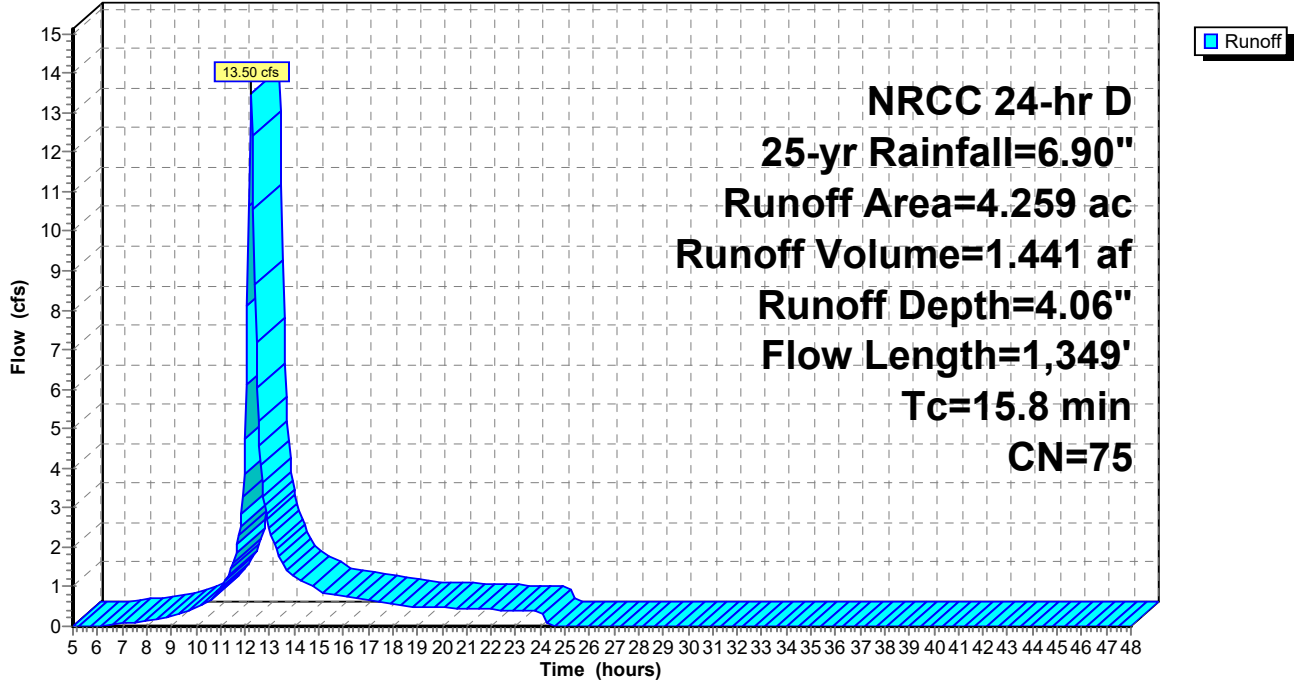
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 25-yr Rainfall=6.90"

| Area (ac) | CN | Description |
|-----------|----|-------------------------------------|
| 1.773 | 73 | Woods, Fair, HSG C |
| 0.005 | 79 | Woods, Fair, HSG D |
| 0.220 | 98 | Paved roads w/curbs & sewers, HSG C |
| 0.018 | 98 | Paved roads w/curbs & sewers, HSG D |
| * 1.408 | 75 | Meadow, non-grazed, HSG C/D |
| 0.819 | 71 | Meadow, non-grazed, HSG C |
| 0.010 | 96 | Gravel surface, HSG C |
| 0.003 | 96 | Gravel surface, HSG D |
| 0.003 | 78 | Meadow, non-grazed, HSG D |
| 4.259 | 75 | Weighted Average |
| 4.021 | | 94.41% Pervious Area |
| 0.238 | | 5.59% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 12.2 | 100 | 0.0700 | 0.14 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 2.3 | 301 | 0.1827 | 2.14 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 0.2 | 63 | 0.0635 | 5.12 | | Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps |
| 1.1 | 885 | 0.0575 | 13.67 | 16.78 | Pipe Channel, D-E 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Corrugated PP, smooth interior |
| 15.8 | 1,349 | Total | | | |

Subcatchment PDA-4: PDA-4

Hydrograph



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Page 52

Summary for Pond 1P: P=1

Inflow Area = 4.751 ac, 0.72% Impervious, Inflow Depth = 2.93" for 25-yr event
 Inflow = 11.07 cfs @ 12.24 hrs, Volume= 1.158 af
 Outflow = 6.31 cfs @ 12.42 hrs, Volume= 1.081 af, Atten= 43%, Lag= 11.1 min
 Primary = 6.31 cfs @ 12.42 hrs, Volume= 1.081 af
 Routed to Link AP-1 : AP-1

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 428.77' @ 12.42 hrs Surf.Area= 5,095 sf Storage= 11,135 cf

Plug-Flow detention time= 81.9 min calculated for 1.080 af (93% of inflow)
 Center-of-Mass det. time= 47.4 min (928.9 - 881.5)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 426.00' | 18,067 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) | |
| 426.00 | 3,028 | 223.1 | 0 | 0 | 3,028 | |
| 427.00 | 3,726 | 242.0 | 3,371 | 3,371 | 3,765 | |
| 428.00 | 4,480 | 260.8 | 4,097 | 7,468 | 4,558 | |
| 429.00 | 5,291 | 279.7 | 4,880 | 12,348 | 5,415 | |
| 430.00 | 6,158 | 298.5 | 5,719 | 18,067 | 6,327 | |

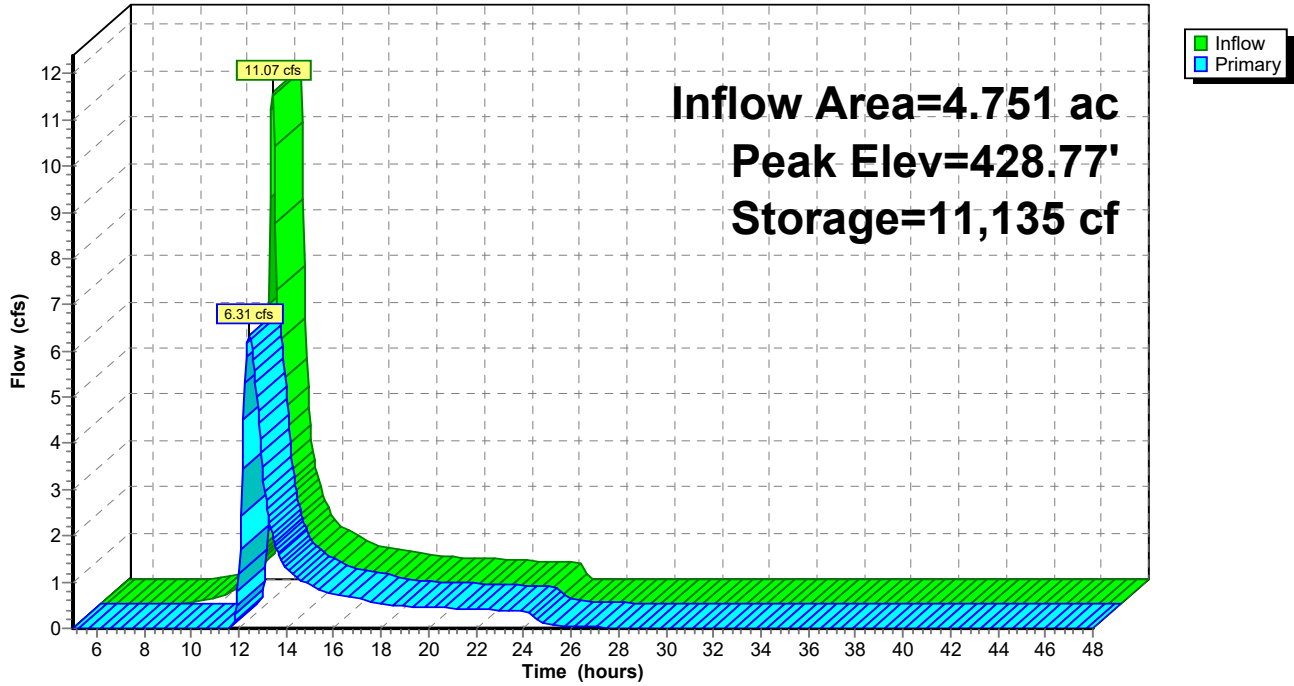
| Device | Routing | Invert | Outlet Devices | |
|--------|----------|---------|---|--|
| #1 | Primary | 426.00' | 18.0" Round Culvert L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 426.00' / 425.00' S= 0.0154 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf | |
| #2 | Device 1 | 427.00' | 15.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #3 | Device 1 | 429.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #4 | Primary | 429.00' | 25.0' long + 3.0 ' SideZ x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 | |

Primary OutFlow Max=6.30 cfs @ 12.42 hrs HW=428.76' (Free Discharge)

- 1=Culvert (Passes 6.30 cfs of 9.52 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 6.30 cfs @ 5.13 fps)
- 3=Orifice/Grate (Controls 0.00 cfs)
- 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: P=1

Hydrograph



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Page 54

Summary for Pond 2P: P-2

Inflow Area = 1.880 ac, 0.00% Impervious, Inflow Depth = 3.64" for 25-yr event
 Inflow = 7.12 cfs @ 12.15 hrs, Volume= 0.570 af
 Outflow = 3.95 cfs @ 12.26 hrs, Volume= 0.492 af, Atten= 44%, Lag= 6.6 min
 Primary = 3.95 cfs @ 12.26 hrs, Volume= 0.492 af
 Routed to Link AP-1 : AP-1

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 419.03' @ 12.26 hrs Surf.Area= 3,316 sf Storage= 7,224 cf

Plug-Flow detention time= 131.9 min calculated for 0.492 af (86% of inflow)
 Center-of-Mass det. time= 64.1 min (918.6 - 854.5)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 416.00' | 10,757 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) | |
| 416.00 | 1,538 | 166.9 | 0 | 0 | 1,538 | |
| 417.00 | 2,067 | 185.7 | 1,796 | 1,796 | 2,094 | |
| 418.00 | 2,653 | 204.6 | 2,354 | 4,150 | 2,713 | |
| 419.00 | 3,295 | 223.4 | 2,968 | 7,118 | 3,388 | |
| 420.00 | 3,993 | 242.3 | 3,638 | 10,757 | 4,126 | |

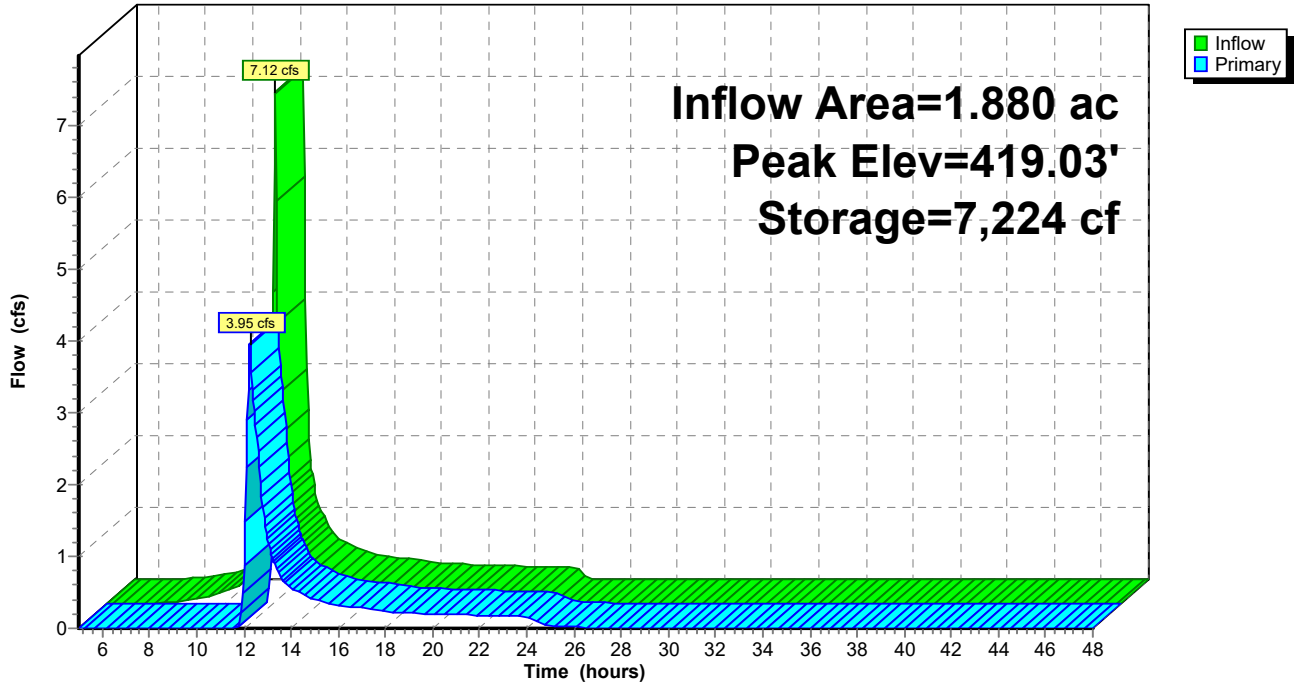
| Device | Routing | Invert | Outlet Devices | |
|--------|----------|---------|---|--|
| #1 | Primary | 416.00' | 18.0" Round Culvert L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 416.00' / 414.00' S= 0.0500 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf | |
| #2 | Device 1 | 417.70' | 12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #3 | Device 1 | 419.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #4 | Primary | 419.00' | 20.0' long + 3.0 ' SideZ x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 | |

Primary OutFlow Max=3.82 cfs @ 12.26 hrs HW=419.03' (Free Discharge)

- 1=Culvert (Passes 3.58 cfs of 10.14 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 3.44 cfs @ 4.38 fps)
- 3=Orifice/Grate (Weir Controls 0.14 cfs @ 0.54 fps)
- 4=Broad-Crested Rectangular Weir (Weir Controls 0.24 cfs @ 0.44 fps)

Pond 2P: P-2

Hydrograph



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Page 56

Summary for Pond 3P: P-3

Inflow Area = 2.688 ac, 0.00% Impervious, Inflow Depth = 3.43" for 25-yr event
 Inflow = 8.02 cfs @ 12.20 hrs, Volume= 0.769 af
 Outflow = 4.94 cfs @ 12.35 hrs, Volume= 0.700 af, Atten= 38%, Lag= 8.5 min
 Primary = 4.94 cfs @ 12.35 hrs, Volume= 0.700 af
 Routed to Link AP-1 : AP-1

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 458.32' @ 12.35 hrs Surf.Area= 4,299 sf Storage= 8,064 cf

Plug-Flow detention time= 102.9 min calculated for 0.700 af (91% of inflow)
 Center-of-Mass det. time= 55.6 min (920.4 - 864.8)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 456.00' | 16,375 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) | |
| 456.00 | 2,689 | 209.2 | 0 | 0 | 2,689 | |
| 457.00 | 3,345 | 228.1 | 3,011 | 3,011 | 3,382 | |
| 458.00 | 4,057 | 246.9 | 3,695 | 6,706 | 4,131 | |
| 459.00 | 4,825 | 265.8 | 4,435 | 11,142 | 4,944 | |
| 460.00 | 5,652 | 284.6 | 5,233 | 16,375 | 5,812 | |

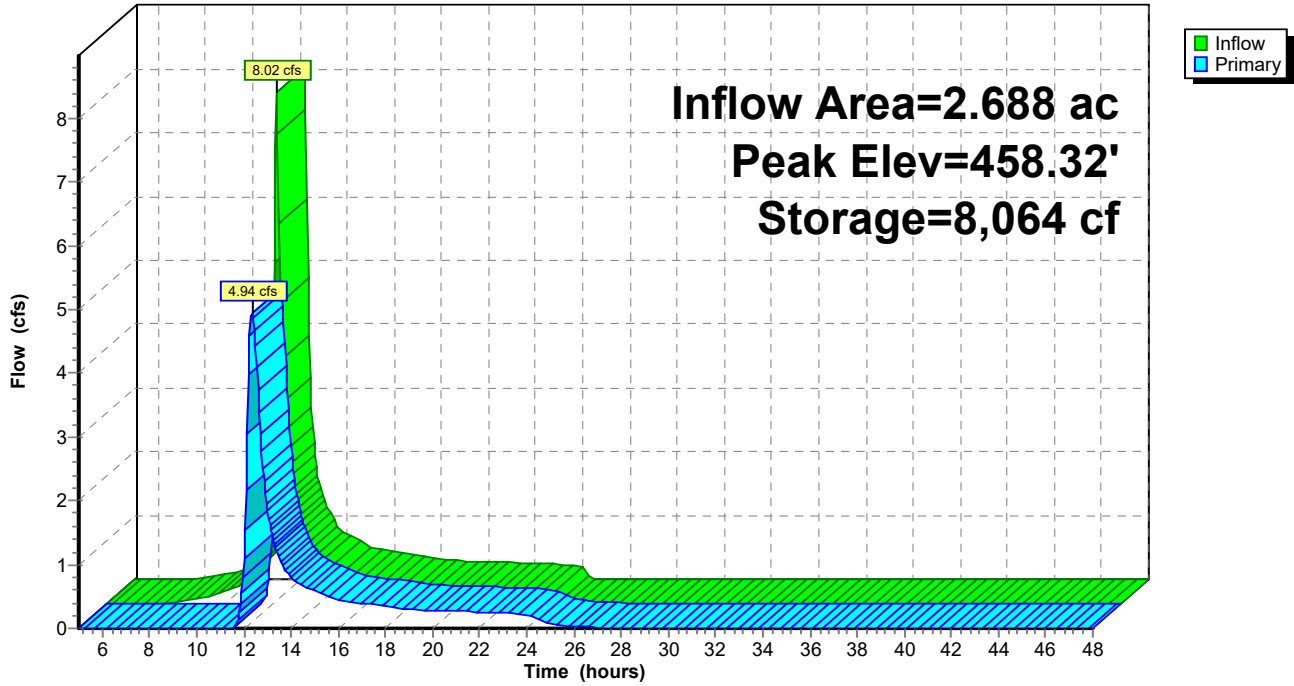
| Device | Routing | Invert | Outlet Devices | |
|--------|----------|---------|---|--|
| #1 | Primary | 456.00' | 18.0" Round Culvert L= 60.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 456.00' / 445.00' S= 0.1833 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf | |
| #2 | Device 1 | 457.00' | 15.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #3 | Device 1 | 459.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #4 | Primary | 459.00' | 16.0' long + 3.0 ' SideZ x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 | |

Primary OutFlow Max=4.94 cfs @ 12.35 hrs HW=458.32' (Free Discharge)

- 1=Culvert (Passes 4.94 cfs of 8.42 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 4.94 cfs @ 4.02 fps)
- 3=Orifice/Grate (Controls 0.00 cfs)
- 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: P-3

Hydrograph



Summary for Pond 4P: P-5

Inflow Area = 5.622 ac, 0.00% Impervious, Inflow Depth = 4.06" for 25-yr event
 Inflow = 18.30 cfs @ 12.23 hrs, Volume= 1.903 af
 Outflow = 9.86 cfs @ 12.43 hrs, Volume= 1.758 af, Atten= 46%, Lag= 11.9 min
 Primary = 9.86 cfs @ 12.43 hrs, Volume= 1.758 af
 Routed to Link AP-2 : AP-2

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 481.10' @ 12.43 hrs Surf.Area= 10,315 sf Storage= 24,343 cf

Plug-Flow detention time= 113.0 min calculated for 1.756 af (92% of inflow)
 Center-of-Mass det. time= 73.2 min (923.0 - 849.7)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 478.00' | 34,305 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) | |
| 478.00 | 5,499 | 489.1 | 0 | 0 | 5,499 | |
| 479.00 | 6,994 | 507.9 | 6,232 | 6,232 | 7,072 | |
| 480.00 | 8,546 | 526.8 | 7,757 | 13,989 | 8,712 | |
| 481.00 | 10,155 | 545.6 | 9,339 | 23,328 | 10,403 | |
| 482.00 | 11,820 | 564.5 | 10,977 | 34,305 | 12,163 | |

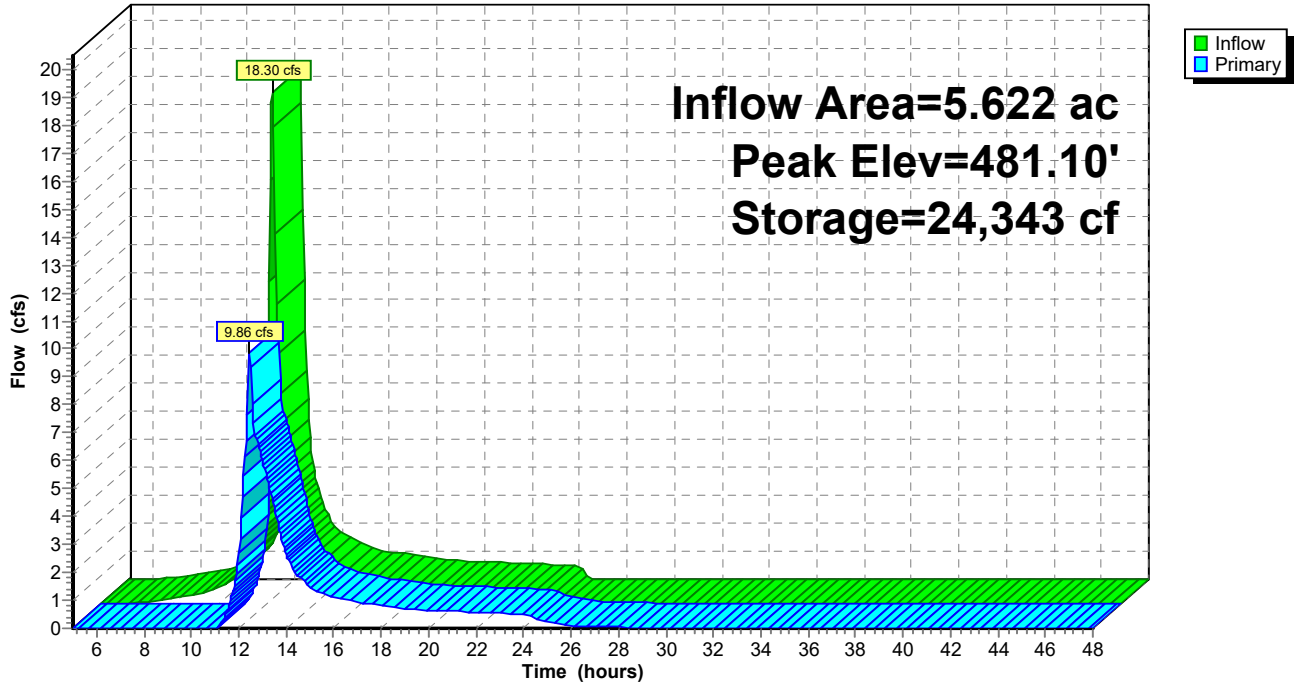
| Device | Routing | Invert | Outlet Devices | |
|--------|----------|---------|---|--|
| #1 | Primary | 478.00' | 18.0" Round Culvert L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 478.00' / 476.00' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf | |
| #2 | Device 1 | 479.00' | 15.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #3 | Device 1 | 481.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #4 | Primary | 481.00' | 20.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 | |

Primary OutFlow Max=9.71 cfs @ 12.43 hrs HW=481.10' (Free Discharge)

- 1=Culvert (Passes 8.10 cfs of 10.29 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 7.17 cfs @ 5.84 fps)
- 3=Orifice/Grate (Weir Controls 0.93 cfs @ 1.02 fps)
- 4=Broad-Crested Rectangular Weir (Weir Controls 1.61 cfs @ 0.83 fps)

Pond 4P: P-5

Hydrograph



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Page 60

Summary for Pond 5P: P-4

Inflow Area = 4.786 ac, 0.71% Impervious, Inflow Depth = 3.03" for 25-yr event
 Inflow = 11.12 cfs @ 12.25 hrs, Volume= 1.207 af
 Outflow = 5.83 cfs @ 12.48 hrs, Volume= 1.107 af, Atten= 48%, Lag= 13.4 min
 Primary = 5.83 cfs @ 12.48 hrs, Volume= 1.107 af
 Routed to Link AP-2 : AP-2

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 462.60' @ 12.48 hrs Surf.Area= 6,470 sf Storage= 13,346 cf

Plug-Flow detention time= 102.3 min calculated for 1.105 af (92% of inflow)
 Center-of-Mass det. time= 60.2 min (940.1 - 879.9)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 460.00' | 23,498 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) | |
| 460.00 | 3,869 | 309.7 | 0 | 0 | 3,869 | |
| 461.00 | 4,826 | 328.5 | 4,339 | 4,339 | 4,876 | |
| 462.00 | 5,840 | 347.4 | 5,325 | 9,664 | 5,947 | |
| 463.00 | 6,910 | 366.2 | 6,368 | 16,031 | 7,073 | |
| 464.00 | 8,037 | 385.1 | 7,466 | 23,498 | 8,263 | |

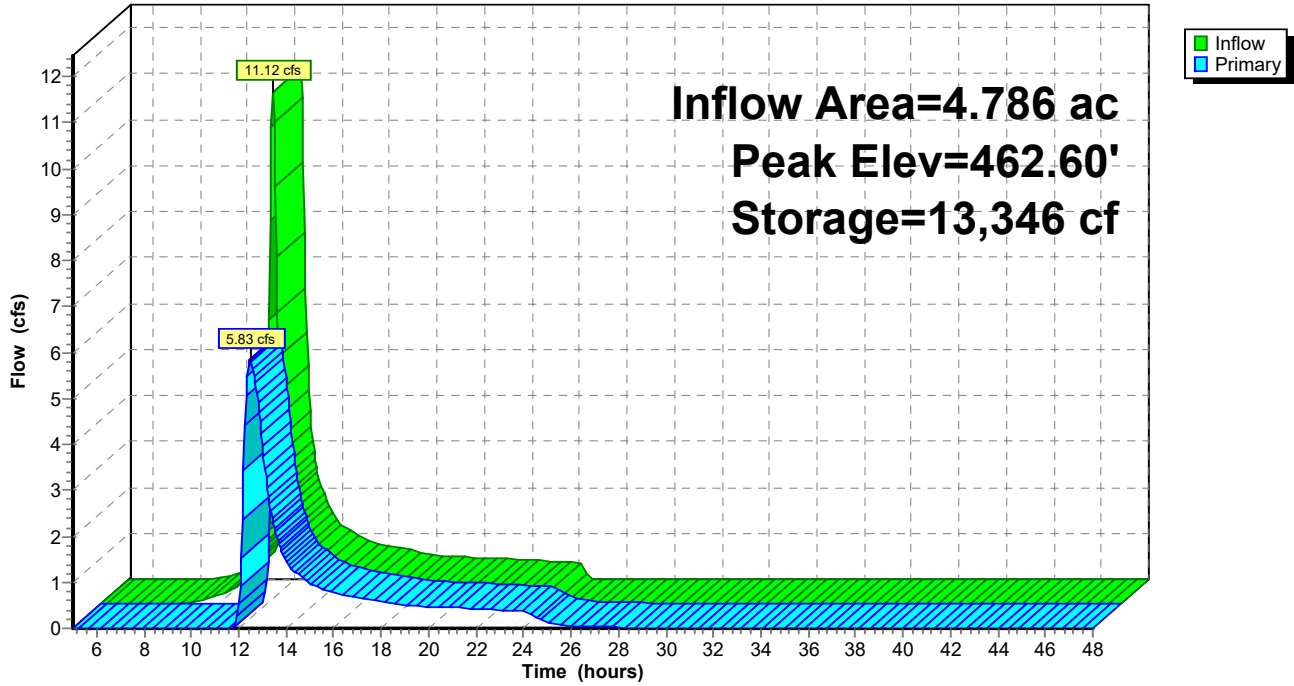
| Device | Routing | Invert | Outlet Devices |
|--------|----------|---------|---|
| #1 | Primary | 460.00' | 18.0" Round Culvert L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 460.00' / 458.00' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf |
| #2 | Device 1 | 461.00' | 15.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads |
| #3 | Device 1 | 463.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads |
| #4 | Primary | 463.00' | 15.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 |

