STORMWATER MANAGEMENT REPORT

For the proposed:

Ledyard Town Homes

1947 Center Groton Road

Ledyard, CT 06335

Prepared for:

EG Homes, LLC

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EXECUTIVE SUMMARY

EG Home, LLC is seeking to develop the existing ±10.63-acre parcel located at 1947 Center Groton Road within the Town of Ledyard, New London County, Connecticut. The proposed development will include 17 residential buildings for a total of 72 units, a private drive around the site, associated utilities, landscaping, lighting, and a stormwater management system. There are 31,967 SF (0.73 acres) of wetlands that exist on site. No wetlands are proposed to be disturbed because of this development. The proposed disturbance in the 100-foot upland review area is 60,481 SF (1.38 acres). The total permanent disturbance (which is impervious surfaces added) to the upland review area is 2,076 SF (0.047 acres). The total proposed site disturbance is 381,856 SF (8.76 acres).

The stormwater management system has been designed to be in general conformance with the Town of Ledyard Zoning Regulations, Inland Wetlands and Water Course Regulations of the Town of Ledyard, Town of Ledyard Stormwater ordinances #300-016, 300-017, and #300-024, 2023 Connecticut Guidelines for Soil Erosion and Sediment Control, and 2024 Connecticut Stormwater Quality.

1.0 SITE INFORMATION

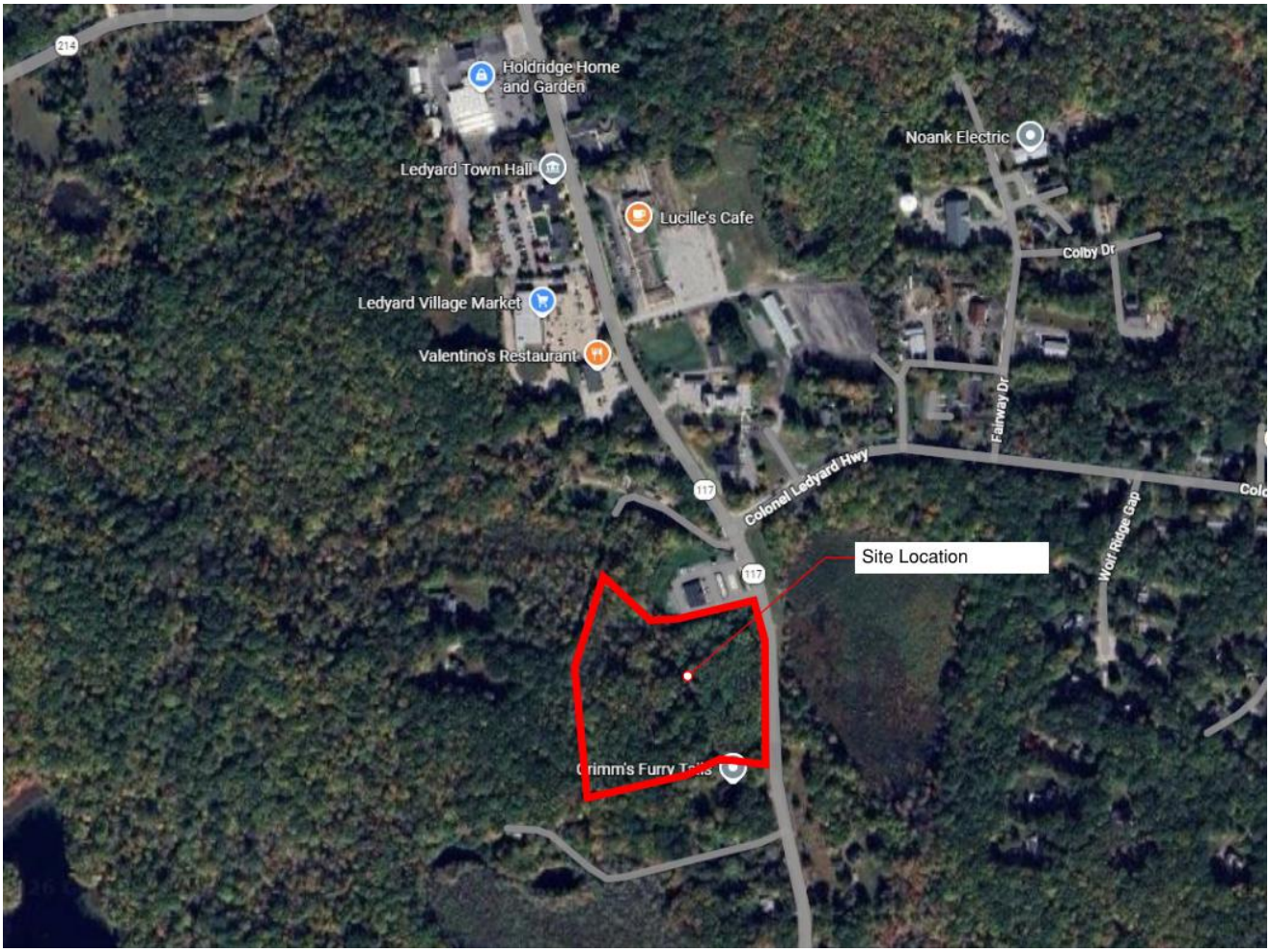
The subject property is located at 1947 Center Groton Road in the Town of Ledyard, New London County, Connecticut. Under existing conditions, the site is largely undeveloped and densely wooded, with an area of wetlands located in the northwest corner of the parcel. The majority of the site drains toward the southern property line or to the wetlands in the northwest corner. A small portion of the site discharges to abutting properties to the north and to Center Groton Road to the east.

The proposed development consists of 17 residential buildings totaling 72 dwelling units, along with a private loop road, parking areas, sidewalks, utilities, stormwater management facilities, landscaping, and lighting. Proposed stormwater infrastructure includes two above-ground infiltration basins, one above-ground bioretention basin, and two rain gardens. Sanitary sewer service will be conveyed by gravity to the rear of the site, where a proposed pump station and force main will connect to an existing off-site force main. Sidewalks are proposed along the loop road and will connect to the existing sidewalk network along Center Groton Road.

Development of the site will require clearing of the predominantly wooded area and removal of existing foundation remnants located in the northeast corner of the property.

The proposed stormwater management system is designed to maintain existing drainage patterns and flow paths while providing the required water quality treatment. One large (Pond 4A) and one small (Pond 1A) above-ground infiltration basin, along with an large above-ground bioretention basin (Pond 2A), have been designed to reduce peak flows for the 2-, 10-, 25-, and 100-year storm events. The infiltration basins are sized to meet the required water quality volume. The bioretention basin and rain gardens will provide additional stormwater treatment, and two hydrodynamic separators are proposed to provide pretreatment for the larger basins.

SITE LOCATION



SITE SOILS

The soils in the area of the Property are classified by United States Department of Agriculture Natural Resources Conservation Service and consist primarily of type "B", "C" and "D" rated soils, with "D" rated soils in areas of urban land and wetlands. Please refer to Appendix A, Figure 3: NRCS Soil Survey Map with Hydrologic Soil Group Data, for soils and their classifications in the project area.

Soils located within the project area from the soil report are as follows:

Map Unit Symbol	Map Unit Name	Hydrologic Soil Group Rating
3	Ridgebury, Leicester, and Whitman soils, Stony	D
60B	Canton and Charlton Fine Sandy Loams	B
61B	Canton and Charlton Fine Sandy Loams	B
73C	Charlton-Chatfield complex	B
75C	Hollis-Chatfield-rock outcrop complex	D

INFILTRATION TESTING

The subsurface exploration for stormwater management was performed by CLA Engineers, Inc. as part of the overall site subsurface investigation. There were a series of 20 test pits that were performed to determine the seasonal high groundwater elevation as well as to obtain the field-tested infiltration rate for the modeling analysis. Per the recommendations of the Connecticut Stormwater Quality Manual, half of the field-tested rate was used in the modeling of the stormwater management basins. The maximum infiltration rate of 0.25 Inches per hour (in/hr) was used. This is half the lowest field measured rate for areas where infiltration basins are proposed.

Infiltration testing was completed within 3 tests pits. Test pit data is located in Appendix G.

GROUNDWATER OBSERVATION

To determine the seasonal high groundwater levels on site, the geotechnical engineer performed a series of test pits at the stormwater management facilities. Once the pits were dug, the geotechnical engineer evaluated the soil strata for evidence of high groundwater in the soil. Test pit data is located in Appendix G.

1.1 NATURAL RESOURCES

ENDANGERED AND TREATENED SPECIES

The Connecticut Department of Energy and Environmental Protection's (CTDEEP) Natural Diversity Data Base (NDDB) compiles maps that are representative of the locations of endangered, threatened and special concern species and significant natural communities in Connecticut. A review of the criteria for concern indicates there are no species of environmental concern within 1/2 mile of the project site. This review was performed on March 24, 2026 with maps released on December, 2025.

HISTORIC PRESERVATION REVIEW

Per Chapter 184a, section 10-387 of the Connecticut General Statues states that DEEP shall review, in consultation with the State Historic Preservation Office it's policies and practices for consistency with regards to historic and archeological sites. As such, the historic preservation review procedures are ongoing at the time of this report.

1.2 RECEIVING SURFACE WATERS

The project site lies within the Great Brook drainage basin (2107), which is within the Southeast Coast Major Basin. The project site is located within Groton Utilities public water supply watershed.

A review of CTDEEP Aquifer Protection map for Connecticut (Dated April 1 2026), reveals that the project is not located within an aquifer protection area.

This site is not within the Coastal Boundary for the State of Connecticut.

FEMA FLOODPLAIN

The site is not located in a FEMA floodplain. Per the FEMA Flood Insurance Rate Map Numbers 09011C0359G for New London County, Connecticut, map effective date: 07/18/ 2011, and the 09011C0367G for New London County, Connecticut, revised date: 07/18/2011, the site resides inside Zone X (areas determined to be outside the 0.2% annual chance floodplain).

Flood Insurance Rate Maps are included in Appendix A for reference.

2.0 STORMWATER MANGEMENT STANDARDS AND PERFORMACE CRITERIA

2.1 DESIGN CRITERIA

The proposed stormwater management system is designed to be in general conformance with the current Town of Ledyard Inland Wetlands and Watercourses Regulations, the Town of Ledyard Zoning Regulations, Town of Ledyard Stormwater ordinances #300-016, 300-017, and #300-024, the 2023 State of Connecticut Guidelines for Soil Erosion and Sediment Control, the 2024 State of Connecticut Stormwater Quality Manual, and State of Connecticut Department of Transportation Drainage Manual.

The 2024 Stormwater Quality Manual 5 Stormwater Standards are outlined below.

STANDARD 1: RUNOFF VOLUME AND POLLUTANT REDUCTION

- Retain the Required Retention Volume on site.
- Preference for non-structural Low Impact Development (LID) measures were used to the maximum extent achievable.

STANDARD 2: STORMWATER RUNOFF QUANTITY CONTROL

- The 2 Year post development peak flow has been reduced to be less than 50% of the pre-development flow.*
- The 10-year post-development flow has been reduced to less than the 10-year pre-development flow.
- The 100-year post development flow has been reduced to less than the 100-year pre-development flow.
- The conveyance system has been designed to adequately flow the 25-year**, 24-hour storm.
- Emergency outlet has been designed to safely pass the 100-year post development peak runoff without eroding.

*Due to site conditions, this portion of the standard cannot be met. Please refer to section 6 for more information.

**Per Town of Ledyard Stormwater ordinances.

STANDARD 3: CONSTRUCTION EROSION AND SEDIMENT CONTROL PLAN

We have developed a Soil Erosion and Sediment Control (SESC) Plan in general conformance with the local and state regulatory requirements, the Connecticut Guidelines for Soil Erosion Sediment Control Guidelines (as amended), and the requirements of the CT DEEP Construction Stormwater General Permit. This can be found on Design plans and in Section 7 below.

STANDARD 4: POST- CONSTRUCTION OPERATION AND MAINTENANCE

We have developed a long-term Operation and Maintenance (O&M) Plan, which identifies required inspection and maintenance activities for structural stormwater BMPs. This will be submitted under separate cover to the regulatory agencies.

STANDARD 5: STORMWATER MANAGEMENT PLAN

We have prepared Stormwater Management Plan to outlining the stormwater management measures for the proposed development are in general conformance with the stormwater management standards, performance criteria, and design guidelines contained in the Connecticut Stormwater Quality Manual, as well as other local, state, and federal stormwater requirements.

3.0 HYDROLOGIC DESIGN METHODOLOGY

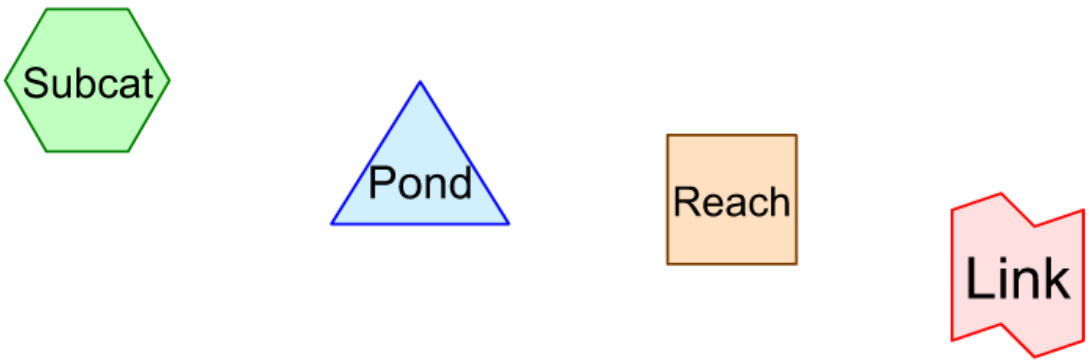
The hydrologic analysis to determine peak stormwater discharge rates was performed using the HydroCAD stormwater modeling system computer program, version 10.20-8a developed by HydroCAD Software Solutions, LLC. Hydrographs for each watershed were developed using the SCS Synthetic Unit Hydrograph Method. Rainfall depths and distribution per the NOAA Atlas 14 for Ledyard, CT were used for the calculation of peak flow rates and are listed below.

TABLE 2: RAINFALL DEPTHS

Return Period (Year)	24-hour Rainfall Depth
2	3.46
10	5.11
25	6.15
100	7.74

The Hydrocad printouts use a series of symbols for the various modeling entities. Hydrologic Subcatchment areas are represented by a hexagon, stormwater basins are represented by blue triangles, reaches are represented by squares, and links are represented by irregular octagons. A Reach is used to perform an independent hydrograph routing through an open channel based on normal Manning's flow, and a link is used to hydraulically add multiple entities together to determine the peak discharge to an analysis point.

The hydrologic modeling results determined the change in peak rates of runoff for a 2-, 10-, 25-, and 100-year storm events. The hydrologic modeling results in Appendix C & D are the overall analysis summaries from each storm event for pre and post conditions. The complete hydrographs for each storm and subcatchment can be found in the Hydrologic Report and is available upon request.



4.0 HYDROLOGIC ANALYSIS

The site layout and approach to stormwater management was completed in an integrated manner by attempting to limit the impacts of vegetation loss and soil changes; by incorporating Best Management Practices (BMPs), which includes both structural and non-structural practices; and by considering the overall impacts to the receiving waters.

4.1 PRE-DEVELOPMENT CONDITIONS

The drainage analysis for the existing conditions encompasses a tributary drainage area of the 11.79-acres. The impervious coverage percentage for the entire tributary area in the Pre-Development condition is approximately 0.5%. Existing runoff from the project site generally drains to the north or south of the property to one (1) Design Point (DP), generally described as follows:

- Design Point 1: Existing 18" RCP
- Design Point 2: Existing Wetlands
- Design Point 3: Northern Property Line
- Design Point 4: Southern Property Line

4.1.1 ANALYSIS POINTS

Design Point 1 is the existing 18" RCP that runs under Center Groton Road. In the existing condition a roadside ditch runs along Center Groton Road and collects roadway drainage as well as runoff from the subject site before entering the RCP pipe.

Design Point 2 is the existing wetlands in the northwest corner of the site. In the existing condition, most of the site drains to these wetlands.

Design Point 3 is the northern property line. In the existing condition, only a small portion of the site sheet flows to this point.

Design Point 4 is the southern property line. In the existing condition, this design point has the second most flow to it.

Appendix B contains the Existing Conditions Drainage Area Maps and Appendix C contains the pre-development modeling.

4.2 POST DEVELOPMENT CONDITIONS

The drainage analysis for the proposed construction encompasses the same tributary drainage area of the 11.79-acres as described in the Pre-Development section. The impervious coverage percentage for the entire tributary area in the Post-Development condition is approximately 30%. The proposed drainage areas with runoff curve numbers, time of concentration paths and soil types can be found in the hydrologic modeling results in Appendix D. The proposed drainage has been designed to reduce peak stormwater discharge rates leaving the site.

Just as the pre-development hydrology, discussed above, the project area hydrology is also broken down into four design points.

Overall, there is a net reduction in peak discharge and volume from each of the Design Points for the 2-year,10-year, 25-year, and 100-year storm events as seen in Table 3 below.

Appendix B contains the Existing Conditions Drainage Area Maps and Appendix D contains the post-development modeling.

4.2.1 ANALYSIS POINTS

Design Point 1 is the existing 18" RCP culvert that runs under Center Groton Road. In the proposed condition a roadside ditch runs along Center Groton Road and collects roadway drainage and then enters an existing 18" RCP culvert. Additionally, this design point also receives runoff from the subject site and discharge from a small detention (Pond 1A) basin from the subject site.

Design Point 2 is the existing wetlands in the northwest corner of the site. In the proposed condition, a large bioretention basin (Pond 2A) discharges to this point along with runoff from undeveloped portions of the site.

Design Point 3 is the northern property line. In the proposed condition, only a small portion of the site sheet flows to this point.

Design Point 4 is the southern property line. In the proposed condition, this design point receives flow from a large detention basin (Pond 4A) and runoff from lawn areas.

4.3 POST-DEVELOPMENT HYDROLOGIC CONCLUSIONS

TABLE 3: PEAK FLOW COMPARISON CHART

Design Point	2-Year Flow (CFS)	10-Year Flow (CFS)	25-Year Flow (CFS)	100-Year Flow (CFS)
DP 1 – Pre-Development	0.66	2.26	3.48	5.54
DP 1 – Post Development	0.70	1.74	2.55	3.09
Difference	0.04 (6%)	0.52 (-23%)	0.93 (-27%)	2.45 (-44%)
DP 2 – Pre-Development	3.09	7.48	10.61	15.68
DP 2 – Post Development	2.39	5.06	6.90	10.72
Difference	0.7 (-23%)	2.42 (-32%)	3.71 (-35%)	4.96 (-32%)
DP 3 – Pre-Development	0.14	0.47	0.72	1.15
DP 3 – Post Development	0.05	0.19	0.29	0.05
Difference	0.09 (-64%)	0.28 (-60%)	0.43 (-60%)	1.10 (-96%)
DP 4 – Pre-Development	1.23	3.42	5.03	7.67
DP 4– Post Development	0.50	0.96	1.30	2.96
Difference	0.73 (-59%)	2.46 (-72%)	3.73 (-74%)	4.71 (-61%)
Combined	5.12	13.63	19.84	30.04
Combined	3.64	7.95	11.04	16.82
Difference	1.48 (-29%)	5.68 (-42%)	8.8 (-44%)	13.22 (-44%)

5.0 HYDRAULIC ANALYSIS

5.1 PRELIMINARY HYDRAULICS

The hydraulic study of the on-site drainage system has been designed to comply with the requirements set forth in the Town of Ledyard Zoning Regulations and the State of Connecticut Department of Transportation Drainage Manual.

The proposed drainage systems have been sized to convey the 25-year storm event to their respective discharge points without ponding or surcharging above the catch basin / manhole grates. The site drainage system improvements have been designed to comply with the requirements set forth in the State of Connecticut Department of Transportation Drainage Manual, dated 2000, as amended. Drainage areas contributing to each catch basin have been determined and are found in Appendix E.

The minimum pipe size maintained onsite is 15 inches.

The rational runoff coefficients for each inlet drainage area have been assumed at 0.90 for contributing areas with impervious surfaces. Contributing areas with pervious surfaces only including lawn and landscaped areas were computing using a rational runoff coefficient of 0.30.

StormCAD version 10.03.01.53 by Haestad Methods, utilizing the Rational Method, was used to model the proposed drainage system. Calculation data can be found in Appendix E.

6.0 SITE DESIGN SUMMARY

The proposed stormwater management system is designed to be in general conformance with the current Town of Ledyard Inland Wetlands & Watercourses Regulations, the Town of Ledyard Zoning regulations, the 2024 State of Connecticut Stormwater Quality Manual, and the State of Connecticut Department of Transportation Drainage Manual.

The system is designed to meet the goals and objectives outlined in the 2024 State of Connecticut Stormwater quality manual to the maximum extent practical. This is done by reducing the peak flows for all storms at all design points and providing water quality improvements.

Standard 1 has been met by retaining the water quality volume in the two infiltration basins (Pond 1A and Pond 4A). The basins are designed with a 0.25" per hour infiltration rate based on soil testing. The stormwater management system has been designed to achieve the average annual pollutant load reductions from directly connected impervious areas for sediment (Total Suspended Solids (TSS) through the use of Contech hydrodynamic separator units and sediment forbays within Pond 2A and 4A. Total Phosphorus and total Nitrogen removal will be achieved with the proposed stormwater infiltration basins and bioretention basin.

The stormwater management system will also provide stormwater treatment though the use of hooded outlets and deep sump catch basins on all new catch basins.

Standard two is met to the maximum extent practical for the site. Flow rates rate for all storm events and design points are reduced, with the only exception to this being at design point one in the 2-year event, which has a negligible increase of 0.04 CFS. Additionally, the conveyance system is sized to convey to the 25-year, 24hr storm, and the detention systems can safely pass the 100-year post development peak runoff.

The 2-year storm peak flow has been reduced to the maximum extent practical for all design points. The basin that contributes to design point 1 releases just 0.04 cfs in the 2-year event. The basin that contributes to design point 2 releases just 0.16 cfs. The basin that contributes to design point 4 releases 0.00 cfs, this design point meets the required reduction. Design point 3 also meets the required reduction.

Standard 2 of the 2024 Connecticut Stormwater Quality Manual requires that the 2-year post-development peak flow be reduced to 50 percent of the 2-year pre-development peak flow. BL Companies is requesting a waiver from this portion of the standard because the site has been designed to the maximum extent practicable. As documented in the soil testing and test pit data provided in Appendix G, site constraints include seasonal high groundwater and poorly drained soils in portions of the project area. These conditions limit the feasibility of additional infiltration-based stormwater practices and restrict the available depth for stormwater storage and treatment. As a result, further attenuation of the 2-year peak would require substantially larger basin footprints, more extensive site regrading, or relocation of improvements closer to regulated wetland areas. The primary contributors to the 2-year runoff rate are drainage areas PDA-22 and PDA-23, which are located almost entirely within the upland review area or wetlands. Given these site constraints, meeting the 2-year reduction would require additional flow attenuation that could only be achieved by disturbing wetlands and constructing a

downgradient basin within PDA-22 & PDA-23 to control off-site discharge. Therefore, it is BL Companies' opinion that the site has been designed to the maximum extent practicable.

Standard 3 is met as shown in the design plans and section 7 below.

Standard 4 is met by the Operations and Maintenance Manual which will be provided under separate cover to regulatory agencies.

Standard 5 is met by this report. Overall, the Stormwater Quality Manual Standards have been met to the maximum extent achievable.

7.0 SITE CONSTRUCTION AND EROSION CONTROLS

Erosion and sediment control measures for the proposed development will be implemented as a single, continuous construction sequence. Prior to the commencement of any earth disturbance activities, filter socks will be installed at existing stormwater inlets, a stabilized rock construction entrance will be constructed, and silt fence will be installed around the proposed limits of disturbance. Temporary sediment traps, diversion swales, and stone check dams will be installed at the start of construction to capture and control runoff from the site.

All perimeter erosion control measures and rock construction entrances will remain in place throughout construction. All newly constructed stormwater inlets will be provided with inlet protection. Areas that reach final grade will be immediately stabilized with a minimum of 6 inches of topsoil and permanently seeded and mulched. Slopes steeper than 3:1 will be protected with wildlife-friendly erosion control matting composed of all-natural materials with no photodegradable content prior to seeding and mulching.

Stripped topsoil will be stockpiled onsite for later reuse. Stockpiles will receive temporary stabilization through seeding and will be surrounded by filter socks to prevent the loss of sediment. Dewatering of trenches and/or stormwater management basins will be conducted in a manner that prevents erosion and sediment transport.

All erosion and sediment control measures will be inspected weekly and following any major rainfall event. Required repairs to erosion control best management practices (BMPs) will be completed within 24 hours of such events.

8.0 CONCLUSIONS & RECOMMENDATION

With the implementation of the proposed stormwater management system, the proposed project will not result in any adverse on-site or downstream impacts to off-site properties, wetlands, or existing storm drainage systems. The proposed development maintains existing drainage patterns and discharge locations while providing a net reduction in peak flow rates and overall runoff volume for the 2-, 10-, 25-, and 100-year storm events at all analyzed design points.

The stormwater management system has been designed to meet the applicable requirements of the Town of Ledyard Zoning Regulations, Inland Wetlands and Watercourses Regulations for the Town of Ledyard, Town of Ledyard Stormwater ordinances #300-016, 300-017, and #300-024, the 2023 Connecticut Guidelines for Soil Erosion and Sediment Control, and the 2024 Connecticut Stormwater Quality Manual. The system incorporates infiltration basins, a bioretention basin, rain gardens, and hydrodynamic separators to provide effective runoff quantity control and water quality treatment. Existing wetlands are avoided, and no wetland disturbance is proposed as part of the development.

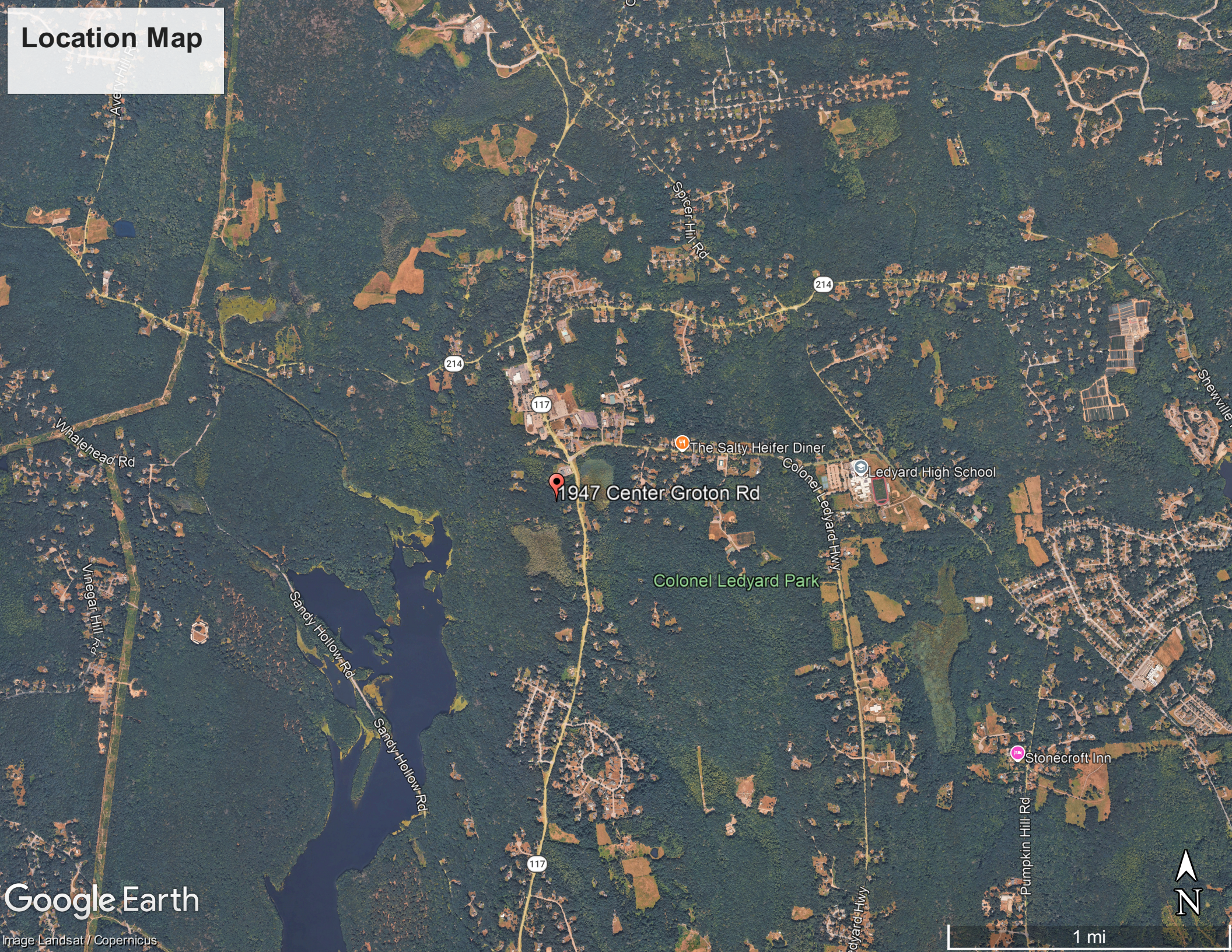
On-site drainage infrastructure has been designed to safely convey the 25-year storm event without ponding or surcharging, while detention and emergency overflow facilities are capable of safely passing the 100-year post-development storm event. The system also includes multiple measures to improve stormwater quality, including infiltration practices, sediment forebays, deep-sump catch basins, hooded outlets, and pretreatment structures.

This report has been prepared to support the submitted project plans and to document the technical basis for the proposed stormwater management approach. Based on the analyses presented herein, it is our conclusion that the proposed stormwater management system is designed in general conformance with applicable local and state requirements and satisfies the stormwater management standards to the maximum extent practicable for the site.