Primary OutFlow Max=5.82 cfs @ 12.48 hrs HW=462.60' (Free Discharge)

- 1=Culvert (Passes 5.82 cfs of 9.13 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 5.82 cfs @ 4.74 fps)
- 3=Orifice/Grate (Controls 0.00 cfs)
- 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 5P: P-4

Hydrograph



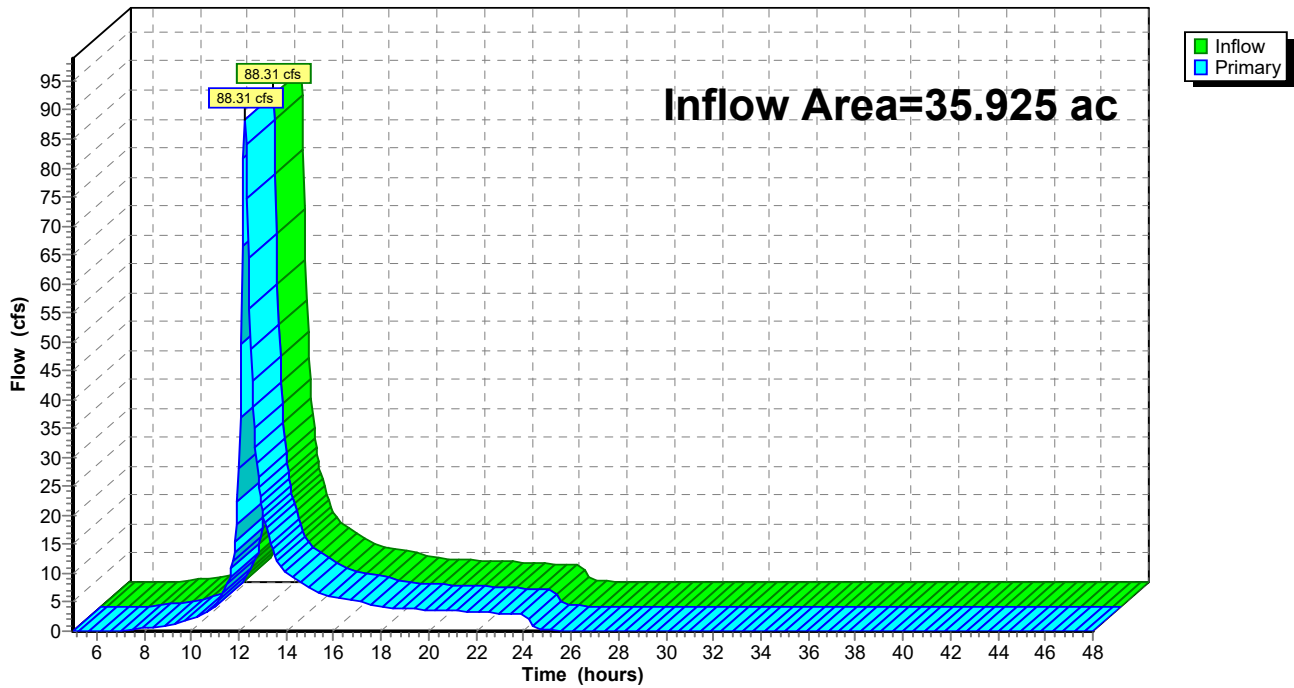
Summary for Link AP-1: AP-1

Inflow Area = 35.925 ac, 0.09% Impervious, Inflow Depth = 3.45" for 25-yr event
Inflow = 88.31 cfs @ 12.26 hrs, Volume= 10.322 af
Primary = 88.31 cfs @ 12.26 hrs, Volume= 10.322 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link AP-1: AP-1

Hydrograph



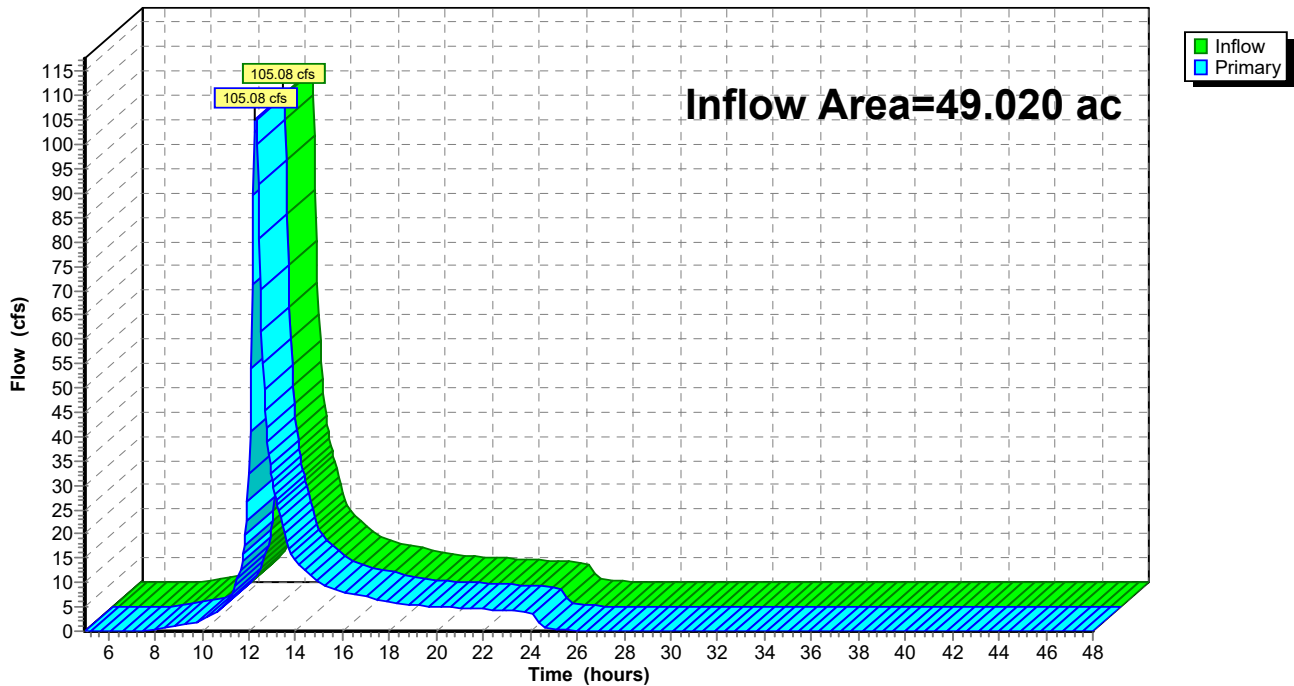
Summary for Link AP-2: AP-2

Inflow Area = 49.020 ac, 0.62% Impervious, Inflow Depth = 3.39" for 25-yr event
Inflow = 105.08 cfs @ 12.29 hrs, Volume= 13.838 af
Primary = 105.08 cfs @ 12.29 hrs, Volume= 13.838 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link AP-2: AP-2

Hydrograph



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Page 64

Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

| | |
|-----------------------------------|--|
| SubcatchmentPDA-1: PDA-1 | Runoff Area=2.493 ac 0.00% Impervious Runoff Depth=3.21" Flow Length=720' Tc=13.0 min CN=60 Runoff=6.72 cfs 0.666 af |
| SubcatchmentPDA-2A: PDA-2A | Runoff Area=24.113 ac 0.00% Impervious Runoff Depth=4.55" Flow Length=1,686' Tc=16.6 min CN=72 Runoff=84.17 cfs 9.134 af |
| SubcatchmentPDA-2B: PDA-2B | Runoff Area=4.751 ac 0.72% Impervious Runoff Depth=3.65" Flow Length=813' Tc=14.8 min CN=64 Runoff=13.88 cfs 1.444 af |
| SubcatchmentPDA-2C: PDA-2C | Runoff Area=1.880 ac 0.00% Impervious Runoff Depth=4.43" Flow Length=482' Tc=7.3 min CN=71 Runoff=8.64 cfs 0.694 af |
| SubcatchmentPDA-2D: PDA-2D | Runoff Area=2.688 ac 0.00% Impervious Runoff Depth=4.21" Flow Length=618' Tc=12.3 min CN=69 Runoff=9.83 cfs 0.942 af |
| SubcatchmentPDA-3A: PDA-3A | Runoff Area=34.353 ac 0.10% Impervious Runoff Depth=4.09" Flow Length=2,518' Tc=19.6 min CN=68 Runoff=99.72 cfs 11.717 af |
| SubcatchmentPDA-3B: PDA-3B | Runoff Area=4.786 ac 0.71% Impervious Runoff Depth=3.76" Flow Length=774' Tc=16.2 min CN=65 Runoff=13.89 cfs 1.499 af |
| SubcatchmentPDA-3C: PDA-3C | Runoff Area=5.622 ac 0.00% Impervious Runoff Depth=4.89" Flow Length=812' Tc=14.7 min CN=75 Runoff=21.95 cfs 2.290 af |
| SubcatchmentPDA-4: PDA-4 | Runoff Area=4.259 ac 5.59% Impervious Runoff Depth=4.89" Flow Length=1,349' Tc=15.8 min CN=75 Runoff=16.19 cfs 1.735 af |
| Pond 1P: P=1 | Peak Elev=429.10' Storage=12,881 cf Inflow=13.88 cfs 1.444 af Outflow=10.22 cfs 1.365 af |
| Pond 2P: P-2 | Peak Elev=419.12' Storage=7,523 cf Inflow=8.64 cfs 0.694 af Outflow=7.23 cfs 0.616 af |
| Pond 3P: P-3 | Peak Elev=458.61' Storage=9,314 cf Inflow=9.83 cfs 0.942 af Outflow=5.86 cfs 0.873 af |
| Pond 4P: P-5 | Peak Elev=481.23' Storage=25,679 cf Inflow=21.95 cfs 2.290 af Outflow=16.31 cfs 2.146 af |
| Pond 5P: P-4 | Peak Elev=463.03' Storage=16,204 cf Inflow=13.89 cfs 1.499 af Outflow=7.32 cfs 1.399 af |
| Link AP-1: AP-1 | Inflow=108.01 cfs 12.654 af Primary=108.01 cfs 12.654 af |
| Link AP-2: AP-2 | Inflow=135.30 cfs 16.996 af Primary=135.30 cfs 16.996 af |

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Page 65

Total Runoff Area = 84.945 ac Runoff Volume = 30.121 af Average Runoff Depth = 4.26"
99.60% Pervious = 84.605 ac 0.40% Impervious = 0.340 ac

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Page 66

Summary for Subcatchment PDA-1: PDA-1

Runoff = 6.72 cfs @ 12.21 hrs, Volume= 0.666 af, Depth= 3.21"
 Routed to Link AP-1 : AP-1

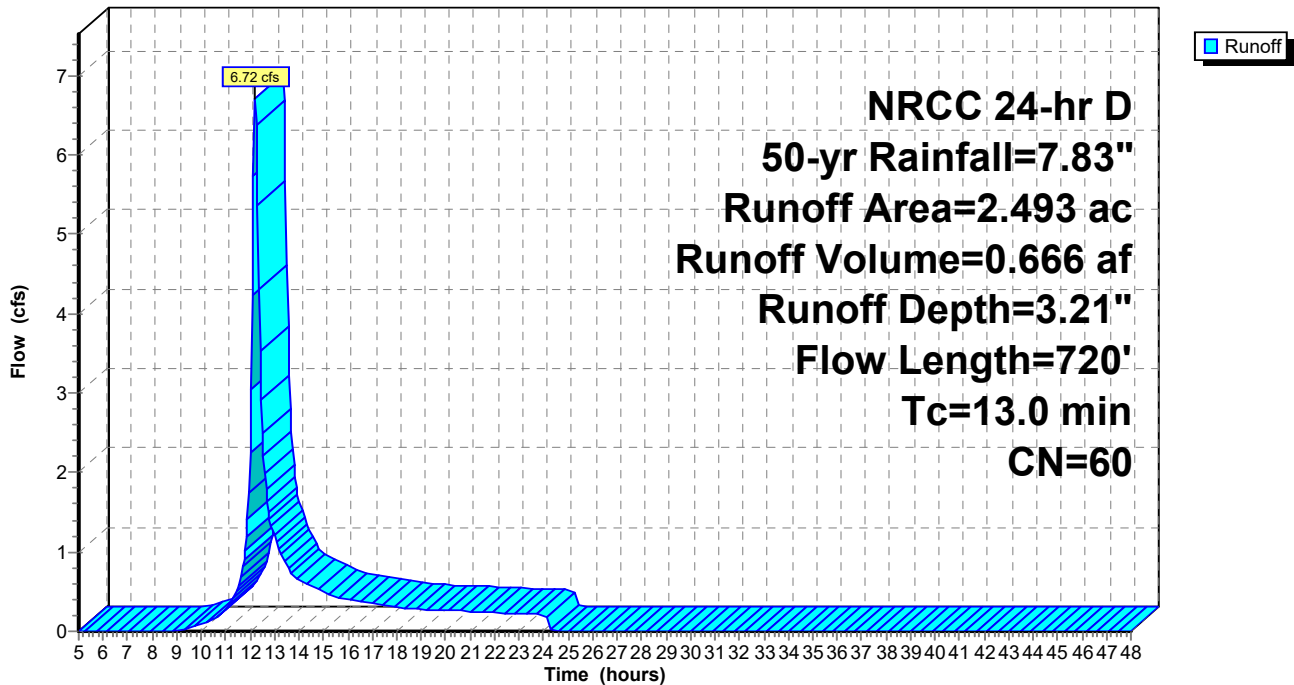
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 50-yr Rainfall=7.83"

| Area (ac) | CN | Description |
|-----------|----|---------------------------|
| 1.713 | 60 | Woods, Fair, HSG B |
| 0.730 | 58 | Meadow, non-grazed, HSG B |
| 0.050 | 96 | Gravel surface, HSG B |
| 2.493 | 60 | Weighted Average |
| 2.493 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|---|
| 8.0 | 100 | 0.2000 | 0.21 | | Sheet Flow, A-B |
| 5.0 | 620 | 0.1710 | 2.07 | | Woods: Light underbrush n= 0.400 P2= 3.62" Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 13.0 | 720 | Total | | | |

Subcatchment PDA-1: PDA-1

Hydrograph



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Page 67

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

Runoff = 84.17 cfs @ 12.25 hrs, Volume= 9.134 af, Depth= 4.55"
 Routed to Link AP-1 : AP-1

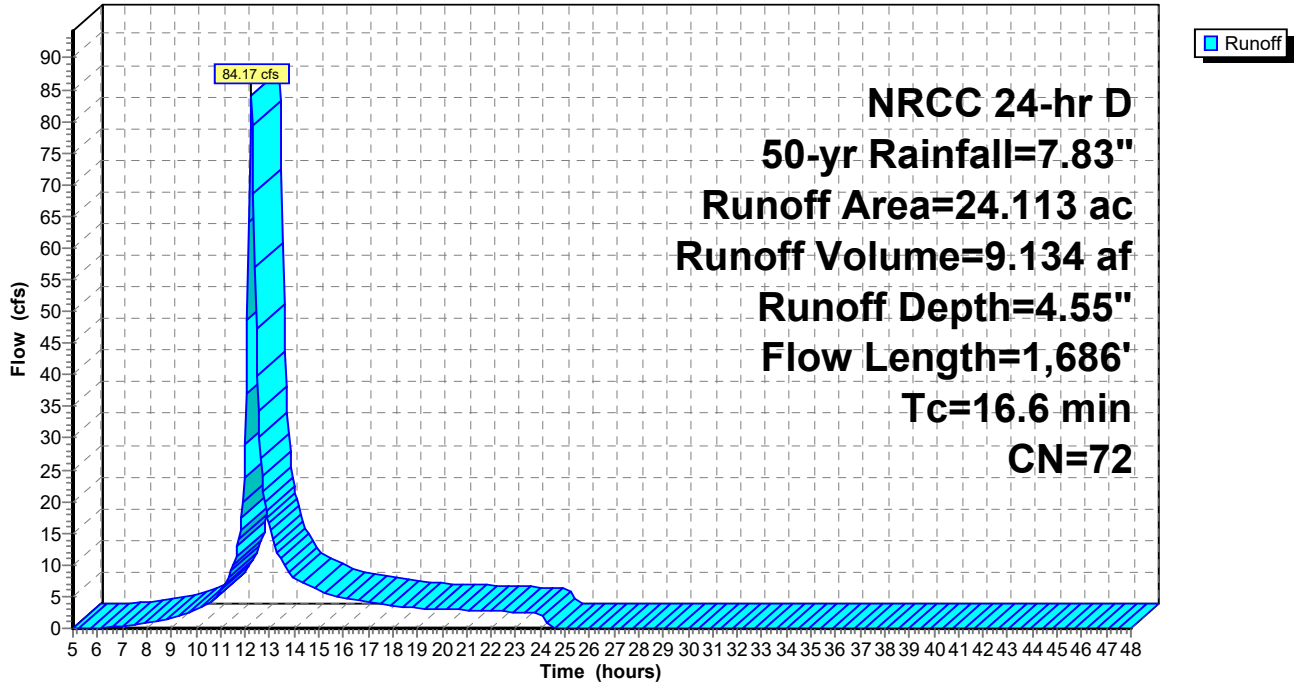
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 50-yr Rainfall=7.83"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 6.774 | 60 | Woods, Fair, HSG B |
| 13.166 | 79 | Woods, Fair, HSG D |
| 1.006 | 58 | Meadow, non-grazed, HSG B |
| * 1.425 | 65 | Meadow, non-grazed, HSG B/C |
| 1.742 | 78 | Meadow, non-grazed, HSG D |
| 24.113 | 72 | Weighted Average |
| 24.113 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 10.2 | 100 | 0.1100 | 0.16 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 4.7 | 635 | 0.2000 | 2.24 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 1.7 | 951 | 0.0421 | 9.10 | 151.99 | Channel Flow, C-D Area= 16.7 sf Perim= 12.8' r= 1.30' n= 0.040 Winding stream, pools & shoals |
| 16.6 | 1,686 | Total | | | |

Subcatchment PDA-2A: PDA-2A

Hydrograph



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Page 69

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

Runoff = 13.88 cfs @ 12.23 hrs, Volume= 1.444 af, Depth= 3.65"
 Routed to Pond 1P : P=1

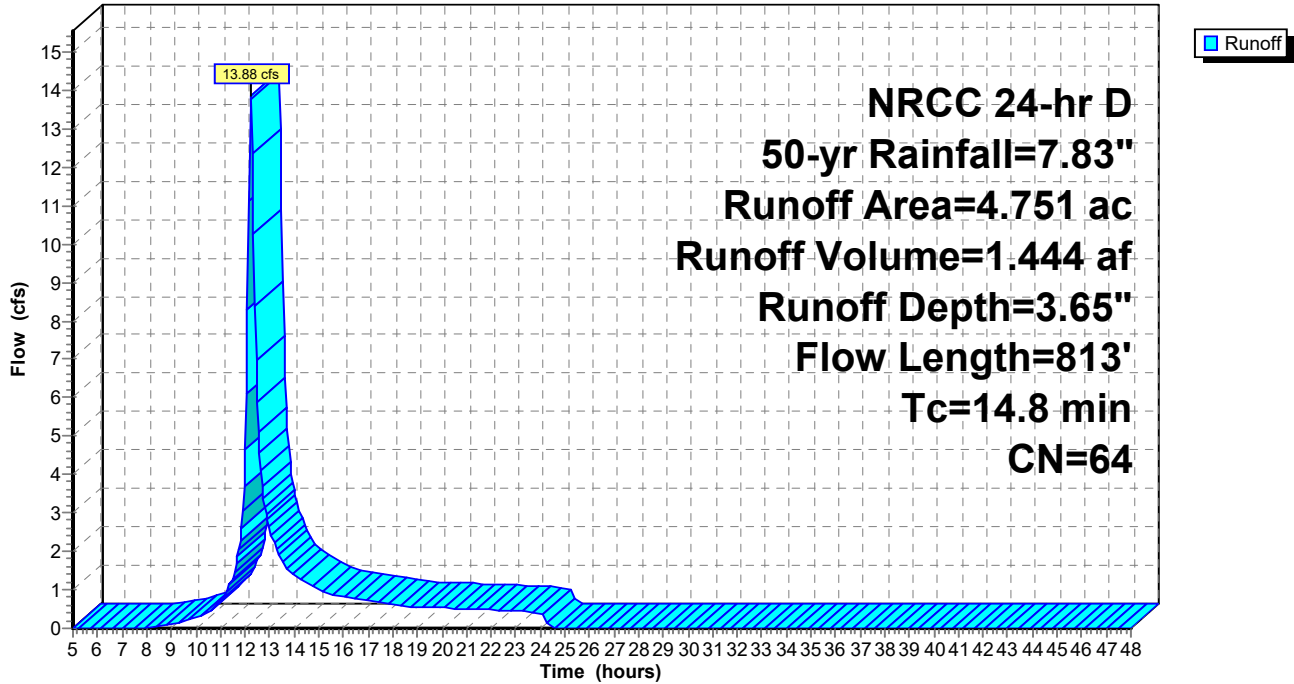
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 50-yr Rainfall=7.83"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 0.959 | 60 | Woods, Fair, HSG B |
| 0.012 | 79 | Woods, Fair, HSG D |
| 0.395 | 58 | Meadow, non-grazed, HSG B |
| * 3.239 | 65 | Meadow, non-grazed, HSG B/C |
| * 0.034 | 98 | Unconnected roofs, HSG B/C |
| 0.112 | 96 | Gravel surface, HSG B |
| 4.751 | 64 | Weighted Average |
| 4.717 | | 99.28% Pervious Area |
| 0.034 | | 0.72% Impervious Area |
| 0.034 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 10.2 | 100 | 0.1100 | 0.16 | | Sheet Flow, A-B |
| | | | | | Woods: Light underbrush n= 0.400 P2= 3.62" |
| 0.2 | 33 | 0.3000 | 2.74 | | Shallow Concentrated Flow, B-C |
| | | | | | Woodland Kv= 5.0 fps |
| 4.4 | 680 | 0.1367 | 2.59 | | Shallow Concentrated Flow, C-D |
| | | | | | Short Grass Pasture Kv= 7.0 fps |
| 14.8 | 813 | Total | | | |

Subcatchment PDA-2B: PDA-2B

Hydrograph



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Page 71

Summary for Subcatchment PDA-2C: PDA-2C

Runoff = 8.64 cfs @ 12.14 hrs, Volume= 0.694 af, Depth= 4.43"
 Routed to Pond 2P : P-2

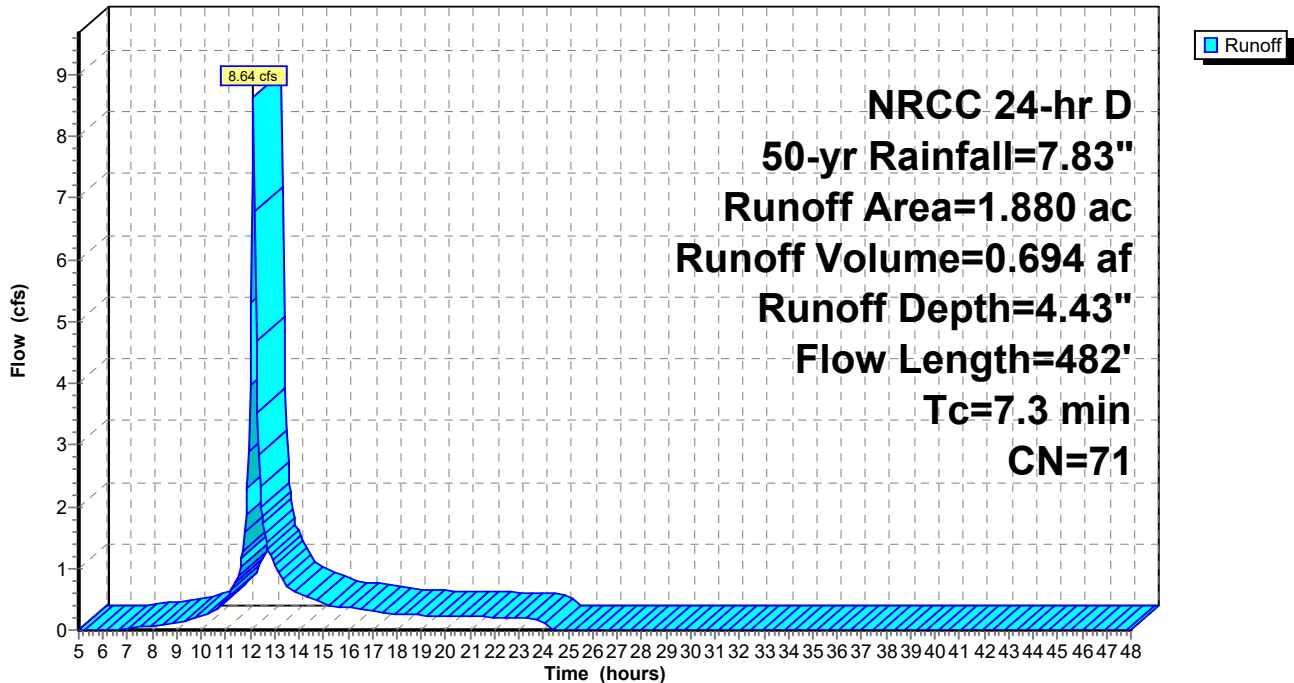
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 50-yr Rainfall=7.83"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 0.089 | 58 | Meadow, non-grazed, HSG B |
| * 0.667 | 65 | Meadow, non-grazed, HSG B/C |
| 0.930 | 78 | Meadow, non-grazed, HSG D |
| 0.105 | 60 | Woods, Fair, HSG B |
| 0.089 | 79 | Woods, Fair, HSG D |
| 1.880 | 71 | Weighted Average |
| 1.880 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 5.1 | 100 | 0.2200 | 0.32 | | Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.62" |
| 2.0 | 340 | 0.1647 | 2.84 | | Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps |
| 0.2 | 42 | 0.0476 | 3.27 | | Shallow Concentrated Flow, C-D Grassed Waterway Kv= 15.0 fps |
| 7.3 | 482 | Total | | | |

Subcatchment PDA-2C: PDA-2C

Hydrograph



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NRCC 24-hr D 50-yr Rainfall=7.83"

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Page 72

Summary for Subcatchment PDA-2D: PDA-2D

Runoff = 9.83 cfs @ 12.20 hrs, Volume= 0.942 af, Depth= 4.21"
 Routed to Pond 3P : P-3

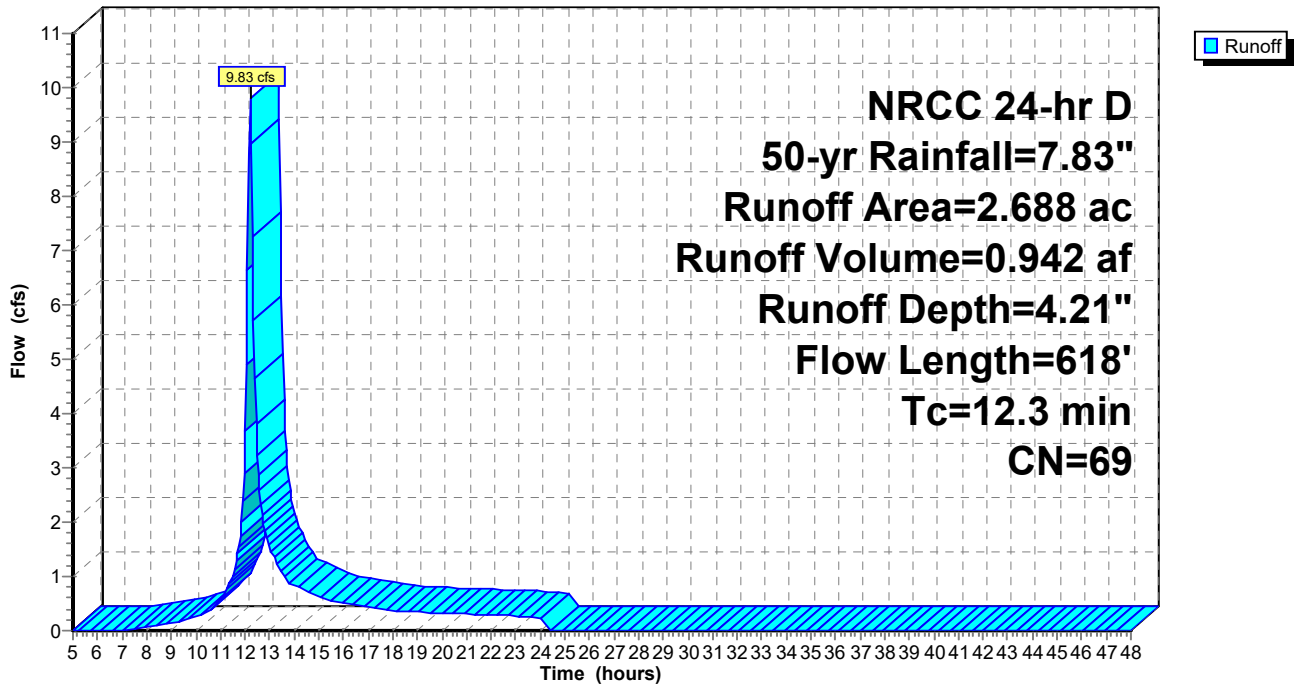
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 50-yr Rainfall=7.83"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| * 1.831 | 65 | Meadow, non-grazed, HSG B/C |
| 0.857 | 78 | Meadow, non-grazed, HSG D |
| 2.688 | 69 | Weighted Average |
| 2.688 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 9.3 | 100 | 0.0500 | 0.18 | | Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.62" |
| 3.0 | 518 | 0.1654 | 2.85 | | Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps |
| 12.3 | 618 | Total | | | |

Subcatchment PDA-2D: PDA-2D

Hydrograph



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NRCC 24-hr D 50-yr Rainfall=7.83"

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Page 73

Summary for Subcatchment PDA-3A: PDA-3A

Runoff = 99.72 cfs @ 12.29 hrs, Volume= 11.717 af, Depth= 4.09"
 Routed to Link AP-2 : AP-2

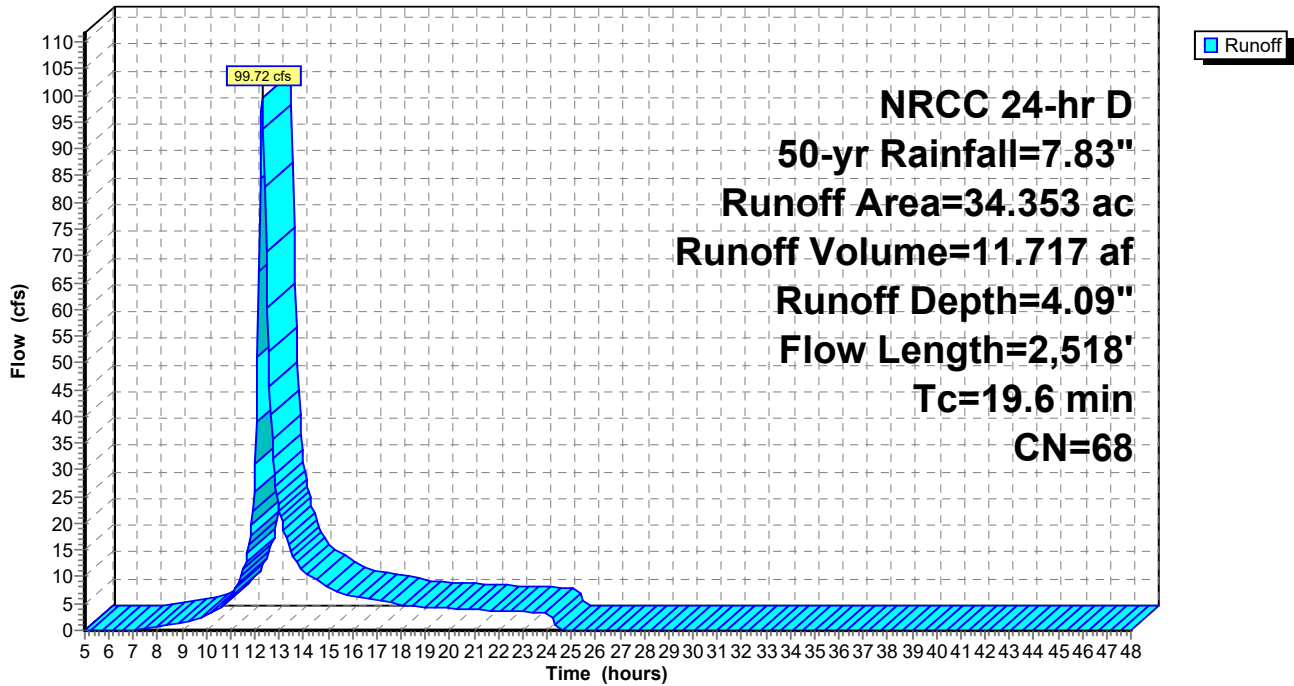
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 50-yr Rainfall=7.83"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 0.515 | 36 | Woods, Fair, HSG A |
| 12.604 | 60 | Woods, Fair, HSG B |
| 10.470 | 73 | Woods, Fair, HSG C |
| 5.295 | 79 | Woods, Fair, HSG D |
| * 2.024 | 75 | Meadow, non-grazed, HSG C/D |
| 0.034 | 98 | Unconnected pavement, HSG D |
| 0.397 | 96 | Gravel surface, HSG C |
| 1.195 | 58 | Meadow, non-grazed, HSG B |
| 0.931 | 71 | Meadow, non-grazed, HSG C |
| 0.448 | 78 | Meadow, non-grazed, HSG D |
| * 0.440 | 65 | Meadow, non-grazed, HSG B/C |
| 34.353 | 68 | Weighted Average |
| 34.319 | | 99.90% Pervious Area |
| 0.034 | | 0.10% Impervious Area |
| 0.034 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 8.8 | 100 | 0.1600 | 0.19 | | Sheet Flow, A-B |
| | | | | | Woods: Light underbrush n= 0.400 P2= 3.62" |
| 8.1 | 735 | 0.0912 | 1.51 | | Shallow Concentrated Flow, B-C |
| | | | | | Woodland Kv= 5.0 fps |
| 2.7 | 1,683 | 0.0552 | 10.50 | 346.60 | Channel Flow, C-D |
| | | | | | Area= 33.0 sf Perim= 25.0' r= 1.32' |
| | | | | | n= 0.040 Winding stream, pools & shoals |
| 19.6 | 2,518 | Total | | | |

Subcatchment PDA-3A: PDA-3A

Hydrograph



Riggs St_Prop.

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NRCC 24-hr D 50-yr Rainfall=7.83"

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Page 75

Summary for Subcatchment PDA-3B: PDA-3B

[47] Hint: Peak is 132% of capacity of segment #4

Runoff = 13.89 cfs @ 12.25 hrs, Volume= 1.499 af, Depth= 3.76"
Routed to Pond 5P : P-4

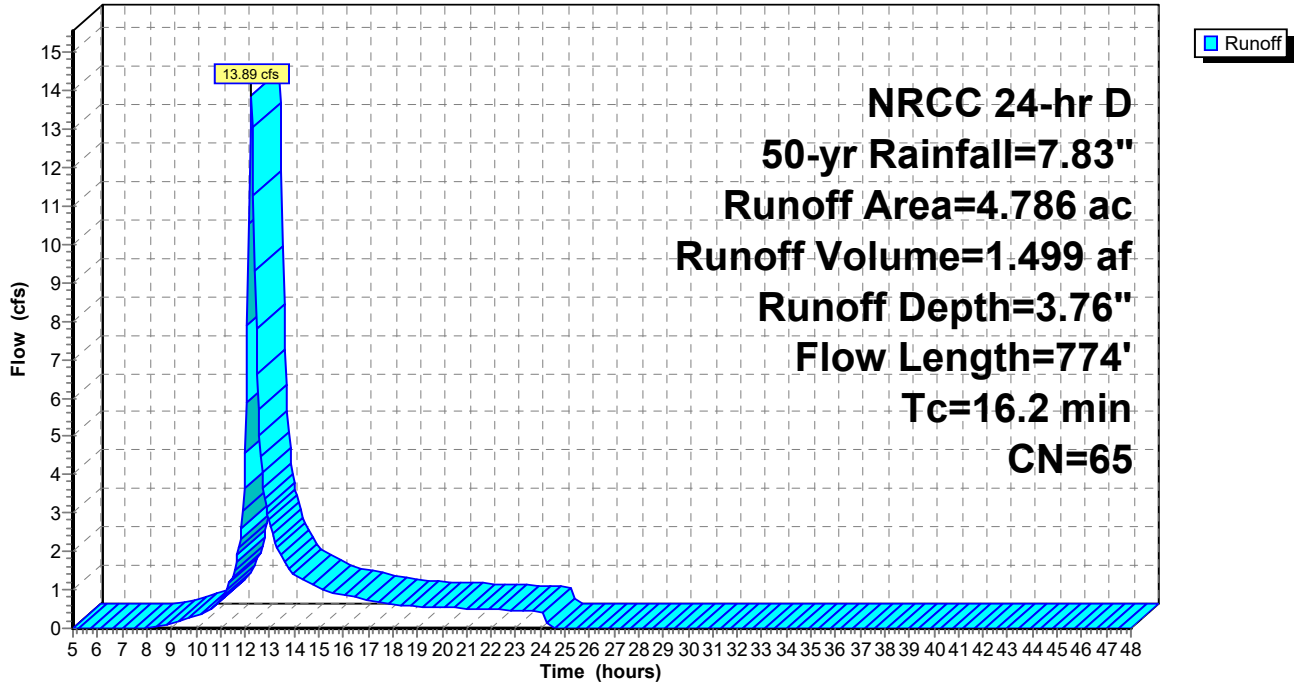
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 50-yr Rainfall=7.83"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| * 4.728 | 65 | Meadow, non-grazed, HSG B/C |
| 0.024 | 96 | Gravel surface, HSG B |
| 0.034 | 98 | Unconnected pavement, HSG B |
| 4.786 | 65 | Weighted Average |
| 4.752 | | 99.29% Pervious Area |
| 0.034 | | 0.71% Impervious Area |
| 0.034 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 10.6 | 100 | 0.1000 | 0.16 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 5.0 | 547 | 0.1334 | 1.83 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 0.4 | 72 | 0.0444 | 3.16 | | Shallow Concentrated Flow, C-D Grassed Waterway Kv= 15.0 fps |
| 0.2 | 55 | 0.0100 | 5.94 | 10.50 | Pipe Channel, D-E 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior |
| 16.2 | 774 | Total | | | |

Subcatchment PDA-3B: PDA-3B

Hydrograph



Summary for Subcatchment PDA-3C: PDA-3C

Runoff = 21.95 cfs @ 12.23 hrs, Volume= 2.290 af, Depth= 4.89"
 Routed to Pond 4P : P-5

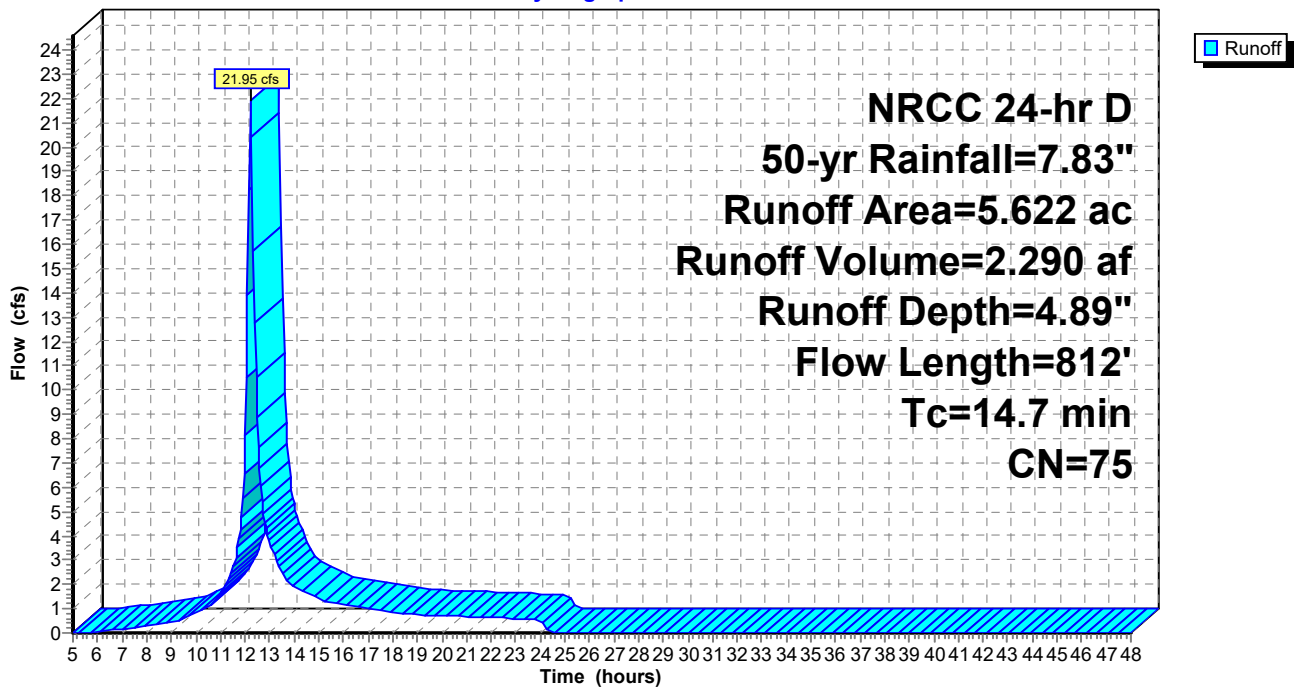
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 50-yr Rainfall=7.83"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 1.062 | 73 | Woods, Fair, HSG C |
| 0.126 | 71 | Meadow, non-grazed, HSG C |
| * 4.434 | 75 | Meadow, non-grazed, HSG C/D |
| 5.622 | 75 | Weighted Average |
| 5.622 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 9.5 | 100 | 0.1300 | 0.17 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 2.0 | 249 | 0.1687 | 2.05 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 3.2 | 463 | 0.1210 | 2.43 | | Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps |
| 14.7 | 812 | Total | | | |

Subcatchment PDA-3C: PDA-3C

Hydrograph



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Page 78

Summary for Subcatchment PDA-4: PDA-4

Runoff = 16.19 cfs @ 12.24 hrs, Volume= 1.735 af, Depth= 4.89"
 Routed to Link AP-2 : AP-2

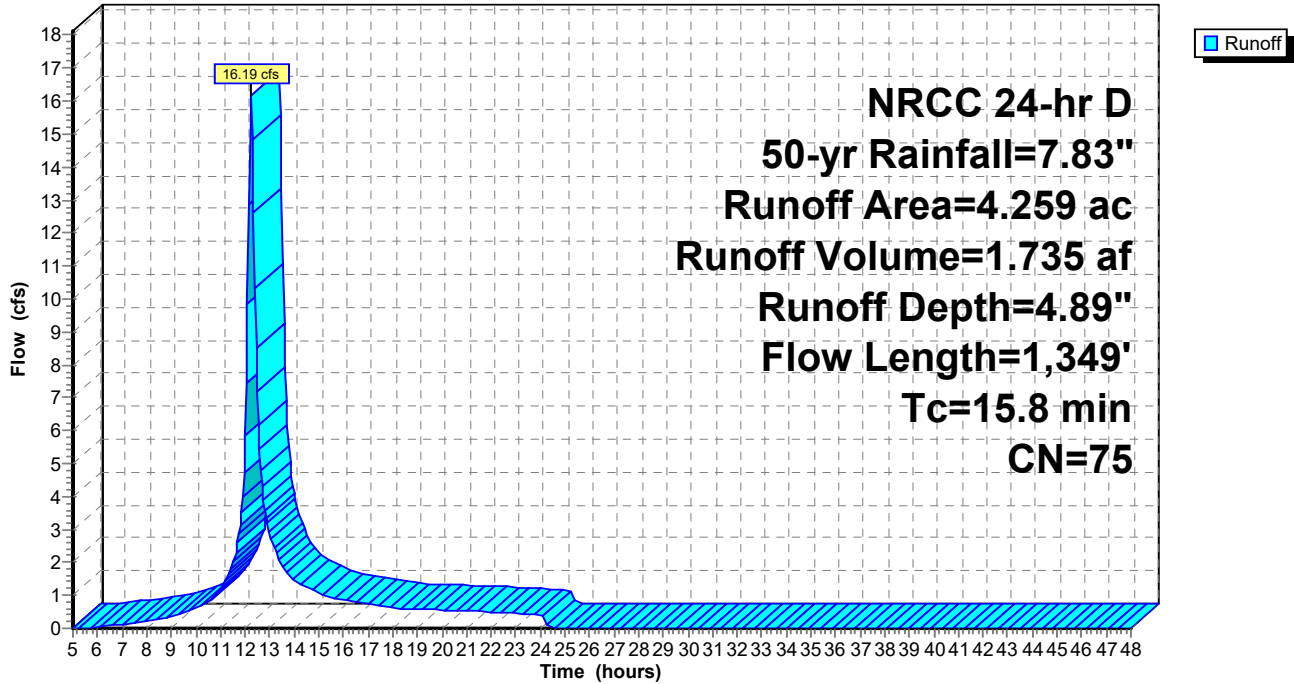
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 50-yr Rainfall=7.83"

| Area (ac) | CN | Description |
|-----------|----|-------------------------------------|
| 1.773 | 73 | Woods, Fair, HSG C |
| 0.005 | 79 | Woods, Fair, HSG D |
| 0.220 | 98 | Paved roads w/curbs & sewers, HSG C |
| 0.018 | 98 | Paved roads w/curbs & sewers, HSG D |
| * 1.408 | 75 | Meadow, non-grazed, HSG C/D |
| 0.819 | 71 | Meadow, non-grazed, HSG C |
| 0.010 | 96 | Gravel surface, HSG C |
| 0.003 | 96 | Gravel surface, HSG D |
| 0.003 | 78 | Meadow, non-grazed, HSG D |
| 4.259 | 75 | Weighted Average |
| 4.021 | | 94.41% Pervious Area |
| 0.238 | | 5.59% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 12.2 | 100 | 0.0700 | 0.14 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 2.3 | 301 | 0.1827 | 2.14 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 0.2 | 63 | 0.0635 | 5.12 | | Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps |
| 1.1 | 885 | 0.0575 | 13.67 | 16.78 | Pipe Channel, D-E 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Corrugated PP, smooth interior |
| 15.8 | 1,349 | Total | | | |

Subcatchment PDA-4: PDA-4

Hydrograph



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Page 80

Summary for Pond 1P: P=1

Inflow Area = 4.751 ac, 0.72% Impervious, Inflow Depth = 3.65" for 50-yr event
 Inflow = 13.88 cfs @ 12.23 hrs, Volume= 1.444 af
 Outflow = 10.22 cfs @ 12.36 hrs, Volume= 1.365 af, Atten= 26%, Lag= 7.8 min
 Primary = 10.22 cfs @ 12.36 hrs, Volume= 1.365 af
 Routed to Link AP-1 : AP-1

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 429.10' @ 12.37 hrs Surf.Area= 5,375 sf Storage= 12,881 cf

Plug-Flow detention time= 72.8 min calculated for 1.365 af (95% of inflow)
 Center-of-Mass det. time= 43.1 min (916.3 - 873.3)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 426.00' | 18,067 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) | |
| 426.00 | 3,028 | 223.1 | 0 | 0 | 3,028 | |
| 427.00 | 3,726 | 242.0 | 3,371 | 3,371 | 3,765 | |
| 428.00 | 4,480 | 260.8 | 4,097 | 7,468 | 4,558 | |
| 429.00 | 5,291 | 279.7 | 4,880 | 12,348 | 5,415 | |
| 430.00 | 6,158 | 298.5 | 5,719 | 18,067 | 6,327 | |

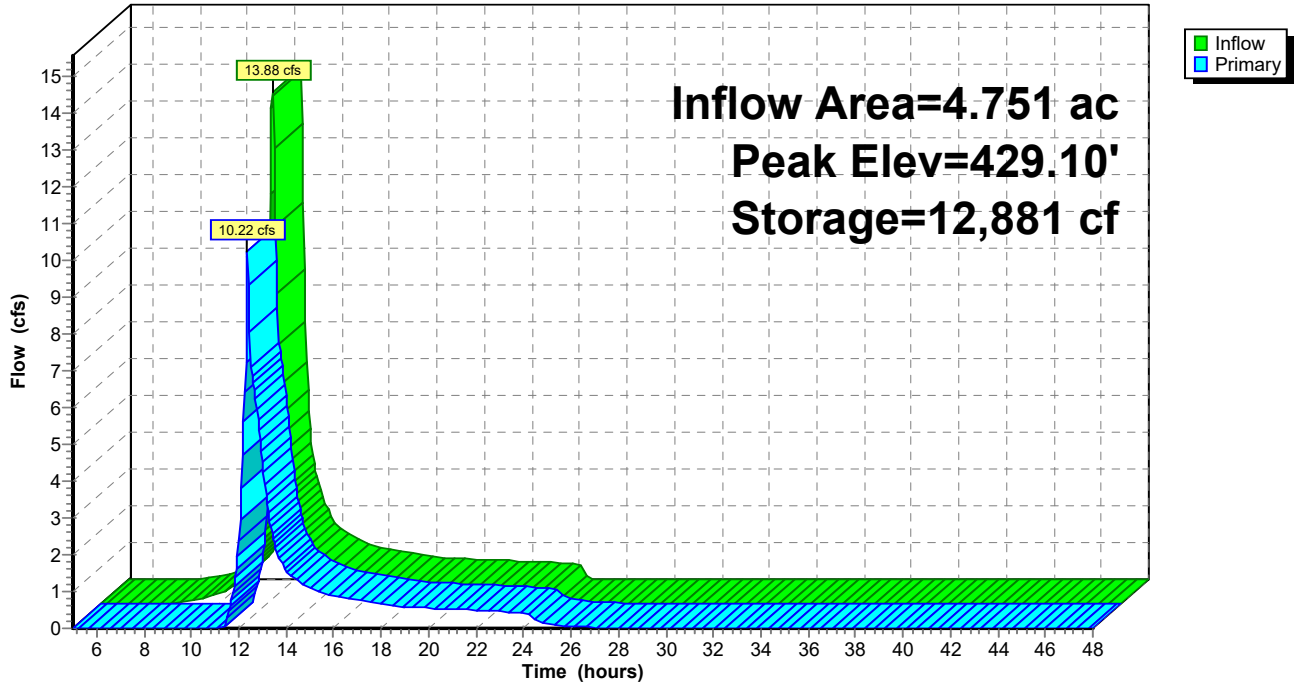
| Device | Routing | Invert | Outlet Devices | |
|--------|----------|---------|---|--|
| #1 | Primary | 426.00' | 18.0" Round Culvert L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 426.00' / 425.00' S= 0.0154 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf | |
| #2 | Device 1 | 427.00' | 15.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #3 | Device 1 | 429.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #4 | Primary | 429.00' | 25.0' long + 3.0 ' SideZ x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 | |

Primary OutFlow Max=9.81 cfs @ 12.36 hrs HW=429.09' (Free Discharge)

- 1=Culvert (Passes 7.99 cfs of 10.28 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 7.15 cfs @ 5.83 fps)
- 3=Orifice/Grate (Weir Controls 0.84 cfs @ 0.98 fps)
- 4=Broad-Crested Rectangular Weir (Weir Controls 1.82 cfs @ 0.80 fps)

Pond 1P: P=1

Hydrograph



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Page 82

Summary for Pond 2P: P-2

Inflow Area = 1.880 ac, 0.00% Impervious, Inflow Depth = 4.43" for 50-yr event
 Inflow = 8.64 cfs @ 12.14 hrs, Volume= 0.694 af
 Outflow = 7.23 cfs @ 12.21 hrs, Volume= 0.616 af, Atten= 16%, Lag= 3.6 min
 Primary = 7.23 cfs @ 12.21 hrs, Volume= 0.616 af
 Routed to Link AP-1 : AP-1

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 419.12' @ 12.21 hrs Surf.Area= 3,376 sf Storage= 7,523 cf

Plug-Flow detention time= 115.7 min calculated for 0.616 af (89% of inflow)
 Center-of-Mass det. time= 57.4 min (904.5 - 847.2)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 416.00' | 10,757 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) | |
| 416.00 | 1,538 | 166.9 | 0 | 0 | 1,538 | |
| 417.00 | 2,067 | 185.7 | 1,796 | 1,796 | 2,094 | |
| 418.00 | 2,653 | 204.6 | 2,354 | 4,150 | 2,713 | |
| 419.00 | 3,295 | 223.4 | 2,968 | 7,118 | 3,388 | |
| 420.00 | 3,993 | 242.3 | 3,638 | 10,757 | 4,126 | |

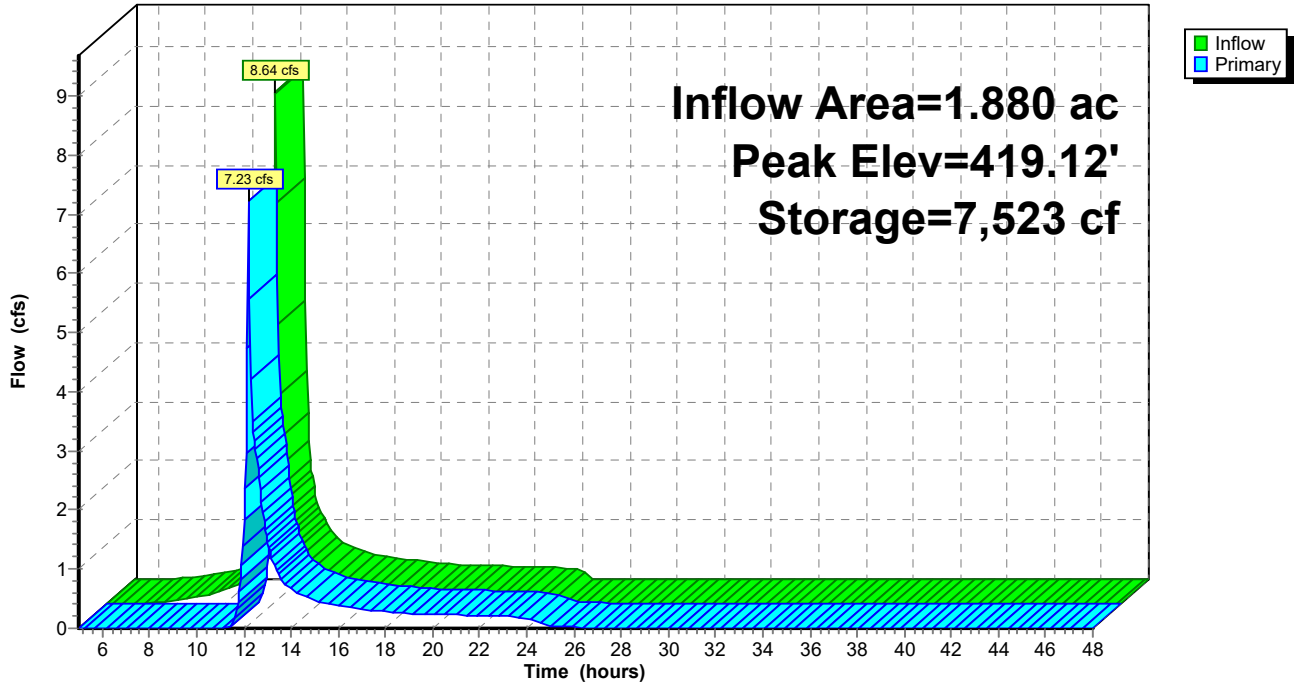
| Device | Routing | Invert | Outlet Devices | |
|--------|----------|---------|---|--|
| #1 | Primary | 416.00' | 18.0" Round Culvert L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 416.00' / 414.00' S= 0.0500 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf | |
| #2 | Device 1 | 417.70' | 12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #3 | Device 1 | 419.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #4 | Primary | 419.00' | 20.0' long + 3.0 ' SideZ x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 | |