APPENDIX A

FIGURES

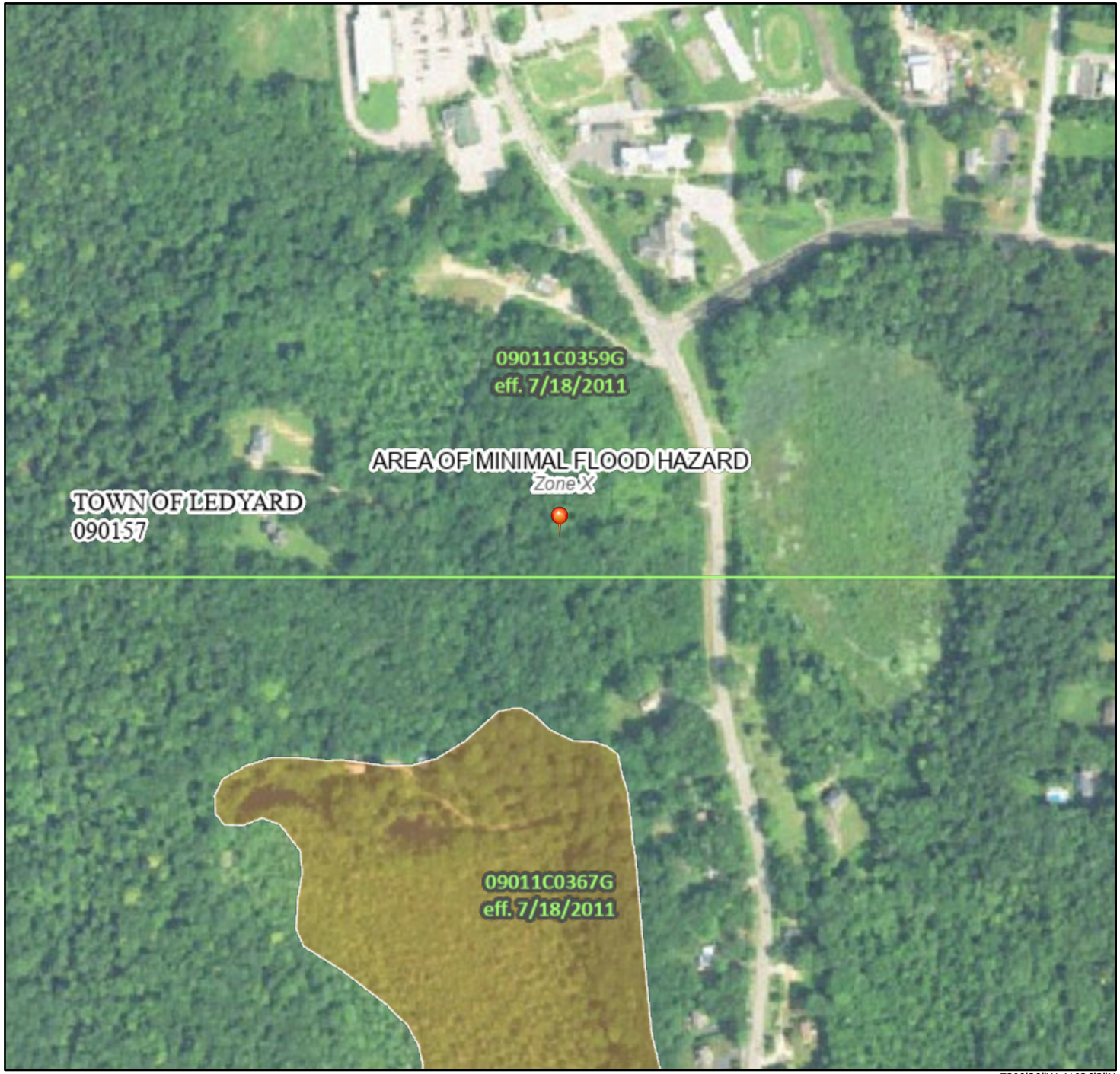
Location Map



National Flood Hazard Layer FIRMette

FEMA

72°1'16"W 41°26'30"N



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

1:6,000

72°0'39"W 41°26'3"N

Basemap Imagery Source: USGS National Map 2023

Legend

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

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

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

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

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

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

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

N

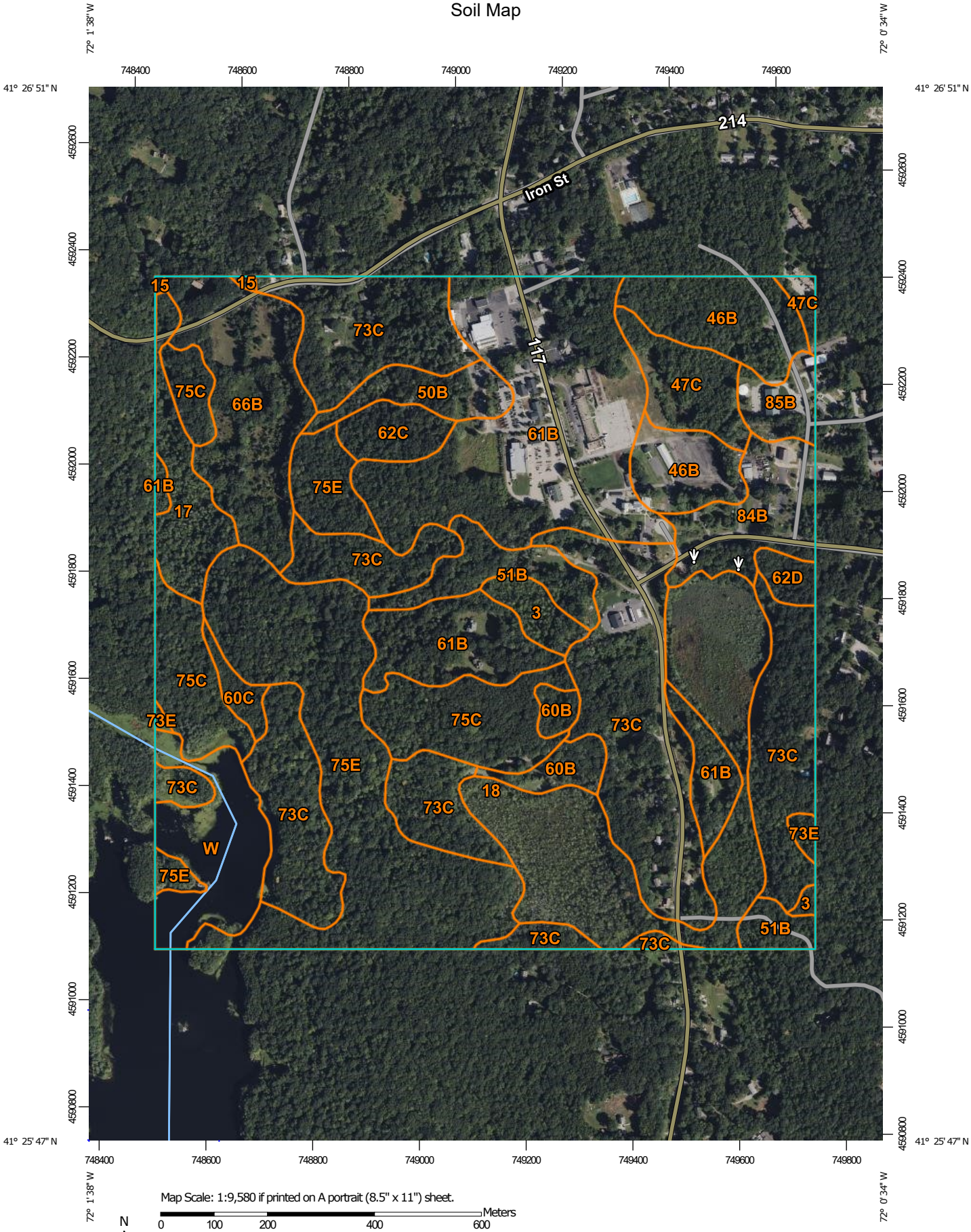
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 3/24/2026 at 4:41 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

Soil Survey Area: State of Connecticut, Eastern Part
Survey Area Data: Version 6, Sep 16, 2025

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	4.0	1.0%
15	Scarboro muck, 0 to 3 percent slopes	0.4	0.1%
17	Timakwa and Natchaug soils, 0 to 2 percent slopes	9.2	2.4%
18	Catden and Freetown soils, 0 to 2 percent slopes	34.5	9.0%
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	18.5	4.8%
47C	Woodbridge fine sandy loam, 3 to 15 percent slopes, extremely stony	9.5	2.5%
50B	Sutton fine sandy loam, 3 to 8 percent slopes	6.2	1.6%
51B	Sutton fine sandy loam, 0 to 8 percent slopes, very stony	10.3	2.7%
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	4.9	1.3%
60C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes	2.2	0.6%
61B	Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony	61.2	15.9%
62C	Canton and Charlton fine sandy loams, 3 to 15 percent slopes, extremely stony	4.7	1.2%
62D	Canton and Charlton fine sandy loams, 15 to 35 percent slopes, extremely stony	2.2	0.6%
66B	Narragansett silt loam, 2 to 8 percent slopes	22.1	5.7%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	89.5	23.2%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	1.1	0.3%
75C	Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes	24.7	6.4%
75E	Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes	49.8	12.9%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
84B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes	11.8	3.1%
85B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony	4.5	1.2%
W	Water	14.1	3.7%
Totals for Area of Interest		**385.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

State of Connecticut, Eastern Part

3—Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2t2qt
Landscape: Glaciated uplands
Elevation: 0 to 1,480 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Ridgebury, extremely stony, and similar soils: 40 percent
Leicester, extremely stony, and similar soils: 35 percent
Whitman, extremely stony, and similar soils: 17 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ridgebury, Extremely Stony

Setting

Landscape: Glaciated uplands
Landform: Depressions, Drainageways, Hills, Ground moraines, Drumlins
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 6 inches: fine sandy loam
Bw - 6 to 10 inches: sandy loam
Bg - 10 to 19 inches: gravelly sandy loam
Cd - 19 to 66 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 15 to 35 inches to densic material
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F144AY009CT - Wet Till Depressions
Hydric soil rating: Yes

Description of Leicester, Extremely Stony

Setting

Landscape: Glaciated uplands
Landform: Depressions, Drainageways, Hills, Ground moraines
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Concave
Parent material: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 7 inches: fine sandy loam
Bg - 7 to 18 inches: fine sandy loam
BC - 18 to 24 inches: fine sandy loam
C1 - 24 to 39 inches: gravelly fine sandy loam
C2 - 39 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B/D
Ecological site: F144AY009CT - Wet Till Depressions
Hydric soil rating: Yes

Description of Whitman, Extremely Stony

Setting

Landscape: Glaciated uplands
Landform: Depressions, Drainageways, Hills, Ground moraines, Drumlins
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave

Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 1 inches: peat
A - 1 to 10 inches: fine sandy loam
Bg - 10 to 17 inches: gravelly fine sandy loam
Cdg - 17 to 61 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 7 to 38 inches to densic material
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F144AY009CT - Wet Till Depressions
Hydric soil rating: Yes

Minor Components

Woodbridge, extremely stony

Percent of map unit: 6 percent
Landscape: Glaciated uplands
Landform: Ground moraines, Drumlins, Hills
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Swansea

Percent of map unit: 2 percent
Landscape: Glaciated uplands
Landform: Swamps, Bogs
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

15—Scarboro muck, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2svkt
Landscape: Outwash plains, valleys
Elevation: 0 to 1,350 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Scarboro and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scarboro

Setting

Landscape: Outwash plains, valleys
Landform: Outwash terraces, Outwash deltas, Depressions, Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave
Across-slope shape: Concave, linear
Parent material: Sandy glaciofluvial deposits derived from schist and/or gneiss and/or granite

Typical profile

Oa - 0 to 8 inches: muck
A - 8 to 14 inches: mucky fine sandy loam
Cg1 - 14 to 22 inches: sand
Cg2 - 22 to 65 inches: gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: About 0 to 2 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: A/D
Ecological site: F144AY031MA - Very Wet Outwash
Hydric soil rating: Yes

Minor Components

Timakwa

Percent of map unit: 10 percent
Landscape: Outwash plains
Landform: Swamps
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Walpole

Percent of map unit: 8 percent
Landscape: Outwash plains
Landform: Outwash terraces, Depressions, Outwash plains, Depressions, Deltas
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Deerfield

Percent of map unit: 2 percent
Landscape: Valleys
Landform: Outwash plains, Terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

17—Timakwa and Natchaug soils, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2t2qx
Landscape: Outwash plains
Elevation: 0 to 1,420 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Timakwa and similar soils: 45 percent
Natchaug and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Timakwa

Setting

Landscape: Outwash plains
Landform: Depressions
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Herbaceous and woody organic material over sandy and gravelly glaciofluvial deposits

Typical profile

Oa1 - 0 to 12 inches: muck
Oa2 - 12 to 37 inches: muck
2Cg1 - 37 to 47 inches: very gravelly loamy coarse sand
2Cg2 - 47 to 60 inches: gravelly loamy very fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Rare
Frequency of ponding: Frequent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 14.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144AY042NY - Semi-Rich Organic Wetlands
Hydric soil rating: Yes

Description of Natchaug

Setting

Landscape: Till plains, lake plains, outwash plains
Landform: Depressions, Depressions, Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed organic material over loamy glaciofluvial deposits and/or loamy glaciolacustrine deposits and/or loamy till

Typical profile

Oa1 - 0 to 12 inches: muck
Oa2 - 12 to 31 inches: muck
2Cg1 - 31 to 39 inches: silt loam
2Cg2 - 39 to 79 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.01 to 14.17 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Rare
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 17.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144AY042NY - Semi-Rich Organic Wetlands
Hydric soil rating: Yes

Minor Components

Whitman

Percent of map unit: 7 percent
Landscape: Uplands
Landform: Depressions, Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Maybid

Percent of map unit: 3 percent
Landscape: Lake plains
Landform: Depressions, Terraces, Drainageways
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Catden

Percent of map unit: 3 percent
Landscape: Lake plains, till plains, outwash plains
Landform: Swamps, Bogs, Marshes, Kettles, Depressions, Fens, Depressions, Depressions
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Concave

Hydric soil rating: Yes

Scarboro

Percent of map unit: 2 percent
Landscape: Outwash plains, valleys
Landform: Outwash terraces, Depressions, Outwash deltas, Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

18—Catden and Freetown soils, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2t2r2
Landscape: Till plains, outwash plains, lake plains
Elevation: 0 to 1,390 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Catden and similar soils: 45 percent
Freetown and similar soils: 35 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Catden

Setting

Landscape: Till plains, outwash plains, lake plains
Landform: Swamps, Marshes, Kettles, Depressions, Depressions, Fens, Bogs, Depressions
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed herbaceous organic material and/or highly decomposed woody organic material

Typical profile

Oa1 - 0 to 2 inches: muck
Oa2 - 2 to 79 inches: muck

Properties and qualities

Slope: 0 to 2 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained

Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Rare
Frequency of ponding: Frequent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very high (about 26.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144AY042NY - Semi-Rich Organic Wetlands
Hydric soil rating: Yes

Description of Freetown

Setting

Landscape: Uplands, outwash plains, alluvial plains
Landform: Kettles, Swamps, Bogs, Depressions, Marshes, Depressions
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed organic material

Typical profile

Oe - 0 to 2 inches: mucky peat
Oa - 2 to 79 inches: muck

Properties and qualities

Slope: 0 to 2 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Rare
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: Very high (about 26.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F144AY043MA - Acidic Organic Wetlands
Hydric soil rating: Yes

Minor Components

Natchaug

Percent of map unit: 7 percent
Landscape: Outwash plains, till plains, lake plains
Landform: Depressions, Depressions, Depressions
Landform position (three-dimensional): Base slope, tread

Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Whitman

Percent of map unit: 6 percent
Landscape: Uplands
Landform: Depressions, Drainageways
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Timakwa

Percent of map unit: 5 percent
Landscape: Outwash plains
Landform: Depressions
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scarboro

Percent of map unit: 2 percent
Landscape: Outwash plains, valleys
Landform: Outwash terraces, Outwash deltas, Drainageways, Depressions
Landform position (three-dimensional): Base slope, tread, dip
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

46B—Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2t2qr
Landscape: Uplands
Elevation: 0 to 1,440 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Woodbridge, very stony, and similar soils: 82 percent
Minor components: 18 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodbridge, Very Stony

Setting

Landscape: Uplands
Landform: Drumlins, Hills, Ground moraines
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 9 inches: fine sandy loam
Bw1 - 9 to 20 inches: fine sandy loam
Bw2 - 20 to 32 inches: fine sandy loam
Cd - 32 to 67 inches: gravelly fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 43 inches to densic material
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 19 to 27 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C/D
Ecological site: F144AY037MA - Moist Dense Till Uplands
Hydric soil rating: No

Minor Components

Paxton, very stony

Percent of map unit: 10 percent
Landscape: Uplands
Landform: Drumlins, Hills, Ground moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Ridgebury, very stony

Percent of map unit: 8 percent
Landscape: Uplands
Landform: Ground moraines, Depressions, Drumlins, Drainageways, Hills

Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

47C—Woodbridge fine sandy loam, 3 to 15 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2w685
Landscape: Uplands
Elevation: 10 to 1,470 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Woodbridge, extremely stony, and similar soils: 83 percent
Minor components: 17 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodbridge, Extremely Stony

Setting

Landscape: Uplands
Landform: Drumlins, Hills, Ground moraines
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 9 inches: fine sandy loam
Bw1 - 9 to 20 inches: fine sandy loam
Bw2 - 20 to 32 inches: fine sandy loam
Cd - 32 to 67 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 20 to 43 inches to densic material
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 19 to 27 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C/D
Ecological site: F144AY037MA - Moist Dense Till Uplands
Hydric soil rating: No

Minor Components

Paxton, extremely stony

Percent of map unit: 9 percent
Landscape: Uplands
Landform: Drumlins, Hills, Ground moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Ridgebury, extremely stony

Percent of map unit: 5 percent
Landscape: Uplands
Landform: Ground moraines, Drainageways, Hills, Depressions, Drumlins
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Sutton, extremely stony

Percent of map unit: 2 percent
Landscape: Uplands
Landform: Ground moraines, Hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Whitman, extremely stony

Percent of map unit: 1 percent
Landscape: Uplands
Landform: Depressions, Drainageways
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

50B—Sutton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w69j
Landscape: Glaciated uplands
Elevation: 0 to 1,410 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Sutton and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sutton

Setting

Landscape: Glaciated uplands
Landform: Hills, Ground moraines, Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 5 inches: fine sandy loam
Bw1 - 5 to 17 inches: fine sandy loam
Bw2 - 17 to 25 inches: sandy loam
C1 - 25 to 39 inches: gravelly sandy loam
C2 - 39 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 12 to 27 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F144AY008CT - Moist Till Uplands
Hydric soil rating: No

Minor Components

Charlton
Percent of map unit: 9 percent
Landscape: Glaciated uplands
Landform: Hills, Ground moraines, Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Woodbridge
Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Ground moraines, Drumlins, Hills
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Leicester
Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Depressions, Drainageways, Hills, Ground moraines
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Concave
Hydric soil rating: Yes

Whitman
Percent of map unit: 1 percent
Landscape: Glaciated uplands
Landform: Depressions, Drainageways, Hills, Ground moraines, Drumlins
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

51B—Sutton fine sandy loam, 0 to 8 percent slopes, very stony

Map Unit Setting
National map unit symbol: 2xfff

Landscape: Glaciated uplands
Elevation: 0 to 1,410 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Sutton, very stony, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sutton, Very Stony

Setting

Landscape: Glaciated uplands
Landform: Hills, Ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 7 inches: fine sandy loam
Bw1 - 7 to 19 inches: fine sandy loam
Bw2 - 19 to 27 inches: sandy loam
C1 - 27 to 41 inches: gravelly sandy loam
C2 - 41 to 62 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 12 to 27 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B/D
Ecological site: F144AY008CT - Moist Till Uplands
Hydric soil rating: No

Minor Components

Charlton, very stony

Percent of map unit: 7 percent

Landscape: Glaciated uplands
Landform: Hills, Ground moraines, Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Canton, very stony

Percent of map unit: 4 percent
Landscape: Glaciated uplands
Landform: Ridges, Hills, Moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Leicester, very stony

Percent of map unit: 3 percent
Landscape: Glaciated uplands
Landform: Hills, Drainageways, Ground moraines, Depressions
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

Whitman, very stony

Percent of map unit: 1 percent
Landscape: Glaciated uplands
Landform: Depressions, Drainageways, Hills, Ground moraines, Drumlins
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

60B—Canton and Charlton fine sandy loams, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w81s
Landscape: Glaciated uplands
Elevation: 0 to 1,460 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Canton and similar soils: 50 percent
Charlton and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Landscape: Glaciated uplands
Landform: Ridges, Moraines, Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: gravelly fine sandy loam
2C - 26 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Charlton

Setting

Landscape: Glaciated uplands
Landform: Hills, Ground moraines, Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw - 7 to 22 inches: gravelly fine sandy loam
C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Chatfield

Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Bedrock-controlled hills, Bedrock-controlled ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Sutton

Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Ground moraines, Hills, Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Leicester

Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Hills, Depressions, Drainageways, Ground moraines
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

60C—Canton and Charlton fine sandy loams, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w81z
Landscape: Glaciated uplands
Elevation: 0 to 1,620 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Canton and similar soils: 50 percent
Charlton and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Landscape: Glaciated uplands
Landform: Ridges, Moraines, Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw1 - 7 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: gravelly fine sandy loam
2C - 26 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Charlton

Setting

Landscape: Glaciated uplands
Landform: Hills, Ground moraines, Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw - 7 to 22 inches: gravelly fine sandy loam
C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Sutton

Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Ground moraines, Hills, Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Leicester

Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Hills, Depressions, Drainageways, Ground moraines
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

Chatfield

Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Bedrock-controlled hills, Bedrock-controlled ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

61B—Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2w81v
Landscape: Glaciated uplands
Elevation: 0 to 1,480 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Canton, very stony, and similar soils: 50 percent
Charlton, very stony, and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton, Very Stony

Setting

Landscape: Glaciated uplands
Landform: Ridges, Hills, Moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex

Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: fine sandy loam
Bw1 - 5 to 16 inches: fine sandy loam
Bw2 - 16 to 22 inches: gravelly fine sandy loam
2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Charlton, Very Stony

Setting

Landscape: Glaciated uplands
Landform: Hills, Ground moraines, Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam
Bw - 4 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Chatfield, very stony

Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Bedrock-controlled hills, Bedrock-controlled ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Leicester, very stony

Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Ground moraines, Depressions, Drainageways, Hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

Sutton, very stony

Percent of map unit: 5 percent
Landscape: Uplands
Landform: Hills, Ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

62C—Canton and Charlton fine sandy loams, 3 to 15 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2wks7
Landscape: Glaciated uplands
Elevation: 0 to 1,310 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Canton, extremely stony, and similar soils: 50 percent
Charlton, extremely stony, and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton, Extremely Stony

Setting

Landscape: Glaciated uplands
Landform: Ridges, Hills, Moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: fine sandy loam
Bw1 - 5 to 16 inches: fine sandy loam
Bw2 - 16 to 22 inches: gravelly fine sandy loam
2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Charlton, Extremely Stony

Setting

Landscape: Glaciated uplands
Landform: Hills, Ground moraines, Ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam
Bw - 4 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Sutton, extremely stony

Percent of map unit: 5 percent
Landscape: Uplands
Landform: Hills, Ground moraines
Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Leicester, extremely stony

Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Ground moraines, Depressions, Drainageways, Hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

Chatfield, extremely stony

Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Bedrock-controlled hills, Bedrock-controlled ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

62D—Canton and Charlton fine sandy loams, 15 to 35 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2w81r
Landscape: Glaciated uplands
Elevation: 0 to 1,640 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Canton, extremely stony, and similar soils: 55 percent
Charlton, extremely stony, and similar soils: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton, Extremely Stony

Setting

Landscape: Glaciated uplands
Landform: Ridges, Hills, Moraines
Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: fine sandy loam
Bw1 - 5 to 16 inches: fine sandy loam
Bw2 - 16 to 22 inches: gravelly fine sandy loam
2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Charlton, Extremely Stony

Setting

Landscape: Glaciated uplands
Landform: Hills, Ground moraines, Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam
Bw - 4 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Sutton, extremely stony

Percent of map unit: 5 percent
Landscape: Uplands
Landform: Hills, Ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Chatfield, extremely stony

Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Bedrock-controlled hills, Bedrock-controlled ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Hollis, extremely stony

Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Bedrock-controlled hills, Bedrock-controlled ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

66B—Narragansett silt loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9lq3
Landscape: Uplands
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Narragansett and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Narragansett

Setting

Landscape: Uplands
Landform: Hills, Till plains
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Coarse-loamy eolian deposits over sandy and gravelly melt-out till derived from gneiss and/or schist and/or sandstone and shale

Typical profile

Ap - 0 to 6 inches: silt loam
Bw1 - 6 to 15 inches: silt loam
Bw2 - 15 to 24 inches: silt loam
Bw3 - 24 to 28 inches: gravelly silt loam
2C - 28 to 60 inches: very gravelly loamy coarse sand

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Broadbrook
Percent of map unit: 5 percent
Landscape: Uplands
Landform: Drumlins, Hills, Till plains
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Charlton
Percent of map unit: 5 percent
Landscape: Uplands
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Leicester
Percent of map unit: 3 percent
Landscape: Uplands
Landform: Depressions, Drainageways
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Canton
Percent of map unit: 2 percent
Landscape: Uplands
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Wapping
Percent of map unit: 2 percent
Landscape: Uplands
Landform: Hills, Till plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Unnamed, red parent material
Percent of map unit: 2 percent
Hydric soil rating: No

Sutton
Percent of map unit: 1 percent
Landscape: Uplands
Landform: Depressions, Drainageways
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

73C—Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky

Map Unit Setting

National map unit symbol: 2w698
Landscape: Glaciated uplands
Elevation: 0 to 1,550 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Charlton, very stony, and similar soils: 50 percent
Chatfield, very stony, and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton, Very Stony

Setting

Landscape: Glaciated uplands
Landform: Bedrock-controlled hills, Bedrock-controlled ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam
Bw - 4 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Chatfield, Very Stony

Setting

Landscape: Glaciated uplands
Landform: Bedrock-controlled ridges, Bedrock-controlled hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: fine sandy loam
Bw - 2 to 30 inches: gravelly fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 41 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Leicester, very stony

Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Depressions, Drainageways
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Rock outcrop
Percent of map unit: 5 percent
Hydric soil rating: No

Hollis, very stony
Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Bedrock-controlled ridges, Bedrock-controlled hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Sutton, very stony
Percent of map unit: 5 percent
Landscape: Glaciated uplands
Landform: Hills, Ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

73E—Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky

Map Unit Setting
National map unit symbol: 9lql
Landscape: Uplands
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition
Charlton and similar soils: 45 percent
Chatfield and similar soils: 30 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton

Setting
Landscape: Uplands
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear

Parent material: Coarse-loamy melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 4 inches: fine sandy loam
Bw1 - 4 to 7 inches: fine sandy loam
Bw2 - 7 to 19 inches: fine sandy loam
Bw3 - 19 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 15 to 45 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Chatfield

Setting

Landscape: Uplands
Landform: Bedrock controlled hills, Bedrock controlled ridges
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Oa - 0 to 1 inches: highly decomposed plant material
A - 1 to 6 inches: gravelly fine sandy loam
Bw1 - 6 to 15 inches: gravelly fine sandy loam
Bw2 - 15 to 29 inches: gravelly fine sandy loam
2R - 29 to 80 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 45 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None

Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Rock outcrop

Percent of map unit: 10 percent
Hydric soil rating: No

Sutton, very stony

Percent of map unit: 5 percent
Landscape: Uplands
Landform: Depressions, Drainageways
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Leicester

Percent of map unit: 5 percent
Landscape: Uplands
Landform: Depressions, Drainageways
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Hollis

Percent of map unit: 3 percent
Landscape: Uplands
Landform: Bedrock controlled hills, Bedrock controlled ridges
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Unnamed, red parent material

Percent of map unit: 1 percent
Hydric soil rating: No

Unnamed, sandy subsoil

Percent of map unit: 1 percent
Hydric soil rating: No

75C—Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9lqn
Landscape: Uplands
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Hollis and similar soils: 35 percent
Chatfield and similar soils: 30 percent
Rock outcrop: 15 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hollis

Setting

Landscape: Uplands
Landform: Bedrock controlled hills, Bedrock controlled ridges
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Oa - 0 to 1 inches: highly decomposed plant material
A - 1 to 6 inches: gravelly fine sandy loam
Bw1 - 6 to 9 inches: channery fine sandy loam
Bw2 - 9 to 15 inches: gravelly fine sandy loam
2R - 15 to 80 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands
Hydric soil rating: No

Description of Chatfield

Setting

Landscape: Uplands
Landform: Bedrock controlled hills, Bedrock controlled ridges
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Oa - 0 to 1 inches: highly decomposed plant material
A - 1 to 6 inches: gravelly fine sandy loam
Bw1 - 6 to 15 inches: gravelly fine sandy loam
Bw2 - 15 to 29 inches: gravelly fine sandy loam
2R - 29 to 80 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

R - 0 to 0 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Runoff class: Very high

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8

Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Charlton
Percent of map unit: 7 percent
Landscape: Uplands
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Sutton, very stony
Percent of map unit: 5 percent
Landscape: Uplands
Landform: Depressions, Drainageways
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Leicester
Percent of map unit: 5 percent
Landscape: Uplands
Landform: Depressions, Drainageways
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Brimfield
Percent of map unit: 1 percent
Landscape: Uplands
Landform: Bedrock controlled hills, Bedrock controlled ridges
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Unnamed, sandy subsoil
Percent of map unit: 1 percent
Hydric soil rating: No

Unnamed, red parent material
Percent of map unit: 1 percent
Hydric soil rating: No

75E—Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes

Map Unit Setting
National map unit symbol: 9lqp

Landscape: Uplands
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Hollis and similar soils: 35 percent
Chatfield and similar soils: 30 percent
Rock outcrop: 15 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hollis

Setting

Landscape: Uplands
Landform: Bedrock controlled hills, Bedrock controlled ridges
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Oa - 0 to 1 inches: highly decomposed plant material
A - 1 to 6 inches: gravelly fine sandy loam
Bw1 - 6 to 9 inches: channery fine sandy loam
Bw2 - 9 to 15 inches: gravelly fine sandy loam
2R - 15 to 80 inches: bedrock

Properties and qualities

Slope: 15 to 45 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands
Hydric soil rating: No

Description of Chatfield

Setting

Landscape: Uplands
Landform: Bedrock controlled hills, Bedrock controlled ridges
Down-slope shape: Convex

Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from granite and/or schist and/or gneiss

Typical profile

Oa - 0 to 1 inches: highly decomposed plant material
A - 1 to 6 inches: gravelly fine sandy loam
Bw1 - 6 to 15 inches: gravelly fine sandy loam
Bw2 - 15 to 29 inches: gravelly fine sandy loam
2R - 29 to 80 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 45 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Low to high (0.01 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Rock Outcrop

Typical profile

R - 0 to 0 inches: bedrock

Properties and qualities

Slope: 15 to 45 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Runoff class: Very high

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Minor Components

Charlton

Percent of map unit: 7 percent
Landscape: Uplands
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Sutton, very stony
Percent of map unit: 5 percent
Landscape: Uplands
Landform: Depressions, Drainageways
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Leicester
Percent of map unit: 5 percent
Landscape: Uplands
Landform: Depressions, Drainageways
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Brimfield
Percent of map unit: 1 percent
Landscape: Uplands
Landform: Bedrock controlled hills, Bedrock controlled ridges
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Unnamed, red parent material
Percent of map unit: 1 percent
Hydric soil rating: No

Unnamed, sandy subsoil
Percent of map unit: 1 percent
Hydric soil rating: No

84B—Paxton and Montauk fine sandy loams, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 2t2qn
Landscape: Uplands
Elevation: 0 to 1,570 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Paxton and similar soils: 55 percent
Montauk and similar soils: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton

Setting

Landscape: Uplands
Landform: Hills, Drumlins, Ground moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 8 inches: fine sandy loam
Bw1 - 8 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: fine sandy loam
Cd - 26 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 18 to 39 inches to densic material
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Description of Montauk

Setting

Landscape: Uplands
Landform: Drumlins, Hills
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

A - 0 to 4 inches: fine sandy loam
Bw1 - 4 to 14 inches: fine sandy loam
Bw2 - 14 to 25 inches: sandy loam
2Cd1 - 25 to 39 inches: gravelly loamy coarse sand
2Cd2 - 39 to 60 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 20 to 38 inches to densic material
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 24 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Ridgebury

Percent of map unit: 5 percent
Landscape: Uplands
Landform: Drainageways, Hills, Ground moraines, Depressions
Landform position (two-dimensional): Backslope, footslope, toeslope
Landform position (three-dimensional): Head slope, base slope, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Woodbridge

Percent of map unit: 5 percent
Landscape: Uplands
Landform: Ground moraines, Hills, Drumlins
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Charlton

Percent of map unit: 5 percent
Landscape: Uplands
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

85B—Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2w679
Landscape: Uplands
Elevation: 0 to 1,530 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Paxton, very stony, and similar soils: 55 percent
Montauk, very stony, and similar soils: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton, Very Stony

Setting

Landscape: Uplands
Landform: Drumlins, Ground moraines, Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 10 inches: fine sandy loam
Bw1 - 10 to 17 inches: fine sandy loam
Bw2 - 17 to 28 inches: fine sandy loam
Cd - 28 to 67 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 43 inches to densic material
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Description of Montauk, Very Stony

Setting

Landscape: Uplands
Landform: Drumlins, Hills, Ground moraines, Recessionial moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 6 inches: fine sandy loam
Bw1 - 6 to 28 inches: fine sandy loam
Bw2 - 28 to 36 inches: sandy loam
2Cd - 36 to 74 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 43 inches to densic material
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Woodbridge, very stony

Percent of map unit: 8 percent
Landscape: Uplands
Landform: Drumlins, Hills, Ground moraines
Landform position (two-dimensional): Summit, backslope, footslope

Landform position (three-dimensional): Side slope, crest
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Charlton, very stony

Percent of map unit: 3 percent
Landscape: Uplands
Landform: Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Ridgebury, very stony

Percent of map unit: 3 percent
Landscape: Uplands
Landform: Drainageways, Hills, Ground moraines, Depressions, Drumlins
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Stockbridge, very stony

Percent of map unit: 1 percent
Landscape: Uplands
Landform: Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Natural Diversity Data Base Areas

LEDYARD, CT

December 2025

State and Federal Listed Species

Critical Habitat

Town Boundary

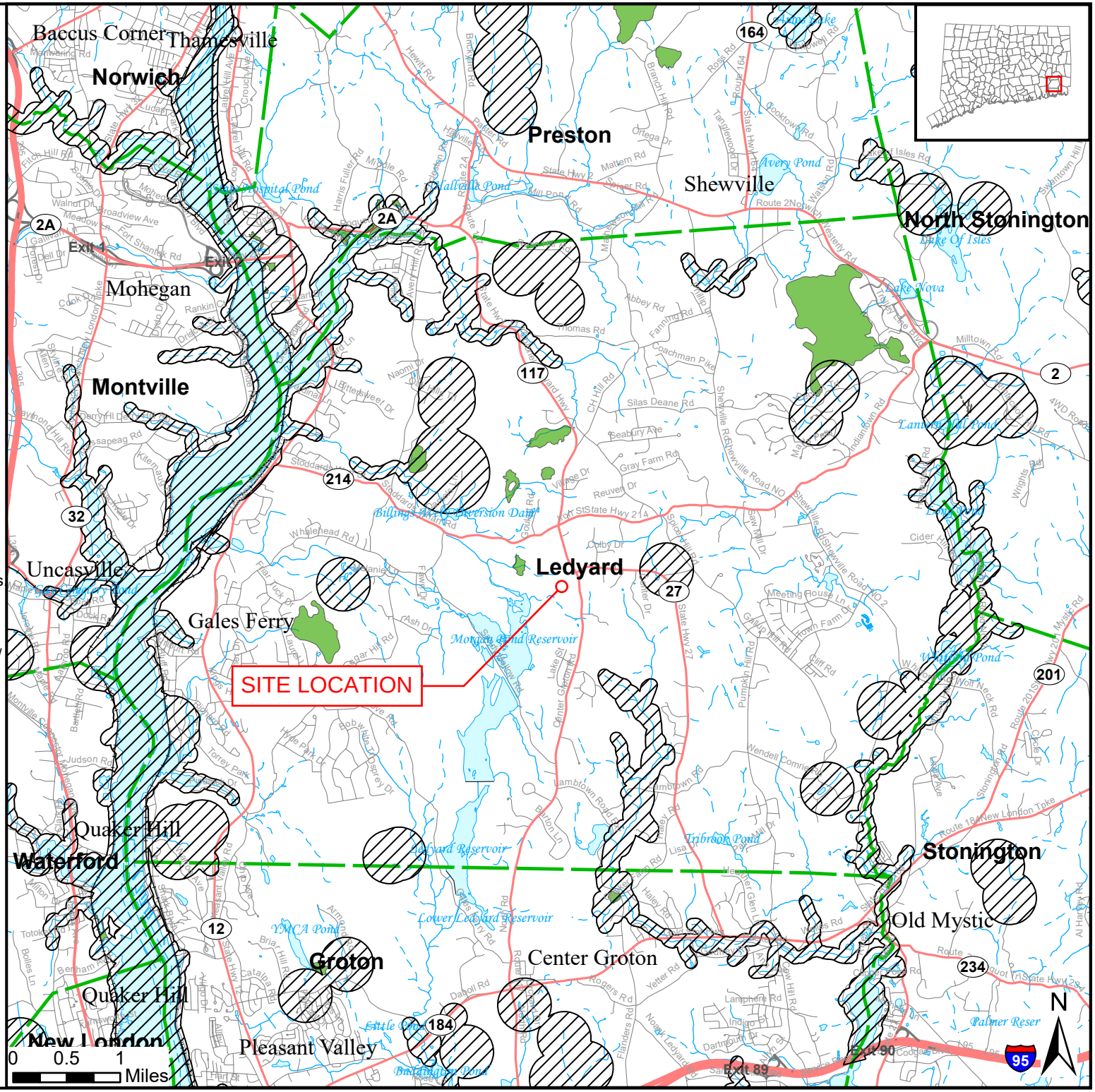
NOTE: This map shows known locations of State and Federal Listed Species and Critical Habitats. Information on listed species is collected and compiled by the Natural Diversity Data Base (NDDB) from a variety of data sources . Exact locations of species have been buffered to produce the generalized locations.

This map is intended for use as a preliminary screening tool for conducting a Natural Diversity Data Base Review Request. To use the map, locate the project boundaries and any additional affected areas If the project is within a hatched area there may be a potential conflict with a listed species. For more information, use DEEP ezFile https://filings.deep.ct.gov/DEEPPortal/ to submit a Request for Natural Diversity Data Base State Listed Species Review or Site Assessment. More detailed instructions are provided along with the request form on our website. https://portal.ct.gov/deep-nddbrequest

Use the CTECO Interactive Map Viewers at http://cteco.uconn.edu to more precisely search for and locate a site and to view aerial imagery with NDDB Areas.

QUESTIONS: Department of Energy and Environmental Protection (DEEP)
79 Elm St, Hartford, CT 06106
email: deep.nddbrequest@ct.gov
Phone: (860) 424-3011

Connecticut Department of Energy & Environmental Protection



NOAA Atlas 14, Volume 10, Version 3
Location name: Ledyard, Connecticut, USA*
Latitude: 41.4378°, Longitude: -72.016°
Elevation: 268 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	**0.341** (0.265-0.437)	**0.408** (0.316-0.523)	**0.517** (0.399-0.664)	**0.608** (0.467-0.782)	**0.732** (0.545-0.973)	**0.826** (0.603-1.11)	**0.924** (0.656-1.28)	**1.04** (0.697-1.45)	**1.20** (0.775-1.72)	**1.33** (0.841-1.93)
10-min	**0.483** (0.375-0.619)	**0.578** (0.448-0.740)	**0.733** (0.566-0.942)	**0.861** (0.661-1.11)	**1.04** (0.772-1.38)	**1.17** (0.854-1.58)	**1.31** (0.930-1.82)	**1.47** (0.988-2.06)	**1.70** (1.10-2.43)	**1.88** (1.19-2.74)
15-min	**0.569** (0.441-0.728)	**0.680** (0.527-0.871)	**0.862** (0.665-1.11)	**1.01** (0.777-1.30)	**1.22** (0.909-1.62)	**1.38** (1.00-1.86)	**1.54** (1.09-2.14)	**1.73** (1.16-2.42)	**2.00** (1.29-2.86)	**2.22** (1.40-3.22)
30-min	**0.802** (0.622-1.03)	**0.959** (0.743-1.23)	**1.22** (0.937-1.56)	**1.43** (1.10-1.84)	**1.72** (1.28-2.28)	**1.94** (1.41-2.61)	**2.17** (1.54-3.00)	**2.43** (1.63-3.40)	**2.80** (1.82-4.02)	**3.12** (1.97-4.53)
60-min	**1.04** (0.804-1.33)	**1.24** (0.958-1.58)	**1.57** (1.21-2.01)	**1.84** (1.41-2.37)	**2.21** (1.65-2.94)	**2.50** (1.82-3.37)	**2.79** (1.98-3.87)	**3.13** (2.10-4.38)	**3.62** (2.34-5.18)	**4.02** (2.54-5.84)
2-hr	**1.36** (1.06-1.73)	**1.62** (1.27-2.06)	**2.05** (1.60-2.61)	**2.41** (1.87-3.08)	**2.90** (2.18-3.83)	**3.27** (2.41-4.38)	**3.66** (2.62-5.04)	**4.10** (2.78-5.70)	**4.74** (3.09-6.75)	**5.27** (3.35-7.60)
3-hr	**1.58** (1.24-2.00)	**1.88** (1.48-2.38)	**2.38** (1.86-3.02)	**2.79** (2.17-3.55)	**3.36** (2.53-4.41)	**3.79** (2.80-5.04)	**4.24** (3.04-5.80)	**4.75** (3.22-6.56)	**5.49** (3.58-7.77)	**6.10** (3.89-8.76)
6-hr	**2.01** (1.59-2.51)	**2.38** (1.89-2.99)	**3.00** (2.37-3.77)	**3.52** (2.76-4.43)	**4.23** (3.21-5.50)	**4.76** (3.54-6.28)	**5.32** (3.84-7.22)	**5.96** (4.07-8.17)	**6.88** (4.52-9.68)	**7.65** (4.90-10.9)
12-hr	**2.48** (1.98-3.07)	**2.94** (2.35-3.65)	**3.69** (2.94-4.59)	**4.32** (3.42-5.39)	**5.18** (3.97-6.68)	**5.82** (4.37-7.63)	**6.50** (4.74-8.76)	**7.28** (5.00-9.91)	**8.42** (5.56-11.7)	**9.36** (6.03-13.2)
24-hr	**2.90** (2.34-3.56)	**3.46** (2.79-4.25)	**4.36** (3.50-5.37)	**5.11** (4.08-6.33)	**6.15** (4.75-7.87)	**6.92** (5.24-9.00)	**7.74** (5.69-10.4)	**8.70** (6.01-11.7)	**10.1** (6.70-14.0)	**11.3** (7.30-15.9)
2-day	**3.24** (2.64-3.95)	**3.90** (3.18-4.75)	**4.97** (4.03-6.07)	**5.86** (4.73-7.19)	**7.09** (5.53-9.01)	**8.00** (6.11-10.3)	**8.98** (6.66-12.0)	**10.1** (7.04-13.6)	**11.9** (7.92-16.3)	**13.4** (8.68-18.6)
3-day	**3.52** (2.88-4.26)	**4.22** (3.46-5.12)	**5.38** (4.39-6.54)	**6.34** (5.14-7.73)	**7.66** (6.00-9.68)	**8.65** (6.63-11.1)	**9.70** (7.22-12.9)	**11.0** (7.64-14.6)	**12.8** (8.58-17.6)	**14.4** (9.41-20.0)
4-day	**3.77** (3.10-4.55)	**4.52** (3.71-5.45)	**5.73** (4.69-6.93)	**6.73** (5.48-8.18)	**8.12** (6.38-10.2)	**9.15** (7.04-11.7)	**10.3** (7.66-13.5)	**11.6** (8.08-15.4)	**13.5** (9.06-18.4)	**15.2** (9.92-21.0)
7-day	**4.49** (3.72-5.38)	**5.30** (4.39-6.35)	**6.62** (5.46-7.95)	**7.72** (6.32-9.31)	**9.23** (7.30-11.5)	**10.4** (8.01-13.1)	**11.6** (8.66-15.1)	**13.0** (9.11-17.1)	**15.0** (10.1-20.4)	**16.8** (11.0-23.0)
10-day	**5.20** (4.33-6.20)	**6.05** (5.03-7.21)	**7.44** (6.16-8.88)	**8.59** (7.07-10.3)	**10.2** (8.07-12.6)	**11.4** (8.80-14.3)	**12.6** (9.45-16.3)	**14.0** (9.90-18.4)	**16.1** (10.9-21.7)	**17.8** (11.7-24.3)
20-day	**7.39** (6.22-8.72)	**8.30** (6.97-9.80)	**9.78** (8.18-11.6)	**11.0** (9.15-13.1)	**12.7** (10.1-15.5)	**14.0** (10.9-17.4)	**15.3** (11.5-19.4)	**16.7** (11.9-21.7)	**18.5** (12.6-24.7)	**19.9** (13.1-27.0)
30-day	**9.21** (7.79-10.8)	**10.2** (8.58-11.9)	**11.7** (9.85-13.8)	**13.0** (10.9-15.4)	**14.8** (11.8-17.9)	**16.2** (12.6-19.8)	**17.5** (13.1-21.9)	**18.8** (13.4-24.3)	**20.4** (13.9-27.1)	**21.6** (14.3-29.2)
45-day	**11.5** (9.74-13.4)	**12.5** (10.6-14.5)	**14.1** (11.9-16.5)	**15.5** (13.0-18.2)	**17.4** (14.0-20.9)	**18.9** (14.8-22.9)	**20.3** (15.2-25.1)	**21.5** (15.4-27.6)	**23.0** (15.8-30.3)	**23.9** (15.9-32.2)
60-day	**13.3** (11.4-15.5)	**14.4** (12.3-16.7)	**16.1** (13.7-18.8)	**17.6** (14.8-20.6)	**19.6** (15.8-23.4)	**21.2** (16.6-25.6)	**22.6** (17.0-27.9)	**23.8** (17.2-30.5)	**25.2** (17.4-33.2)	**26.1** (17.5-35.0)

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

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

Please refer to NOAA Atlas 14 document for more information.

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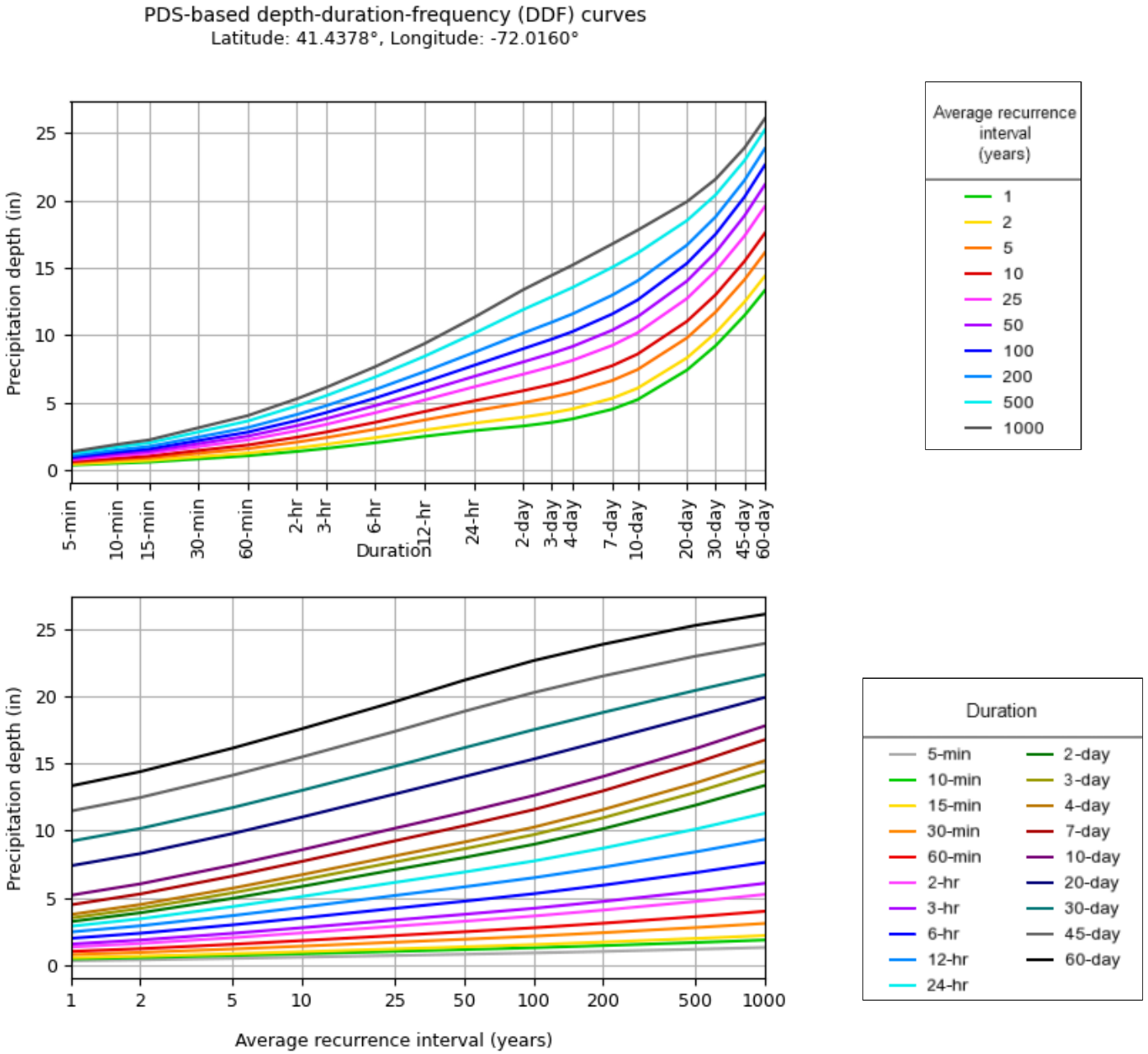
PF graphical



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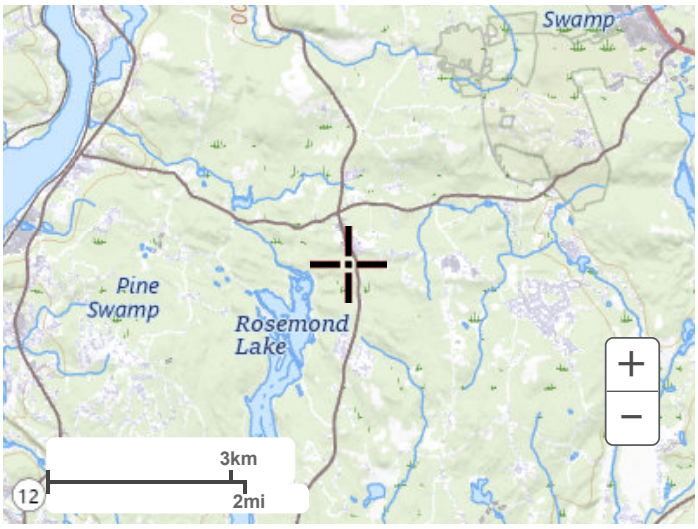
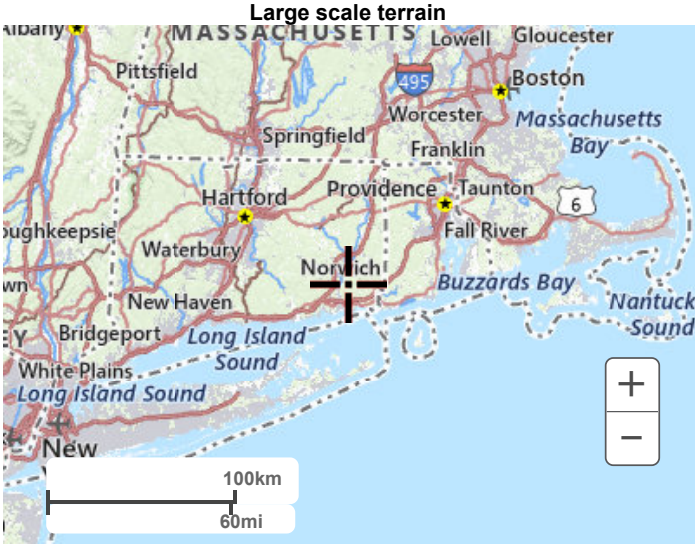
Maps & aerials

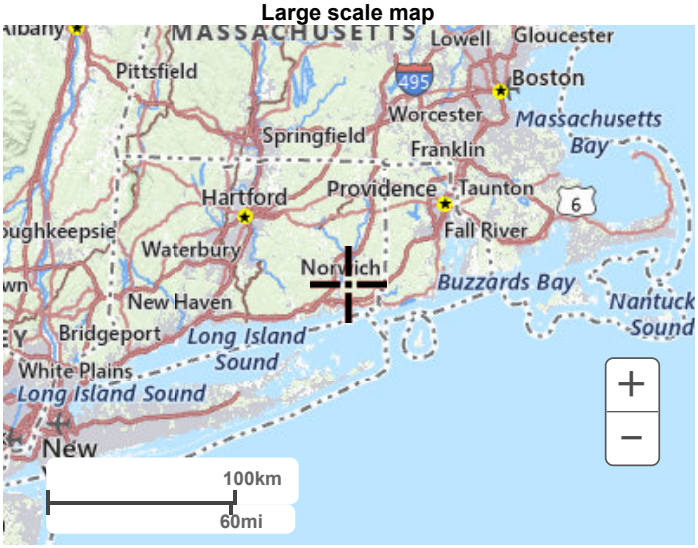
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial

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

Disclaimer

NOAA Atlas 14, Volume 10, Version 3
Location name: Ledyard, Connecticut, USA*
Latitude: 41.4378°, Longitude: -72.016°
Elevation: m/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/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**4.09** (3.18-5.24)	**4.90** (3.79-6.28)	**6.20** (4.79-7.97)	**7.30** (5.60-9.38)	**8.78** (6.54-11.7)	**9.91** (7.24-13.4)	**11.1** (7.87-15.4)	**12.4** (8.36-17.4)	**14.4** (9.30-20.6)	**15.9** (10.1-23.2)
10-min	**2.90** (2.25-3.71)	**3.47** (2.69-4.44)	**4.40** (3.40-5.65)	**5.17** (3.97-6.65)	**6.22** (4.63-8.27)	**7.02** (5.12-9.47)	**7.86** (5.58-10.9)	**8.81** (5.93-12.3)	**10.2** (6.59-14.6)	**11.3** (7.15-16.4)
15-min	**2.28** (1.76-2.91)	**2.72** (2.11-3.48)	**3.45** (2.66-4.42)	**4.05** (3.11-5.22)	**4.88** (3.64-6.49)	**5.50** (4.02-7.42)	**6.16** (4.38-8.54)	**6.91** (4.65-9.67)	**7.98** (5.17-11.4)	**8.86** (5.61-12.9)
30-min	**1.60** (1.24-2.05)	**1.92** (1.49-2.46)	**2.43** (1.87-3.12)	**2.85** (2.19-3.68)	**3.43** (2.56-4.56)	**3.87** (2.83-5.22)	**4.33** (3.08-6.00)	**4.85** (3.26-6.79)	**5.61** (3.63-8.04)	**6.23** (3.94-9.06)
60-min	**1.04** (0.804-1.33)	**1.24** (0.958-1.58)	**1.57** (1.21-2.01)	**1.84** (1.41-2.37)	**2.21** (1.65-2.94)	**2.50** (1.82-3.37)	**2.79** (1.98-3.87)	**3.13** (2.10-4.38)	**3.62** (2.34-5.18)	**4.02** (2.54-5.84)
2-hr	**0.680** (0.532-0.863)	**0.812** (0.634-1.03)	**1.03** (0.799-1.31)	**1.20** (0.934-1.54)	**1.45** (1.09-1.91)	**1.64** (1.20-2.19)	**1.83** (1.31-2.52)	**2.05** (1.39-2.85)	**2.37** (1.54-3.37)	**2.64** (1.68-3.80)
3-hr	**0.526** (0.413-0.664)	**0.627** (0.492-0.792)	**0.792** (0.620-1.00)	**0.930** (0.723-1.18)	**1.12** (0.843-1.47)	**1.26** (0.931-1.68)	**1.41** (1.01-1.93)	**1.58** (1.07-2.18)	**1.83** (1.19-2.59)	**2.03** (1.29-2.92)
6-hr	**0.335** (0.265-0.419)	**0.398** (0.315-0.498)	**0.501** (0.396-0.629)	**0.587** (0.461-0.740)	**0.705** (0.536-0.917)	**0.794** (0.591-1.05)	**0.888** (0.641-1.21)	**0.994** (0.679-1.36)	**1.15** (0.754-1.62)	**1.28** (0.818-1.82)
12-hr	**0.205** (0.164-0.255)	**0.244** (0.195-0.302)	**0.306** (0.244-0.381)	**0.358** (0.283-0.447)	**0.429** (0.329-0.554)	**0.483** (0.362-0.633)	**0.539** (0.393-0.727)	**0.604** (0.415-0.822)	**0.698** (0.461-0.974)	**0.777** (0.500-1.10)
24-hr	**0.120** (0.097-0.148)	**0.144** (0.116-0.177)	**0.181** (0.146-0.223)	**0.213** (0.170-0.263)	**0.256** (0.197-0.327)	**0.288** (0.218-0.375)	**0.322** (0.237-0.432)	**0.362** (0.250-0.489)	**0.421** (0.279-0.583)	**0.470** (0.304-0.660)
2-day	**0.067** (0.055-0.082)	**0.081** (0.066-0.098)	**0.103** (0.084-0.126)	**0.122** (0.098-0.149)	**0.147** (0.115-0.187)	**0.166** (0.127-0.215)	**0.187** (0.138-0.249)	**0.211** (0.146-0.283)	**0.247** (0.164-0.340)	**0.278** (0.180-0.387)
3-day	**0.048** (0.040-0.059)	**0.058** (0.048-0.071)	**0.074** (0.060-0.090)	**0.088** (0.071-0.107)	**0.106** (0.083-0.134)	**0.120** (0.092-0.154)	**0.134** (0.100-0.178)	**0.152** (0.106-0.202)	**0.178** (0.119-0.243)	**0.200** (0.130-0.278)
4-day	**0.039** (0.032-0.047)	**0.047** (0.038-0.056)	**0.059** (0.048-0.072)	**0.070** (0.057-0.085)	**0.084** (0.066-0.106)	**0.095** (0.073-0.122)	**0.106** (0.079-0.141)	**0.120** (0.084-0.160)	**0.140** (0.094-0.192)	**0.158** (0.103-0.218)
7-day	**0.026** (0.022-0.031)	**0.031** (0.026-0.037)	**0.039** (0.032-0.047)	**0.045** (0.037-0.055)	**0.054** (0.043-0.068)	**0.061** (0.047-0.078)	**0.068** (0.051-0.089)	**0.077** (0.054-0.101)	**0.089** (0.060-0.121)	**0.099** (0.065-0.137)
10-day	**0.021** (0.018-0.025)	**0.025** (0.020-0.030)	**0.030** (0.025-0.037)	**0.035** (0.029-0.042)	**0.042** (0.033-0.052)	**0.047** (0.036-0.059)	**0.052** (0.039-0.068)	**0.058** (0.041-0.076)	**0.067** (0.045-0.090)	**0.074** (0.048-0.101)
20-day	**0.015** (0.012-0.018)	**0.017** (0.014-0.020)	**0.020** (0.017-0.024)	**0.022** (0.019-0.027)	**0.026** (0.021-0.032)	**0.029** (0.022-0.036)	**0.031** (0.023-0.040)	**0.034** (0.024-0.045)	**0.038** (0.026-0.051)	**0.041** (0.027-0.056)
30-day	**0.012** (0.010-0.014)	**0.014** (0.011-0.016)	**0.016** (0.013-0.019)	**0.018** (0.015-0.021)	**0.020** (0.016-0.024)	**0.022** (0.017-0.027)	**0.024** (0.018-0.030)	**0.026** (0.018-0.033)	**0.028** (0.019-0.037)	**0.029** (0.019-0.040)
45-day	**0.010** (0.009-0.012)	**0.011** (0.009-0.013)	**0.013** (0.011-0.015)	**0.014** (0.012-0.016)	**0.016** (0.012-0.019)	**0.017** (0.013-0.021)	**0.018** (0.014-0.023)	**0.019** (0.014-0.025)	**0.021** (0.014-0.028)	**0.022** (0.014-0.029)
60-day	**0.009** (0.007-0.010)	**0.009** (0.008-0.011)	**0.011** (0.009-0.013)	**0.012** (0.010-0.014)	**0.013** (0.010-0.016)	**0.014** (0.011-0.017)	**0.015** (0.011-0.019)	**0.016** (0.011-0.021)	**0.017** (0.012-0.023)	**0.018** (0.012-0.024)

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

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

Please refer to NOAA Atlas 14 document for more information.