Primary OutFlow Max=7.02 cfs @ 12.21 hrs HW=419.12' (Free Discharge)

- 1=Culvert (Passes 4.86 cfs of 10.33 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 3.62 cfs @ 4.61 fps)
- 3=Orifice/Grate (Weir Controls 1.24 cfs @ 1.12 fps)
- 4=Broad-Crested Rectangular Weir (Weir Controls 2.17 cfs @ 0.91 fps)

Pond 2P: P-2

Hydrograph



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Page 84

Summary for Pond 3P: P-3

Inflow Area = 2.688 ac, 0.00% Impervious, Inflow Depth = 4.21" for 50-yr event
 Inflow = 9.83 cfs @ 12.20 hrs, Volume= 0.942 af
 Outflow = 5.86 cfs @ 12.35 hrs, Volume= 0.873 af, Atten= 40%, Lag= 8.9 min
 Primary = 5.86 cfs @ 12.35 hrs, Volume= 0.873 af
 Routed to Link AP-1 : AP-1

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 458.61' @ 12.35 hrs Surf.Area= 4,517 sf Storage= 9,314 cf

Plug-Flow detention time= 89.1 min calculated for 0.872 af (93% of inflow)
 Center-of-Mass det. time= 50.5 min (907.8 - 857.3)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 456.00' | 16,375 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) | |
| 456.00 | 2,689 | 209.2 | 0 | 0 | 2,689 | |
| 457.00 | 3,345 | 228.1 | 3,011 | 3,011 | 3,382 | |
| 458.00 | 4,057 | 246.9 | 3,695 | 6,706 | 4,131 | |
| 459.00 | 4,825 | 265.8 | 4,435 | 11,142 | 4,944 | |
| 460.00 | 5,652 | 284.6 | 5,233 | 16,375 | 5,812 | |

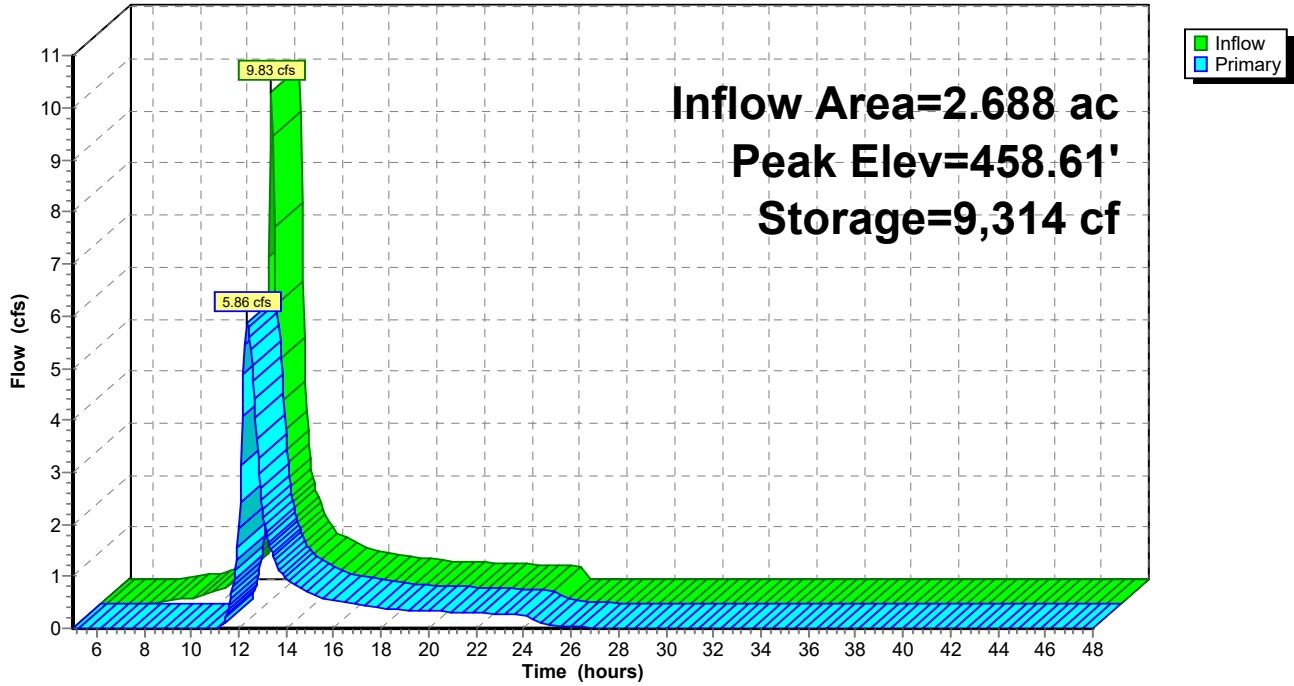
| Device | Routing | Invert | Outlet Devices | |
|--------|----------|---------|---|--|
| #1 | Primary | 456.00' | 18.0" Round Culvert L= 60.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 456.00' / 445.00' S= 0.1833 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf | |
| #2 | Device 1 | 457.00' | 15.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #3 | Device 1 | 459.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #4 | Primary | 459.00' | 16.0' long + 3.0 ' SideZ x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 | |

Primary OutFlow Max=5.86 cfs @ 12.35 hrs HW=458.61' (Free Discharge)

- 1=Culvert (Passes 5.86 cfs of 9.16 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 5.86 cfs @ 4.77 fps)
- 3=Orifice/Grate (Controls 0.00 cfs)
- 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: P-3

Hydrograph



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Page 86

Summary for Pond 4P: P-5

Inflow Area = 5.622 ac, 0.00% Impervious, Inflow Depth = 4.89" for 50-yr event
 Inflow = 21.95 cfs @ 12.23 hrs, Volume= 2.290 af
 Outflow = 16.31 cfs @ 12.35 hrs, Volume= 2.146 af, Atten= 26%, Lag= 7.6 min
 Primary = 16.31 cfs @ 12.35 hrs, Volume= 2.146 af
 Routed to Link AP-2 : AP-2

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 481.23' @ 12.35 hrs Surf.Area= 10,523 sf Storage= 25,679 cf

Plug-Flow detention time= 100.8 min calculated for 2.143 af (94% of inflow)
 Center-of-Mass det. time= 67.1 min (909.9 - 842.9)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 478.00' | 34,305 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) | |
| 478.00 | 5,499 | 489.1 | 0 | 0 | 5,499 | |
| 479.00 | 6,994 | 507.9 | 6,232 | 6,232 | 7,072 | |
| 480.00 | 8,546 | 526.8 | 7,757 | 13,989 | 8,712 | |
| 481.00 | 10,155 | 545.6 | 9,339 | 23,328 | 10,403 | |
| 482.00 | 11,820 | 564.5 | 10,977 | 34,305 | 12,163 | |

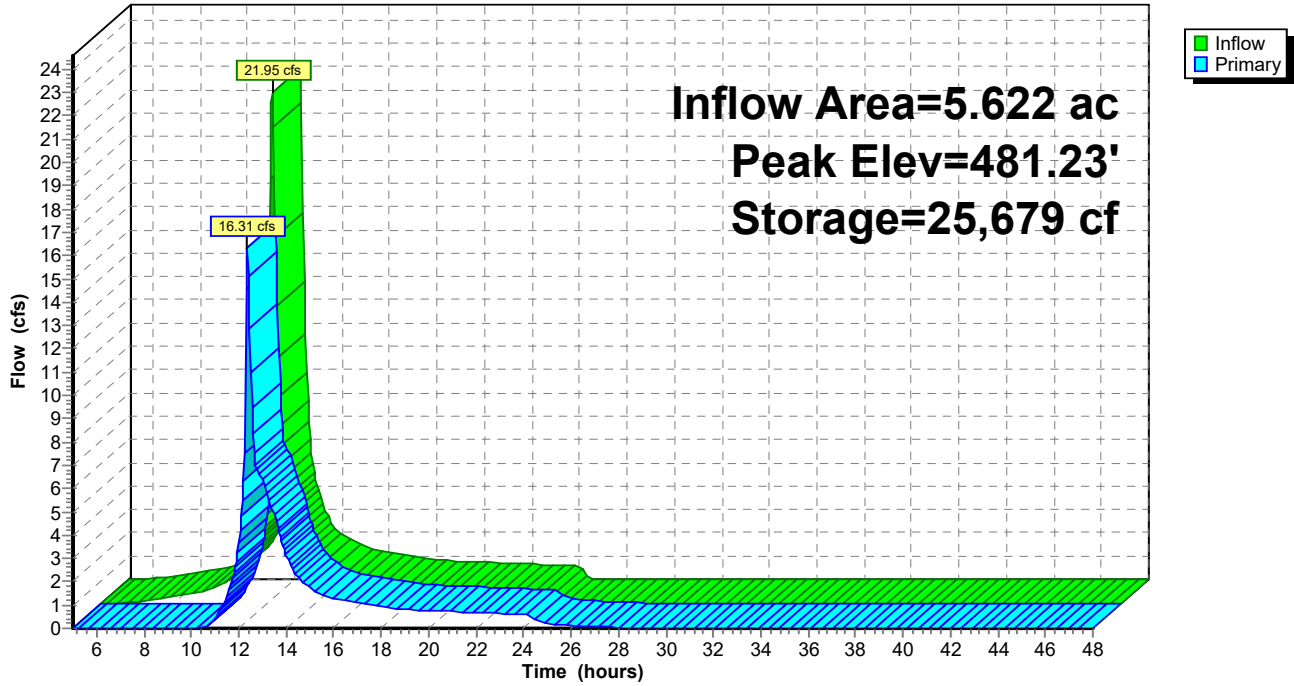
| Device | Routing | Invert | Outlet Devices |
|--------|----------|---------|---|
| #1 | Primary | 478.00' | 18.0" Round Culvert L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 478.00' / 476.00' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf |
| #2 | Device 1 | 479.00' | 15.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads |
| #3 | Device 1 | 481.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads |
| #4 | Primary | 481.00' | 20.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 |

Primary OutFlow Max=16.29 cfs @ 12.35 hrs HW=481.22' (Free Discharge)

- 1=Culvert (Inlet Controls 10.57 cfs @ 5.98 fps)
- 2=Orifice/Grate (Passes < 7.47 cfs potential flow)
- 3=Orifice/Grate (Passes < 3.31 cfs potential flow)
- 4=Broad-Crested Rectangular Weir (Weir Controls 5.72 cfs @ 1.27 fps)

Pond 4P: P-5

Hydrograph



Summary for Pond 5P: P-4

Inflow Area = 4.786 ac, 0.71% Impervious, Inflow Depth = 3.76" for 50-yr event
 Inflow = 13.89 cfs @ 12.25 hrs, Volume= 1.499 af
 Outflow = 7.32 cfs @ 12.47 hrs, Volume= 1.399 af, Atten= 47%, Lag= 13.3 min
 Primary = 7.32 cfs @ 12.47 hrs, Volume= 1.399 af
 Routed to Link AP-2 : AP-2

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 463.03' @ 12.47 hrs Surf.Area= 6,937 sf Storage= 16,204 cf

Plug-Flow detention time= 91.0 min calculated for 1.399 af (93% of inflow)
 Center-of-Mass det. time= 55.0 min (926.8 - 871.8)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 460.00' | 23,498 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) | |
| 460.00 | 3,869 | 309.7 | 0 | 0 | 3,869 | |
| 461.00 | 4,826 | 328.5 | 4,339 | 4,339 | 4,876 | |
| 462.00 | 5,840 | 347.4 | 5,325 | 9,664 | 5,947 | |
| 463.00 | 6,910 | 366.2 | 6,368 | 16,031 | 7,073 | |
| 464.00 | 8,037 | 385.1 | 7,466 | 23,498 | 8,263 | |

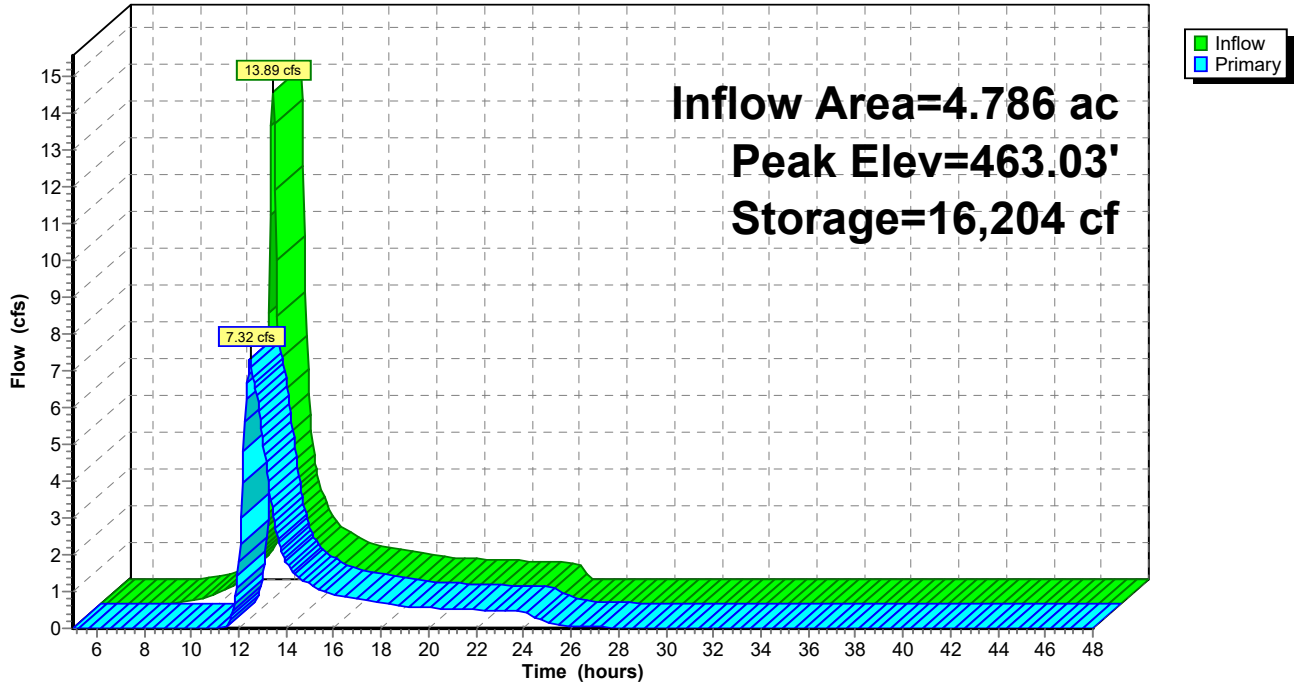
| Device | Routing | Invert | Outlet Devices | |
|--------|----------|---------|---|--|
| #1 | Primary | 460.00' | 18.0" Round Culvert L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 460.00' / 458.00' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf | |
| #2 | Device 1 | 461.00' | 15.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #3 | Device 1 | 463.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #4 | Primary | 463.00' | 15.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 | |

Primary OutFlow Max=7.18 cfs @ 12.47 hrs HW=463.02' (Free Discharge)

- 1=Culvert (Passes 7.07 cfs of 10.12 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 6.98 cfs @ 5.69 fps)
- 3=Orifice/Grate (Weir Controls 0.09 cfs @ 0.46 fps)
- 4=Broad-Crested Rectangular Weir (Weir Controls 0.11 cfs @ 0.38 fps)

Pond 5P: P-4

Hydrograph



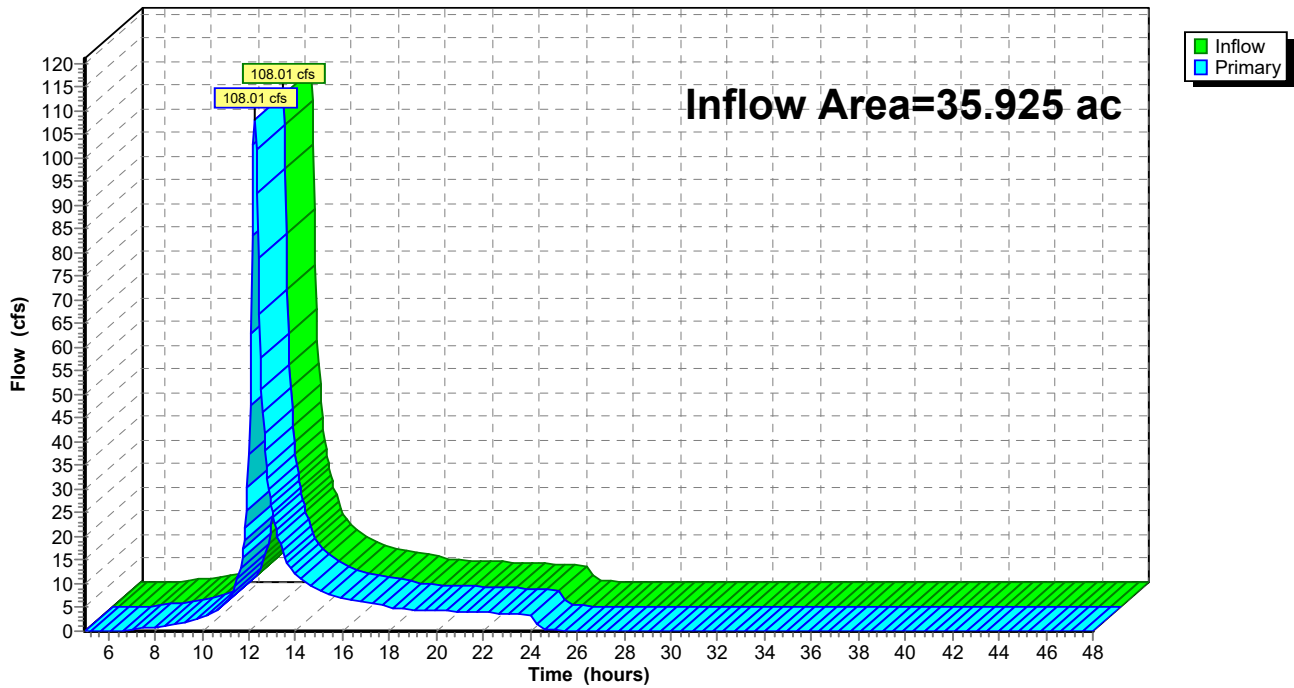
Summary for Link AP-1: AP-1

Inflow Area = 35.925 ac, 0.09% Impervious, Inflow Depth = 4.23" for 50-yr event
Inflow = 108.01 cfs @ 12.25 hrs, Volume= 12.654 af
Primary = 108.01 cfs @ 12.25 hrs, Volume= 12.654 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link AP-1: AP-1

Hydrograph



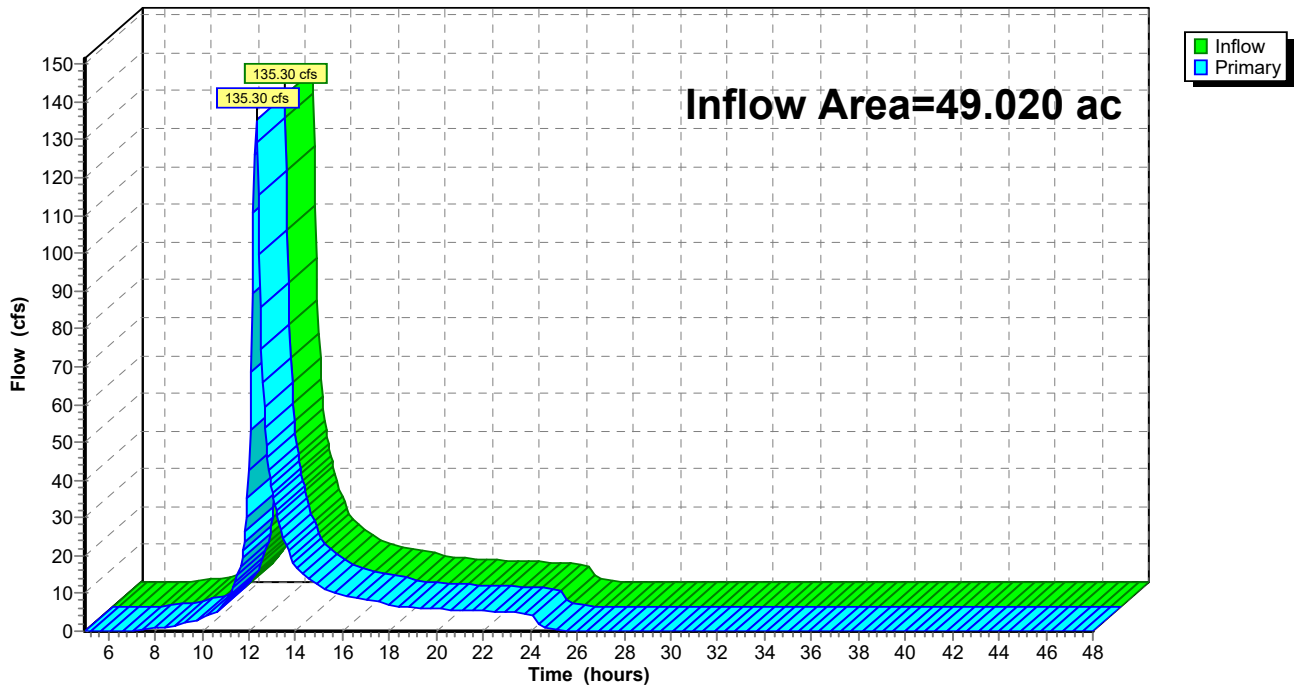
Summary for Link AP-2: AP-2

Inflow Area = 49.020 ac, 0.62% Impervious, Inflow Depth = 4.16" for 50-yr event
Inflow = 135.30 cfs @ 12.31 hrs, Volume= 16.996 af
Primary = 135.30 cfs @ 12.31 hrs, Volume= 16.996 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link AP-2: AP-2

Hydrograph



Riggs St_Prop.

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NRCC 24-hr D 100-yr Rainfall=8.85"

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Page 92

Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

| | |
|-----------------------------------|---|
| SubcatchmentPDA-1: PDA-1 | Runoff Area=2.493 ac 0.00% Impervious Runoff Depth=3.98" Flow Length=720' Tc=13.0 min CN=60 Runoff=8.41 cfs 0.828 af |
| SubcatchmentPDA-2A: PDA-2A | Runoff Area=24.113 ac 0.00% Impervious Runoff Depth=5.45" Flow Length=1,686' Tc=16.6 min CN=72 Runoff=100.59 cfs 10.947 af |
| SubcatchmentPDA-2B: PDA-2B | Runoff Area=4.751 ac 0.72% Impervious Runoff Depth=4.47" Flow Length=813' Tc=14.8 min CN=64 Runoff=17.07 cfs 1.770 af |
| SubcatchmentPDA-2C: PDA-2C | Runoff Area=1.880 ac 0.00% Impervious Runoff Depth=5.33" Flow Length=482' Tc=7.3 min CN=71 Runoff=10.34 cfs 0.834 af |
| SubcatchmentPDA-2D: PDA-2D | Runoff Area=2.688 ac 0.00% Impervious Runoff Depth=5.08" Flow Length=618' Tc=12.3 min CN=69 Runoff=11.86 cfs 1.138 af |
| SubcatchmentPDA-3A: PDA-3A | Runoff Area=34.353 ac 0.10% Impervious Runoff Depth=4.96" Flow Length=2,518' Tc=19.6 min CN=68 Runoff=120.84 cfs 14.195 af |
| SubcatchmentPDA-3B: PDA-3B | Runoff Area=4.786 ac 0.71% Impervious Runoff Depth=4.59" Flow Length=774' Tc=16.2 min CN=65 Runoff=17.02 cfs 1.831 af |
| SubcatchmentPDA-3C: PDA-3C | Runoff Area=5.622 ac 0.00% Impervious Runoff Depth>5.81" Flow Length=812' Tc=14.7 min CN=75 Runoff=25.99 cfs 2.724 af |
| SubcatchmentPDA-4: PDA-4 | Runoff Area=4.259 ac 5.59% Impervious Runoff Depth>5.81" Flow Length=1,349' Tc=15.8 min CN=75 Runoff=19.17 cfs 2.064 af |
| Pond 1P: P=1 | Peak Elev=429.19' Storage=13,357 cf Inflow=17.07 cfs 1.770 af Outflow=15.49 cfs 1.694 af |
| Pond 2P: P-2 | Peak Elev=419.18' Storage=7,717 cf Inflow=10.34 cfs 0.834 af Outflow=9.96 cfs 0.755 af |
| Pond 3P: P-3 | Peak Elev=458.92' Storage=10,761 cf Inflow=11.86 cfs 1.138 af Outflow=6.73 cfs 1.069 af |
| Pond 4P: P-5 | Peak Elev=481.35' Storage=26,934 cf Inflow=25.99 cfs 2.724 af Outflow=21.76 cfs 2.580 af |
| Pond 5P: P-4 | Peak Elev=463.19' Storage=17,393 cf Inflow=17.02 cfs 1.831 af Outflow=13.44 cfs 1.732 af |
| Link AP-1: AP-1 | Inflow=133.77 cfs 15.293 af Primary=133.77 cfs 15.293 af |
| Link AP-2: AP-2 | Inflow=168.78 cfs 20.570 af Primary=168.78 cfs 20.570 af |

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Page 93

Total Runoff Area = 84.945 ac Runoff Volume = 36.331 af Average Runoff Depth = 5.13"
99.60% Pervious = 84.605 ac 0.40% Impervious = 0.340 ac

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Page 94

Summary for Subcatchment PDA-1: PDA-1

Runoff = 8.41 cfs @ 12.21 hrs, Volume= 0.828 af, Depth= 3.98"
 Routed to Link AP-1 : AP-1