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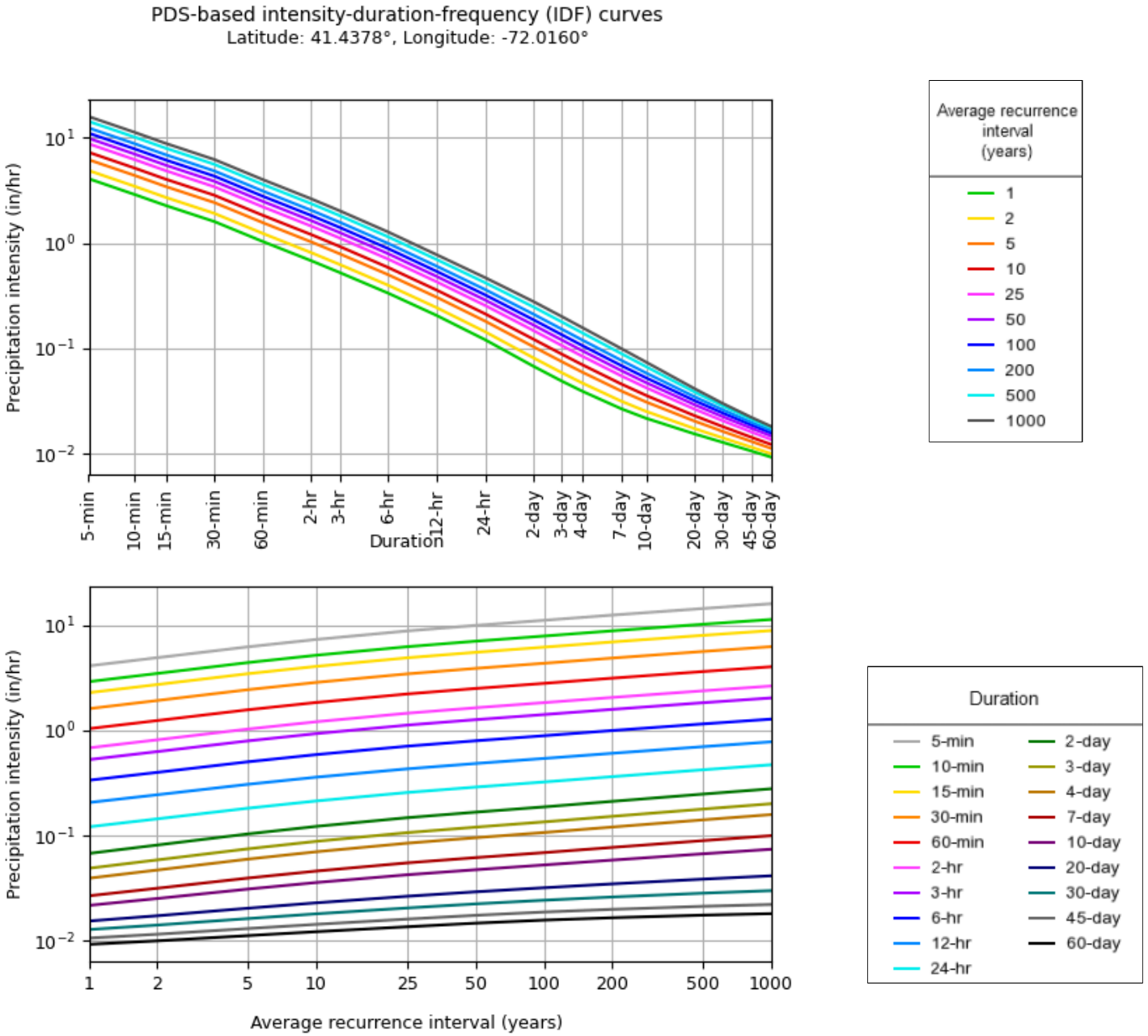
PF graphical



NOAA Atlas 14, Volume 10, Version 3

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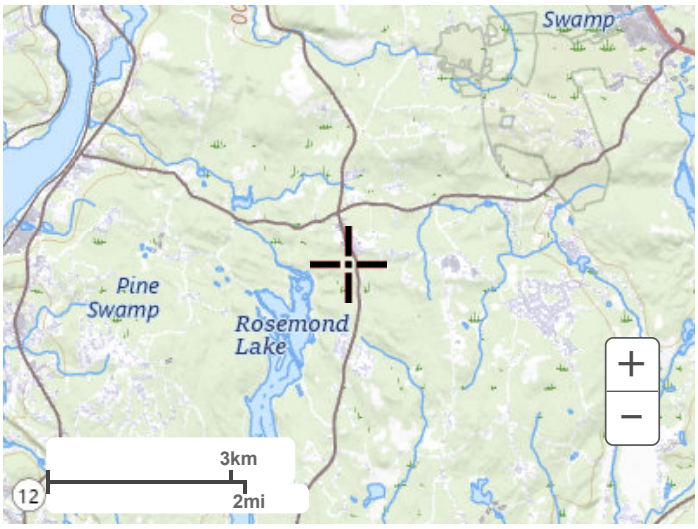
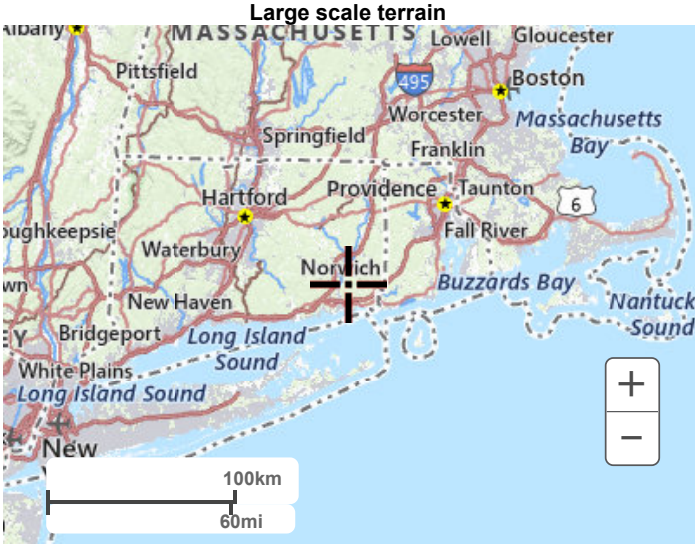
Maps & aerials

Small scale terrain



Large scale terrain



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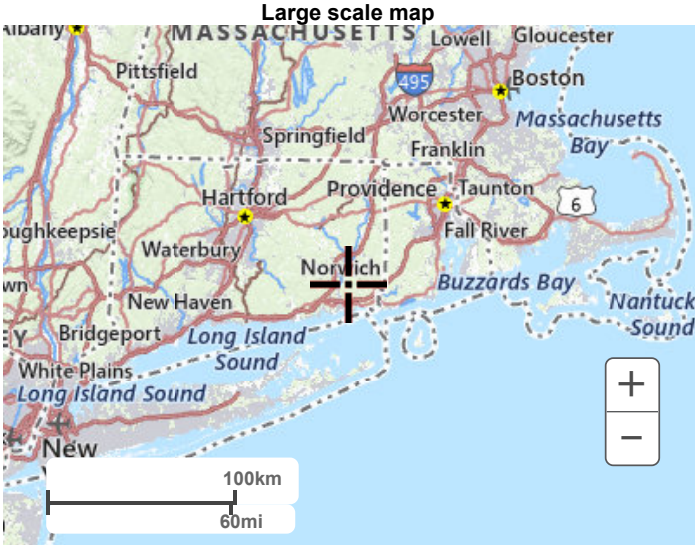

Large scale aerial

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

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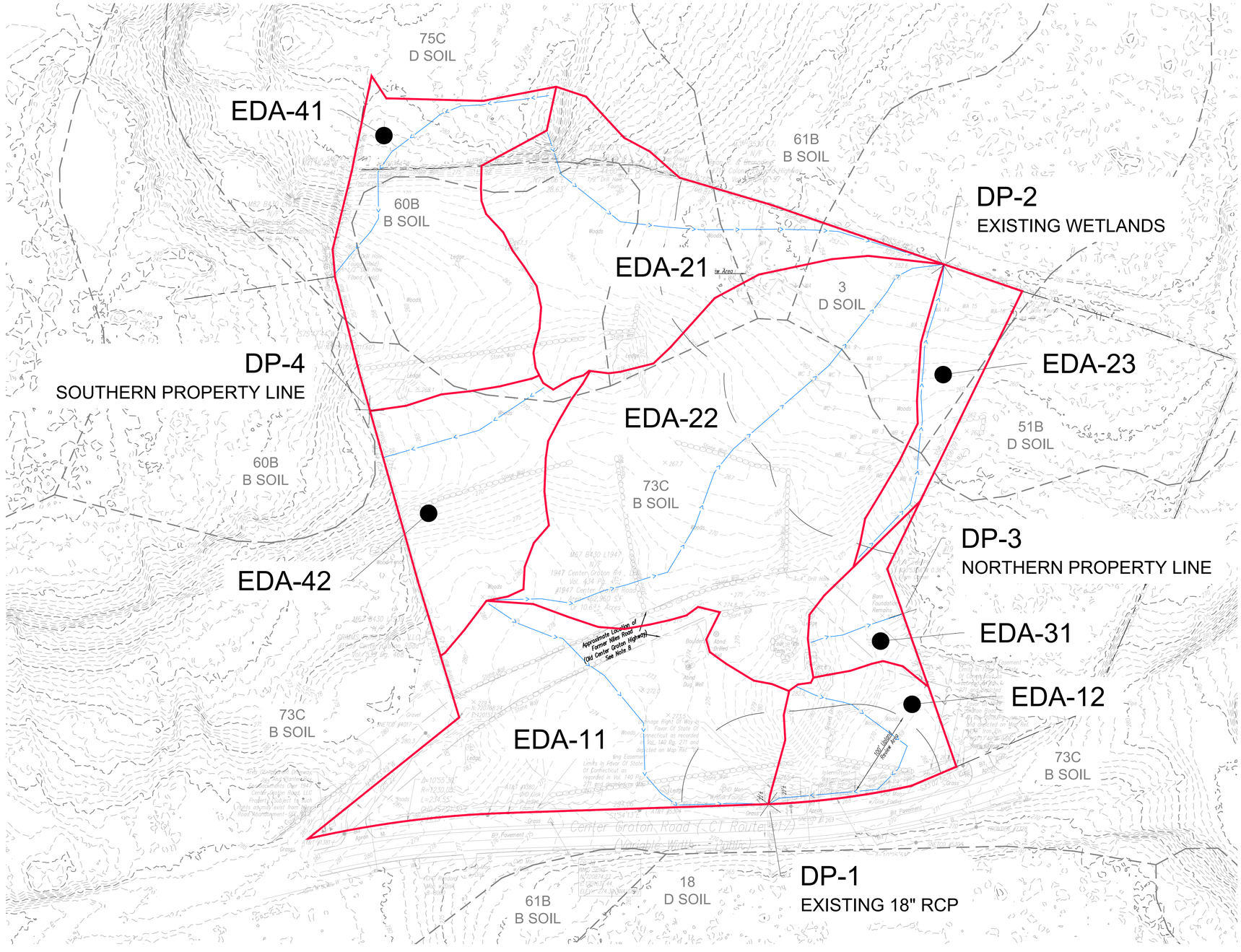
APPENDIX B

DRAINAGE MAPS



HYDROLOGY LEGEND

PROPERTY LINE	
DRAINAGE AREA BOUNDARY	
TIME OF CONCENTRATION ROUTE	
SOIL BOUNDARY	
DESIGN POINT	DP-X

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GRAPHIC SCALE
60 30 0 60
SCALE IN FEET

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PROPOSED MULTI-FAMILY RESIDENTIAL DEVELOPMENT
1947 CENTER GROTON ROAD
LEDYARD, CT 06339

REVISIONS
No. 1 Date 04/02/2026 Desc: REVISED PER DRAINAGE PLAN UPDATES

Designed	T.M.R.
Drawn	T.M.R.
Reviewed	
Scale	1"=60'
Project No.	2502197
Date	04/01/2026
CAD File:	EDA250219701

Title
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Sheet No.
EDA-1

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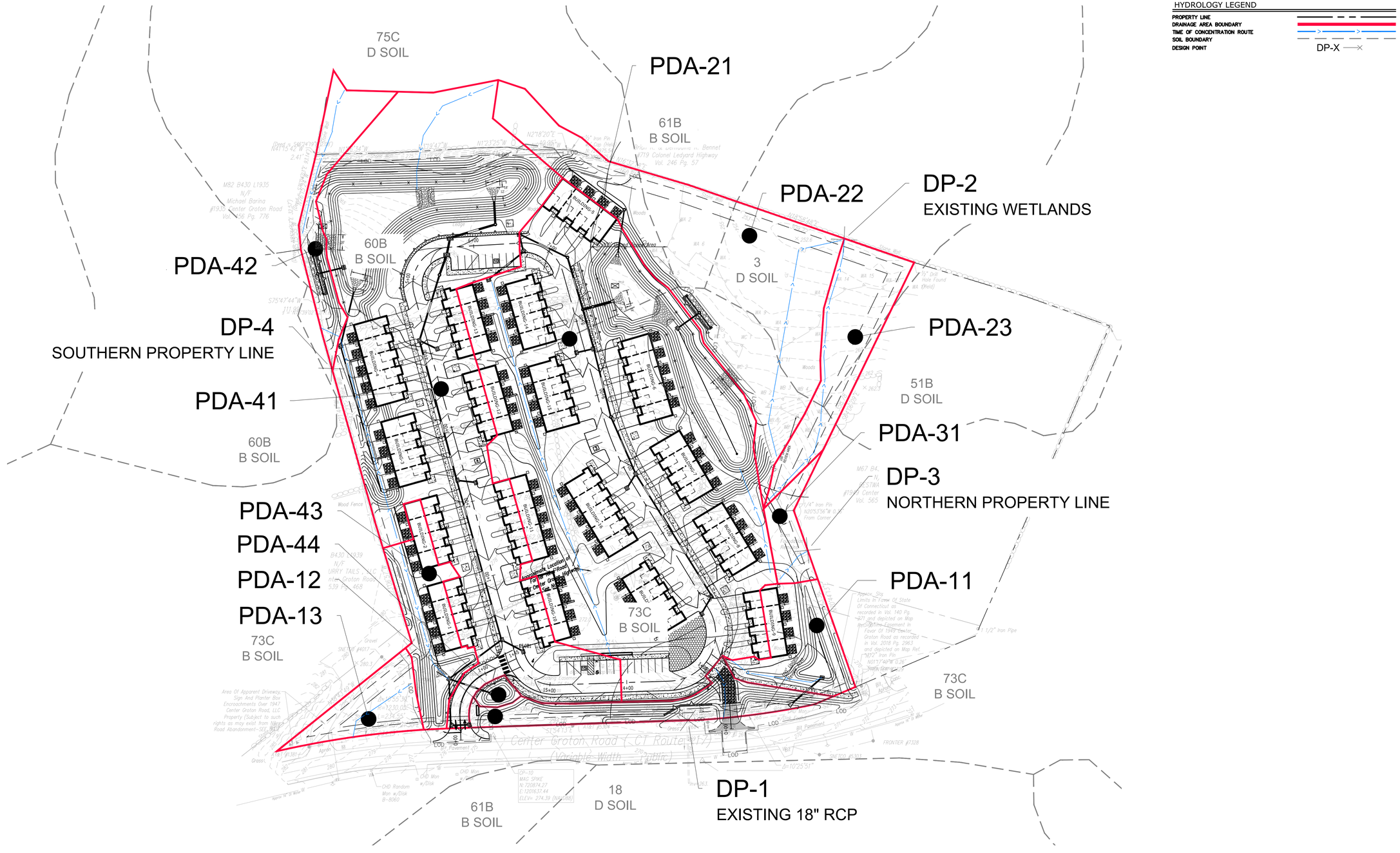

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2	05/18/2026	REVISED PER DRAINAGE PLAN UPDATES
3	07/01/2026	REVISED PER DRAINAGE PLAN UPDATES

Designed	T.M.R.
Drawn	T.M.R.
Reviewed	
Scale	1"=60'
Project No.	2502197
Date	04/01/2026
CAD File:	PDA250219701

Title
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Sheet No.
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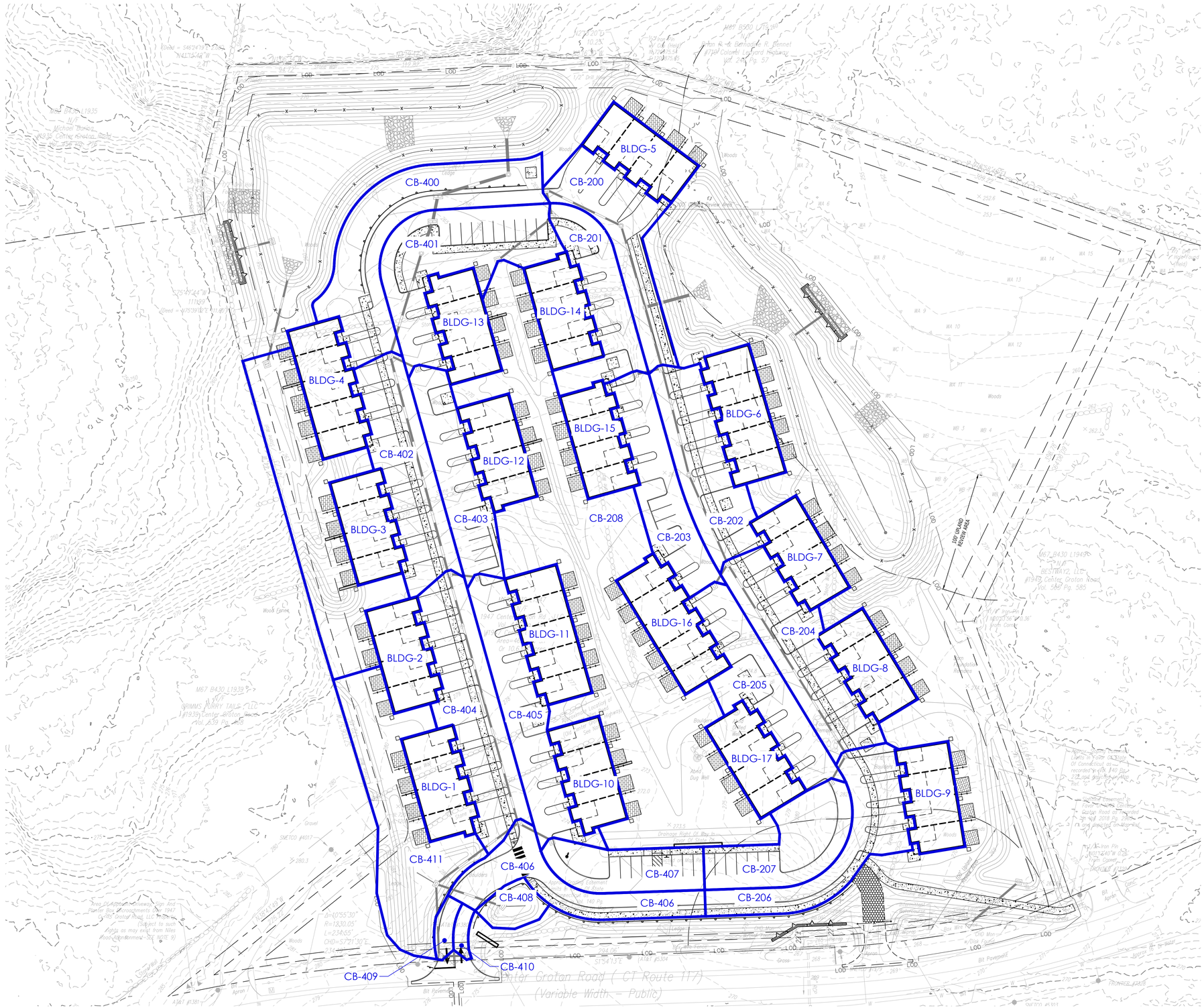

HYDROLOGY LEGEND

PROPERTY LINE

CATCHMENT AREA BOUNDARY

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1947 CENTER GROTON ROAD
LEDYARD, CT 06339

REVISIONS

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Designed	T.M.R.
Drawn	T.M.R.
Reviewed	
Scale	1"=40'
Project No.	2502197
Date	04/22/2026
CAD File:	PDA250219702

Title

PROPOSED CATCHMENT AREA MAP

Sheet No.

PDA-2

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5/14/2026, TRICCITELLI, G:\JOBS\25\20\2502197\DWG\PDA\2502197702.DWG PDA-2 24X36 ARCH

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APPROXIMATE TEST PIT 10 LOCATION PERFORMED BY CLA ENGINEERS, INC. ON MARCH 24 & 25, 2026
GROUNDWATER = ±256.0'
INFILTRATION RATE = 0.5 IN/HR

APPROXIMATE TEST PIT 12 LOCATION PERFORMED BY CLA ENGINEERS, INC. ON MARCH 24 & 25, 2026
GROUNDWATER = ±259.0'
INFILTRATION RATE = 0.084 IN/HR

GRADING AND DRAINAGE LEGEND

- PROPERTY LINE
- LOD — LIMIT OF DISTURBANCE
- WETLAND LIMITS
- 100' WETLAND UPLAND REVIEW AREA
- PROPOSED STORM PIPE
- PROPOSED CATCH BASIN
- PROPOSED STORM MANHOLE
- PROPOSED FLARED END SECTION
- PROPOSED ENDWALL OR HEADWALL
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- 100.00 — PROPOSED SPOT ELEVATION
- TC 100.50 / BC 100.00 — ABBREVIATEIONS: TC = TOP OF CURB; BC = BOTTOM OF CURB; TW = TOP OF WALL; BW = BOTTOM OF WALL
- 2.00% — PROPOSED SURFACE SLOPE

Center Groton Road (CT Route 117)
(Public R.O.W. – Variable Width)

Colonel Ledyard Hwy

FOR PERMITTING PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

GRAPHIC SCALE
40 20 0 40
SCALE IN FEET

Architecture
Engineering
Environmental
Land Surveying

BL Companies

355 Research Parkway
Meriden, CT 06450
(203) 630-1406

STATE OF CONNECTICUT
JOHN C. SCHUMACHER
33289
LICENSED
PROFESSIONAL ENGINEER

PROPOSED MULTI-FAMILY RESIDENTIAL DEVELOPMENT

1947 CENTER GROTON ROAD
LEDYARD, CT 06339

REVISIONS

No.	Date	Description
1	04/21/2026	REVISED GRADING AND DRAINAGE PER GEOTECHNICAL TESTING
2	05/04/2026	REVISED PER GROTON UTILITIES COMMENTS
3	05/21/2026	REVISED UTILITY PLAN & PER ENGINEERING COMMENTS
4	07/01/2026	REVISED TOWN COMMENTS AND GROTON UTILITIES COMMENTS

Designed	A.S.
Drawn	A.S.
Reviewed	R.M.R.
Scale	1"=40'
Project No.	2502197
Date	04/01/2026
CAD File: C2502197-20	

Title

GRADING PLAN

Sheet No.

C2.00

Xref (s): ..\XB2502197-00 ; XY2502197-01 ; XC2502197-10 ; XC2502197-20 ; XC2502197-25

7/1/2026, JPEBTA, G:\JOBS\25\2502197\DWG\C2502197-20.DWG,C2.00 24X36 40SC.

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GRADING AND DRAINAGE LEGEND

- PROPERTY LINE
- LOD — LIMIT OF DISTURBANCE
- WETLAND LIMITS
- 100' WETLAND UPLAND REVIEW AREA
- PROPOSED STORM PIPE
- PROPOSED CATCH BASIN
- PROPOSED STORM MANHOLE
- PROPOSED FLARED END SECTION
- PROPOSED ENDWALL OR HEADWALL
- 100 — PROPOSED MAJOR CONTOUR
- 101 — PROPOSED MINOR CONTOUR
- 100.00 — PROPOSED SPOT ELEVATION
- TC 100.50 / BC 100.00 / TW 105.00 / BW 100.00 — ABBREVIATEIONS
  - TC = TOP OF CURB
  - BC = BOTTOM OF CURB
  - TW = TOP OF WALL
  - BW = BOTTOM OF WALL
- 2.00% — PROPOSED SURFACE SLOPE

NOTES

ALL CATCH BASINS WILL BE FITTED WITH HOODED OUTLETS

POND 4A
STORMWATER DETENTION POND

PROPOSED EMERGENCY SPILLWAY
DISCHARGE ELEV. = 262.00

OCS-4A
OUTLET CONTROL STRUCTURE
TF=262.00
INV OUT=255.40 (S)

LV-4
LEVEL SPREADER
INV. = 255.00
50 LF 15" PERFORATED HDPE @ 0.00%

35LF 15" HDPE @ 1.14%

MH-4A
4' DIAMETER
TF=258.00
INV IN=255.00 (N)
INV OUT= 255.00 (W)
INV OUT= 255 (E)

FES-401
FLARED END SECTION
INV=259.20
28LF 24" HDPE @ 1.08%

MH-401
4' DIAMETER
TF=266.80
INV IN=262.40 (E)
INV OUT=262.30 (W)

72LF 15" HDPE @ 1.12%

CB-412
TYPE "C-L" CB DBL TYPE I
TF=262.00
INV IN=260.00 (E)
INV IN=260.00 (N)
INV OUT=260.00 (W)

6" HDPE ROOF DRAIN @ 0.50%
MIN. (TYP.)

CB-402
TYPE "C-L"
TF=269.73
INV IN=264.50 (E)
INV IN=266.30 (NE)
INV OUT=263.60 (W)

25LF 15" HDPE @ 1.18%

CB-403
TYPE "C-L"
TF=270.41
INV OUT=266.60 (SW)

196LF 12" HDPE @ 1.02%

CO-401
CLEANOUT
TF=263.16
INV IN=265.00 (N)
INV OUT=262.00 (W)

CB-404
TYPE "C"
TF=277.17
INV IN=268.40 (E)
INV IN=271.00 (N)
INV OUT=266.60 (W)

CO-400
CLEANOUT
TF=277.31
INV OUT=276.15 (E)

26LF 15" HDPE @ 1.17%

CB-405
TYPE "C"
TF=277.47
INV OUT=271.30 (S)

6" HDPE ROOF DRAIN @ 0.50%
MIN. (TYP.)

CB-406
TYPE "C"
TF=275.16
INV IN=271.00 (NE)
INV IN=270.70 (SE)
INV OUT=270.60 (W)

FES-402
FLARED END SECTION
TF=275.19
INV IN=274.00 (W)

PROVIDE AND INSTALL 4" PVC
UNDERDRAIN PIPE @ 0.00%

PROVIDE AND INSTALL
R-4 RIPRAP APRON

CB-411
TYPE "CL"
TF=274.50
INV IN=271.70 (N)
INV IN=271.70 (E)
INV IN=272.30 (SW)
INV OUT=271.60 (NW)

RG-1
RAIN GARDEN

CB-400
TYPE "C" CB DBL TYPE II
TF=266.00
INV IN=261.70 (E)
INV OUT=261.60 (N)
22LF 24" HDPE @ 1.34%

PROVIDE AND INSTALL R-4
RIPRAP DISCHARGE FOR FORBAY
DISCHARGE ELEV. = 260.00

HOS-400
HYDRODYNAMIC SEPERATOR
TF=269.10
INV IN=260.90 (S)
INV OUT=260.90 (W)

PROPOSED
SEDIMENT FORBAY

FES-400
FLARED END SECTION
INV=260.50

CB-200
TYPE "C"
TF=266.82
INV IN=263.75 (E)
INV OUT=263.75 (NE)

CB-208
TYPE "C-L" CB DBL TYPE I
TF=267.10
INV OUT=264.20 (NW)

24LF 15" HDPE @ 0.61%

CB-201
TYPE "C"
TF=266.98
INV IN=263.90 (SE)
INV OUT=263.90 (W)

CO-3
CLEANOUT
TF=264.66
INV OUT=263.50 (NE)

69LF 8" HDPE @ 1.01%

58LF 8" HDPE @ 1.04%

MH-201
4' DIAMETER
TF=268.24
INV IN=263.30 (SW)
INV OUT=263.30 (E)

MH-202
MANHOLE - 4FT DIA (ECC)
TF=264.20
INV IN=262.60 (SW)
INV IN=262.60 (SE)
INV OUT=262.60 (E)

FES-201
24" PIPE CONCRETE
TF=263.19
INV IN=262.00 (W)

MH-200
4' DIAMETER
TF=268.73
INV IN=262.70 (W)
INV IN=264.80 (E)
INV OUT=262.70 (N)

13LF 30" HDPE @ 1.49%

HDS-200
HYDRODYNAMIC SEPERATOR
TF=268.99
INV IN=262.50 (S)
INV OUT=262.50 (N)

25LF 30" HDPE @ 1.02%

FES-200
FLARED END SECTION
INV=262.25

PROVIDE AND INSTALL
R-4 RIPRAP APRON

PROPOSED
SEDIMENT FORBAY

CB-203
TYPE "C"
TF=270.00
INV OUT=266.00 (N)

PROVIDE AND INSTALL R-4 RIPRAP
DISCHARGE FOR SEDIMENT FORBAY
DISCHARGE ELEV. = 262.00

24LF 15" HDPE @ 2.09%

CB-202
TYPE "C"
TF=269.52
INV IN=265.50 (E)
INV IN=265.50 (S)
INV OUT=265.40 (W)

LV-2
LEVEL SPREADER
INV. = 258.25
50 LF 15" PERFORATED HDPE @ 0.00%

MH-2A
4' DIAMETER
TF=261.00
INV IN=258.25 (SE)
INV OUT=258.25 (SW)
INV OUT=258.25 (SE)

35LF 15" HDPE @ 1.01%

OCS-200
OUTLET CONTROL STRUCTURE
TF=264.50
INV IN=260.50 (NE)
INV OUT=258.60 (NW)

PROPOSED EMERGENCY SPILLWAY
DISCHARGE ELEV. = 264.50

MH-203
4' DIAMETER
TF=270.94
INV IN=267.40 (NE)
INV OUT=266.50 (W)

POND 2A
STORMWATER BIORETENTION POND

PROVIDE AND INSTALL 3" PERFORATED HDPE UNDERDRAIN @ 0.00%

PROVIDE AND INSTALL CLEANOUT

CB-204
TYPE "C-L"
TF=272.18
INV IN=268.40 (NE)
INV IN=268.70 (SE)
INV OUT=268.30 (SW)

22LF 15" HDPE @ 1.38%

CB-205
TYPE "C-L"
TF=272.34
INV OUT=269.00 (NW)

CB-206
TYPE "C"
TF=275.00
INV IN=271.50 (SE)
INV OUT=270.40 (SW)

27LF 15" HDPE @ 1.10%

CB-207
TYPE "C"
TF=275.14
INV OUT=271.80 (NW)

POND 1A
STORMWATER DETENTION POND

OCS-1A
TYPE "C-L"
TF=271.80
INV OUT=269.60 (SE)

50LF 15" HDPE @ 1:19%

FES-1A
FLARED END SECTION
INV=269.00

CB-407
TYPE "C"
TF=275.00
INV OUT=271.35 (SW)

33LF 15" HDPE @ 1.06%

RG-2
RAIN GARDEN

PROVIDE AND INSTALL 4" PVC
UNDERDRAIN PIPE @ 0.00%

CB-409
TYPE "C"
TF=276.00
INV IN=272.50 (N)
INV OUT=272.40 (W)

25LF 15" HDPE @ 1.19%

CB-410
TYPE "C"
TF=276.10
INV OUT=272.80 (S)

CB-408
TYPE "C-L"
TF=274.50
INV IN=272.50 (N)
INV OUT=272.50 (S)

Center Groton Road (CT Route 117)
(Public R.O.W. - Variable Width)

Colonel Ledyard Hwy

WA 1 WA 2 WA 3 WA 4 WA 5 WA 6 WA 7 WA 8 WA 9 WA 10 WA 11 WA 12 WA 13 WA 14 WA 15 WA 16 WA 17
WB 1 WB 2 WB 3 WB 4 WB 5 WB 6 WB 7 WB 8
WC 1 WC 2

GRAPHIC SCALE
40 20 0 40
SCALE IN FEET

FOR PERMITTING PURPOSES ONLY
NOT RELEASED FOR CONSTRUCTION

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7/1/2026, JPESTA, G:\JOBS2\2502197\DWG\C2502197-25.DWG,C2.50 24X36 40SC.

Architecture
Engineering
Environmental
Land Surveying
BL Companies
355 Research Parkway
Meriden, CT 06450
(203) 630-1406

STATE OF CONNECTICUT
JOHN SCHUMACHER
33289
LICENSED
PROFESSIONAL ENGINEER

PROPOSED MULTI-FAMILY RESIDENTIAL DEVELOPMENT

1947 CENTER GROTON ROAD
LEDYARD, CT 06339

REVISIONS

No.	Date	Description
1	04/22/2026	REVISED GRADING AND DRAINAGE PER GEOTECHNICAL TESTING
2	05/04/2026	REVISED PER GROTON UTILITIES COMMENTS
3	05/21/2026	REVISED UTILITY PLAN & PER ENGINEERING COMMENTS
4	07/01/2026	REVISED TOWN COMMENTS AND GROTON UTILITIES COMMENTS

Designed	T.R.
Drawn	T.R.
Reviewed	R.M.R.
Scale	1"=40'
Project No.	2502197
Date	04/01/2026
CAD File:	C2502197-25

Title

DRAINAGE PLAN

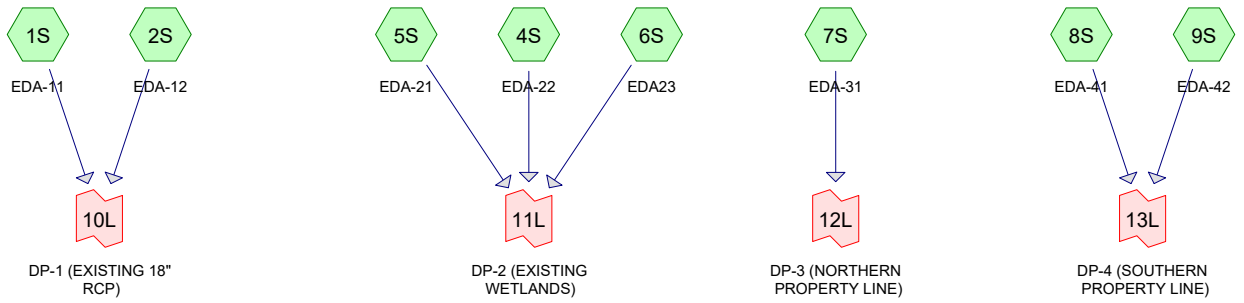
Sheet No.

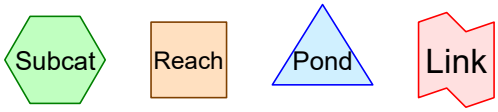
C2.50

Xref (s): ; I:\BS2\2197-00 ; XYZ\2021701 ; XC2021197-25 ; XC2502197-25 ; XC2502197-25

APPENDIX C

PRE-DEVELOPMENT HYDROLOGIC ANALYSIS





Routing Diagram for C-DAT-2502197-EXISTING CONDITIONS
Prepared by BL Companies, Printed 4/22/2026
HydroCAD® 10.20-8a s/n 01334 © 2025 HydroCAD Software Solutions LLC

Project Notes

Copied 7 events from CT-LEDYARD-NOAA 24-hr S1 storm
Copied 7 events from CT-LEDYARD-NOAA 24-hr S1 storm
Defined 7 rainfall events from CT-LEDYARD-NOAA IDF
Defined 7 rainfall events from CT-LEDYARD-NOAA IDF
Copied 7 events from CT-LEDYARD-NOAA 24-hr S1 storm
Copied 7 events from CT-LEDYARD-NOAA10 24-hr S1 storm
Defined 7 rainfall events from CT-LEDYARD-NOAA10 IDF

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	NOAA10 24-hr	D	Default	24.00	1	2.90	2
2	2-yr	NOAA10 24-hr	D	Default	24.00	1	3.46	2
3	5-yr	NOAA10 24-hr	D	Default	24.00	1	4.36	2
4	10-yr	NOAA10 24-hr	D	Default	24.00	1	5.11	2
5	25-yr	NOAA10 24-hr	D	Default	24.00	1	6.15	2
6	50-yr	NOAA10 24-hr	D	Default	24.00	1	6.92	2
7	100-yr	NOAA10 24-hr	D	Default	24.00	1	7.74	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
2,334	98	Paved parking, HSG D (1S)
381,680	60	Woods, Fair, HSG B (1S, 2S, 4S, 5S, 6S, 7S, 8S, 9S)
88,271	79	Woods, Fair, HSG D (4S, 5S, 8S)
15,463	83	Woods, Poor, HSG D (6S)
487,748	**64**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
381,680	HSG B	1S, 2S, 4S, 5S, 6S, 7S, 8S, 9S
0	HSG C	
106,068	HSG D	1S, 4S, 5S, 6S, 8S
0	Other	
487,748		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Subcatchmen Numbers
0	0	0	2,334	0	2,334	Paved parking	1
0	381,680	0	88,271	0	469,951	Woods, Fair	1
0	0	0	15,463	0	15,463	Woods, Poor	6
0	**381,680**	**0**	**106,068**	**0**	**487,748**	**TOTAL AREA**	

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

Subcatchment1S: EDA-11 Runoff Area=89,063 sf 2.62% Impervious Runoff Depth>0.25"
Flow Length=450' Tc=23.2 min CN=61 Runoff=0.23 cfs 1,892 cf

Subcatchment2S: EDA-12 Runoff Area=25,568 sf 0.00% Impervious Runoff Depth>0.23"
Flow Length=339' Tc=11.1 min CN=60 Runoff=0.08 cfs 496 cf

Subcatchment4S: EDA-22 Runoff Area=152,549 sf 0.00% Impervious Runoff Depth>0.31"
Flow Length=702' Tc=21.3 min CN=63 Runoff=0.60 cfs 3,957 cf

Subcatchment5S: EDA-21 Runoff Area=73,050 sf 0.00% Impervious Runoff Depth>0.56"
Flow Length=523' Tc=5.0 min CN=70 Runoff=1.23 cfs 3,394 cf

Subcatchment6S: EDA23 Runoff Area=20,150 sf 0.00% Impervious Runoff Depth>0.92"
Flow Length=369' Tc=8.2 min CN=78 Runoff=0.53 cfs 1,550 cf

Subcatchment7S: EDA-31 Runoff Area=13,468 sf 0.00% Impervious Runoff Depth>0.23"
Flow Length=111' Tc=6.5 min CN=60 Runoff=0.05 cfs 263 cf

Subcatchment8S: EDA-41 Runoff Area=69,521 sf 0.00% Impervious Runoff Depth>0.44"
Flow Length=362' Tc=16.3 min CN=67 Runoff=0.55 cfs 2,555 cf

Subcatchment9S: EDA-42 Runoff Area=44,379 sf 0.00% Impervious Runoff Depth>0.23"
Flow Length=212' Tc=17.6 min CN=60 Runoff=0.11 cfs 854 cf

Link 10L: DP-1 (EXISTING 18" RCP) Inflow=0.28 cfs 2,388 cf
Primary=0.28 cfs 2,388 cf

Link 11L: DP-2 (EXISTING WETLANDS) Inflow=1.86 cfs 8,901 cf
Primary=1.86 cfs 8,901 cf

Link 12L: DP-3 (NORTHERN PROPERTY LINE) Inflow=0.05 cfs 263 cf
Primary=0.05 cfs 263 cf

Link 13L: DP-4 (SOUTHERN PROPERTY LINE) Inflow=0.65 cfs 3,409 cf
Primary=0.65 cfs 3,409 cf

Total Runoff Area = 487,748 sf Runoff Volume = 14,961 cf Average Runoff Depth = 0.37"
99.52% Pervious = 485,414 sf 0.48% Impervious = 2,334 sf

Summary for Subcatchment 1S: EDA-11

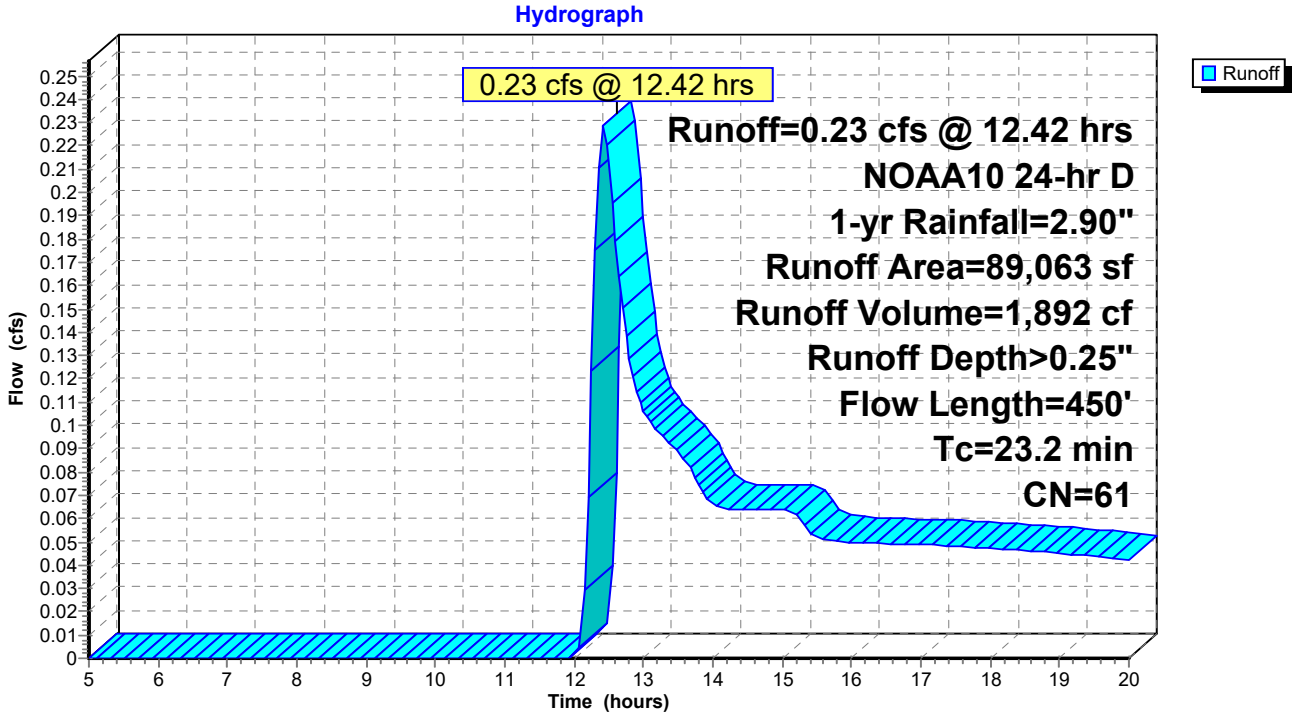
Runoff = 0.23 cfs @ 12.42 hrs, Volume= 1,892 cf, Depth> 0.25"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
86,729	60	Woods, Fair, HSG B
2,334	98	Paved parking, HSG D
89,063	61	Weighted Average
86,729		97.38% Pervious Area
2,334		2.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	95	0.0316	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
6.7	355	0.0310	0.88		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
23.2	450	Total			

Subcatchment 1S: EDA-11



Summary for Subcatchment 2S: EDA-12

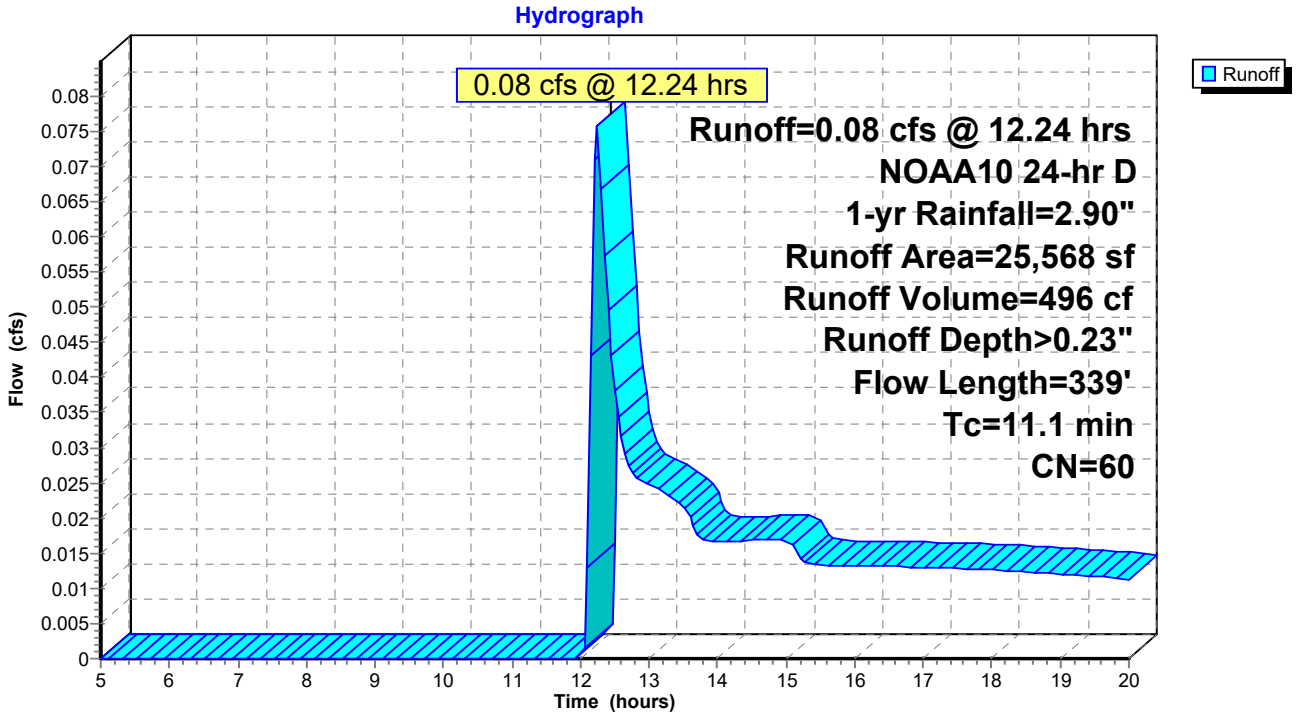
Runoff = 0.08 cfs @ 12.24 hrs, Volume= 496 cf, Depth> 0.23"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
25,568	60	Woods, Fair, HSG B
25,568		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	25	0.0480	0.09		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
0.6	65	0.1538	1.96		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
5.7	249	0.0210	0.72		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
11.1	339	Total			

Subcatchment 2S: EDA-12



Summary for Subcatchment 4S: EDA-22

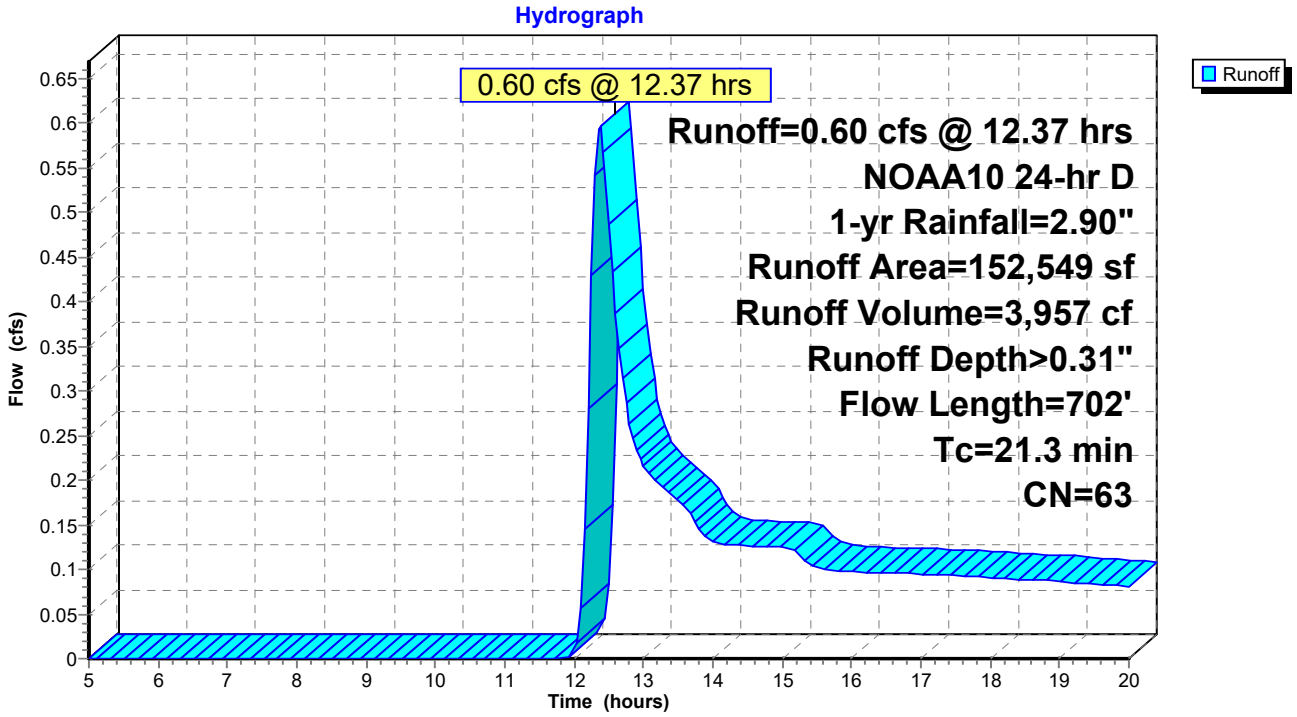
Runoff = 0.60 cfs @ 12.37 hrs, Volume= 3,957 cf, Depth> 0.31"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
126,832	60	Woods, Fair, HSG B
25,717	79	Woods, Fair, HSG D
152,549	63	Weighted Average
152,549		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	50	0.0275	0.08		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
10.9	652	0.0400	1.00		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
21.3	702	Total			

Subcatchment 4S: EDA-22



Summary for Subcatchment 5S: EDA-21

[49] Hint: Tc<2dt may require smaller dt

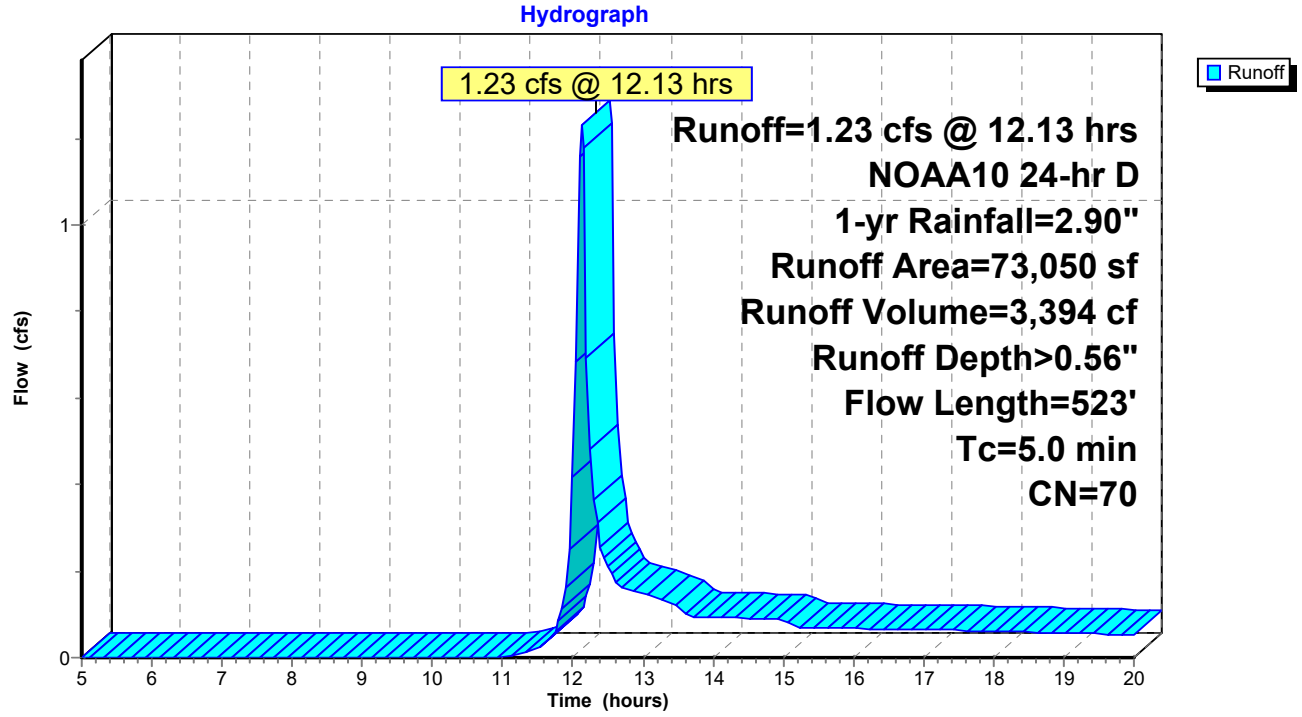
Runoff = 1.23 cfs @ 12.13 hrs, Volume= 3,394 cf, Depth> 0.56"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
35,444	60	Woods, Fair, HSG B
37,606	79	Woods, Fair, HSG D
73,050	70	Weighted Average
73,050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	5	0.1000	0.08		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
0.2	48	0.4300	3.28		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
2.8	470	0.3125	2.80		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
4.0	523	Total, Increased to minimum Tc = 5.0 min			

Subcatchment 5S: EDA-21



Summary for Subcatchment 6S: EDA23

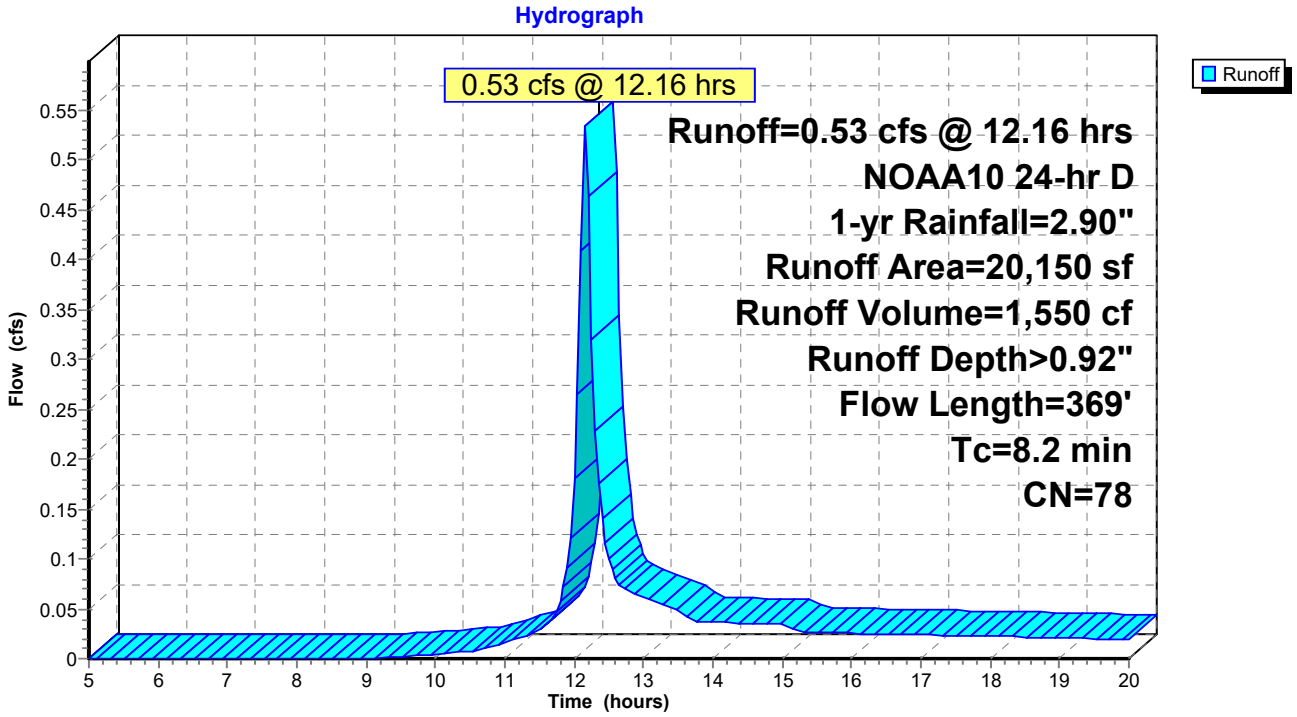
Runoff = 0.53 cfs @ 12.16 hrs, Volume= 1,550 cf, Depth> 0.92"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
4,687	60	Woods, Fair, HSG B
15,463	83	Woods, Poor, HSG D
20,150	78	Weighted Average
20,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	14	0.0357	0.07		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
4.8	355	0.0620	1.24		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
8.2	369	Total			

Subcatchment 6S: EDA23



Summary for Subcatchment 7S: EDA-31

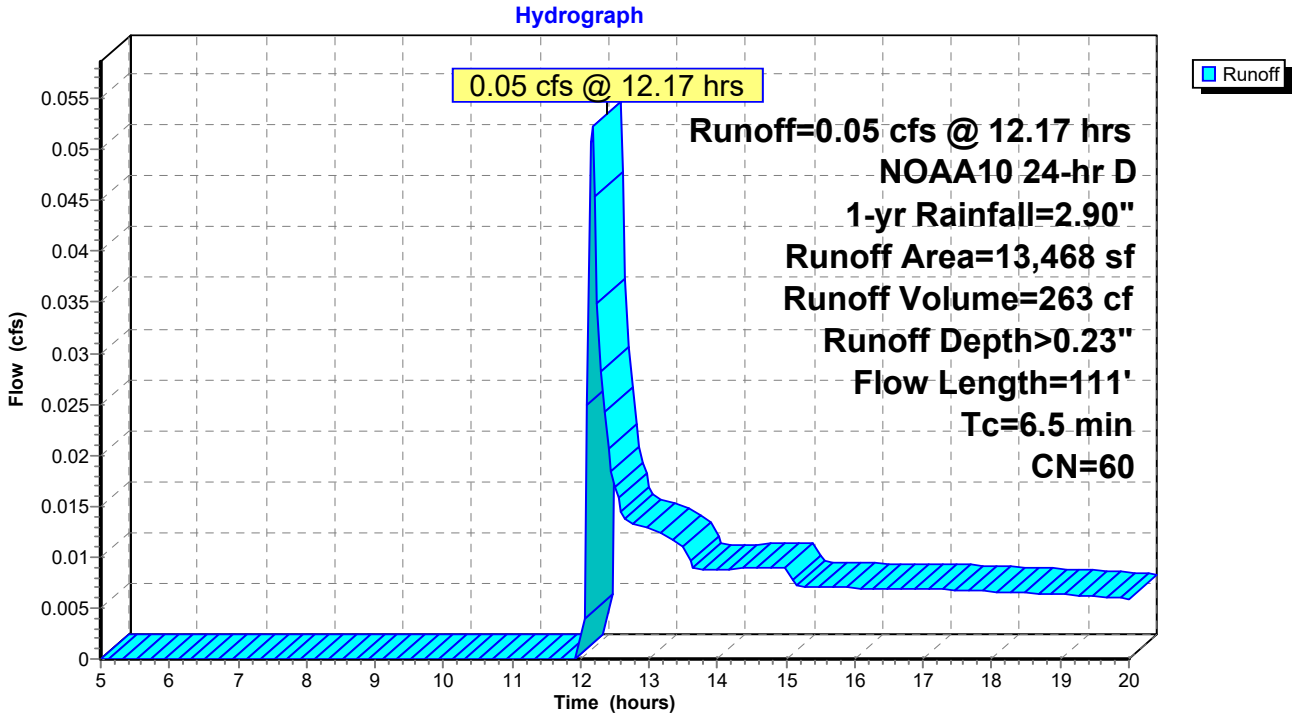
Runoff = 0.05 cfs @ 12.17 hrs, Volume= 263 cf, Depth> 0.23"
Routed to Link 12L : DP-3 (NORTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
13,468	60	Woods, Fair, HSG B
13,468		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	38	0.1000	0.13		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
1.5	73	0.0274	0.83		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
6.5	111	Total			

Subcatchment 7S: EDA-31



Summary for Subcatchment 8S: EDA-41

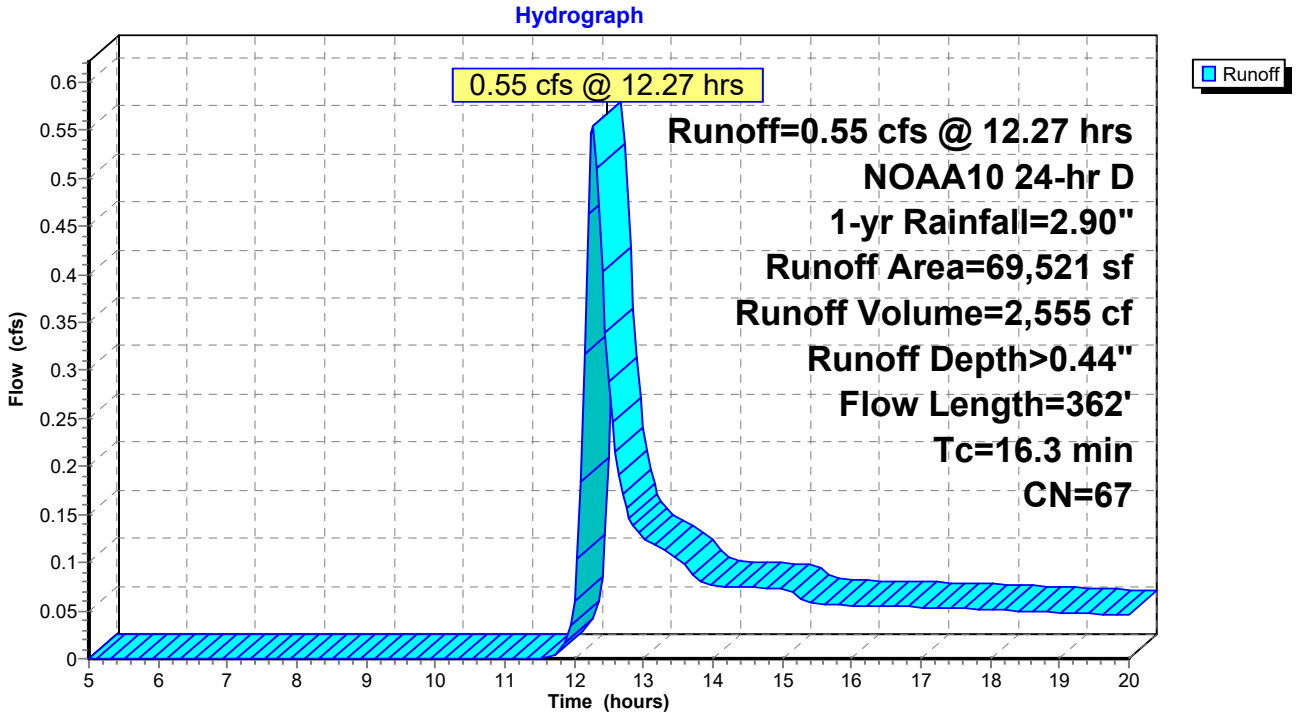
Runoff = 0.55 cfs @ 12.27 hrs, Volume= 2,555 cf, Depth> 0.44"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
44,573	60	Woods, Fair, HSG B
24,948	79	Woods, Fair, HSG D
69,521	67	Weighted Average
69,521		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	79	0.0380	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
3.1	283	0.0919	1.52		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
16.3	362	Total			

Subcatchment 8S: EDA-41



Summary for Subcatchment 9S: EDA-42

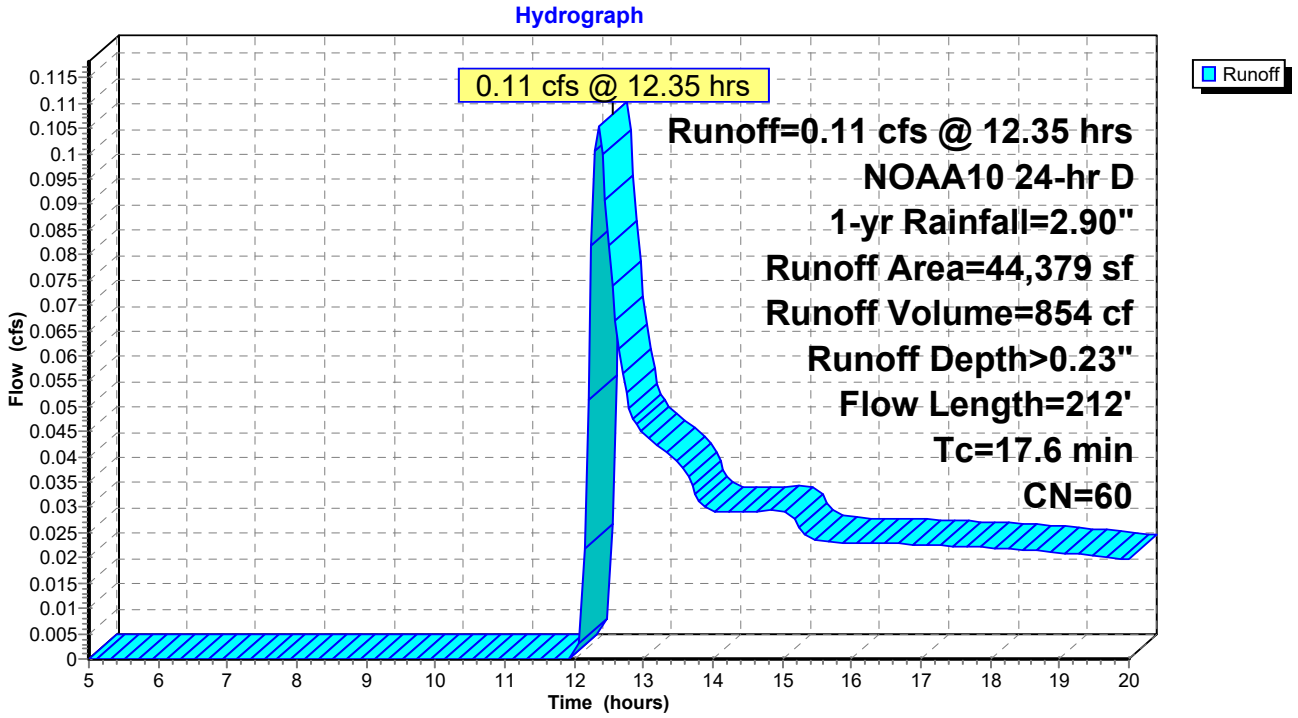
Runoff = 0.11 cfs @ 12.35 hrs, Volume= 854 cf, Depth> 0.23"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
44,379	60	Woods, Fair, HSG B
44,379		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	96	0.0365	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
1.9	116	0.0431	1.04		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
17.6	212	Total			