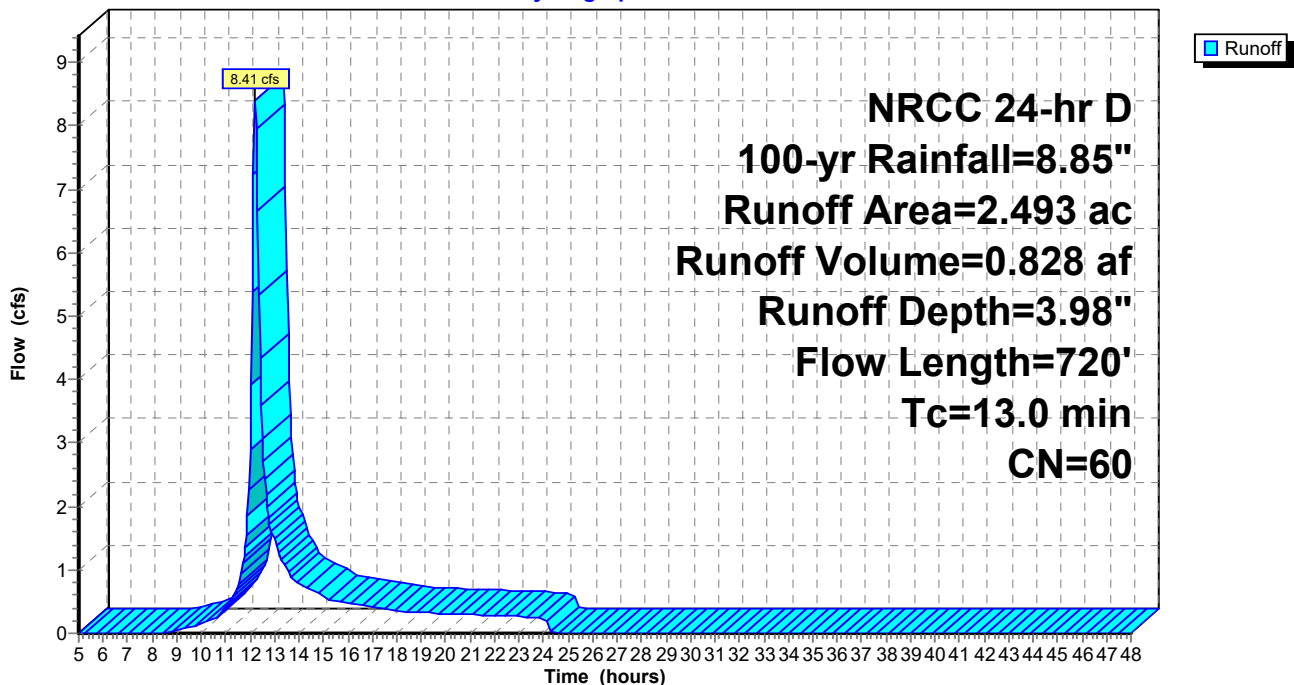
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 100-yr Rainfall=8.85"

| Area (ac) | CN | Description |
|-----------|----|---------------------------|
| 1.713 | 60 | Woods, Fair, HSG B |
| 0.730 | 58 | Meadow, non-grazed, HSG B |
| 0.050 | 96 | Gravel surface, HSG B |
| 2.493 | 60 | Weighted Average |
| 2.493 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|---|
| 8.0 | 100 | 0.2000 | 0.21 | | Sheet Flow, A-B |
| 5.0 | 620 | 0.1710 | 2.07 | | Woods: Light underbrush n= 0.400 P2= 3.62" Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 13.0 | 720 | Total | | | |

Subcatchment PDA-1: PDA-1

Hydrograph



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Page 95

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

Runoff = 100.59 cfs @ 12.25 hrs, Volume= 10.947 af, Depth= 5.45"
Routed to Link AP-1 : AP-1

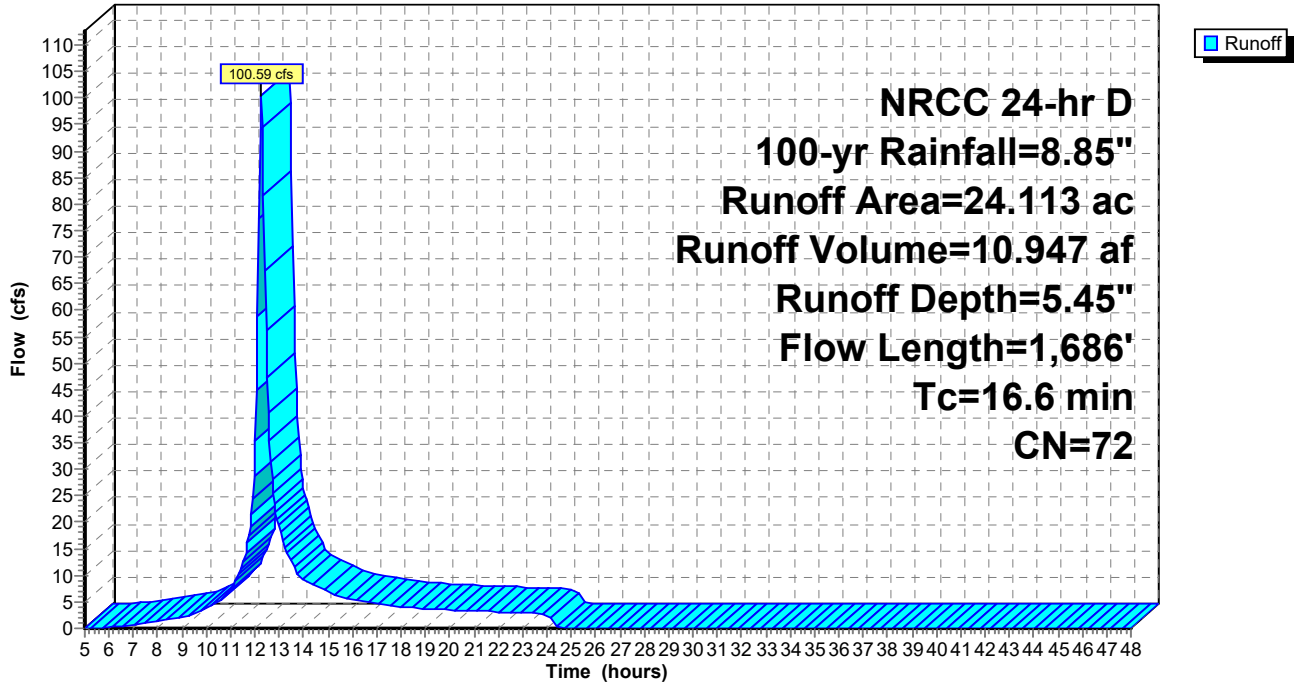
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-yr Rainfall=8.85"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 6.774 | 60 | Woods, Fair, HSG B |
| 13.166 | 79 | Woods, Fair, HSG D |
| 1.006 | 58 | Meadow, non-grazed, HSG B |
| * 1.425 | 65 | Meadow, non-grazed, HSG B/C |
| 1.742 | 78 | Meadow, non-grazed, HSG D |
| 24.113 | 72 | Weighted Average |
| 24.113 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 10.2 | 100 | 0.1100 | 0.16 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 4.7 | 635 | 0.2000 | 2.24 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 1.7 | 951 | 0.0421 | 9.10 | 151.99 | Channel Flow, C-D Area= 16.7 sf Perim= 12.8' r= 1.30' n= 0.040 Winding stream, pools & shoals |
| 16.6 | 1,686 | Total | | | |

Subcatchment PDA-2A: PDA-2A

Hydrograph



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Page 97

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

Runoff = 17.07 cfs @ 12.23 hrs, Volume= 1.770 af, Depth= 4.47"
Routed to Pond 1P : P=1

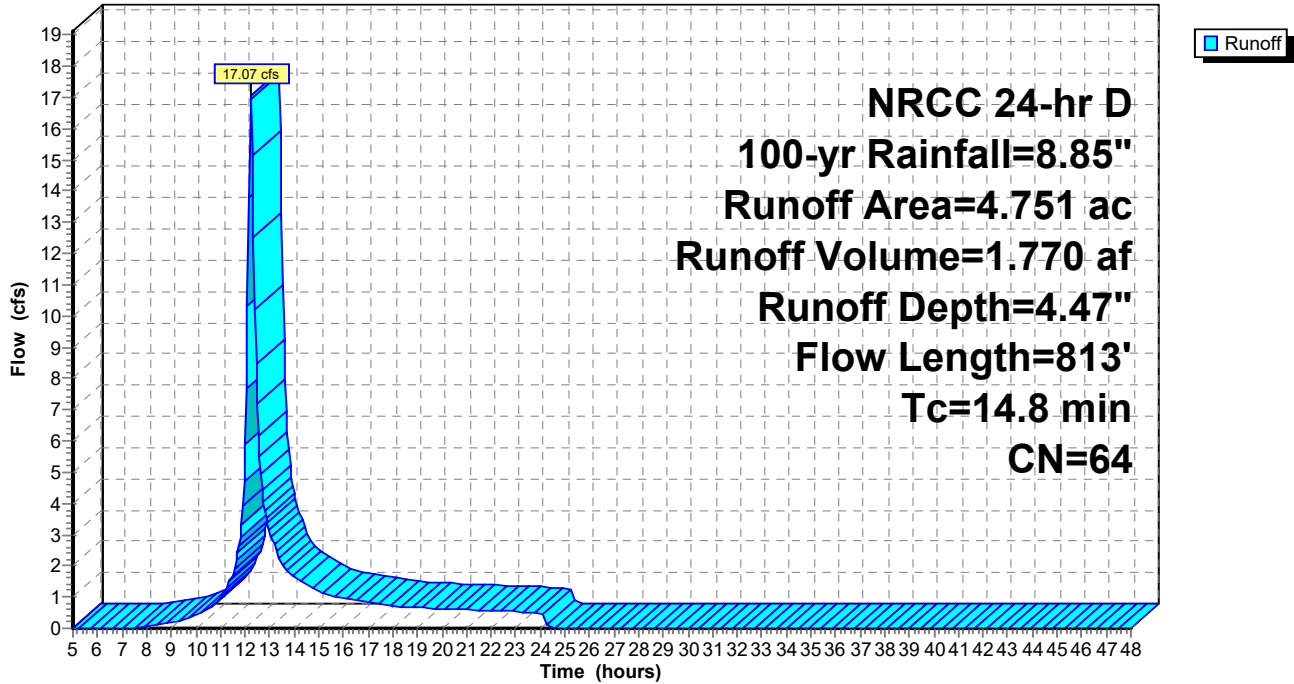
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-yr Rainfall=8.85"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 0.959 | 60 | Woods, Fair, HSG B |
| 0.012 | 79 | Woods, Fair, HSG D |
| 0.395 | 58 | Meadow, non-grazed, HSG B |
| * 3.239 | 65 | Meadow, non-grazed, HSG B/C |
| * 0.034 | 98 | Unconnected roofs, HSG B/C |
| 0.112 | 96 | Gravel surface, HSG B |
| 4.751 | 64 | Weighted Average |
| 4.717 | | 99.28% Pervious Area |
| 0.034 | | 0.72% Impervious Area |
| 0.034 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 10.2 | 100 | 0.1100 | 0.16 | | Sheet Flow, A-B |
| | | | | | Woods: Light underbrush n= 0.400 P2= 3.62" |
| 0.2 | 33 | 0.3000 | 2.74 | | Shallow Concentrated Flow, B-C |
| | | | | | Woodland Kv= 5.0 fps |
| 4.4 | 680 | 0.1367 | 2.59 | | Shallow Concentrated Flow, C-D |
| | | | | | Short Grass Pasture Kv= 7.0 fps |
| 14.8 | 813 | Total | | | |

Subcatchment PDA-2B: PDA-2B

Hydrograph



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Page 99

Summary for Subcatchment PDA-2C: PDA-2C

Runoff = 10.34 cfs @ 12.14 hrs, Volume= 0.834 af, Depth= 5.33"
 Routed to Pond 2P : P-2

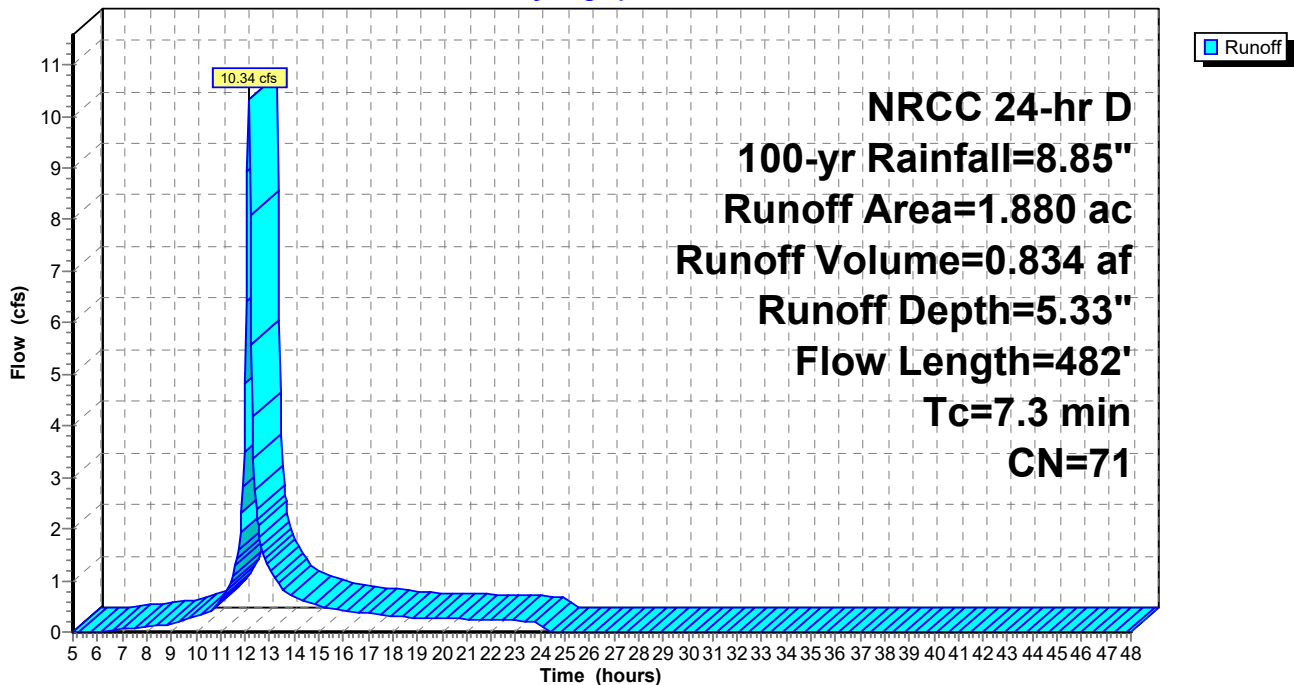
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 100-yr Rainfall=8.85"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 0.089 | 58 | Meadow, non-grazed, HSG B |
| * 0.667 | 65 | Meadow, non-grazed, HSG B/C |
| 0.930 | 78 | Meadow, non-grazed, HSG D |
| 0.105 | 60 | Woods, Fair, HSG B |
| 0.089 | 79 | Woods, Fair, HSG D |
| 1.880 | 71 | Weighted Average |
| 1.880 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 5.1 | 100 | 0.2200 | 0.32 | | Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.62" |
| 2.0 | 340 | 0.1647 | 2.84 | | Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps |
| 0.2 | 42 | 0.0476 | 3.27 | | Shallow Concentrated Flow, C-D Grassed Waterway Kv= 15.0 fps |
| 7.3 | 482 | Total | | | |

Subcatchment PDA-2C: PDA-2C

Hydrograph



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Page 100

Summary for Subcatchment PDA-2D: PDA-2D

Runoff = 11.86 cfs @ 12.20 hrs, Volume= 1.138 af, Depth= 5.08"
 Routed to Pond 3P : P-3

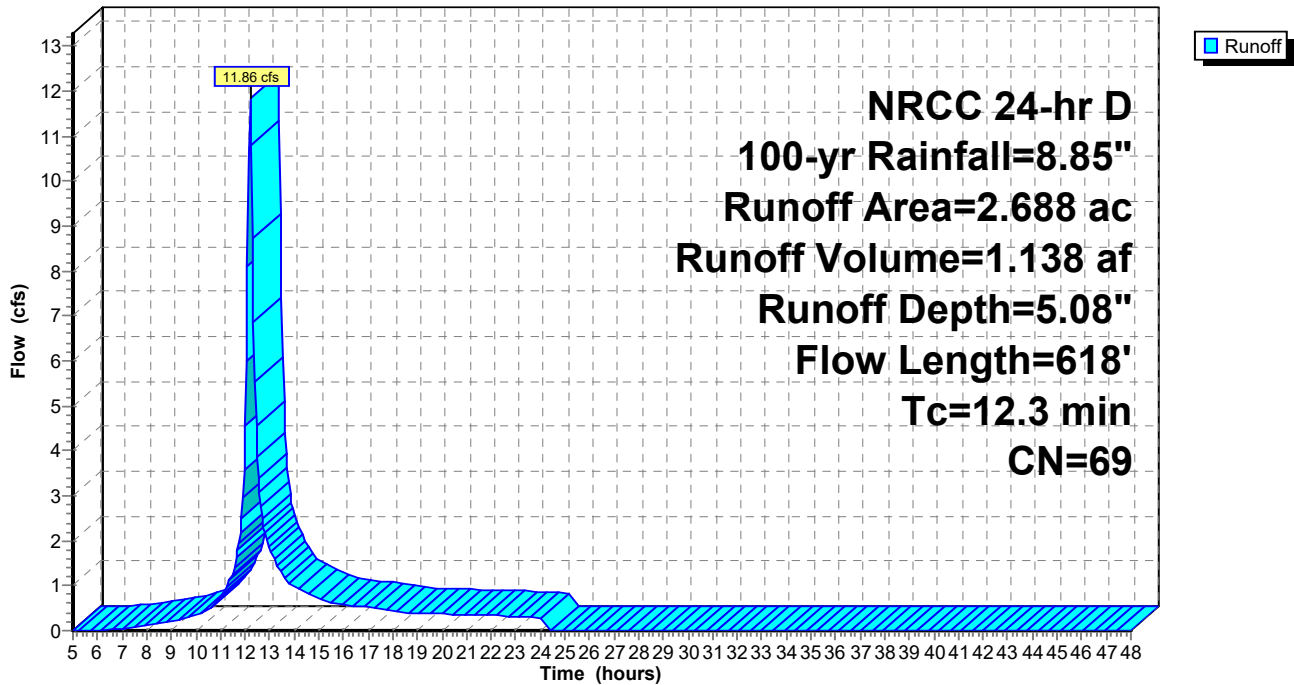
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 100-yr Rainfall=8.85"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| * 1.831 | 65 | Meadow, non-grazed, HSG B/C |
| 0.857 | 78 | Meadow, non-grazed, HSG D |
| 2.688 | 69 | Weighted Average |
| 2.688 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 9.3 | 100 | 0.0500 | 0.18 | | Sheet Flow, A-B Grass: Dense n= 0.240 P2= 3.62" |
| 3.0 | 518 | 0.1654 | 2.85 | | Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps |
| 12.3 | 618 | Total | | | |

Subcatchment PDA-2D: PDA-2D

Hydrograph



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Page 101

Summary for Subcatchment PDA-3A: PDA-3A

Runoff = 120.84 cfs @ 12.29 hrs, Volume= 14.195 af, Depth= 4.96"
 Routed to Link AP-2 : AP-2

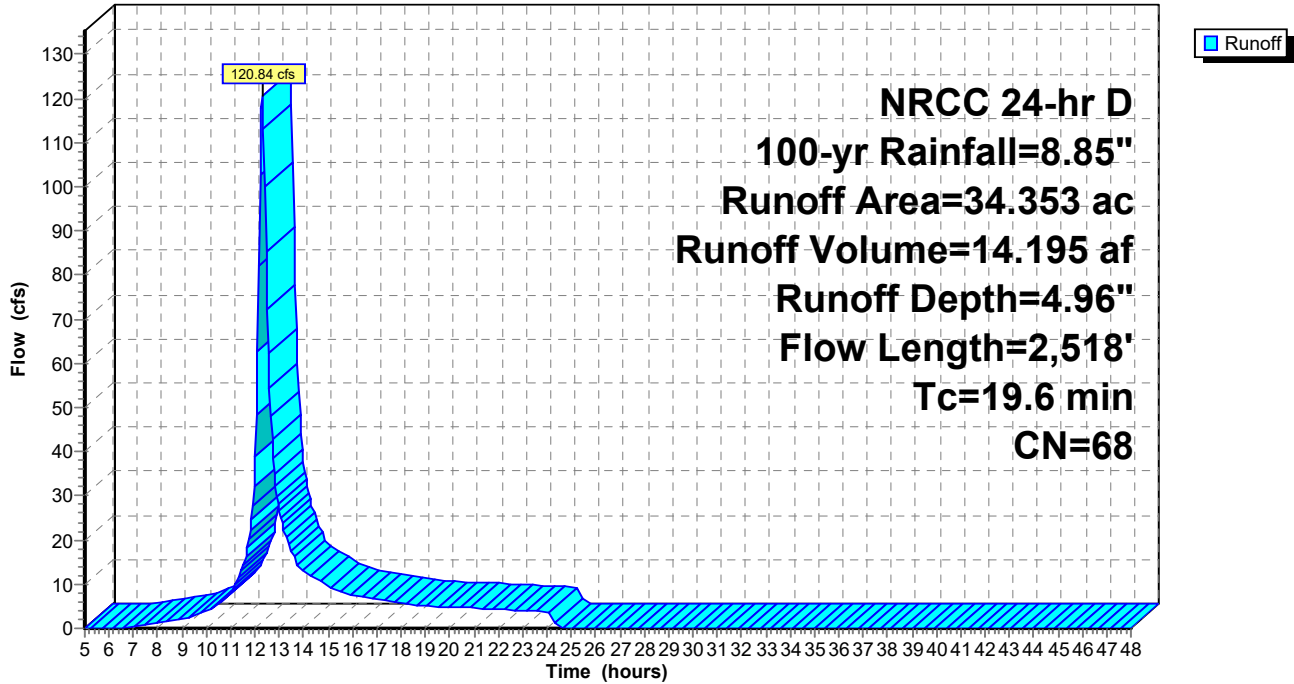
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 100-yr Rainfall=8.85"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 0.515 | 36 | Woods, Fair, HSG A |
| 12.604 | 60 | Woods, Fair, HSG B |
| 10.470 | 73 | Woods, Fair, HSG C |
| 5.295 | 79 | Woods, Fair, HSG D |
| * 2.024 | 75 | Meadow, non-grazed, HSG C/D |
| 0.034 | 98 | Unconnected pavement, HSG D |
| 0.397 | 96 | Gravel surface, HSG C |
| 1.195 | 58 | Meadow, non-grazed, HSG B |
| 0.931 | 71 | Meadow, non-grazed, HSG C |
| 0.448 | 78 | Meadow, non-grazed, HSG D |
| * 0.440 | 65 | Meadow, non-grazed, HSG B/C |
| 34.353 | 68 | Weighted Average |
| 34.319 | | 99.90% Pervious Area |
| 0.034 | | 0.10% Impervious Area |
| 0.034 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 8.8 | 100 | 0.1600 | 0.19 | | Sheet Flow, A-B |
| | | | | | Woods: Light underbrush n= 0.400 P2= 3.62" |
| 8.1 | 735 | 0.0912 | 1.51 | | Shallow Concentrated Flow, B-C |
| | | | | | Woodland Kv= 5.0 fps |
| 2.7 | 1,683 | 0.0552 | 10.50 | 346.60 | Channel Flow, C-D |
| | | | | | Area= 33.0 sf Perim= 25.0' r= 1.32' |
| | | | | | n= 0.040 Winding stream, pools & shoals |
| 19.6 | 2,518 | Total | | | |

Subcatchment PDA-3A: PDA-3A

Hydrograph



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Page 103

Summary for Subcatchment PDA-3B: PDA-3B

[47] Hint: Peak is 162% of capacity of segment #4

Runoff = 17.02 cfs @ 12.25 hrs, Volume= 1.831 af, Depth= 4.59"
 Routed to Pond 5P : P-4

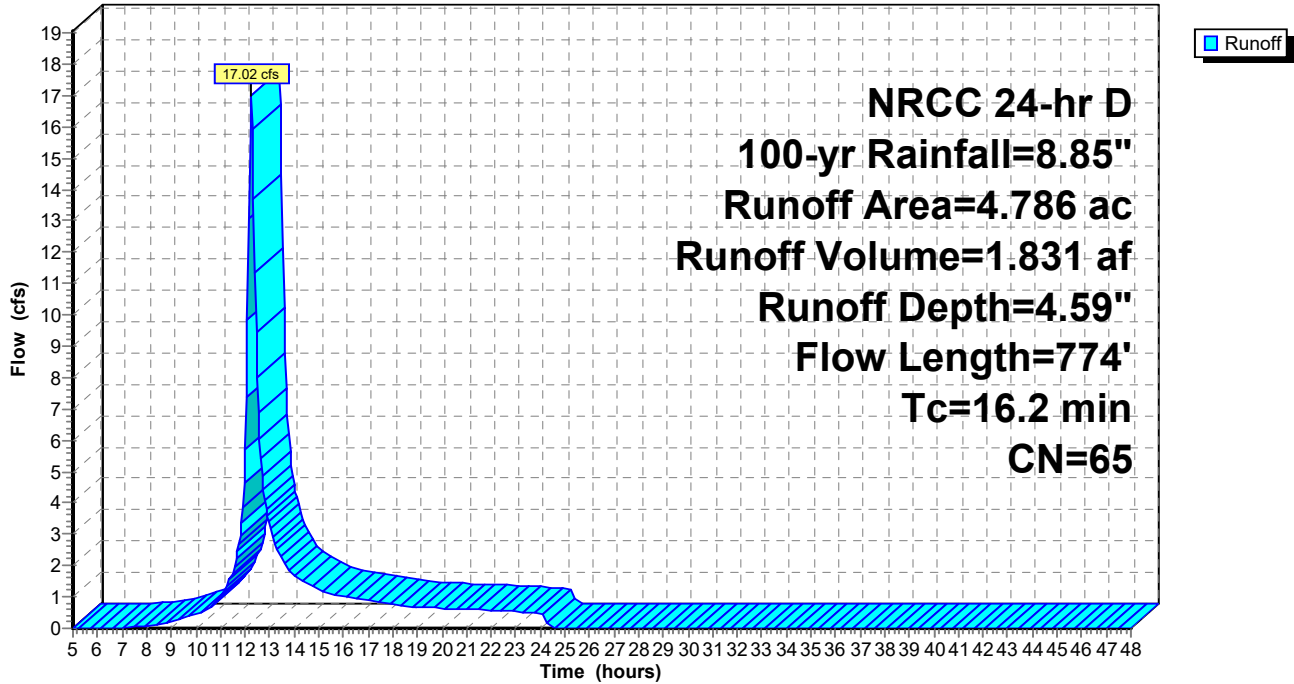
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 100-yr Rainfall=8.85"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| * 4.728 | 65 | Meadow, non-grazed, HSG B/C |
| 0.024 | 96 | Gravel surface, HSG B |
| 0.034 | 98 | Unconnected pavement, HSG B |
| 4.786 | 65 | Weighted Average |
| 4.752 | | 99.29% Pervious Area |
| 0.034 | | 0.71% Impervious Area |
| 0.034 | | 100.00% Unconnected |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 10.6 | 100 | 0.1000 | 0.16 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 5.0 | 547 | 0.1334 | 1.83 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 0.4 | 72 | 0.0444 | 3.16 | | Shallow Concentrated Flow, C-D Grassed Waterway Kv= 15.0 fps |
| 0.2 | 55 | 0.0100 | 5.94 | 10.50 | Pipe Channel, D-E 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior |
| 16.2 | 774 | Total | | | |

Subcatchment PDA-3B: PDA-3B

Hydrograph



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NRCC 24-hr D 100-yr Rainfall=8.85"