Subcatchment 9S: EDA-42

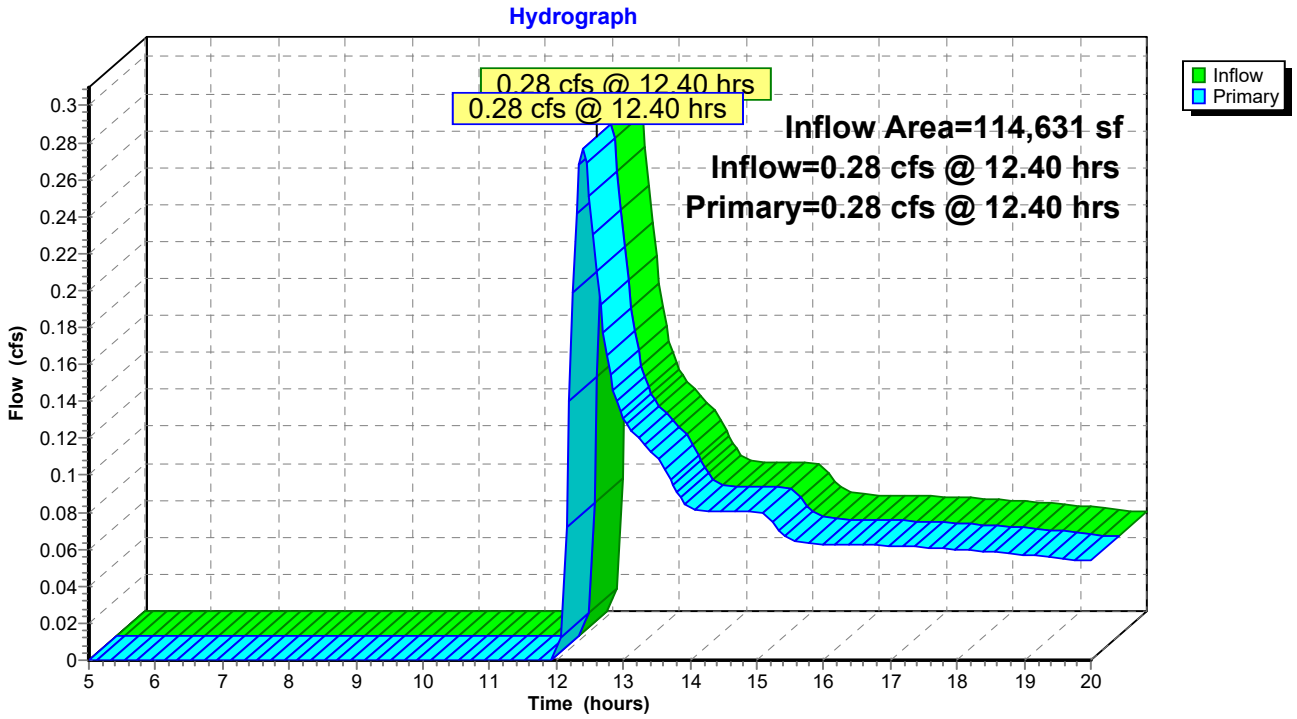


Summary for Link 10L: DP-1 (EXISTING 18" RCP)

Inflow Area = 114,631 sf, 2.04% Impervious, Inflow Depth > 0.25" for 1-yr event
Inflow = 0.28 cfs @ 12.40 hrs, Volume= 2,388 cf
Primary = 0.28 cfs @ 12.40 hrs, Volume= 2,388 cf, Atten= 0%, Lag= 0.0 min

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

Link 10L: DP-1 (EXISTING 18" RCP)

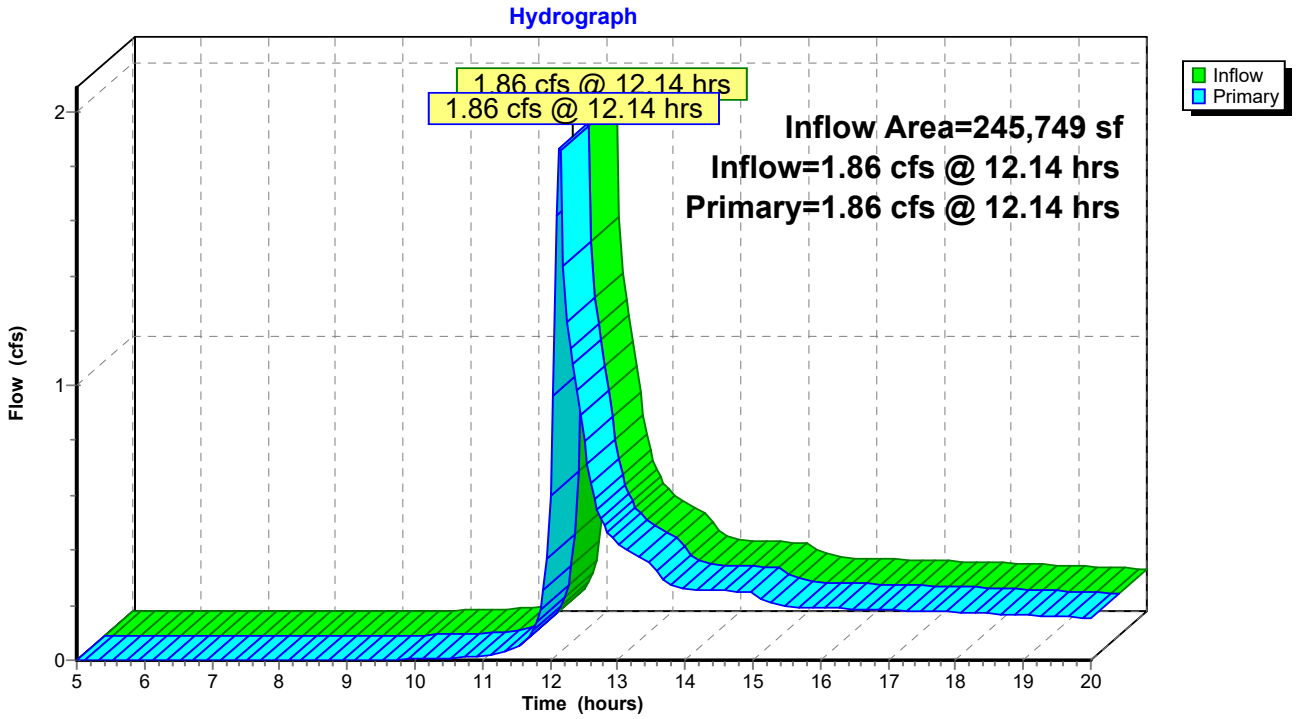


Summary for Link 11L: DP-2 (EXISTING WETLANDS)

Inflow Area = 245,749 sf, 0.00% Impervious, Inflow Depth > 0.43" for 1-yr event
Inflow = 1.86 cfs @ 12.14 hrs, Volume= 8,901 cf
Primary = 1.86 cfs @ 12.14 hrs, Volume= 8,901 cf, Atten= 0%, Lag= 0.0 min

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

Link 11L: DP-2 (EXISTING WETLANDS)

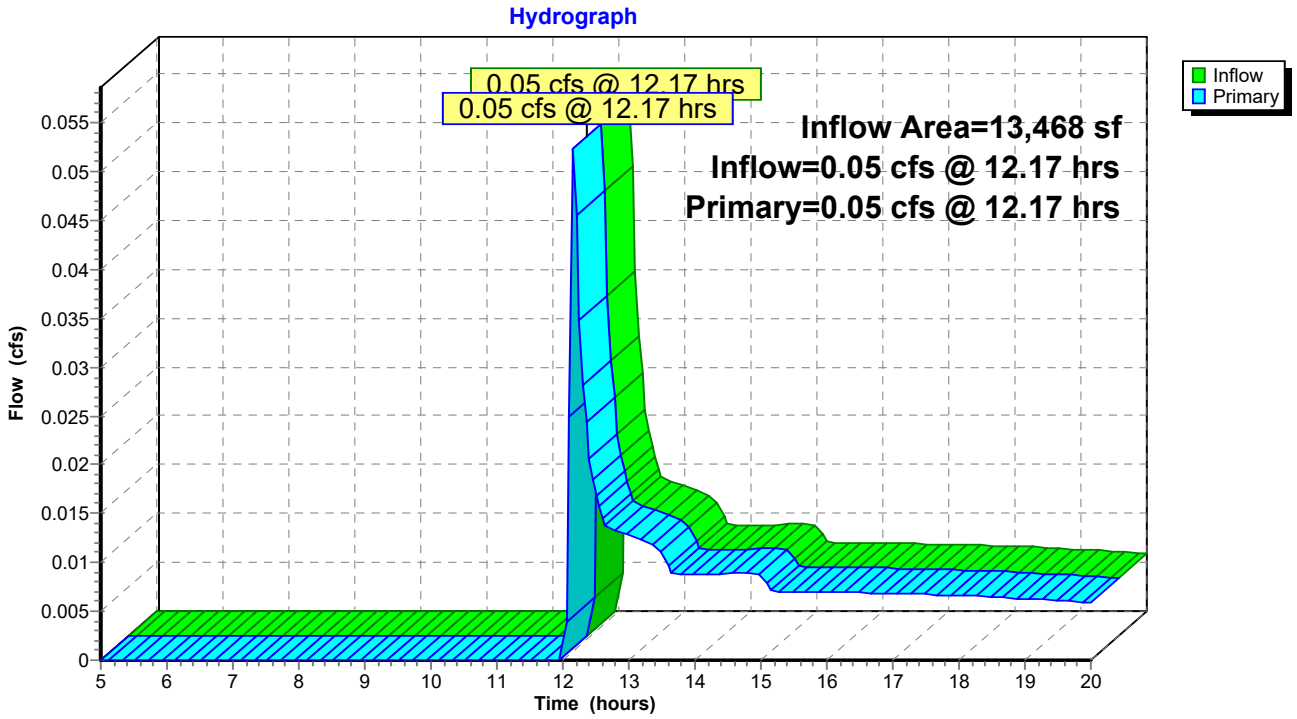


Summary for Link 12L: DP-3 (NORTHERN PROPERTY LINE)

Inflow Area = 13,468 sf, 0.00% Impervious, Inflow Depth > 0.23" for 1-yr event
Inflow = 0.05 cfs @ 12.17 hrs, Volume= 263 cf
Primary = 0.05 cfs @ 12.17 hrs, Volume= 263 cf, Atten= 0%, Lag= 0.0 min

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

Link 12L: DP-3 (NORTHERN PROPERTY LINE)

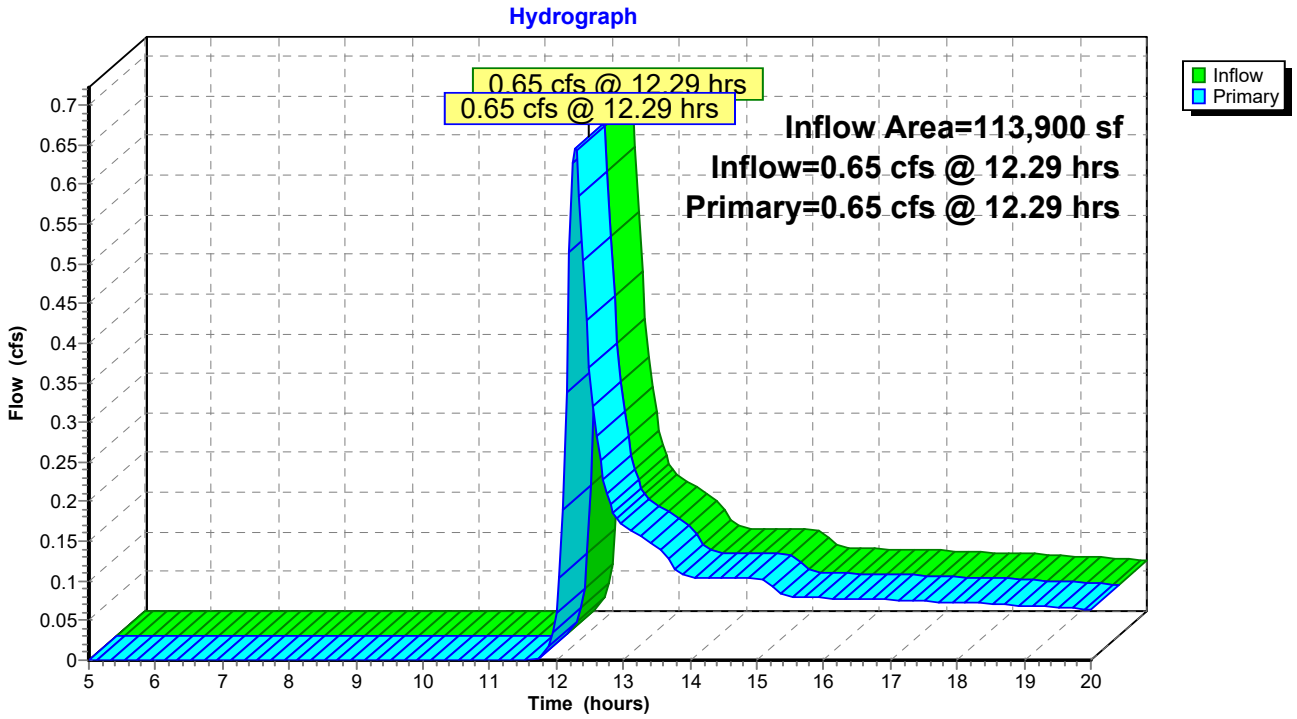


Summary for Link 13L: DP-4 (SOUTHERN PROPERTY LINE)

Inflow Area = 113,900 sf, 0.00% Impervious, Inflow Depth > 0.36" for 1-yr event
Inflow = 0.65 cfs @ 12.29 hrs, Volume= 3,409 cf
Primary = 0.65 cfs @ 12.29 hrs, Volume= 3,409 cf, Atten= 0%, Lag= 0.0 min

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

Link 13L: DP-4 (SOUTHERN PROPERTY LINE)



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

Subcatchment1S: EDA-11 Runoff Area=89,063 sf 2.62% Impervious Runoff Depth>0.45"
Flow Length=450' Tc=23.2 min CN=61 Runoff=0.54 cfs 3,321 cf

Subcatchment2S: EDA-12 Runoff Area=25,568 sf 0.00% Impervious Runoff Depth>0.42"
Flow Length=339' Tc=11.1 min CN=60 Runoff=0.21 cfs 889 cf

Subcatchment4S: EDA-22 Runoff Area=152,549 sf 0.00% Impervious Runoff Depth>0.52"
Flow Length=702' Tc=21.3 min CN=63 Runoff=1.24 cfs 6,664 cf

Subcatchment5S: EDA-21 Runoff Area=73,050 sf 0.00% Impervious Runoff Depth>0.85"
Flow Length=523' Tc=5.0 min CN=70 Runoff=1.94 cfs 5,145 cf

Subcatchment6S: EDA23 Runoff Area=20,150 sf 0.00% Impervious Runoff Depth>1.29"
Flow Length=369' Tc=8.2 min CN=78 Runoff=0.75 cfs 2,170 cf

Subcatchment7S: EDA-31 Runoff Area=13,468 sf 0.00% Impervious Runoff Depth>0.42"
Flow Length=111' Tc=6.5 min CN=60 Runoff=0.14 cfs 470 cf

Subcatchment8S: EDA-41 Runoff Area=69,521 sf 0.00% Impervious Runoff Depth>0.70"
Flow Length=362' Tc=16.3 min CN=67 Runoff=0.96 cfs 4,031 cf

Subcatchment9S: EDA-42 Runoff Area=44,379 sf 0.00% Impervious Runoff Depth>0.41"
Flow Length=212' Tc=17.6 min CN=60 Runoff=0.28 cfs 1,532 cf

Link 10L: DP-1 (EXISTING 18" RCP) Inflow=0.66 cfs 4,210 cf
Primary=0.66 cfs 4,210 cf

Link 11L: DP-2 (EXISTING WETLANDS) Inflow=3.09 cfs 13,979 cf
Primary=3.09 cfs 13,979 cf

Link 12L: DP-3 (NORTHERN PROPERTY LINE) Inflow=0.14 cfs 470 cf
Primary=0.14 cfs 470 cf

Link 13L: DP-4 (SOUTHERN PROPERTY LINE) Inflow=1.23 cfs 5,563 cf
Primary=1.23 cfs 5,563 cf

Total Runoff Area = 487,748 sf Runoff Volume = 24,223 cf Average Runoff Depth = 0.60"
99.52% Pervious = 485,414 sf 0.48% Impervious = 2,334 sf

Summary for Subcatchment 1S: EDA-11

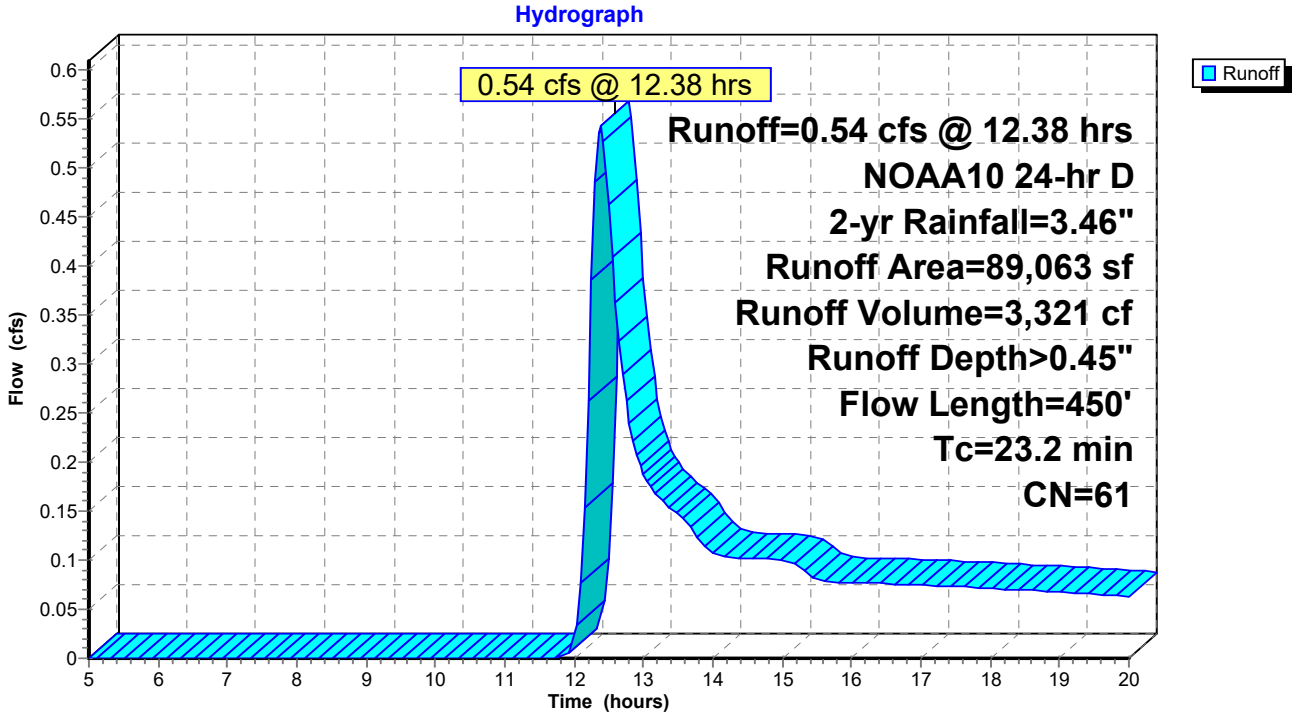
Runoff = 0.54 cfs @ 12.38 hrs, Volume= 3,321 cf, Depth> 0.45"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
86,729	60	Woods, Fair, HSG B
2,334	98	Paved parking, HSG D
89,063	61	Weighted Average
86,729		97.38% Pervious Area
2,334		2.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	95	0.0316	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
6.7	355	0.0310	0.88		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
23.2	450	Total			

Subcatchment 1S: EDA-11



Summary for Subcatchment 2S: EDA-12

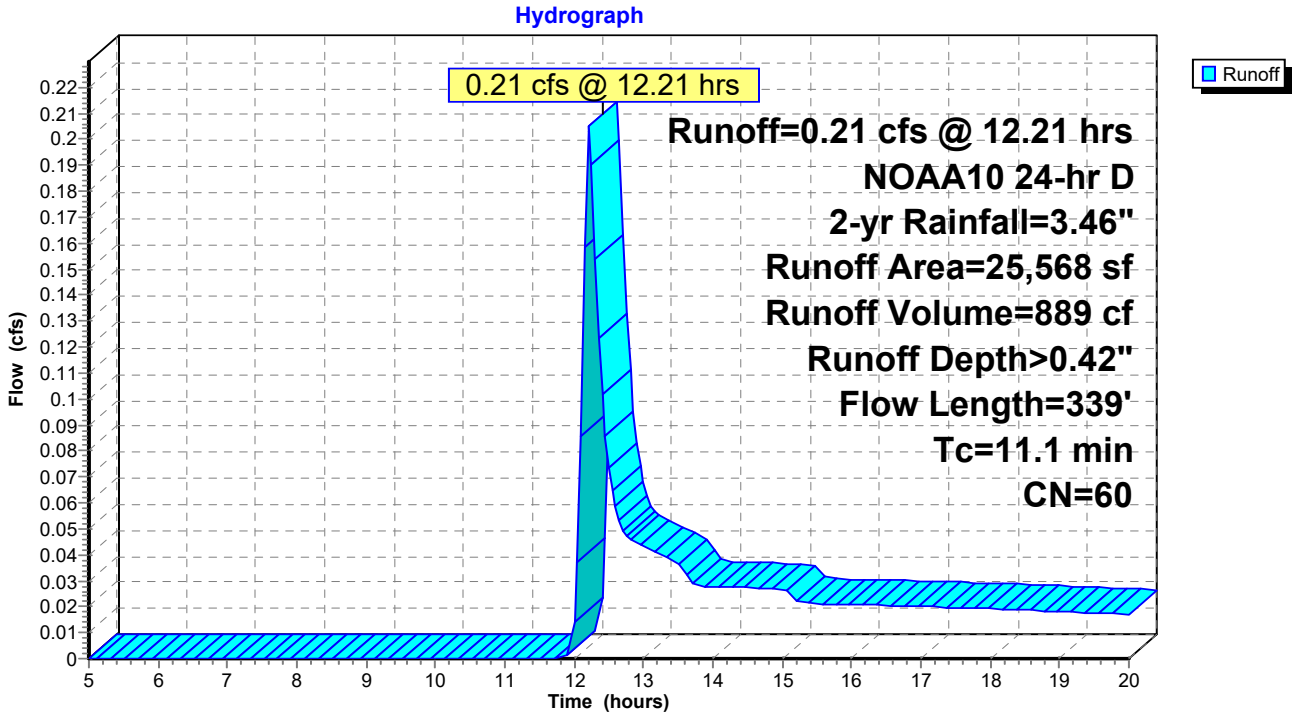
Runoff = 0.21 cfs @ 12.21 hrs, Volume= 889 cf, Depth> 0.42"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
25,568	60	Woods, Fair, HSG B
25,568		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	25	0.0480	0.09		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
0.6	65	0.1538	1.96		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
5.7	249	0.0210	0.72		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
11.1	339	Total			

Subcatchment 2S: EDA-12



Summary for Subcatchment 4S: EDA-22

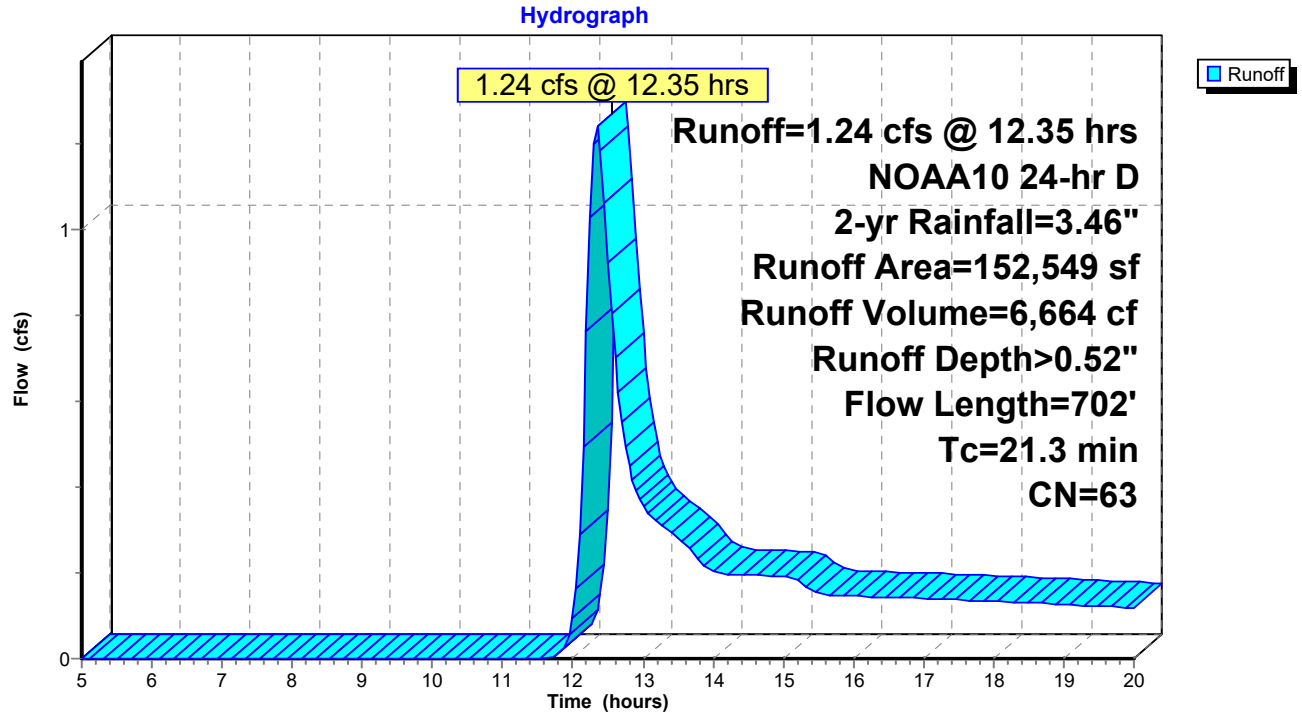
Runoff = 1.24 cfs @ 12.35 hrs, Volume= 6,664 cf, Depth> 0.52"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
126,832	60	Woods, Fair, HSG B
25,717	79	Woods, Fair, HSG D
152,549	63	Weighted Average
152,549		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	50	0.0275	0.08		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
10.9	652	0.0400	1.00		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
21.3	702	Total			

Subcatchment 4S: EDA-22



Summary for Subcatchment 5S: EDA-21

[49] Hint: Tc<2dt may require smaller dt

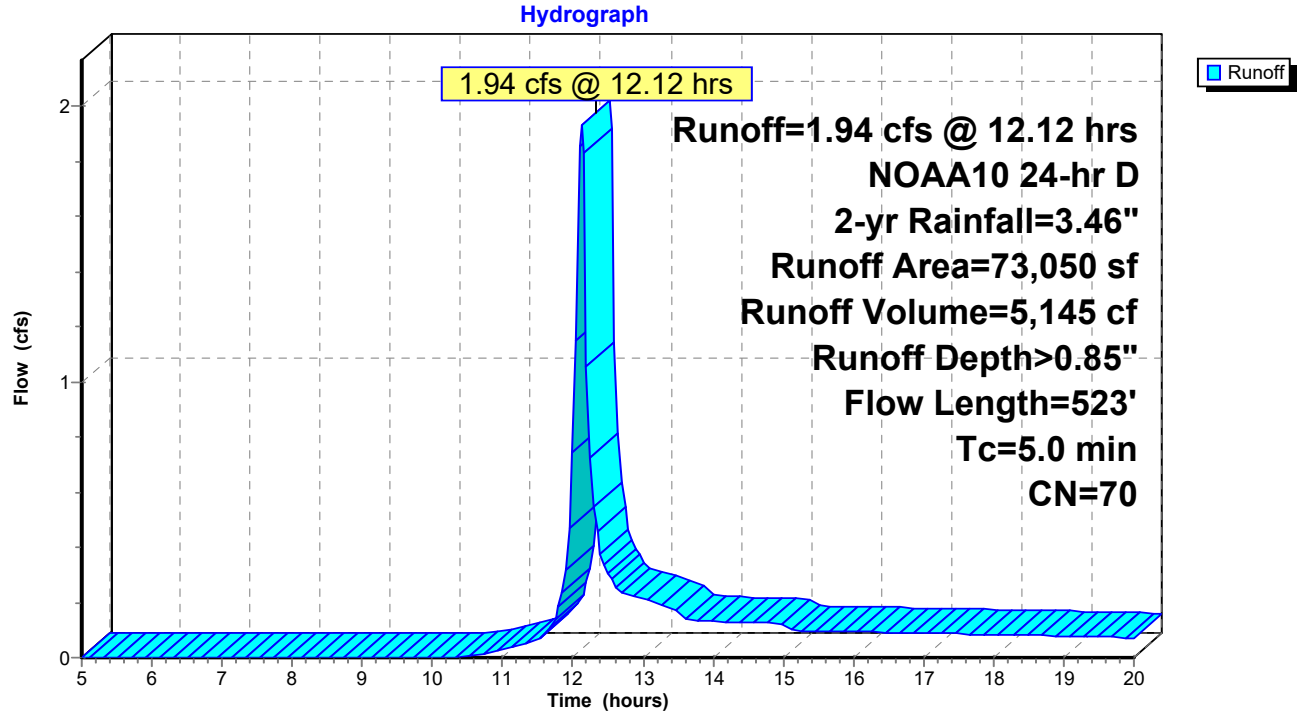
Runoff = 1.94 cfs @ 12.12 hrs, Volume= 5,145 cf, Depth> 0.85"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
35,444	60	Woods, Fair, HSG B
37,606	79	Woods, Fair, HSG D
73,050	70	Weighted Average
73,050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	5	0.1000	0.08		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
0.2	48	0.4300	3.28		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
2.8	470	0.3125	2.80		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
4.0	523	Total, Increased to minimum Tc = 5.0 min			

Subcatchment 5S: EDA-21



Summary for Subcatchment 6S: EDA23

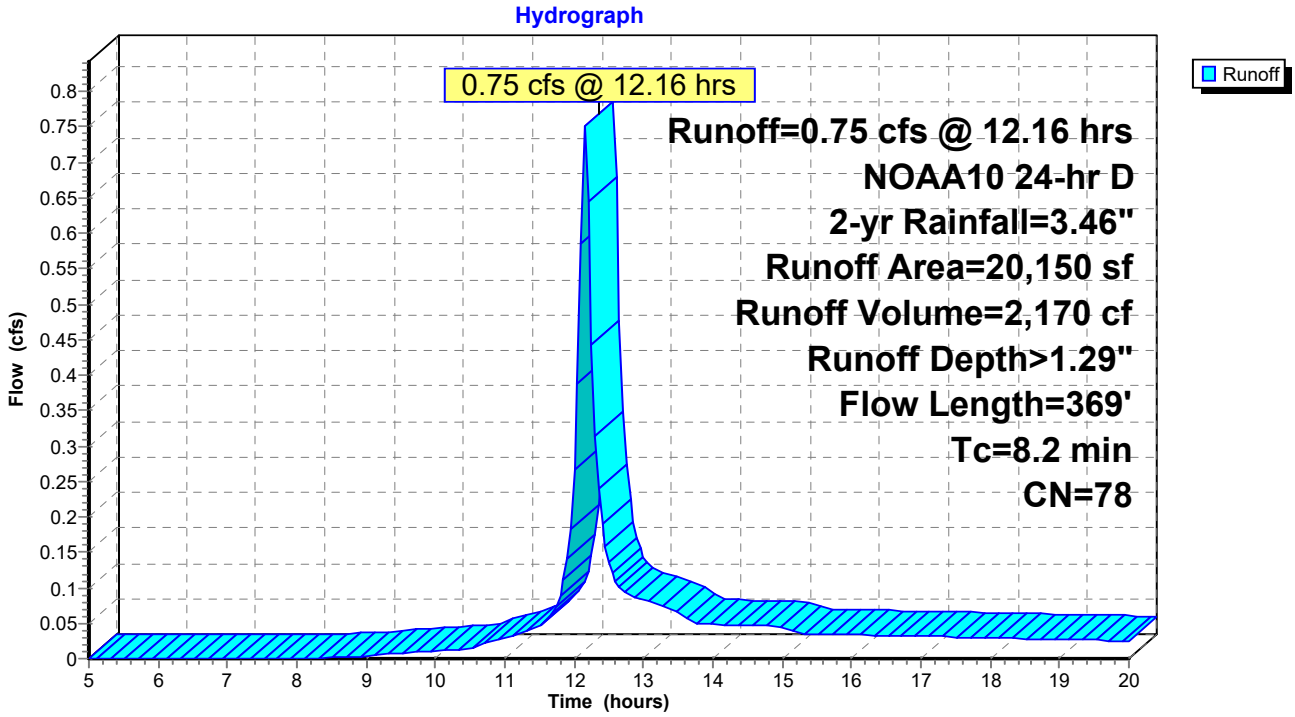
Runoff = 0.75 cfs @ 12.16 hrs, Volume= 2,170 cf, Depth> 1.29"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
4,687	60	Woods, Fair, HSG B
15,463	83	Woods, Poor, HSG D
20,150	78	Weighted Average
20,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	14	0.0357	0.07		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
4.8	355	0.0620	1.24		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
8.2	369	Total			