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Page 105

Summary for Subcatchment PDA-3C: PDA-3C

Runoff = 25.99 cfs @ 12.23 hrs, Volume= 2.724 af, Depth> 5.81"
 Routed to Pond 4P : P-5

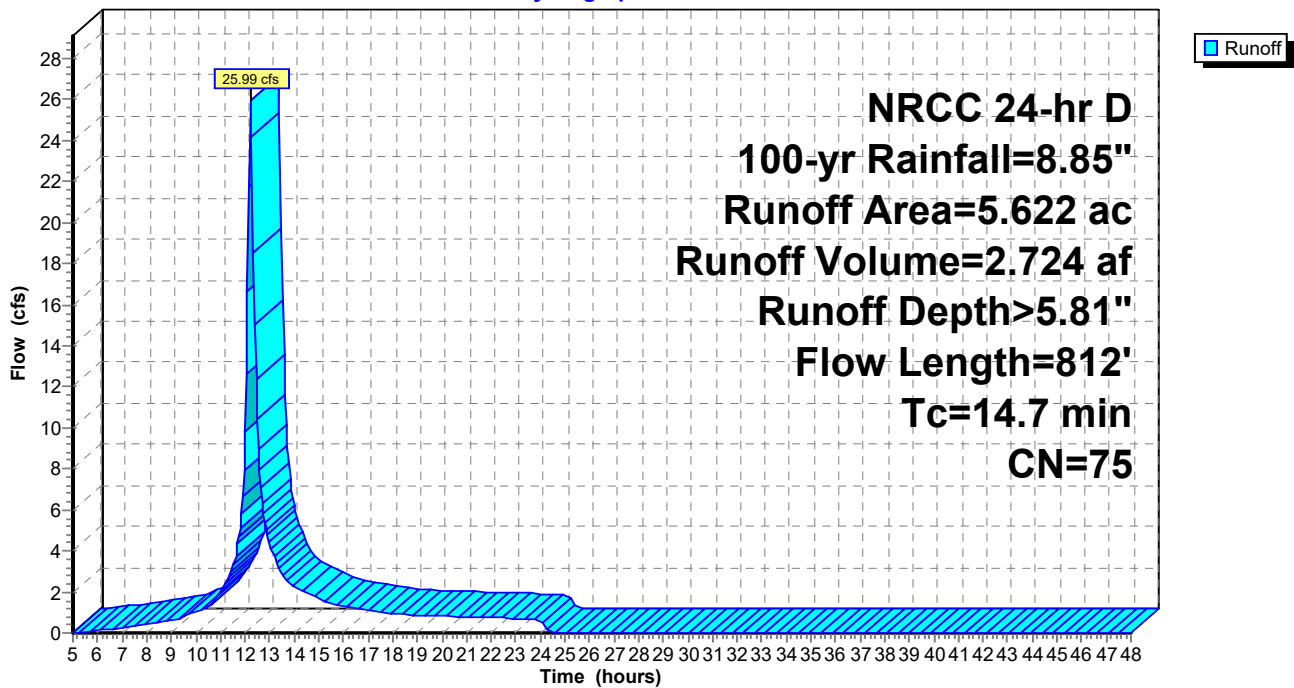
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 NRCC 24-hr D 100-yr Rainfall=8.85"

| Area (ac) | CN | Description |
|-----------|----|-----------------------------|
| 1.062 | 73 | Woods, Fair, HSG C |
| 0.126 | 71 | Meadow, non-grazed, HSG C |
| * 4.434 | 75 | Meadow, non-grazed, HSG C/D |
| 5.622 | 75 | Weighted Average |
| 5.622 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 9.5 | 100 | 0.1300 | 0.17 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 2.0 | 249 | 0.1687 | 2.05 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 3.2 | 463 | 0.1210 | 2.43 | | Shallow Concentrated Flow, C-D Short Grass Pasture Kv= 7.0 fps |
| 14.7 | 812 | Total | | | |

Subcatchment PDA-3C: PDA-3C

Hydrograph



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Page 106

Summary for Subcatchment PDA-4: PDA-4

[47] Hint: Peak is 114% of capacity of segment #4

Runoff = 19.17 cfs @ 12.24 hrs, Volume= 2.064 af, Depth> 5.81"
Routed to Link AP-2 : AP-2

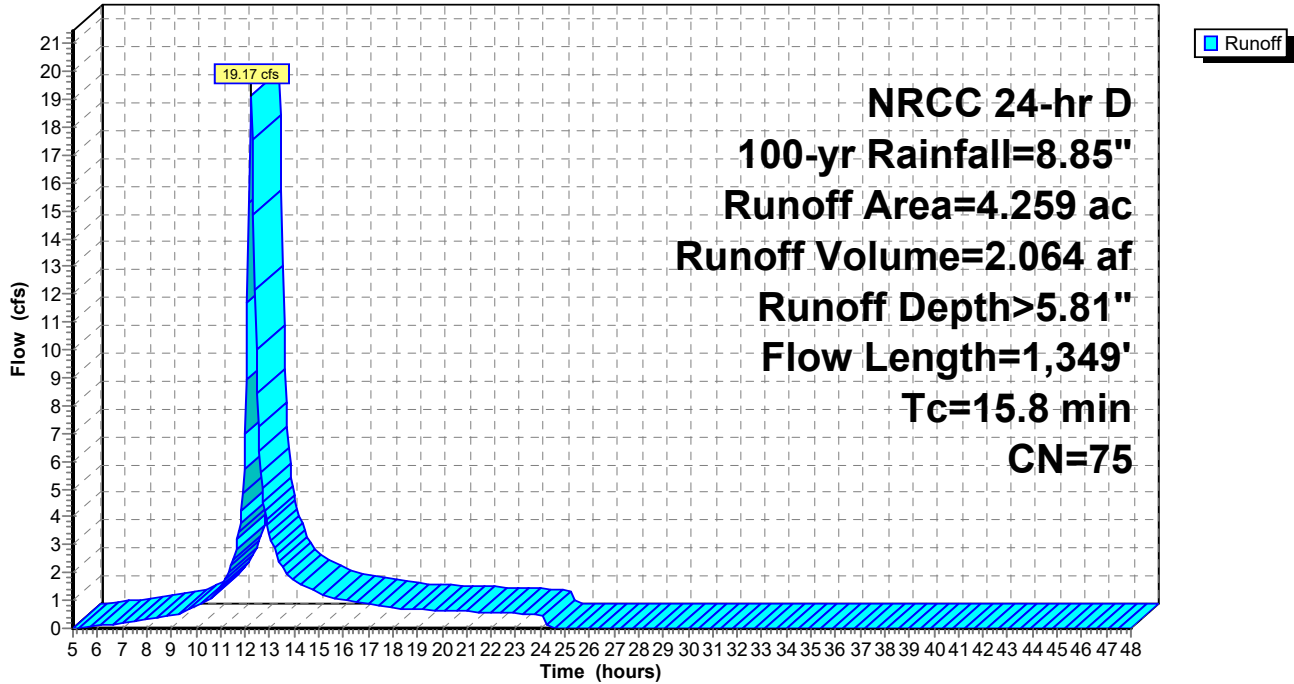
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 100-yr Rainfall=8.85"

| Area (ac) | CN | Description |
|-----------|----|-------------------------------------|
| 1.773 | 73 | Woods, Fair, HSG C |
| 0.005 | 79 | Woods, Fair, HSG D |
| 0.220 | 98 | Paved roads w/curbs & sewers, HSG C |
| 0.018 | 98 | Paved roads w/curbs & sewers, HSG D |
| * 1.408 | 75 | Meadow, non-grazed, HSG C/D |
| 0.819 | 71 | Meadow, non-grazed, HSG C |
| 0.010 | 96 | Gravel surface, HSG C |
| 0.003 | 96 | Gravel surface, HSG D |
| 0.003 | 78 | Meadow, non-grazed, HSG D |
| 4.259 | 75 | Weighted Average |
| 4.021 | | 94.41% Pervious Area |
| 0.238 | | 5.59% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|----------|---------------|---------------|-------------------|----------------|--|
| 12.2 | 100 | 0.0700 | 0.14 | | Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.62" |
| 2.3 | 301 | 0.1827 | 2.14 | | Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps |
| 0.2 | 63 | 0.0635 | 5.12 | | Shallow Concentrated Flow, C-D Paved Kv= 20.3 fps |
| 1.1 | 885 | 0.0575 | 13.67 | 16.78 | Pipe Channel, D-E 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Corrugated PP, smooth interior |
| 15.8 | 1,349 | Total | | | |

Subcatchment PDA-4: PDA-4

Hydrograph



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NRCC 24-hr D 100-yr Rainfall=8.85"

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Page 108

Summary for Pond 1P: P=1

Inflow Area = 4.751 ac, 0.72% Impervious, Inflow Depth = 4.47" for 100-yr event
 Inflow = 17.07 cfs @ 12.23 hrs, Volume= 1.770 af
 Outflow = 15.49 cfs @ 12.31 hrs, Volume= 1.694 af, Atten= 9%, Lag= 4.5 min
 Primary = 15.49 cfs @ 12.31 hrs, Volume= 1.694 af
 Routed to Link AP-1 : AP-1

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 429.19' @ 12.31 hrs Surf.Area= 5,449 sf Storage= 13,357 cf

Plug-Flow detention time= 61.5 min calculated for 1.692 af (96% of inflow)
 Center-of-Mass det. time= 38.7 min (904.4 - 865.7)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 426.00' | 18,067 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) | |
| 426.00 | 3,028 | 223.1 | 0 | 0 | 3,028 | |
| 427.00 | 3,726 | 242.0 | 3,371 | 3,371 | 3,765 | |
| 428.00 | 4,480 | 260.8 | 4,097 | 7,468 | 4,558 | |
| 429.00 | 5,291 | 279.7 | 4,880 | 12,348 | 5,415 | |
| 430.00 | 6,158 | 298.5 | 5,719 | 18,067 | 6,327 | |

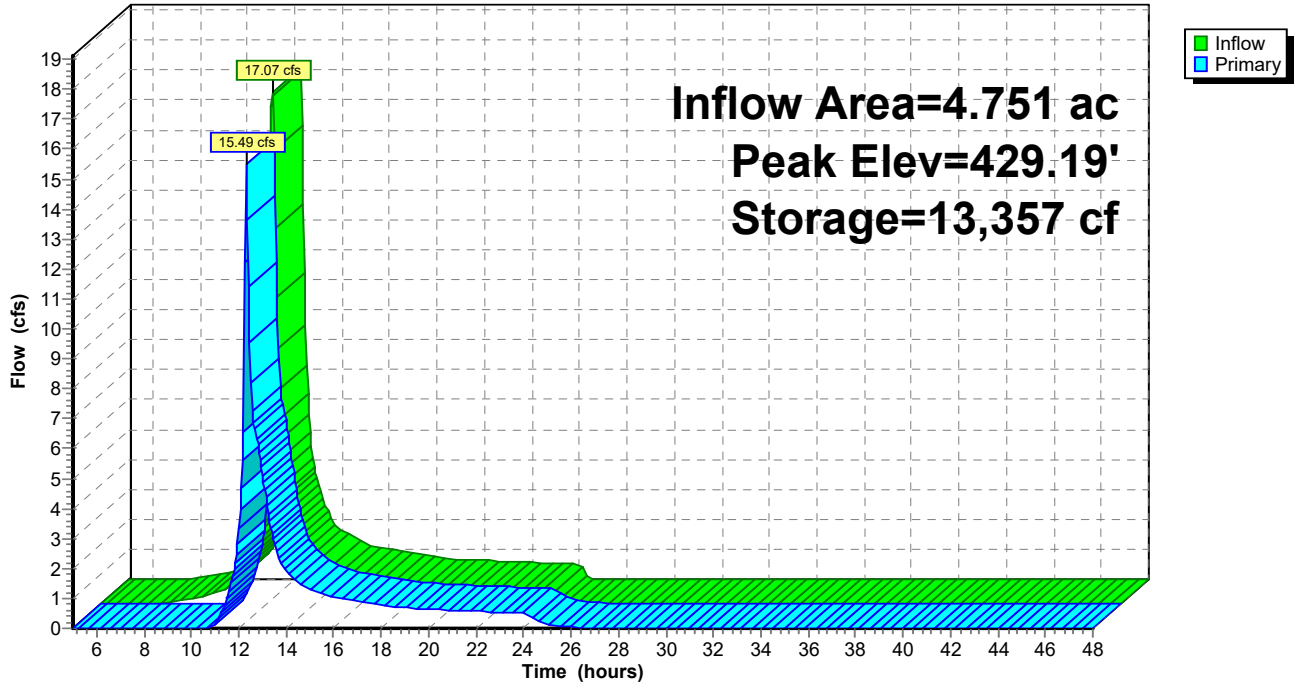
| Device | Routing | Invert | Outlet Devices | |
|--------|----------|---------|---|--|
| #1 | Primary | 426.00' | 18.0" Round Culvert L= 65.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 426.00' / 425.00' S= 0.0154 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf | |
| #2 | Device 1 | 427.00' | 15.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #3 | Device 1 | 429.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #4 | Primary | 429.00' | 25.0' long + 3.0 ' SideZ x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 | |

Primary OutFlow Max=15.15 cfs @ 12.31 hrs HW=429.18' (Free Discharge)

- 1=Culvert (Passes 9.81 cfs of 10.48 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 7.38 cfs @ 6.01 fps)
- 3=Orifice/Grate (Weir Controls 2.43 cfs @ 1.40 fps)
- 4=Broad-Crested Rectangular Weir (Weir Controls 5.34 cfs @ 1.14 fps)

Pond 1P: P=1

Hydrograph



Riggs St_Prop.

Prepared by Solli Engineering

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NRCC 24-hr D 100-yr Rainfall=8.85"

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Page 110

Summary for Pond 2P: P-2

Inflow Area = 1.880 ac, 0.00% Impervious, Inflow Depth = 5.33" for 100-yr event
 Inflow = 10.34 cfs @ 12.14 hrs, Volume= 0.834 af
 Outflow = 9.96 cfs @ 12.17 hrs, Volume= 0.755 af, Atten= 4%, Lag= 1.6 min
 Primary = 9.96 cfs @ 12.17 hrs, Volume= 0.755 af
 Routed to Link AP-1 : AP-1

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 419.18' @ 12.17 hrs Surf.Area= 3,415 sf Storage= 7,717 cf

Plug-Flow detention time= 101.5 min calculated for 0.754 af (90% of inflow)
 Center-of-Mass det. time= 52.2 min (892.6 - 840.4)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 416.00' | 10,757 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) | |
| 416.00 | 1,538 | 166.9 | 0 | 0 | 1,538 | |
| 417.00 | 2,067 | 185.7 | 1,796 | 1,796 | 2,094 | |
| 418.00 | 2,653 | 204.6 | 2,354 | 4,150 | 2,713 | |
| 419.00 | 3,295 | 223.4 | 2,968 | 7,118 | 3,388 | |
| 420.00 | 3,993 | 242.3 | 3,638 | 10,757 | 4,126 | |

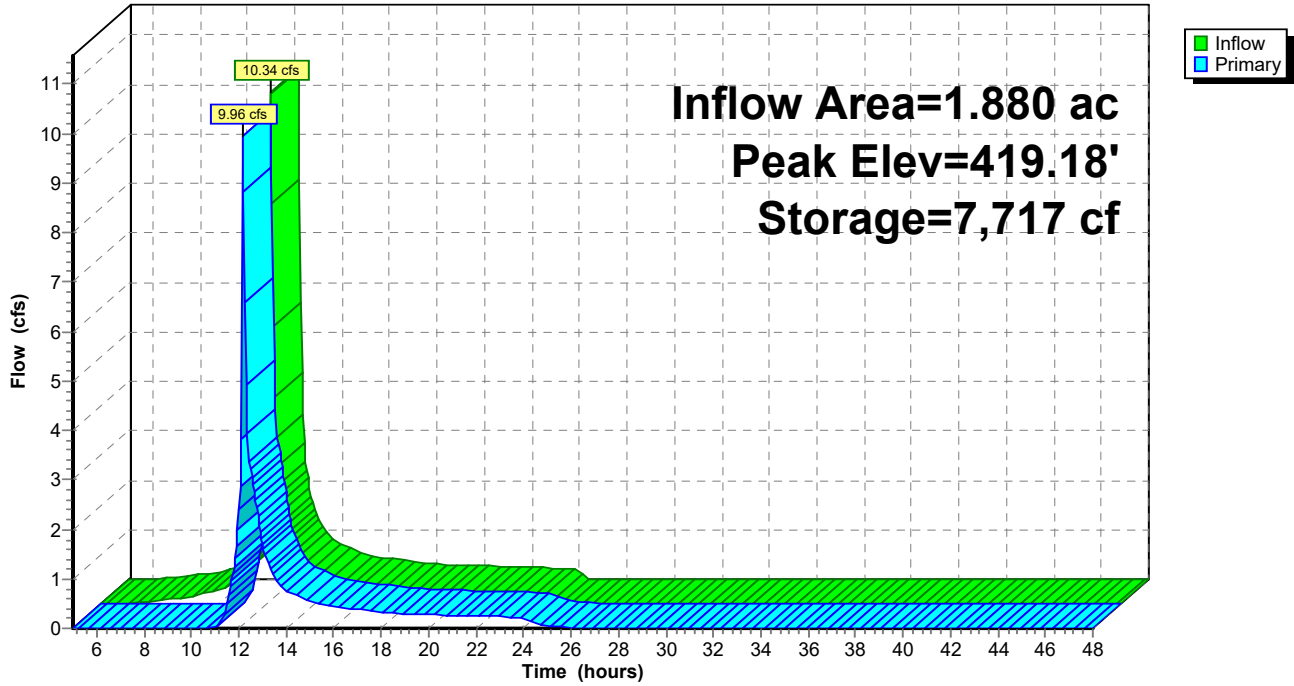
| Device | Routing | Invert | Outlet Devices | |
|--------|----------|---------|---|--|
| #1 | Primary | 416.00' | 18.0" Round Culvert L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 416.00' / 414.00' S= 0.0500 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf | |
| #2 | Device 1 | 417.70' | 12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #3 | Device 1 | 419.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads | |
| #4 | Primary | 419.00' | 20.0' long + 3.0 ' SideZ x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 | |

Primary OutFlow Max=9.19 cfs @ 12.17 hrs HW=419.16' (Free Discharge)

- 1=Culvert (Passes 5.69 cfs of 10.43 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 3.71 cfs @ 4.72 fps)
- 3=Orifice/Grate (Weir Controls 1.99 cfs @ 1.31 fps)
- 4=Broad-Crested Rectangular Weir (Weir Controls 3.50 cfs @ 1.07 fps)

Pond 2P: P-2

Hydrograph



Riggs St_Prop.

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NRCC 24-hr D 100-yr Rainfall=8.85"

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Page 112

Summary for Pond 3P: P-3

Inflow Area = 2.688 ac, 0.00% Impervious, Inflow Depth = 5.08" for 100-yr event
 Inflow = 11.86 cfs @ 12.20 hrs, Volume= 1.138 af
 Outflow = 6.73 cfs @ 12.36 hrs, Volume= 1.069 af, Atten= 43%, Lag= 9.5 min
 Primary = 6.73 cfs @ 12.36 hrs, Volume= 1.069 af
 Routed to Link AP-1 : AP-1

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 458.92' @ 12.36 hrs Surf.Area= 4,762 sf Storage= 10,761 cf

Plug-Flow detention time= 79.5 min calculated for 1.068 af (94% of inflow)
 Center-of-Mass det. time= 46.9 min (897.1 - 850.3)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 456.00' | 16,375 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) | |
| 456.00 | 2,689 | 209.2 | 0 | 0 | 2,689 | |
| 457.00 | 3,345 | 228.1 | 3,011 | 3,011 | 3,382 | |
| 458.00 | 4,057 | 246.9 | 3,695 | 6,706 | 4,131 | |
| 459.00 | 4,825 | 265.8 | 4,435 | 11,142 | 4,944 | |
| 460.00 | 5,652 | 284.6 | 5,233 | 16,375 | 5,812 | |

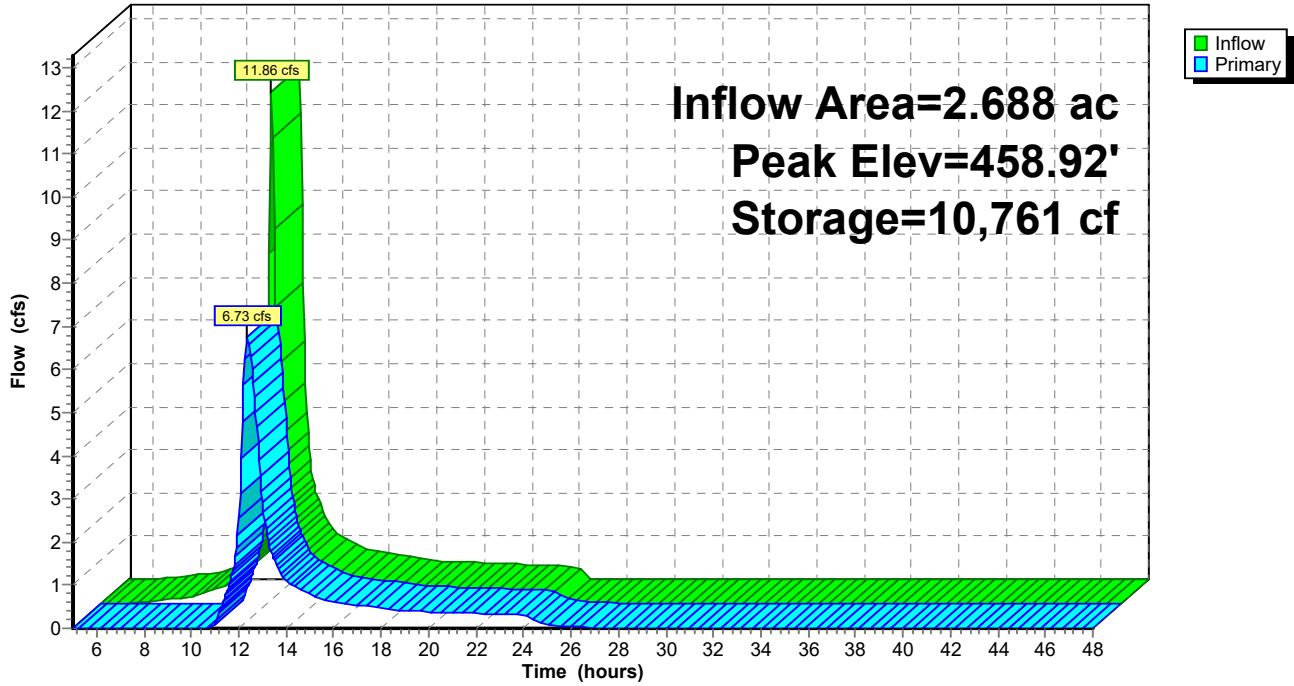
| Device | Routing | Invert | Outlet Devices |
|--------|----------|---------|---|
| #1 | Primary | 456.00' | 18.0" Round Culvert L= 60.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 456.00' / 445.00' S= 0.1833 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf |
| #2 | Device 1 | 457.00' | 15.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads |
| #3 | Device 1 | 459.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads |
| #4 | Primary | 459.00' | 16.0' long + 3.0 ' SideZ x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 |

Primary OutFlow Max=6.71 cfs @ 12.36 hrs HW=458.92' (Free Discharge)

- 1=Culvert (Passes 6.71 cfs of 9.89 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 6.71 cfs @ 5.47 fps)
- 3=Orifice/Grate (Controls 0.00 cfs)
- 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: P-3

Hydrograph



Riggs St_Prop.

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NRCC 24-hr D 100-yr Rainfall=8.85"

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Page 114

Summary for Pond 4P: P-5

Inflow Area = 5.622 ac, 0.00% Impervious, Inflow Depth > 5.81" for 100-yr event
 Inflow = 25.99 cfs @ 12.23 hrs, Volume= 2.724 af
 Outflow = 21.76 cfs @ 12.32 hrs, Volume= 2.580 af, Atten= 16%, Lag= 5.5 min
 Primary = 21.76 cfs @ 12.32 hrs, Volume= 2.580 af
 Routed to Link AP-2 : AP-2

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 481.35' @ 12.32 hrs Surf.Area= 10,716 sf Storage= 26,934 cf

Plug-Flow detention time= 91.0 min calculated for 2.577 af (95% of inflow)
 Center-of-Mass det. time= 61.9 min (898.4 - 836.5)

| Volume | Invert | Avail.Storage | Storage Description | | |
|------------------|-------------------|---------------|--|------------------------|------------------|
| #1 | 478.00' | 34,305 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) |
| 478.00 | 5,499 | 489.1 | 0 | 0 | 5,499 |
| 479.00 | 6,994 | 507.9 | 6,232 | 6,232 | 7,072 |
| 480.00 | 8,546 | 526.8 | 7,757 | 13,989 | 8,712 |
| 481.00 | 10,155 | 545.6 | 9,339 | 23,328 | 10,403 |
| 482.00 | 11,820 | 564.5 | 10,977 | 34,305 | 12,163 |

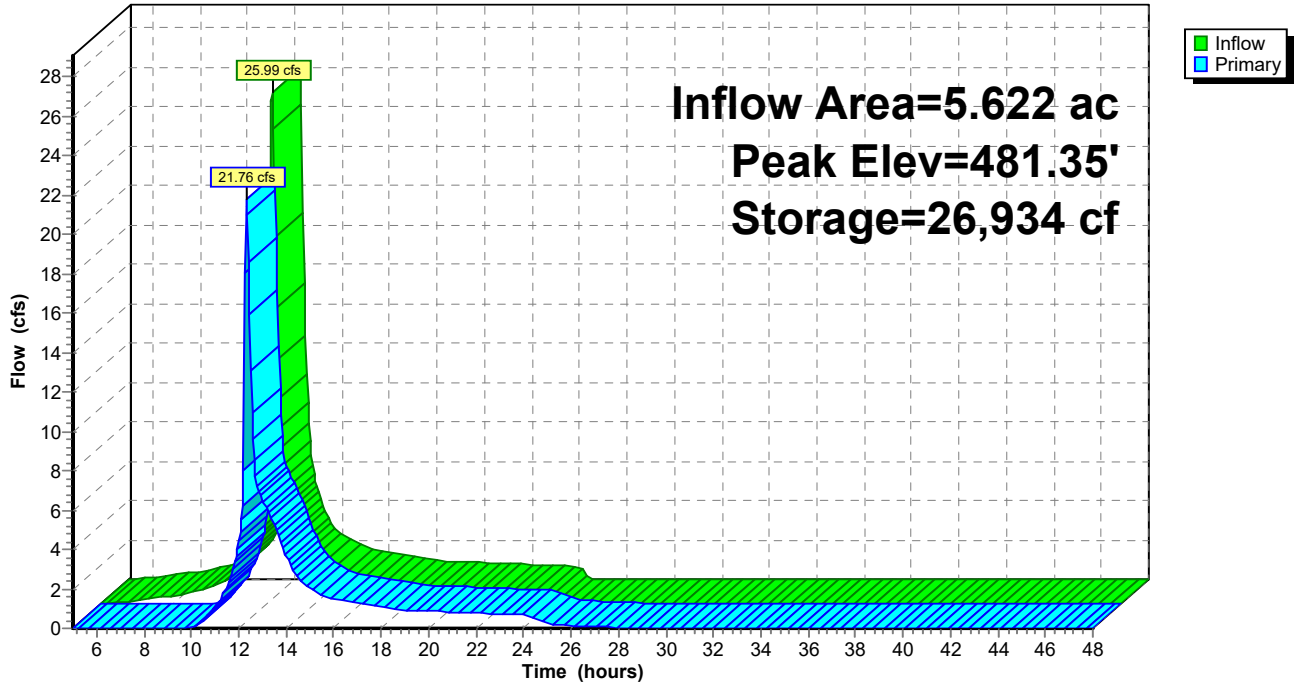
| Device | Routing | Invert | Outlet Devices |
|--------|----------|---------|---|
| #1 | Primary | 478.00' | 18.0" Round Culvert L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 478.00' / 476.00' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf |
| #2 | Device 1 | 479.00' | 15.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads |
| #3 | Device 1 | 481.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads |
| #4 | Primary | 481.00' | 20.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 |

Primary OutFlow Max=21.29 cfs @ 12.32 hrs HW=481.34' (Free Discharge)

- 1=Culvert (Inlet Controls 10.80 cfs @ 6.11 fps)
- 2=Orifice/Grate (Passes < 7.73 cfs potential flow)
- 3=Orifice/Grate (Passes < 6.05 cfs potential flow)
- 4=Broad-Crested Rectangular Weir (Weir Controls 10.48 cfs @ 1.56 fps)

Pond 4P: P-5

Hydrograph



Riggs St_Prop.