Subcatchment 6S: EDA23



Summary for Subcatchment 7S: EDA-31

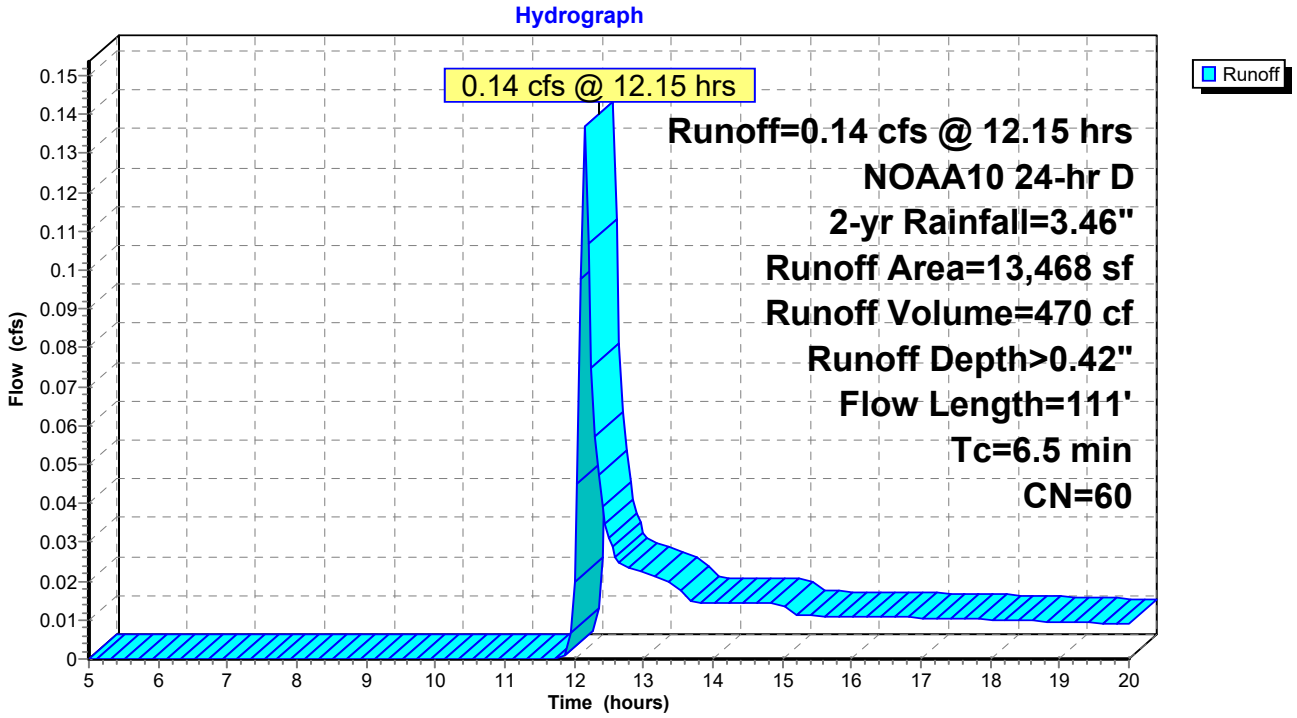
Runoff = 0.14 cfs @ 12.15 hrs, Volume= 470 cf, Depth> 0.42"
Routed to Link 12L : DP-3 (NORTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
13,468	60	Woods, Fair, HSG B
13,468		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	38	0.1000	0.13		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
1.5	73	0.0274	0.83		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
6.5	111	Total			

Subcatchment 7S: EDA-31



Summary for Subcatchment 8S: EDA-41

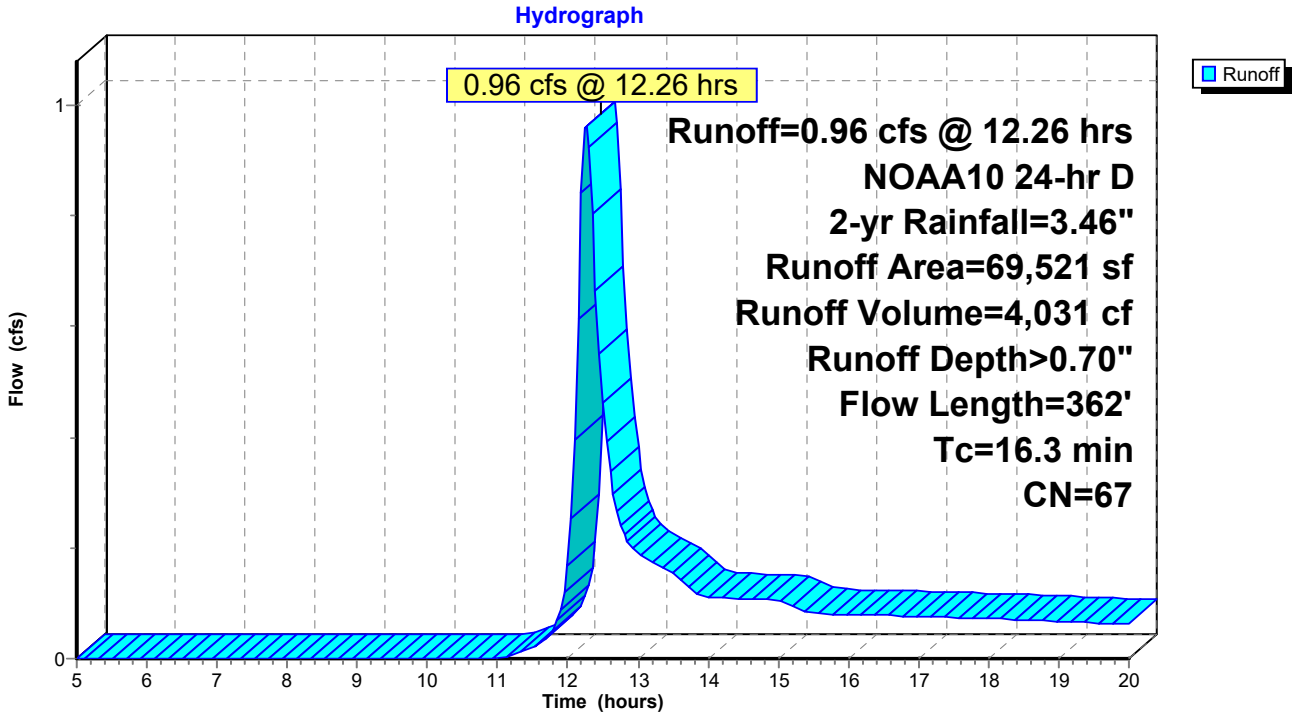
Runoff = 0.96 cfs @ 12.26 hrs, Volume= 4,031 cf, Depth> 0.70"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
44,573	60	Woods, Fair, HSG B
24,948	79	Woods, Fair, HSG D
69,521	67	Weighted Average
69,521		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	79	0.0380	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
3.1	283	0.0919	1.52		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
16.3	362	Total			

Subcatchment 8S: EDA-41



Summary for Subcatchment 9S: EDA-42

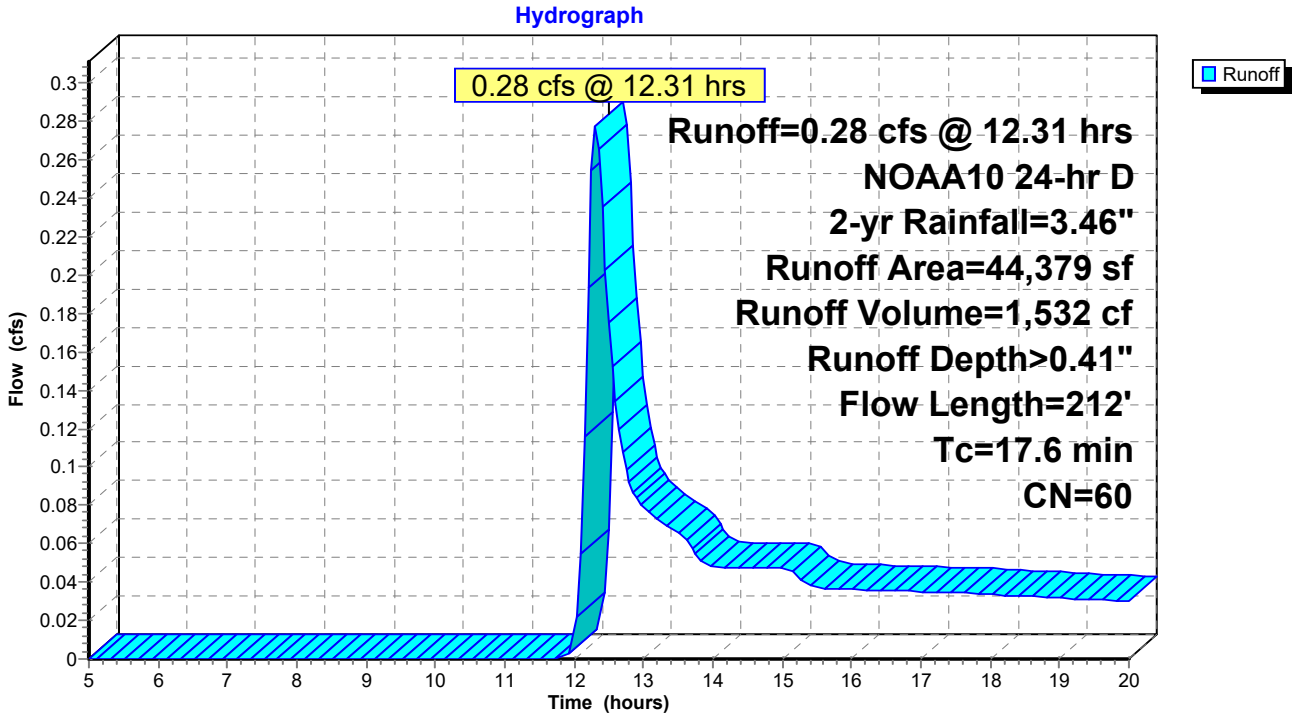
Runoff = 0.28 cfs @ 12.31 hrs, Volume= 1,532 cf, Depth> 0.41"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
44,379	60	Woods, Fair, HSG B
44,379		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	96	0.0365	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
1.9	116	0.0431	1.04		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
17.6	212	Total			

Subcatchment 9S: EDA-42

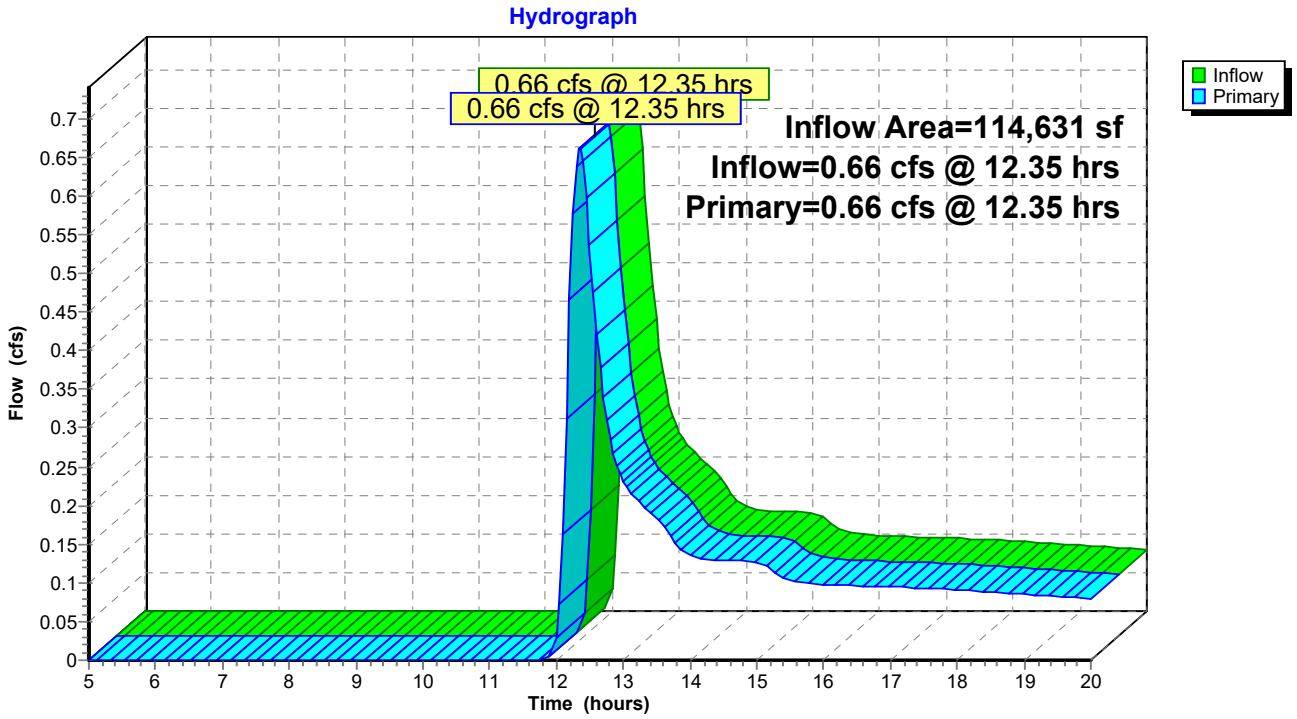


Summary for Link 10L: DP-1 (EXISTING 18" RCP)

Inflow Area = 114,631 sf, 2.04% Impervious, Inflow Depth > 0.44" for 2-yr event
Inflow = 0.66 cfs @ 12.35 hrs, Volume= 4,210 cf
Primary = 0.66 cfs @ 12.35 hrs, Volume= 4,210 cf, Atten= 0%, Lag= 0.0 min

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

Link 10L: DP-1 (EXISTING 18" RCP)

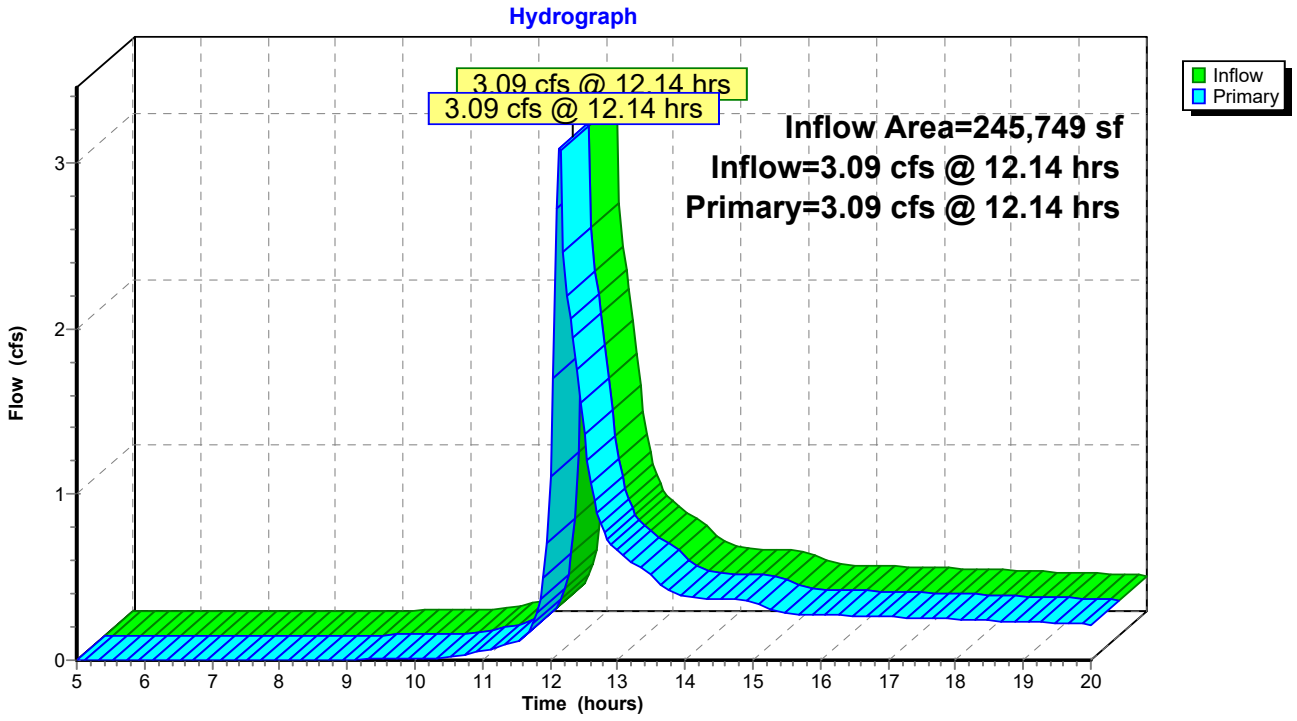


Summary for Link 11L: DP-2 (EXISTING WETLANDS)

Inflow Area = 245,749 sf, 0.00% Impervious, Inflow Depth > 0.68" for 2-yr event
Inflow = 3.09 cfs @ 12.14 hrs, Volume= 13,979 cf
Primary = 3.09 cfs @ 12.14 hrs, Volume= 13,979 cf, Atten= 0%, Lag= 0.0 min

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

Link 11L: DP-2 (EXISTING WETLANDS)

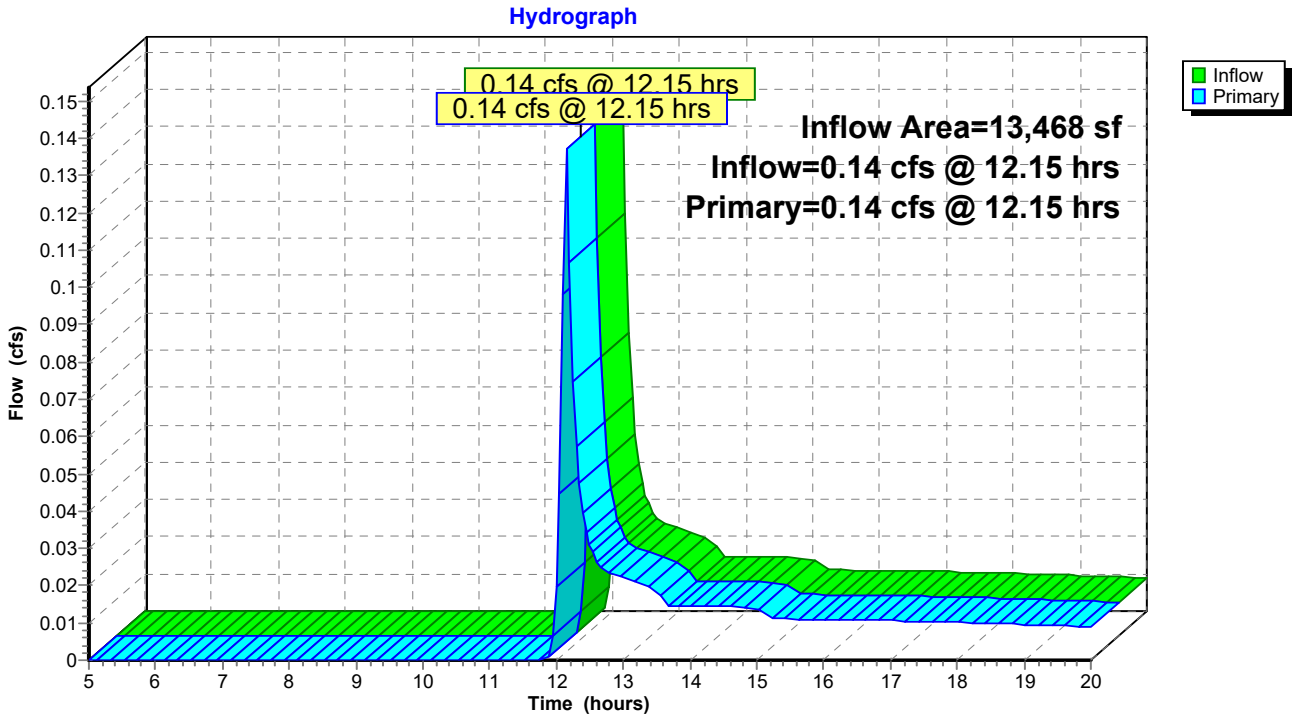


Summary for Link 12L: DP-3 (NORTHERN PROPERTY LINE)

Inflow Area = 13,468 sf, 0.00% Impervious, Inflow Depth > 0.42" for 2-yr event
Inflow = 0.14 cfs @ 12.15 hrs, Volume= 470 cf
Primary = 0.14 cfs @ 12.15 hrs, Volume= 470 cf, Atten= 0%, Lag= 0.0 min

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

Link 12L: DP-3 (NORTHERN PROPERTY LINE)

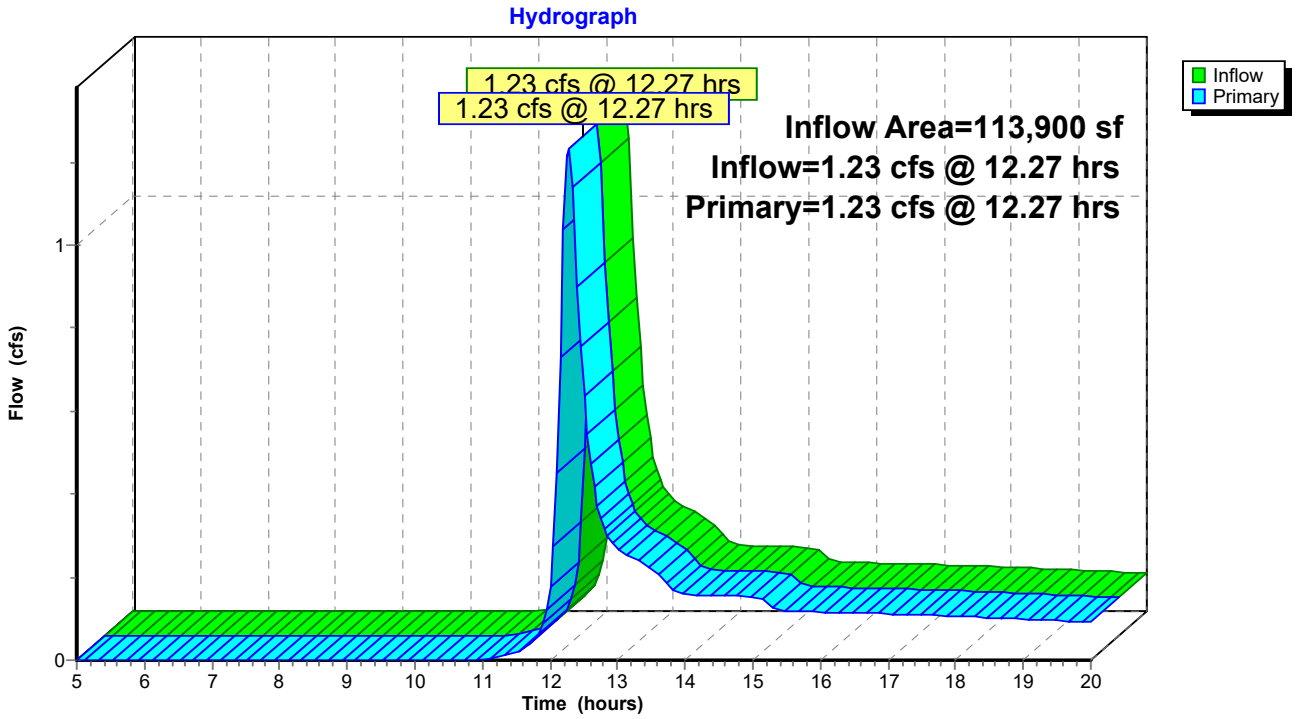


Summary for Link 13L: DP-4 (SOUTHERN PROPERTY LINE)

Inflow Area = 113,900 sf, 0.00% Impervious, Inflow Depth > 0.59" for 2-yr event
Inflow = 1.23 cfs @ 12.27 hrs, Volume= 5,563 cf
Primary = 1.23 cfs @ 12.27 hrs, Volume= 5,563 cf, Atten= 0%, Lag= 0.0 min

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

Link 13L: DP-4 (SOUTHERN PROPERTY LINE)



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

Subcatchment1S: EDA-11 Runoff Area=89,063 sf 2.62% Impervious Runoff Depth>0.83"
Flow Length=450' Tc=23.2 min CN=61 Runoff=1.21 cfs 6,194 cf

Subcatchment2S: EDA-12 Runoff Area=25,568 sf 0.00% Impervious Runoff Depth>0.79"
Flow Length=339' Tc=11.1 min CN=60 Runoff=0.47 cfs 1,687 cf

Subcatchment4S: EDA-22 Runoff Area=152,549 sf 0.00% Impervious Runoff Depth>0.94"
Flow Length=702' Tc=21.3 min CN=63 Runoff=2.52 cfs 11,986 cf

Subcatchment5S: EDA-21 Runoff Area=73,050 sf 0.00% Impervious Runoff Depth>1.38"
Flow Length=523' Tc=5.0 min CN=70 Runoff=3.22 cfs 8,377 cf

Subcatchment6S: EDA23 Runoff Area=20,150 sf 0.00% Impervious Runoff Depth>1.94"
Flow Length=369' Tc=8.2 min CN=78 Runoff=1.12 cfs 3,255 cf

Subcatchment7S: EDA-31 Runoff Area=13,468 sf 0.00% Impervious Runoff Depth>0.80"
Flow Length=111' Tc=6.5 min CN=60 Runoff=0.31 cfs 892 cf

Subcatchment8S: EDA-41 Runoff Area=69,521 sf 0.00% Impervious Runoff Depth>1.18"
Flow Length=362' Tc=16.3 min CN=67 Runoff=1.72 cfs 6,823 cf

Subcatchment9S: EDA-42 Runoff Area=44,379 sf 0.00% Impervious Runoff Depth>0.79"
Flow Length=212' Tc=17.6 min CN=60 Runoff=0.64 cfs 2,911 cf

Link 10L: DP-1 (EXISTING 18" RCP) Inflow=1.47 cfs 7,881 cf
Primary=1.47 cfs 7,881 cf

Link 11L: DP-2 (EXISTING WETLANDS) Inflow=5.38 cfs 23,619 cf
Primary=5.38 cfs 23,619 cf

Link 12L: DP-3 (NORTHERN PROPERTY LINE) Inflow=0.31 cfs 892 cf
Primary=0.31 cfs 892 cf

Link 13L: DP-4 (SOUTHERN PROPERTY LINE) Inflow=2.36 cfs 9,734 cf
Primary=2.36 cfs 9,734 cf

Total Runoff Area = 487,748 sf Runoff Volume = 42,127 cf Average Runoff Depth = 1.04"
99.52% Pervious = 485,414 sf 0.48% Impervious = 2,334 sf

Summary for Subcatchment 1S: EDA-11

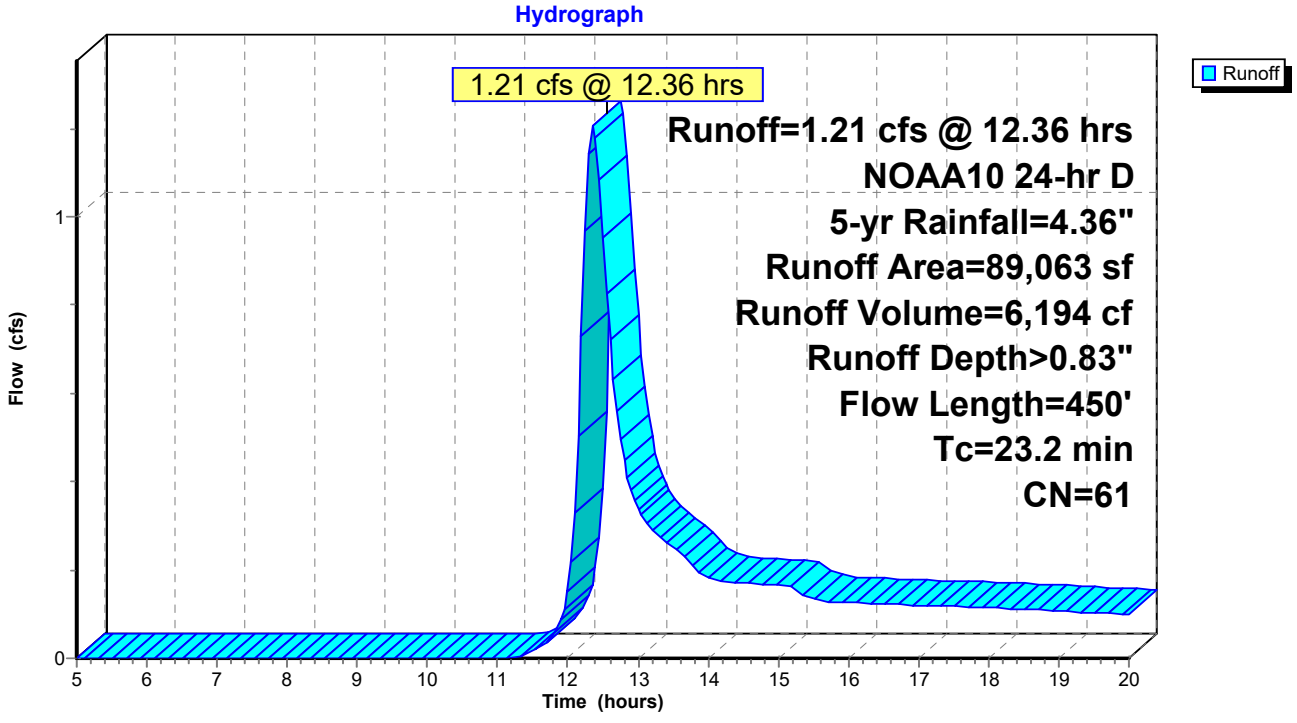
Runoff = 1.21 cfs @ 12.36 hrs, Volume= 6,194 cf, Depth> 0.83"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
86,729	60	Woods, Fair, HSG B
2,334	98	Paved parking, HSG D
89,063	61	Weighted Average
86,729		97.38% Pervious Area
2,334		2.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	95	0.0316	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
6.7	355	0.0310	0.88		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
23.2	450	Total			

Subcatchment 1S: EDA-11



Summary for Subcatchment 2S: EDA-12

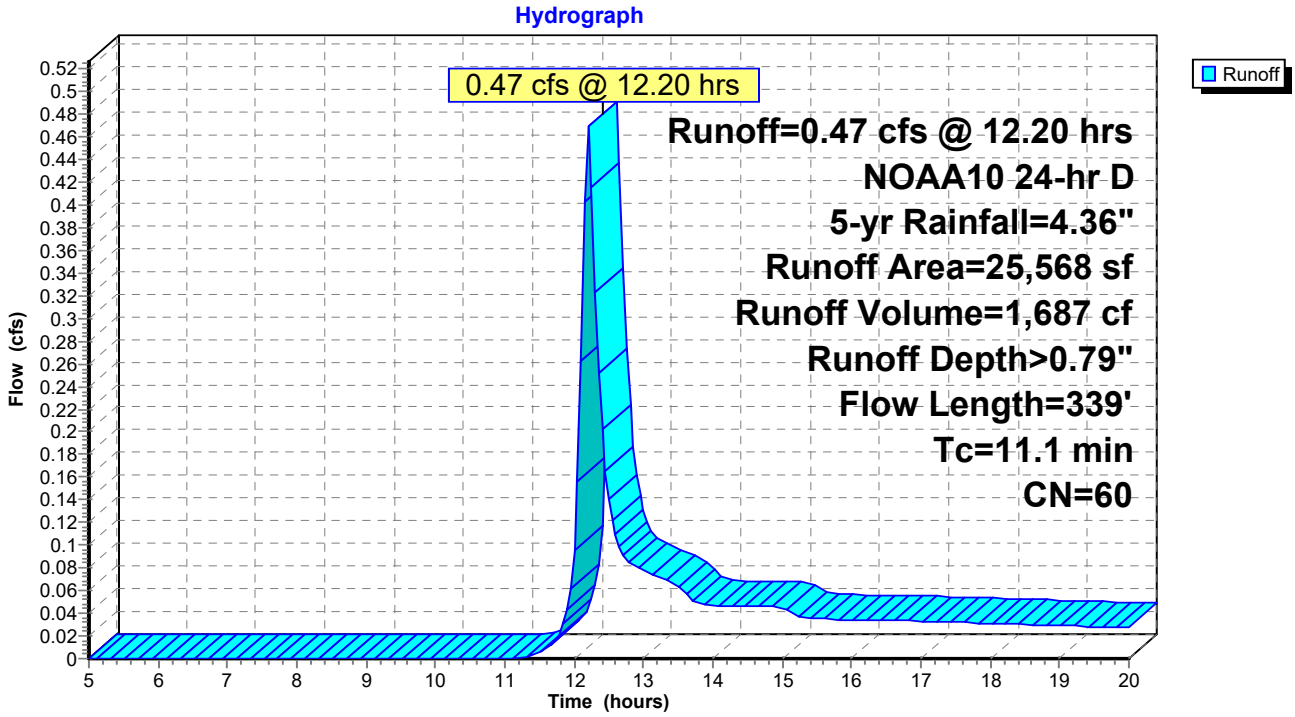
Runoff = 0.47 cfs @ 12.20 hrs, Volume= 1,687 cf, Depth> 0.79"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
25,568	60	Woods, Fair, HSG B
25,568		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	25	0.0480	0.09		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
0.6	65	0.1538	1.96		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
5.7	249	0.0210	0.72		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
11.1	339	Total			