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NRCC 24-hr D 100-yr Rainfall=8.85"

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Page 116

Summary for Pond 5P: P-4

Inflow Area = 4.786 ac, 0.71% Impervious, Inflow Depth = 4.59" for 100-yr event
 Inflow = 17.02 cfs @ 12.25 hrs, Volume= 1.831 af
 Outflow = 13.44 cfs @ 12.37 hrs, Volume= 1.732 af, Atten= 21%, Lag= 7.3 min
 Primary = 13.44 cfs @ 12.37 hrs, Volume= 1.732 af
 Routed to Link AP-2 : AP-2

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 463.19' @ 12.37 hrs Surf.Area= 7,122 sf Storage= 17,393 cf

Plug-Flow detention time= 78.8 min calculated for 1.730 af (94% of inflow)
 Center-of-Mass det. time= 49.9 min (914.3 - 864.4)

| Volume | Invert | Avail.Storage | Storage Description | | | |
|------------------|-------------------|---------------|--|------------------------|------------------|--|
| #1 | 460.00' | 23,498 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) | |
| 460.00 | 3,869 | 309.7 | 0 | 0 | 3,869 | |
| 461.00 | 4,826 | 328.5 | 4,339 | 4,339 | 4,876 | |
| 462.00 | 5,840 | 347.4 | 5,325 | 9,664 | 5,947 | |
| 463.00 | 6,910 | 366.2 | 6,368 | 16,031 | 7,073 | |
| 464.00 | 8,037 | 385.1 | 7,466 | 23,498 | 8,263 | |

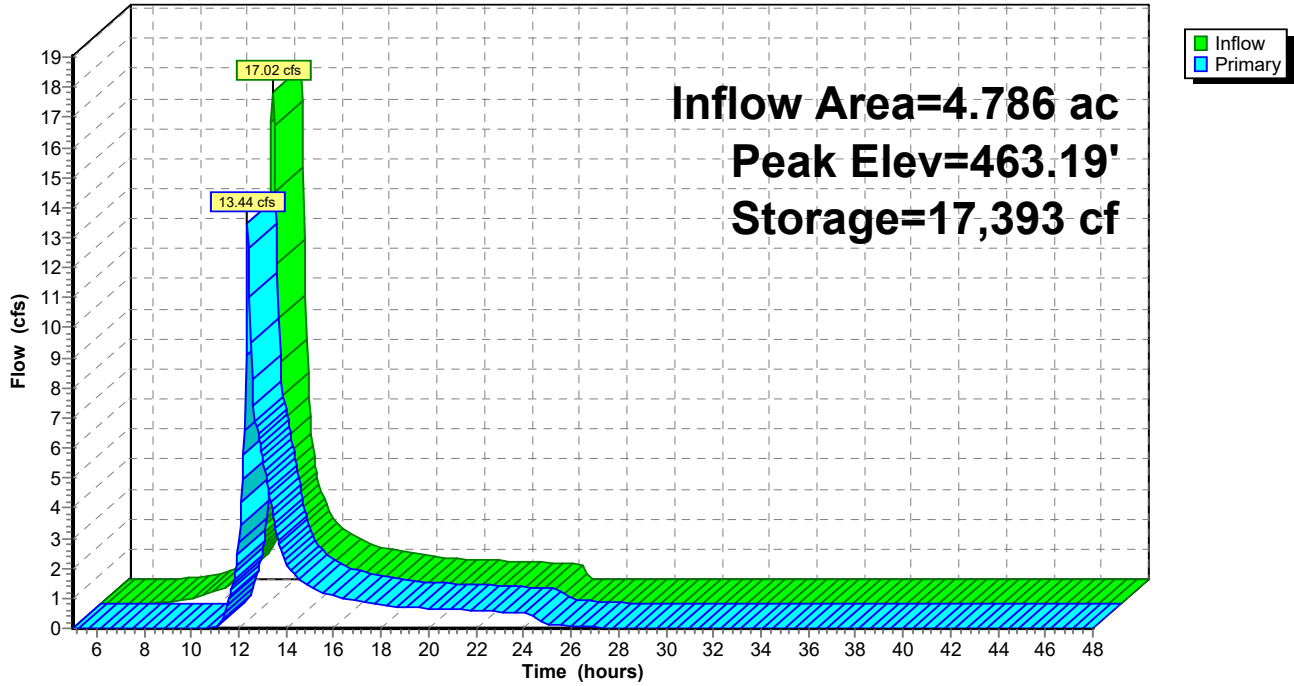
| Device | Routing | Invert | Outlet Devices |
|--------|----------|---------|---|
| #1 | Primary | 460.00' | 18.0" Round Culvert L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 460.00' / 458.00' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf |
| #2 | Device 1 | 461.00' | 15.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads |
| #3 | Device 1 | 463.00' | 36.0" x 21.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads |
| #4 | Primary | 463.00' | 15.0' long x 15.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63 |

Primary OutFlow Max=12.89 cfs @ 12.37 hrs HW=463.18' (Free Discharge)

- 1=Culvert (Passes 9.78 cfs of 10.48 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 7.37 cfs @ 6.01 fps)
- 3=Orifice/Grate (Weir Controls 2.41 cfs @ 1.39 fps)
- 4=Broad-Crested Rectangular Weir (Weir Controls 3.11 cfs @ 1.14 fps)

Pond 5P: P-4

Hydrograph



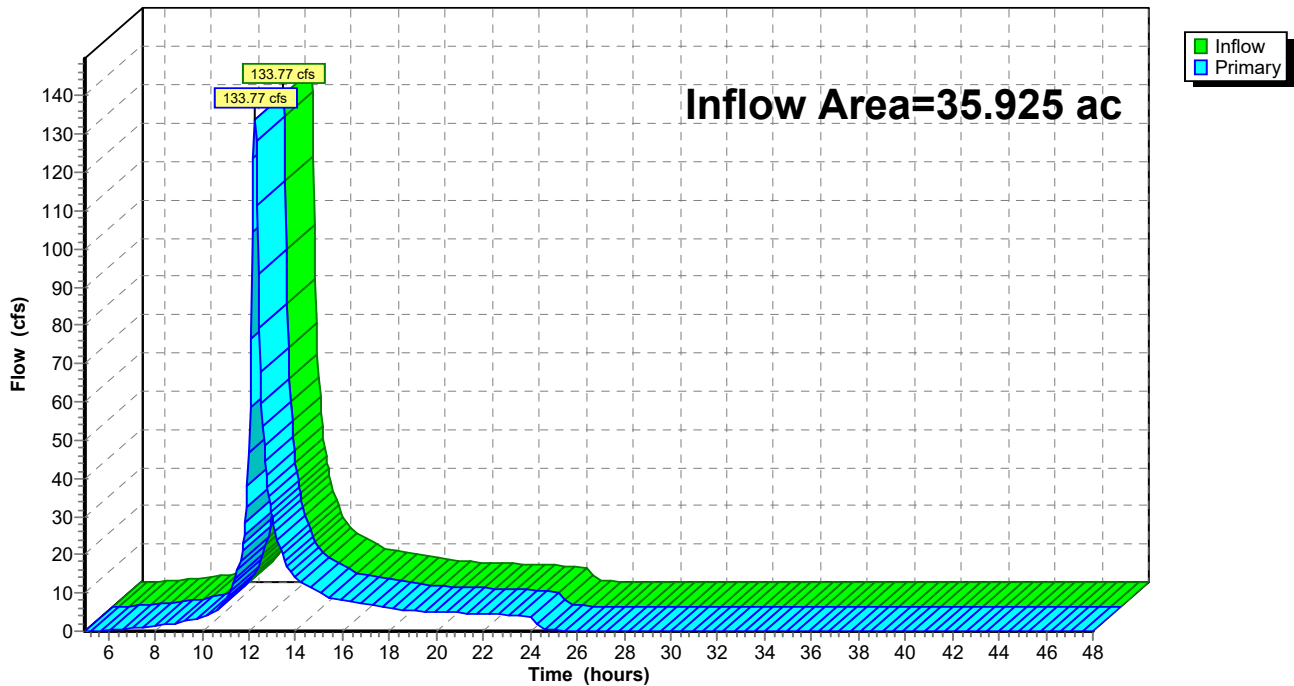
Summary for Link AP-1: AP-1

Inflow Area = 35.925 ac, 0.09% Impervious, Inflow Depth = 5.11" for 100-yr event
Inflow = 133.77 cfs @ 12.26 hrs, Volume= 15.293 af
Primary = 133.77 cfs @ 12.26 hrs, Volume= 15.293 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link AP-1: AP-1

Hydrograph



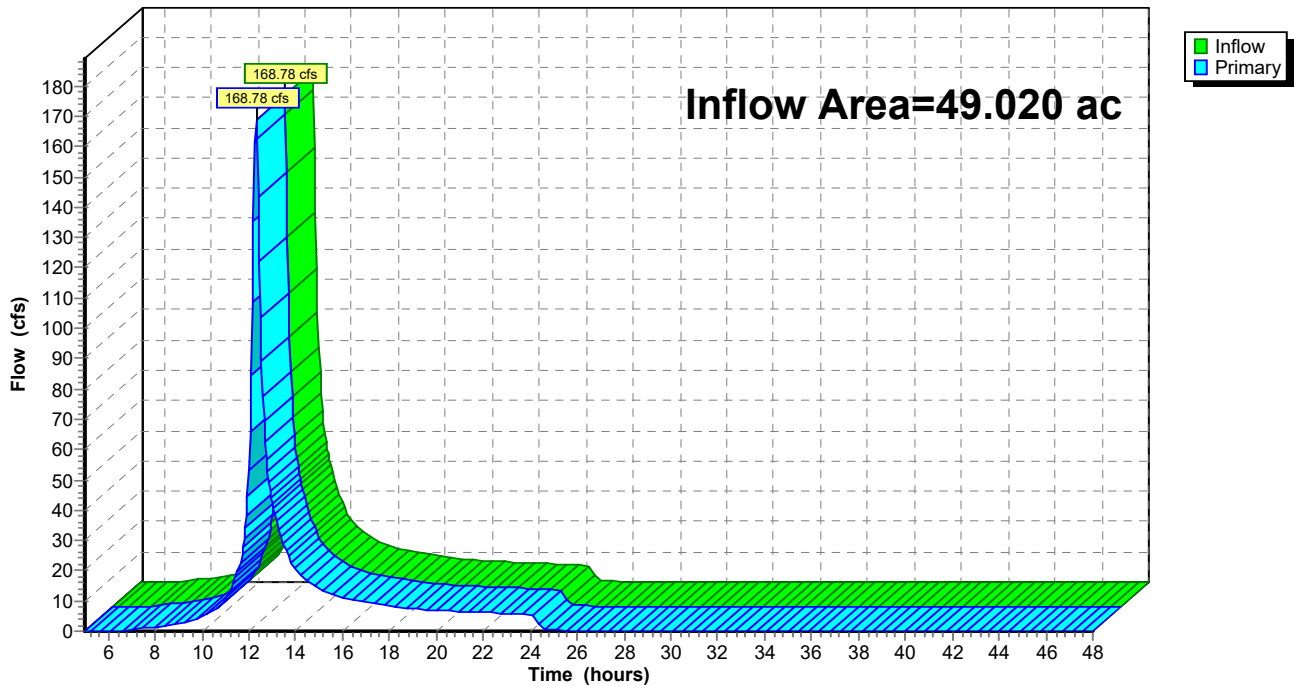
Summary for Link AP-2: AP-2

Inflow Area = 49.020 ac, 0.62% Impervious, Inflow Depth > 5.04" for 100-yr event
Inflow = 168.78 cfs @ 12.30 hrs, Volume= 20.570 af
Primary = 168.78 cfs @ 12.30 hrs, Volume= 20.570 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link AP-2: AP-2

Hydrograph



WATER QUALITY VOLUME (WQV) COMPUTATIONS FOR PDA-2B

Project: Proposed Solar Photovoltaic Array
Location: 0 Riggs Street, Oxford, CT
Date: 12/01/23

Water Quality Volume Calculations:

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

Where:
 WQV = water quality volume (ac-ft)
 R = volumetric 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

| | | | |
|---|------------------------------------|-------|---------------------------------------|
| Area of impervious coverage, A _{IMP} | <input type="text" value="0.50"/> | Acres | |
| Total area of watershed, A _{TOT} | <input type="text" value="4.75"/> | Acres | |
| Percent impervious cover, I | <input type="text" value="10.53"/> | % | |
| Volumetric runoff coefficient, R | <input type="text" value="0.14"/> | | |
| Water Quality Volume, WQV | <input type="text" value="0.074"/> | ac-ft | <input type="text" value="3,244"/> cf |

WATER QUALITY VOLUME (WQV) COMPUTATIONS FOR PDA-2C

Project: Proposed Solar Photovoltaic Array
Location: 0 Riggs Street, Oxford, CT
Date: 12/01/23

Water Quality Volume Calculations:

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

Where:
 WQV = water quality volume (ac-ft)
 R = volumetric 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

| | | | |
|---|------------------------------------|-------|---------------------------------------|
| Area of impervious coverage, A _{IMP} | <input type="text" value="0.63"/> | Acres | |
| Total area of watershed, A _{TOT} | <input type="text" value="1.88"/> | Acres | |
| Percent impervious cover, I | <input type="text" value="33.51"/> | % | |
| Volumetric runoff coefficient, R | <input type="text" value="0.35"/> | | |
| Water Quality Volume, WQV | <input type="text" value="0.072"/> | ac-ft | <input type="text" value="3,119"/> cf |

WATER QUALITY VOLUME (WQV) COMPUTATIONS FOR PDA-2E

Project: Proposed Solar Photovoltaic Array
Location: 0 Riggs Street, Oxford, CT
Date: 12/01/23

Water Quality Volume Calculations:

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

Where:
 WQV = water quality volume (ac-ft)
 R = volumetric 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

| | | | |
|---|------------------------------------|-------|---------------------------------------|
| Area of impervious coverage, A _{IMP} | <input type="text" value="0.23"/> | Acres | |
| Total area of watershed, A _{TOT} | <input type="text" value="2.69"/> | Acres | |
| Percent impervious cover, I | <input type="text" value="8.55"/> | % | |
| Volumetric runoff coefficient, R | <input type="text" value="0.13"/> | | |
| Water Quality Volume, WQV | <input type="text" value="0.037"/> | ac-ft | <input type="text" value="1,612"/> cf |

WATER QUALITY VOLUME (WQV) COMPUTATIONS FOR PDA-3B

Project: Proposed Solar Photovoltaic Array
Location: 0 Riggs Street, Oxford, CT
Date: 12/01/23

Water Quality Volume Calculations:

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

Where:
 WQV = water quality volume (ac-ft)
 R = volumetric 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

| | | | |
|---|------------------------------------|-------|---------------------------------------|
| Area of impervious coverage, A _{IMP} | <input type="text" value="0.06"/> | Acres | |
| Total area of watershed, A _{TOT} | <input type="text" value="4.79"/> | Acres | |
| Percent impervious cover, I | <input type="text" value="1.21"/> | % | |
| Volumetric runoff coefficient, R | <input type="text" value="0.06"/> | | |
| Water Quality Volume, WQV | <input type="text" value="0.032"/> | ac-ft | <input type="text" value="1,376"/> cf |

WATER QUALITY VOLUME (WQV) COMPUTATIONS FOR PDA-3B

Project: Proposed Solar Photovoltaic Array
Location: 0 Riggs Street, Oxford, CT
Date: 12/01/23

Water Quality Volume Calculations:

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

Where:
 WQV = water quality volume (ac-ft)
 R = volumetric 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

| | | | |
|---|------------------------------------|-------|---------------------------------------|
| Area of impervious coverage, A _{IMP} | <input type="text" value="0.97"/> | Acres | |
| Total area of watershed, A _{TOT} | <input type="text" value="5.41"/> | Acres | |
| Percent impervious cover, I | <input type="text" value="17.91"/> | % | |
| Volumetric runoff coefficient, R | <input type="text" value="0.21"/> | | |
| Water Quality Volume, WQV | <input type="text" value="0.124"/> | ac-ft | <input type="text" value="5,392"/> cf |



NOAA Atlas 14, Volume 10, Version 3
Location name: Oxford, Connecticut, USA*
Latitude: 41.4438°, Longitude: -73.1205°
Elevation: 536 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

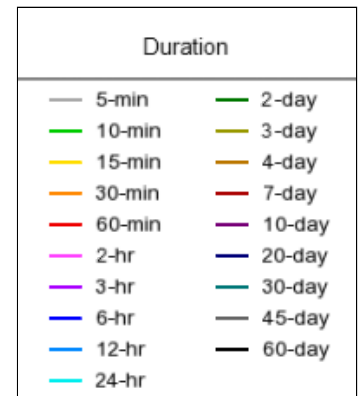
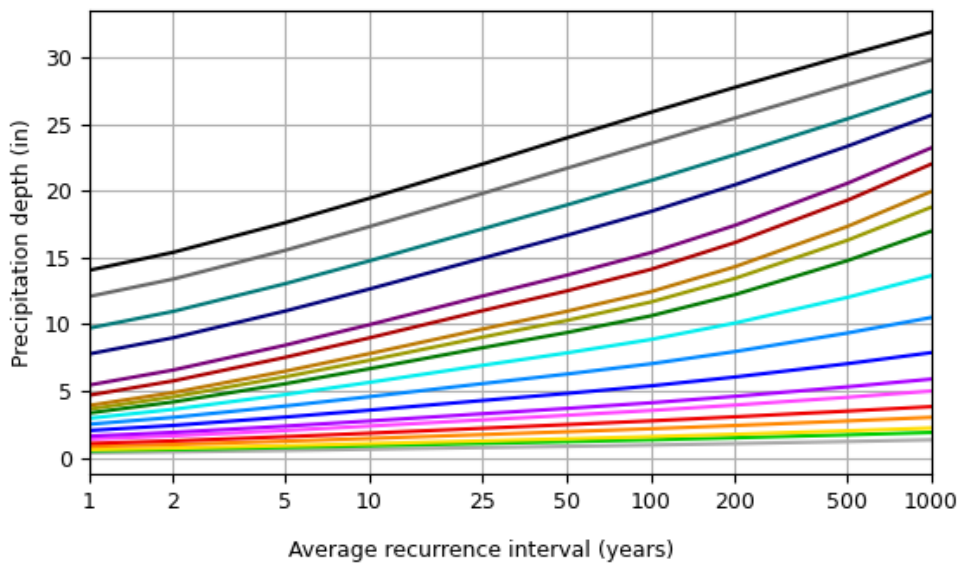
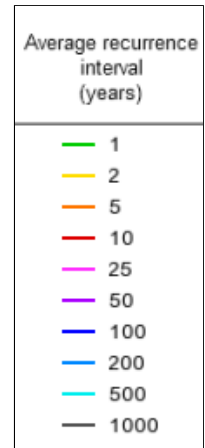
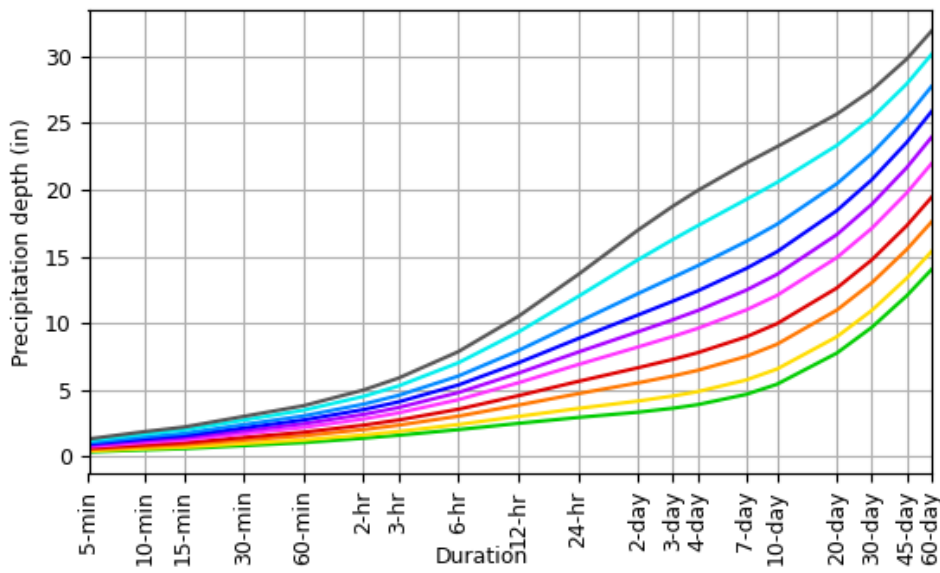
| PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹ | | | | | | | | | | |
|--|-------------------------------------|------------------------|------------------------|------------------------|-----------------------|-----------------------|-----------------------|----------------------|----------------------|----------------------|
| Duration | Average recurrence interval (years) | | | | | | | | | |
| | 1 | 2 | 5 | 10 | 25 | 50 | 100 | 200 | 500 | 1000 |
| 5-min | 0.360 (0.277-0.463) | 0.427 (0.328-0.549) | 0.536 (0.410-0.691) | 0.627 (0.477-0.813) | 0.751 (0.554-1.01) | 0.845 (0.612-1.16) | 0.943 (0.664-1.34) | 1.05 (0.705-1.53) | 1.21 (0.781-1.81) | 1.33 (0.843-2.03) |
| 10-min | 0.511 (0.392-0.656) | 0.605 (0.464-0.778) | 0.759 (0.581-0.979) | 0.888 (0.675-1.15) | 1.06 (0.785-1.43) | 1.20 (0.867-1.64) | 1.34 (0.941-1.90) | 1.49 (0.999-2.16) | 1.71 (1.10-2.56) | 1.89 (1.19-2.88) |
| 15-min | 0.601 (0.461-0.771) | 0.712 (0.546-0.915) | 0.893 (0.683-1.15) | 1.04 (0.794-1.35) | 1.25 (0.924-1.69) | 1.41 (1.02-1.93) | 1.57 (1.11-2.23) | 1.75 (1.18-2.54) | 2.01 (1.30-3.01) | 2.22 (1.40-3.39) |
| 30-min | 0.829 (0.637-1.06) | 0.982 (0.753-1.26) | 1.23 (0.942-1.59) | 1.44 (1.09-1.86) | 1.72 (1.27-2.32) | 1.94 (1.40-2.66) | 2.16 (1.52-3.06) | 2.41 (1.61-3.49) | 2.75 (1.78-4.12) | 3.02 (1.91-4.61) |
| 60-min | 1.06 (0.813-1.36) | 1.25 (0.961-1.61) | 1.57 (1.20-2.02) | 1.83 (1.39-2.38) | 2.20 (1.62-2.96) | 2.47 (1.79-3.39) | 2.75 (1.94-3.90) | 3.06 (2.05-4.44) | 3.48 (2.26-5.22) | 3.82 (2.42-5.84) |
| 2-hr | 1.39 (1.07-1.77) | 1.63 (1.26-2.08) | 2.03 (1.56-2.60) | 2.36 (1.81-3.05) | 2.82 (2.10-3.78) | 3.17 (2.31-4.33) | 3.53 (2.50-4.99) | 3.94 (2.65-5.68) | 4.52 (2.94-6.73) | 5.00 (3.17-7.58) |
| 3-hr | 1.61 (1.25-2.04) | 1.89 (1.47-2.41) | 2.36 (1.82-3.01) | 2.75 (2.11-3.53) | 3.28 (2.45-4.39) | 3.68 (2.70-5.02) | 4.11 (2.93-5.80) | 4.59 (3.10-6.60) | 5.30 (3.45-7.86) | 5.89 (3.74-8.90) |
| 6-hr | 2.03 (1.59-2.56) | 2.41 (1.88-3.05) | 3.04 (2.36-3.85) | 3.56 (2.75-4.53) | 4.27 (3.21-5.68) | 4.80 (3.54-6.52) | 5.37 (3.86-7.57) | 6.04 (4.09-8.63) | 7.03 (4.59-10.4) | 7.87 (5.02-11.8) |
| 12-hr | 2.50 (1.96-3.13) | 3.02 (2.37-3.79) | 3.86 (3.02-4.87) | 4.57 (3.56-5.78) | 5.54 (4.18-7.32) | 6.25 (4.64-8.45) | 7.03 (5.08-9.86) | 7.95 (5.40-11.3) | 9.33 (6.11-13.7) | 10.5 (6.72-15.7) |
| 24-hr | 2.94 (2.33-3.66) | 3.62 (2.86-4.51) | 4.72 (3.72-5.91) | 5.64 (4.42-7.09) | 6.90 (5.25-9.09) | 7.83 (5.86-10.6) | 8.85 (6.46-12.4) | 10.1 (6.88-14.2) | 12.0 (7.88-17.5) | 13.6 (8.76-20.2) |
| 2-day | 3.34 (2.66-4.13) | 4.17 (3.32-5.16) | 5.53 (4.39-6.87) | 6.66 (5.25-8.32) | 8.22 (6.31-10.8) | 9.36 (7.06-12.6) | 10.6 (7.83-14.9) | 12.2 (8.36-17.1) | 14.8 (9.71-21.3) | 17.0 (10.9-25.0) |
| 3-day | 3.63 (2.90-4.48) | 4.55 (3.64-5.61) | 6.05 (4.82-7.49) | 7.30 (5.78-9.08) | 9.01 (6.94-11.8) | 10.3 (7.77-13.8) | 11.7 (8.64-16.3) | 13.4 (9.21-18.8) | 16.3 (10.7-23.5) | 18.8 (12.1-27.5) |
| 4-day | 3.90 (3.13-4.80) | 4.88 (3.91-6.00) | 6.47 (5.17-7.99) | 7.80 (6.19-9.67) | 9.62 (7.42-12.5) | 10.9 (8.30-14.6) | 12.4 (9.22-17.3) | 14.3 (9.83-19.9) | 17.3 (11.4-24.9) | 19.9 (12.9-29.2) |
| 7-day | 4.67 (3.77-5.71) | 5.75 (4.63-7.03) | 7.51 (6.03-9.22) | 8.98 (7.16-11.1) | 11.0 (8.51-14.2) | 12.5 (9.48-16.5) | 14.1 (10.5-19.5) | 16.1 (11.1-22.3) | 19.3 (12.8-27.5) | 22.0 (14.2-32.0) |
| 10-day | 5.43 (4.39-6.61) | 6.56 (5.31-8.00) | 8.42 (6.79-10.3) | 9.96 (7.98-12.2) | 12.1 (9.38-15.5) | 13.7 (10.4-17.9) | 15.4 (11.4-21.0) | 17.4 (12.0-24.0) | 20.5 (13.6-29.2) | 23.2 (15.1-33.7) |
| 20-day | 7.76 (6.32-9.39) | 8.98 (7.31-10.9) | 11.0 (8.91-13.3) | 12.6 (10.2-15.4) | 14.9 (11.6-18.9) | 16.6 (12.7-21.5) | 18.4 (13.6-24.7) | 20.4 (14.2-28.0) | 23.3 (15.6-32.9) | 25.7 (16.7-36.9) |
| 30-day | 9.69 (7.93-11.7) | 11.0 (8.96-13.2) | 13.0 (10.6-15.8) | 14.7 (11.9-17.9) | 17.1 (13.3-21.6) | 18.9 (14.4-24.3) | 20.8 (15.2-27.5) | 22.7 (15.9-30.9) | 25.4 (17.0-35.7) | 27.5 (17.9-39.4) |
| 45-day | 12.1 (9.92-14.5) | 13.4 (11.0-16.1) | 15.5 (12.7-18.7) | 17.3 (14.1-21.0) | 19.8 (15.5-24.7) | 21.7 (16.5-27.6) | 23.6 (17.3-30.9) | 25.4 (17.8-34.5) | 27.9 (18.8-39.1) | 29.8 (19.5-42.6) |
| 60-day | 14.0 (11.6-16.8) | 15.4 (12.7-18.4) | 17.6 (14.4-21.1) | 19.4 (15.8-23.5) | 22.0 (17.2-27.4) | 23.9 (18.3-30.3) | 25.9 (19.0-33.7) | 27.7 (19.5-37.4) | 30.2 (20.3-42.0) | 31.9 (20.9-45.4) |

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

[Back to Top](#)

PF graphical

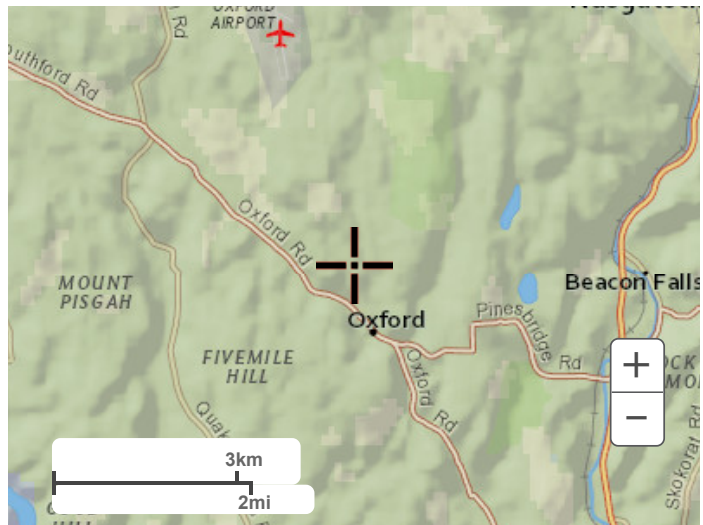
PDS-based depth-duration-frequency (DDF) curves
 Latitude: 41.4438°, Longitude: -73.1205°



[Back to Top](#)

Maps & aeriels

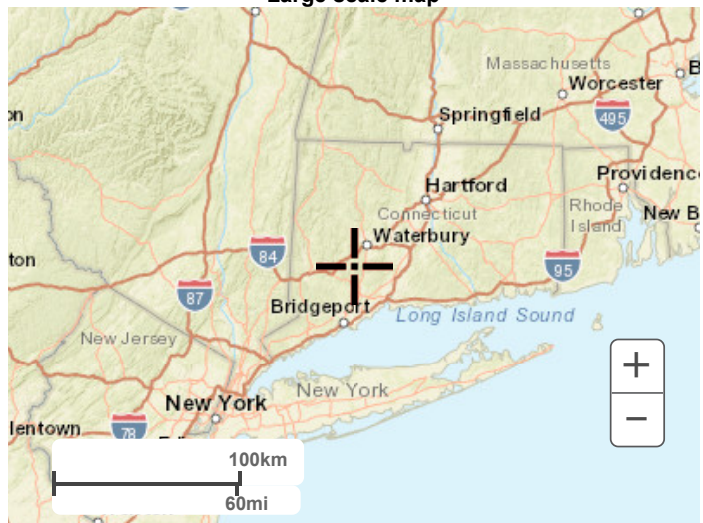
Small scale terrain



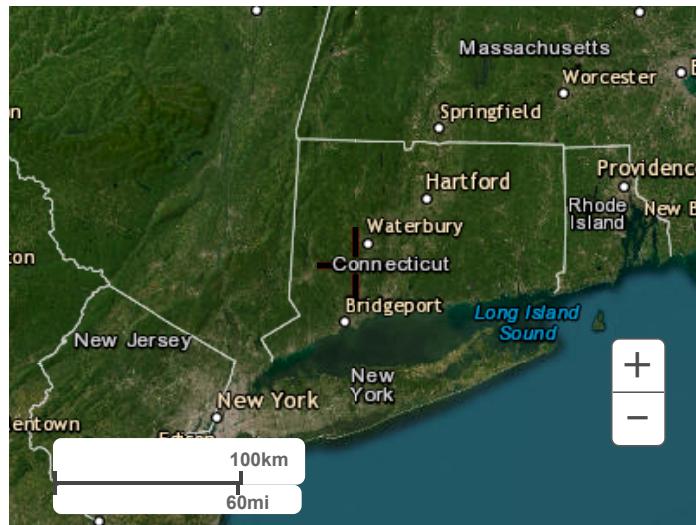
Large scale terrain



Large scale map



Large scale aerial



[Back to Top](#)

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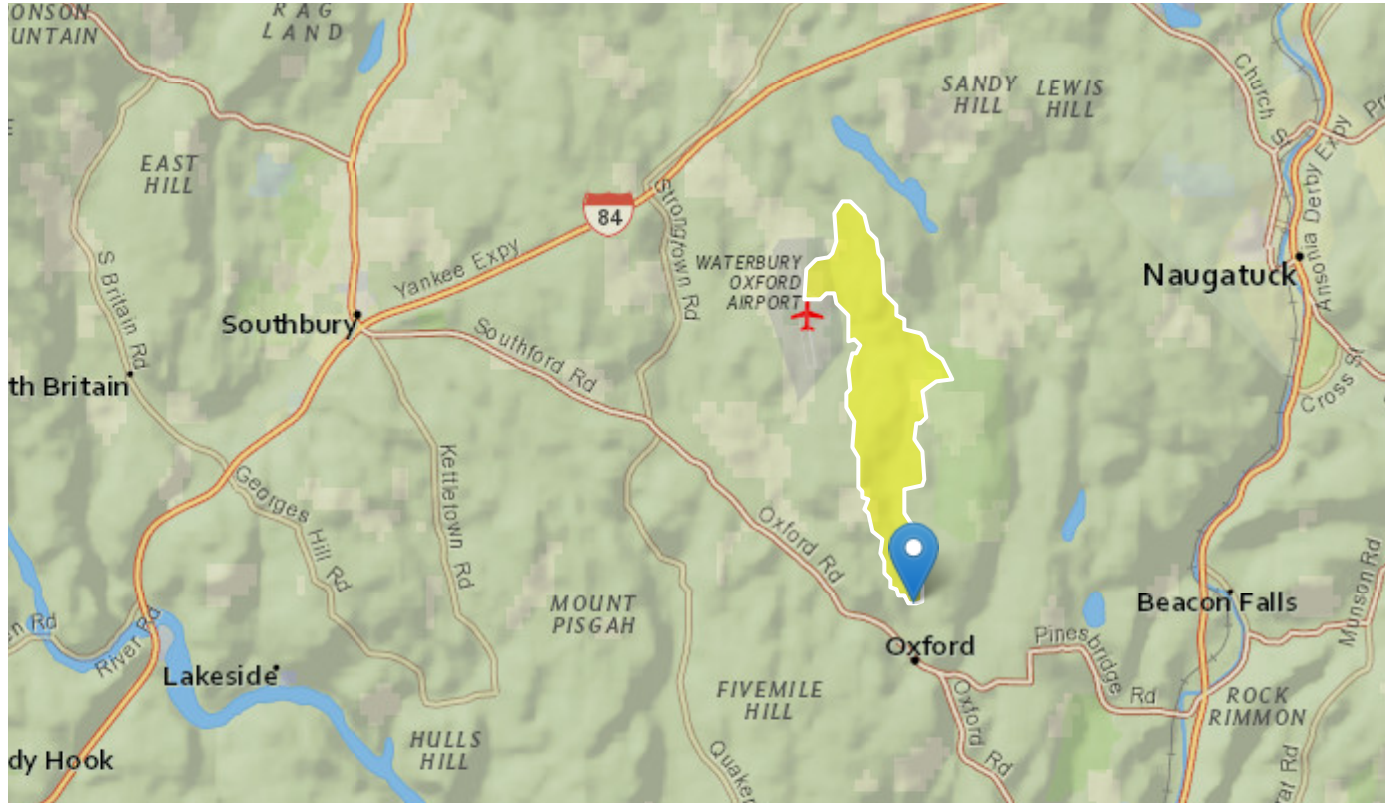
Jacks Brook StreamStats Report

Region ID: CT

Workspace ID: CT20230906194131700000

Clicked Point (Latitude, Longitude): 41.44144, -73.11695

Time: 2023-09-06 15:42:09 -0400



Collapse All

➤ Basin Characteristics

| Parameter Code | Parameter Description | Value | Unit |
|----------------|--|-------|--------------|
| DRNAREA | Area that drains to a point on a stream | 1.75 | square miles |
| I24H100Y | Maximum 24-hour precipitation that occurs on average once in 100 years | 8.87 | inches |
| I24H10Y | Maximum 24-hour precipitation that occurs on average once in 10 years | 5.57 | inches |
| I24H200Y | Maximum 24-hour precipitation that occurs on average once in 200 years | 10.34 | inches |

| Parameter Code | Parameter Description | Value | Unit |
|----------------|--|--------|---------|
| I24H25Y | Maximum 24-hour precipitation that occurs on average once in 25 years | 6.89 | inches |
| I24H2Y | Maximum 24-hour precipitation that occurs on average once in 2 years - Equivalent to precipitation intensity index | 3.26 | inches |
| I24H500Y | Maximum 24-hour precipitation that occurs on average once in 500 years | 12.28 | inches |
| I24H50Y | Maximum 24-hour precipitation that occurs on average once in 50 years | 7.88 | inches |
| I24H5Y | Maximum 24-hour precipitation that occurs on average once in 5 years | 4.58 | inches |
| SSURGOCCDD | Percentage of area with hydrologic soil types C, D, or C/D from SSURGO | 0.4821 | percent |

➤ Peak-Flow Statistics

Peak-Flow Statistics Parameters [Statewide DA only SIR 2020 5054]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|----------------|----------------|-------|--------------|-----------|-----------|
| DRNAREA | Drainage Area | 1.75 | square miles | 0.69 | 325 |

Peak-Flow Statistics Parameters [Statewide Multiparameter SIR 2020 5054]

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|----------------|--------------------------------------|--------|--------------|-----------|-----------|
| DRNAREA | Drainage Area | 1.75 | square miles | 0.69 | 325 |
| I24H2Y | 24 Hour 2 Year Precipitation | 3.26 | inches | 2.77 | 3.32 |
| SSURGOCCDD | Percent soil type C or D from SSURGO | 0.4821 | percent | 0.118 | 0.945 |
| I24H5Y | 24 Hour 5 Year Precipitation | 4.58 | inches | 4 | 4.7 |
| I24H10Y | 24 Hour 10 Year Precipitation | 5.57 | inches | 4.86 | 5.79 |
| I24H25Y | 24 Hour 25 Year Precipitation | 6.89 | inches | 5.99 | 7.22 |
| I24H50Y | 24 Hour 50 Year Precipitation | 7.88 | inches | 6.81 | 8.3 |

| Parameter Code | Parameter Name | Value | Units | Min Limit | Max Limit |
|----------------|--------------------------------|-------|--------|-----------|-----------|
| I24H100Y | 24 Hour 100 Year Precipitation | 8.87 | inches | 7.62 | 9.38 |
| I24H200Y | 24 Hour 200 Year Precipitation | 10.34 | inches | 8.7 | 11.22 |
| I24H500Y | 24 Hour 500 Year Precipitation | 12.28 | inches | 10.1 | 13.64 |

Peak-Flow Statistics Flow Report [Statewide DA only SIR 2020 5054]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

| Statistic | Value | Unit | ASEp |
|--|-------|--------------------|------|
| Drainage Area Only 50-percent AEP flood | 99.1 | ft ³ /s | 35 |
| Drainage Area Only 20-percent AEP flood | 174 | ft ³ /s | 35 |
| Drainage Area Only 10-percent AEP flood | 236 | ft ³ /s | 36.3 |
| Drainage Area Only 4-percent AEP flood | 328 | ft ³ /s | 37.8 |
| Drainage Area Only 2-percent AEP flood | 406 | ft ³ /s | 39.8 |
| Drainage Area Only 1-percent AEP flood | 493 | ft ³ /s | 42.4 |
| Drainage Area Only 0.5-percent AEP flood | 591 | ft ³ /s | 44.4 |
| Drainage Area Only 0.2-percent AEP flood | 736 | ft ³ /s | 48 |

Peak-Flow Statistics Flow Report [Statewide Multiparameter SIR 2020 5054]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

| Statistic | Value | Unit | PII | Plu | ASEp |
|-----------------------|-------|--------------------|------|------|------|
| 50-percent AEP flood | 117 | ft ³ /s | 28.9 | 474 | 26.5 |
| 20-percent AEP flood | 228 | ft ³ /s | 51.2 | 1020 | 26.3 |
| 10-percent AEP flood | 307 | ft ³ /s | 63.5 | 1480 | 28.4 |
| 4-percent AEP flood | 430 | ft ³ /s | 80.3 | 2300 | 31.5 |
| 2-percent AEP flood | 534 | ft ³ /s | 90.7 | 3150 | 34.3 |
| 1-percent AEP flood | 647 | ft ³ /s | 99.8 | 4200 | 37.1 |
| 0.5-percent AEP flood | 737 | ft ³ /s | 128 | 4230 | 40.6 |
| 0.2-percent AEP flood | 896 | ft ³ /s | 166 | 4830 | 45 |

Peak-Flow Statistics Flow Report [Area-Averaged]

PII: Prediction Interval-Lower, Plu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

| Statistic | Value | Unit | ASEp | | |
|--|-------|--------------------|------|------|------|
| Drainage Area Only 50-percent AEP flood | 99.1 | ft ³ /s | 35 | | |
| Drainage Area Only 20-percent AEP flood | 174 | ft ³ /s | 35 | | |
| Drainage Area Only 10-percent AEP flood | 236 | ft ³ /s | 36.3 | | |
| Drainage Area Only 4-percent AEP flood | 328 | ft ³ /s | 37.8 | | |
| Drainage Area Only 2-percent AEP flood | 406 | ft ³ /s | 39.8 | | |
| Drainage Area Only 1-percent AEP flood | 493 | ft ³ /s | 42.4 | | |
| Drainage Area Only 0.5-percent AEP flood | 591 | ft ³ /s | 44.4 | | |
| Drainage Area Only 0.2-percent AEP flood | 736 | ft ³ /s | 48 | | |
| 50-percent AEP flood | 117 | ft ³ /s | 28.9 | 474 | 26.5 |
| 20-percent AEP flood | 228 | ft ³ /s | 51.2 | 1020 | 26.3 |
| 10-percent AEP flood | 307 | ft ³ /s | 63.5 | 1480 | 28.4 |
| 4-percent AEP flood | 430 | ft ³ /s | 80.3 | 2300 | 31.5 |
| 2-percent AEP flood | 534 | ft ³ /s | 90.7 | 3150 | 34.3 |
| 1-percent AEP flood | 647 | ft ³ /s | 99.8 | 4200 | 37.1 |
| 0.5-percent AEP flood | 737 | ft ³ /s | 128 | 4230 | 40.6 |
| 0.2-percent AEP flood | 896 | ft ³ /s | 166 | 4830 | 45 |

Peak-Flow Statistics Citations

Ahearn, E.A., and Hodgkins, G.A., 2020, Estimating flood magnitude and frequency on streams and rivers in Connecticut, based on data through water year 2015: U.S. Geological Survey Scientific Investigations Report 2020–5054, 42 p. (<https://doi.org/10.3133/sir20205054>)

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Application Version: 4.17.0

StreamStats Services Version: 1.2.22

NSS Services Version: 2.2.1

HY-8 Culvert Analysis Report

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 93.00 cfs

Design Flow: 493.00 cfs

Maximum Flow: 493.00 cfs

Table 1 - Summary of Culvert Flows at Crossing: Jacks Brook

| Headwater Elevation (ft) | Total Discharge (cfs) | Contech ALBC Aluminum Box Culvert 20'-4" span by 4'6" rise Discharge (cfs) | Roadway Discharge (cfs) | Iterations |
|--------------------------|-----------------------|--|-------------------------|-------------|
| 430.37 | 93.00 | 93.00 | 0.00 | 1 |
| 430.74 | 133.00 | 133.00 | 0.00 | 1 |
| 431.08 | 173.00 | 173.00 | 0.00 | 1 |
| 431.41 | 213.00 | 213.00 | 0.00 | 1 |
| 431.74 | 253.00 | 253.00 | 0.00 | 1 |
| 432.06 | 293.00 | 293.00 | 0.00 | 1 |
| 432.34 | 333.00 | 333.00 | 0.00 | 1 |
| 432.62 | 373.00 | 373.00 | 0.00 | 1 |
| 432.90 | 413.00 | 413.00 | 0.00 | 1 |
| 433.26 | 453.00 | 453.00 | 0.00 | 1 |
| 433.63 | 493.00 | 493.00 | 0.00 | 1 |
| 436.00 | 725.61 | 725.61 | 0.00 | Overtopping |

Culvert Data: Contech ALBC Aluminum Box Culvert 20'-4" span by 4'6" rise

Table 1 - Culvert Summary Table: Contech ALBC Aluminum Box Culvert 20'-4" span by 4'6" rise

| Total Discharge (cfs) | Culvert Discharge (cfs) | Headwater Elevation (ft) | Inlet Control Depth (ft) | Outlet Control Depth (ft) | Flow Type | Normal Depth (ft) | Critical Depth (ft) | Outlet Depth (ft) | Tailwater Depth (ft) | Outlet Velocity (ft/s) | Tailwater Velocity (ft/s) |
|-----------------------|-------------------------|--------------------------|--------------------------|---------------------------|-----------|-------------------|---------------------|-------------------|----------------------|------------------------|---------------------------|
| 93.00 cfs | 93.00 cfs | 430.37 | 1.37 | 0.0* | 1-S2 | 0.59 | 0.87 | 0.59 | 0.59 | 7.84 | 10.14 |
| 133.00 cfs | 133.00 cfs | 430.74 | 1.74 | 0.0* | 1-S2 | 0.74 | 1.11 | 0.74 | 0.73 | 8.98 | 11.59 |

| | | | | | | | | | | | |
|--------------|-------|--------|------|------|----|------|------|-----|------|------|-------|
| 173.0 | 173.0 | 431.08 | 2.08 | 0.0* | n | 0.87 | 1.32 | 0.8 | 0.85 | 9.75 | 12.77 |
| 0 cfs | 0 cfs | | | | 1- | | | 9 | | | |
| | | | | | S2 | | | | | | |
| 213.0 | 213.0 | 431.41 | 2.41 | 0.0* | n | 0.99 | 1.51 | 0.9 | 0.97 | 10.7 | 13.78 |
| 0 cfs | 0 cfs | | | | 1- | | | 9 | | 2 | |
| | | | | | S2 | | | | | | |
| 253.0 | 253.0 | 431.74 | 2.74 | 0.14 | n | 1.11 | 1.70 | 1.1 | 1.07 | 11.1 | 14.66 |
| 0 cfs | 0 cfs | | | 3 | 1- | | | 4 | | 1 | |
| | | | | | S2 | | | | | | |
| 293.0 | 293.0 | 432.06 | 3.06 | 0.47 | n | 1.22 | 1.87 | 1.2 | 1.17 | 11.6 | 15.46 |
| 0 cfs | 0 cfs | | | 1 | 1- | | | 6 | | 7 | |
| | | | | | S2 | | | | | | |
| 333.0 | 333.0 | 432.34 | 3.34 | 0.81 | n | 1.32 | 2.04 | 1.3 | 1.27 | 12.1 | 16.17 |
| 0 cfs | 0 cfs | | | 0 | 1- | | | 8 | | 8 | |
| | | | | | S2 | | | | | | |
| 373.0 | 373.0 | 432.62 | 3.62 | 1.16 | n | 1.43 | 2.19 | 1.4 | 1.35 | 12.6 | 16.83 |
| 0 cfs | 0 cfs | | | 3 | 1- | | | 9 | | 5 | |
| | | | | | S2 | | | | | | |
| 413.0 | 413.0 | 432.90 | 3.90 | 1.53 | n | 1.53 | 2.34 | 1.6 | 1.44 | 13.0 | 17.44 |
| 0 cfs | 0 cfs | | | 3 | 1- | | | 0 | | 5 | |
| | | | | | S2 | | | | | | |
| 453.0 | 453.0 | 433.26 | 4.26 | 1.92 | n | 1.62 | 2.49 | 1.7 | 1.52 | 13.4 | 18.01 |
| 0 cfs | 0 cfs | | | 1 | 1- | | | 2 | | 1 | |
| | | | | | S2 | | | | | | |
| 493.0 | 493.0 | 433.63 | 4.63 | 2.31 | n | 1.72 | 2.62 | 1.8 | 1.60 | 13.7 | 18.55 |
| 0 cfs | 0 cfs | | | 4 | 5- | | | 2 | | 9 | |
| | | | | | S2 | | | | | | |
| | | | | | n | | | | | | |

* Full Flow Headwater elevation is below inlet invert.

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

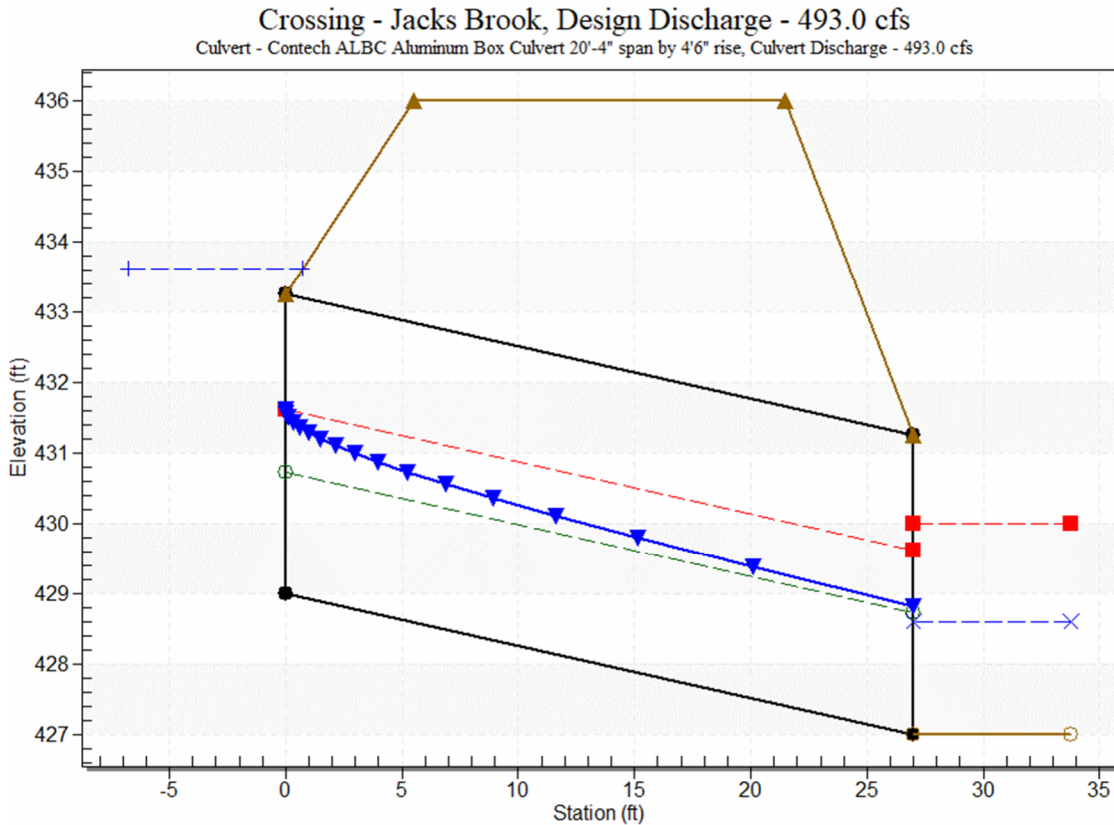
Inlet Elevation (invert): 429.00 ft,

Outlet Elevation (invert): 427.00 ft

Culvert Length: 27.07 ft,

Culvert Slope: 0.0741

Water Surface Profile Plot for Culvert: Contech ALBC Aluminum Box Culvert 20'-4" span by 4'6" rise



Site Data - Contech ALBC Aluminum Box Culvert 20'-4" span by 4'6" rise

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 429.00 ft

Outlet Station: 27.00 ft

Outlet Elevation: 427.00 ft

Number of Barrels: 1

Culvert Data Summary - Contech ALBC Aluminum Box Culvert 20'-4" span by 4'6" rise

Barrel Shape: User Defined

Barrel Span: 20.23 ft

Barrel Rise: 4.26 ft

Barrel Material: Corrugated Metal Riveted or Welded

Embedment: 0.00 in

Barrel Manning's n: 0.0350 (top and sides)

Manning's n: 0.0350 (bottom)

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall (Ke=0.5)

Inlet Depression: None

Tailwater Data for Crossing: Jacks Brook

Table 2 - Downstream Channel Rating Curve (Crossing: Jacks Brook)

| Flow (cfs) | Water Surface Elev (ft) | Velocity (ft/s) | Depth (ft) | Shear (psf) | Froude Number |
|------------|-------------------------|-----------------|------------|-------------|---------------|
| 93.00 | 427.59 | 0.59 | 10.14 | 1.84 | 2.37 |
| 133.00 | 427.73 | 0.73 | 11.59 | 2.28 | 2.45 |
| 173.00 | 427.85 | 0.85 | 12.77 | 2.67 | 2.50 |
| 213.00 | 427.97 | 0.97 | 13.78 | 3.02 | 2.54 |
| 253.00 | 428.07 | 1.07 | 14.66 | 3.35 | 2.58 |
| 293.00 | 428.17 | 1.17 | 15.46 | 3.66 | 2.61 |
| 333.00 | 428.27 | 1.27 | 16.17 | 3.95 | 2.63 |
| 373.00 | 428.35 | 1.35 | 16.83 | 4.23 | 2.65 |
| 413.00 | 428.44 | 1.44 | 17.44 | 4.49 | 2.67 |
| 453.00 | 428.52 | 1.52 | 18.01 | 4.75 | 2.69 |
| 493.00 | 428.60 | 1.60 | 18.55 | 5.00 | 2.71 |

Tailwater Channel Data - Jacks Brook

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 15.00 ft

Side Slope (H:V): 1.00 (1:1)

Channel Slope: 0.0500

Channel Manning's n: 0.0220

Channel Invert Elevation: 427.00 ft

Roadway Data for Crossing: Jacks Brook

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 50.00 ft

Crest Elevation: 436.00 ft

Roadway Surface: Gravel

Roadway Top Width: 16.00 ft