Subcatchment 2S: EDA-12



Summary for Subcatchment 4S: EDA-22

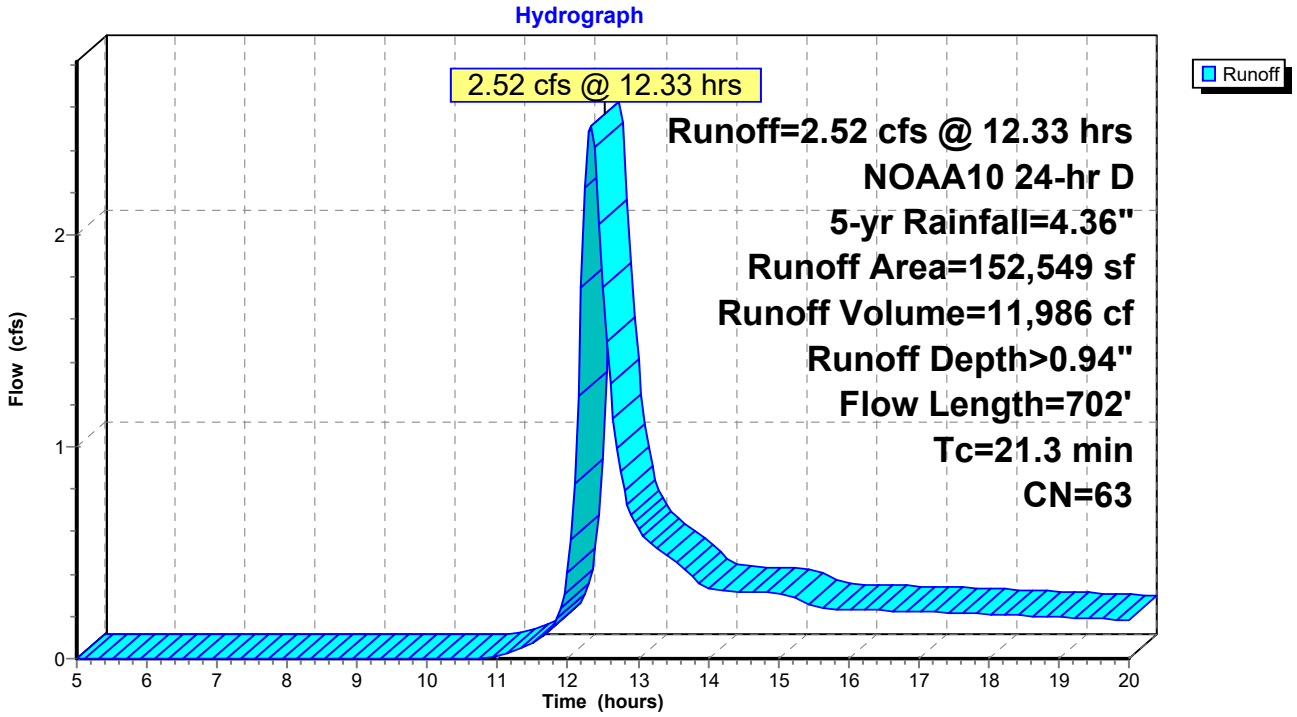
Runoff = 2.52 cfs @ 12.33 hrs, Volume= 11,986 cf, Depth> 0.94"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
126,832	60	Woods, Fair, HSG B
25,717	79	Woods, Fair, HSG D
152,549	63	Weighted Average
152,549		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	50	0.0275	0.08		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
10.9	652	0.0400	1.00		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
21.3	702	Total			

Subcatchment 4S: EDA-22



Summary for Subcatchment 5S: EDA-21

[49] Hint: Tc<2dt may require smaller dt

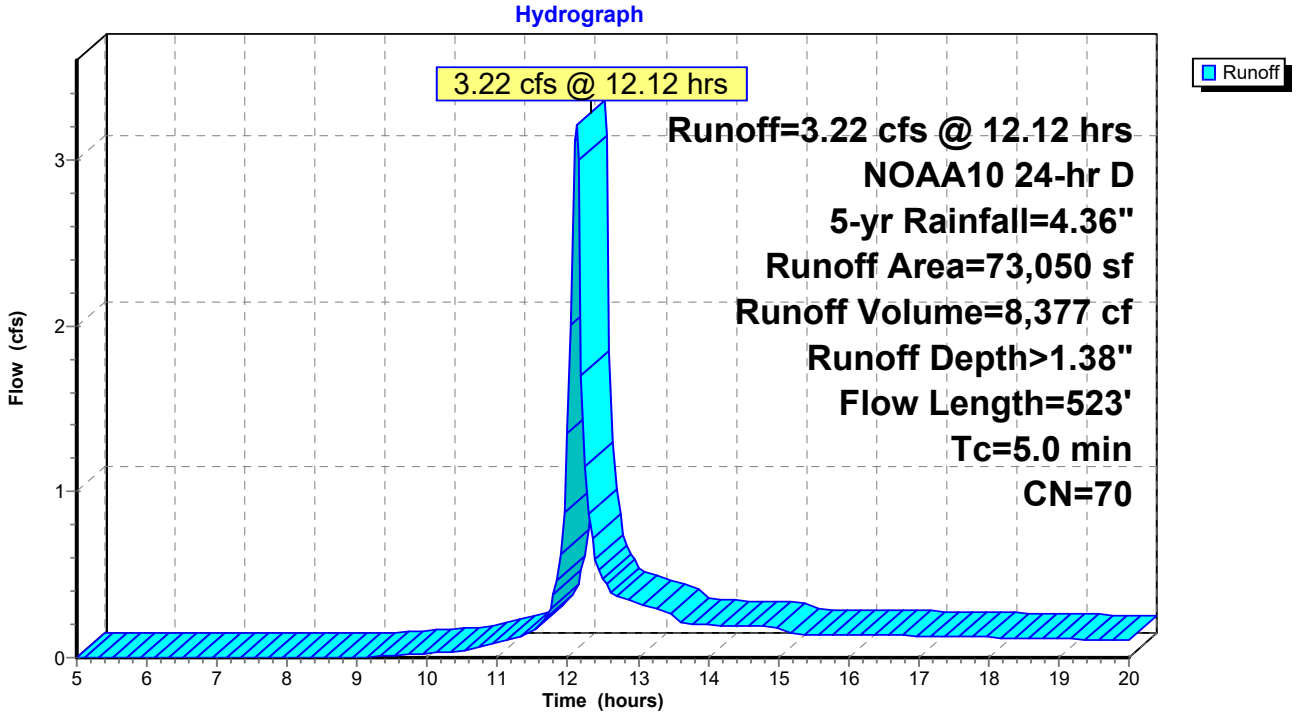
Runoff = 3.22 cfs @ 12.12 hrs, Volume= 8,377 cf, Depth> 1.38"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
35,444	60	Woods, Fair, HSG B
37,606	79	Woods, Fair, HSG D
73,050	70	Weighted Average
73,050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	5	0.1000	0.08		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
0.2	48	0.4300	3.28		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
2.8	470	0.3125	2.80		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
4.0	523	Total, Increased to minimum Tc = 5.0 min			

Subcatchment 5S: EDA-21



Summary for Subcatchment 6S: EDA23

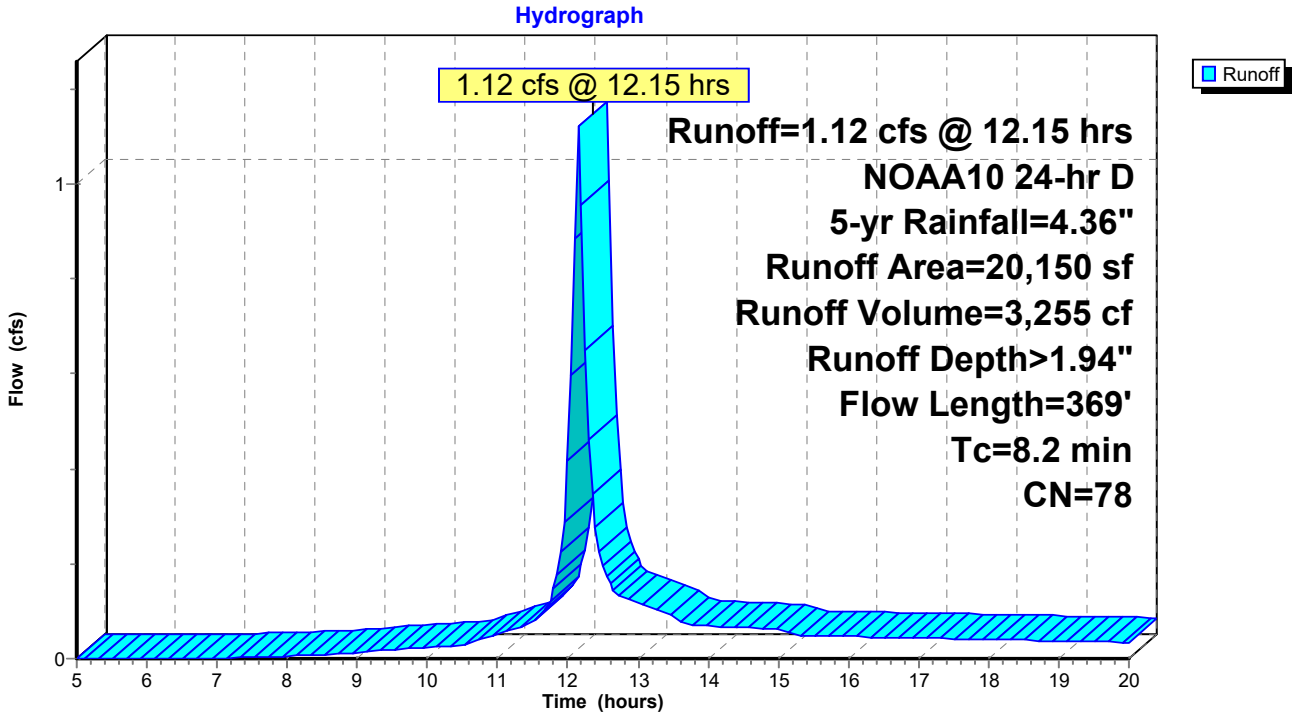
Runoff = 1.12 cfs @ 12.15 hrs, Volume= 3,255 cf, Depth> 1.94"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
4,687	60	Woods, Fair, HSG B
15,463	83	Woods, Poor, HSG D
20,150	78	Weighted Average
20,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	14	0.0357	0.07		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
4.8	355	0.0620	1.24		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
8.2	369	Total			

Subcatchment 6S: EDA23



Summary for Subcatchment 7S: EDA-31

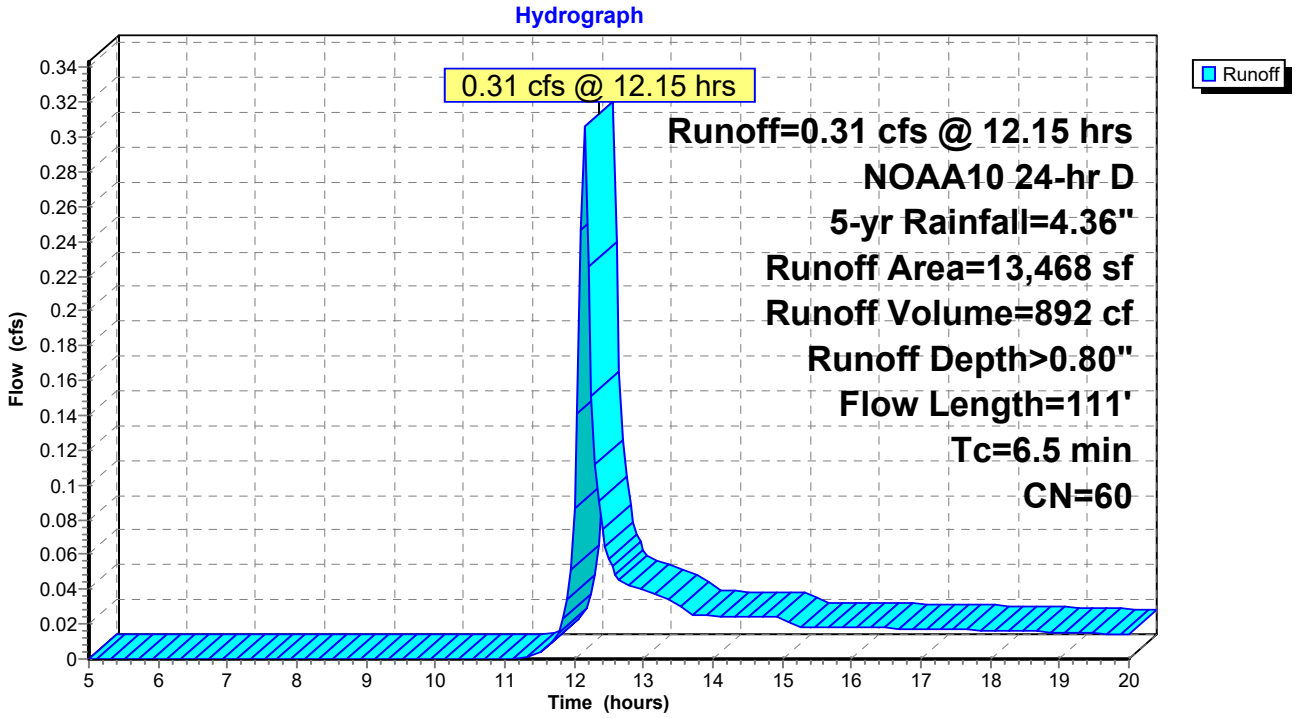
Runoff = 0.31 cfs @ 12.15 hrs, Volume= 892 cf, Depth> 0.80"
Routed to Link 12L : DP-3 (NORTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
13,468	60	Woods, Fair, HSG B
13,468		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	38	0.1000	0.13		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
1.5	73	0.0274	0.83		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
6.5	111	Total			

Subcatchment 7S: EDA-31



Summary for Subcatchment 8S: EDA-41

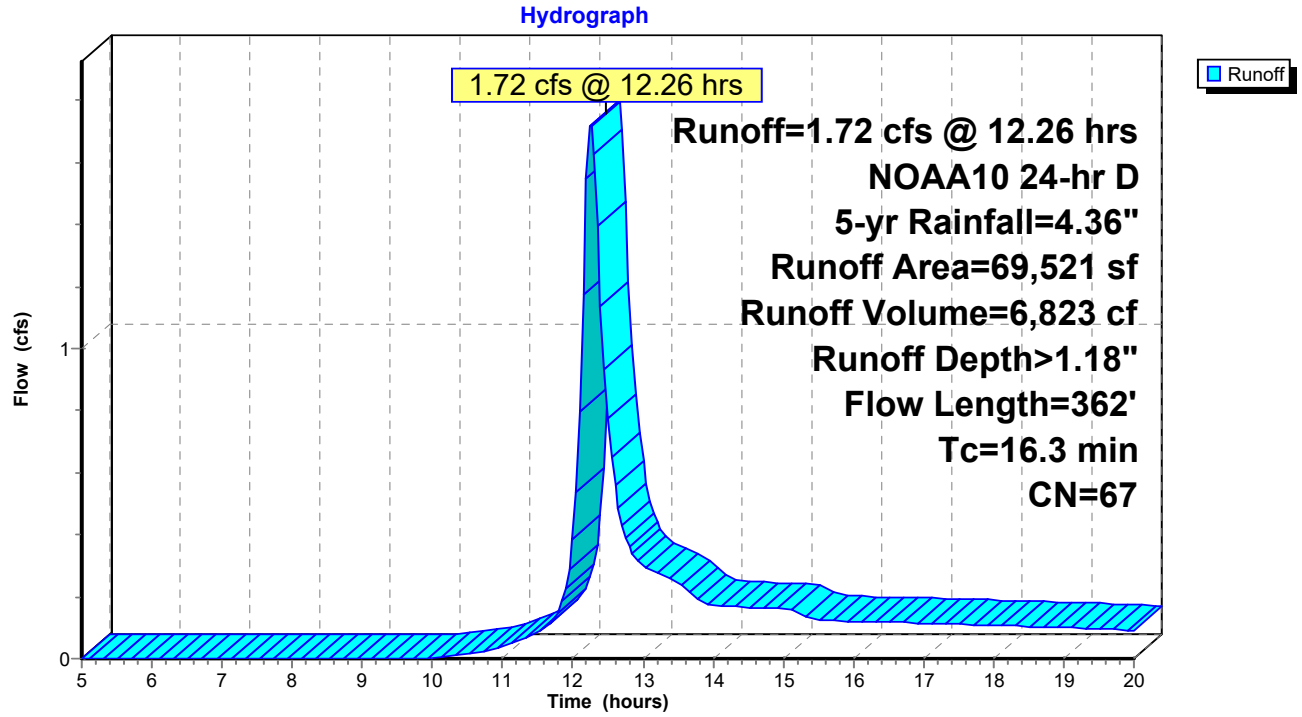
Runoff = 1.72 cfs @ 12.26 hrs, Volume= 6,823 cf, Depth> 1.18"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
44,573	60	Woods, Fair, HSG B
24,948	79	Woods, Fair, HSG D
69,521	67	Weighted Average
69,521		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	79	0.0380	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
3.1	283	0.0919	1.52		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
16.3	362	Total			

Subcatchment 8S: EDA-41



Summary for Subcatchment 9S: EDA-42

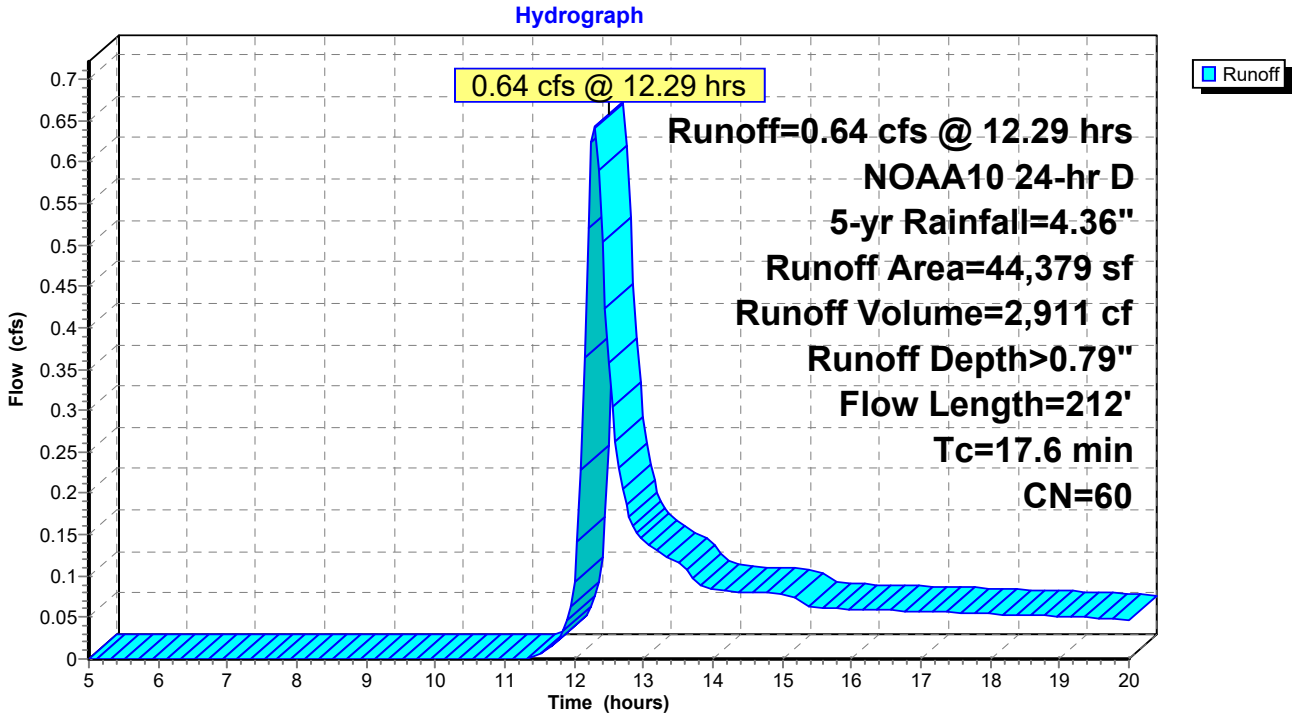
Runoff = 0.64 cfs @ 12.29 hrs, Volume= 2,911 cf, Depth> 0.79"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
44,379	60	Woods, Fair, HSG B
44,379		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	96	0.0365	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
1.9	116	0.0431	1.04		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
17.6	212	Total			

Subcatchment 9S: EDA-42

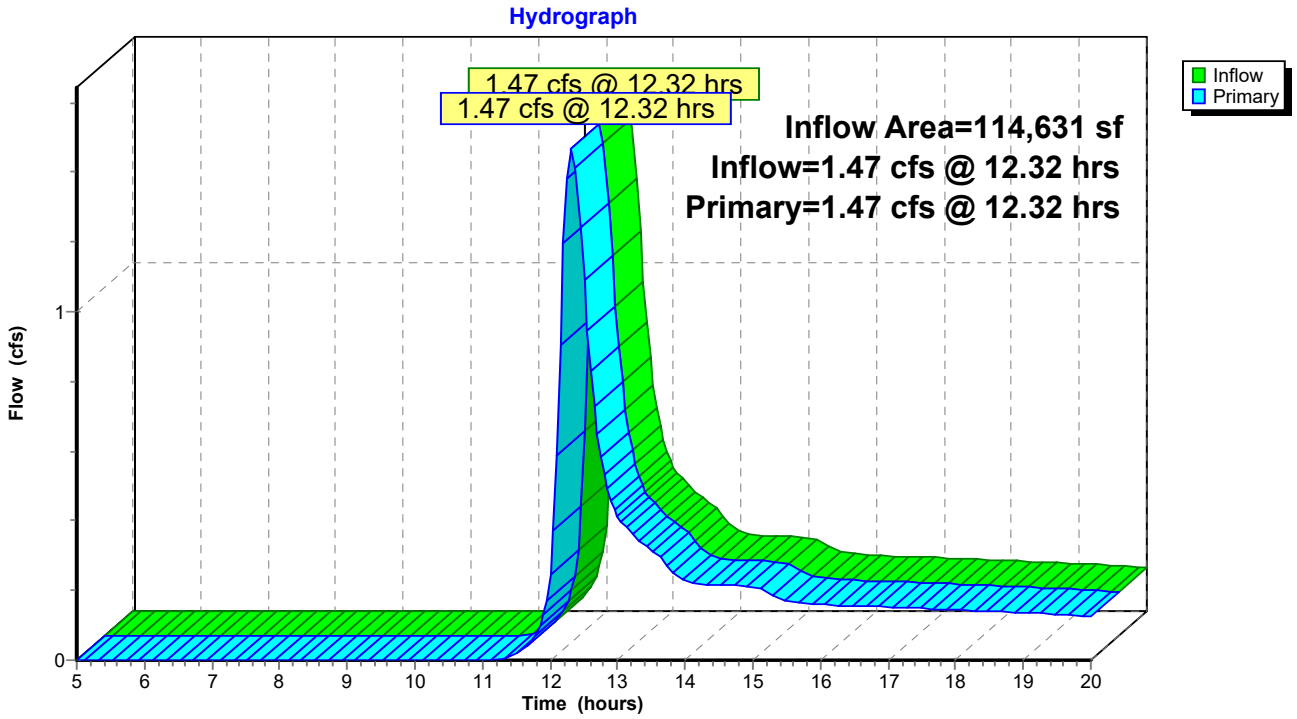


Summary for Link 10L: DP-1 (EXISTING 18" RCP)

Inflow Area = 114,631 sf, 2.04% Impervious, Inflow Depth > 0.83" for 5-yr event
Inflow = 1.47 cfs @ 12.32 hrs, Volume= 7,881 cf
Primary = 1.47 cfs @ 12.32 hrs, Volume= 7,881 cf, Atten= 0%, Lag= 0.0 min

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

Link 10L: DP-1 (EXISTING 18" RCP)

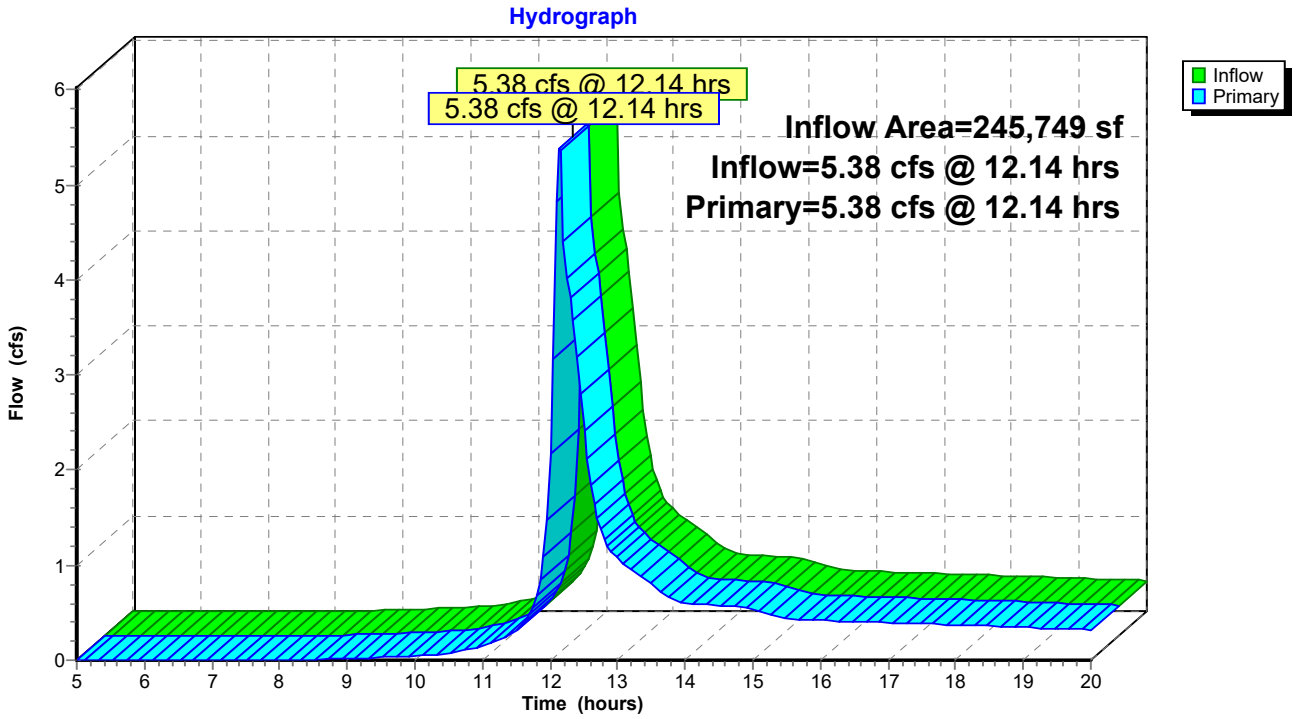


Summary for Link 11L: DP-2 (EXISTING WETLANDS)

Inflow Area = 245,749 sf, 0.00% Impervious, Inflow Depth > 1.15" for 5-yr event
Inflow = 5.38 cfs @ 12.14 hrs, Volume= 23,619 cf
Primary = 5.38 cfs @ 12.14 hrs, Volume= 23,619 cf, Atten= 0%, Lag= 0.0 min

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

Link 11L: DP-2 (EXISTING WETLANDS)

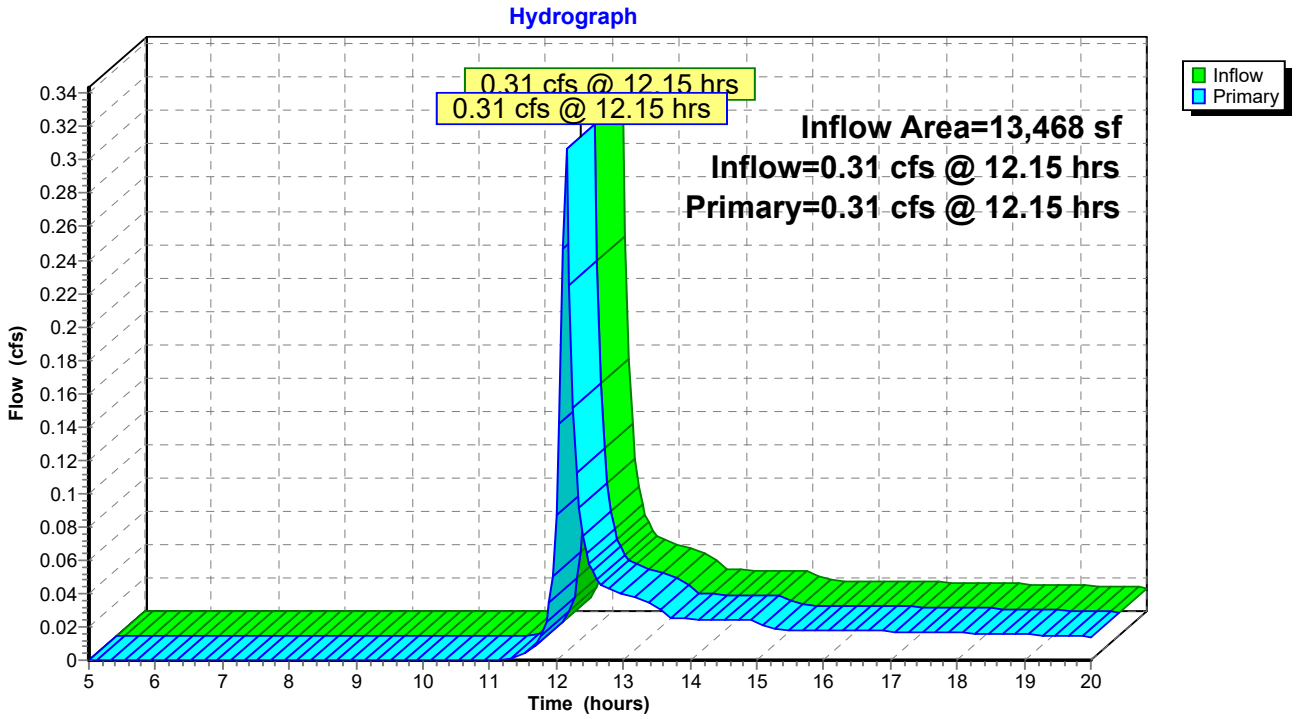


Summary for Link 12L: DP-3 (NORTHERN PROPERTY LINE)

Inflow Area = 13,468 sf, 0.00% Impervious, Inflow Depth > 0.80" for 5-yr event
Inflow = 0.31 cfs @ 12.15 hrs, Volume= 892 cf
Primary = 0.31 cfs @ 12.15 hrs, Volume= 892 cf, Atten= 0%, Lag= 0.0 min

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

Link 12L: DP-3 (NORTHERN PROPERTY LINE)

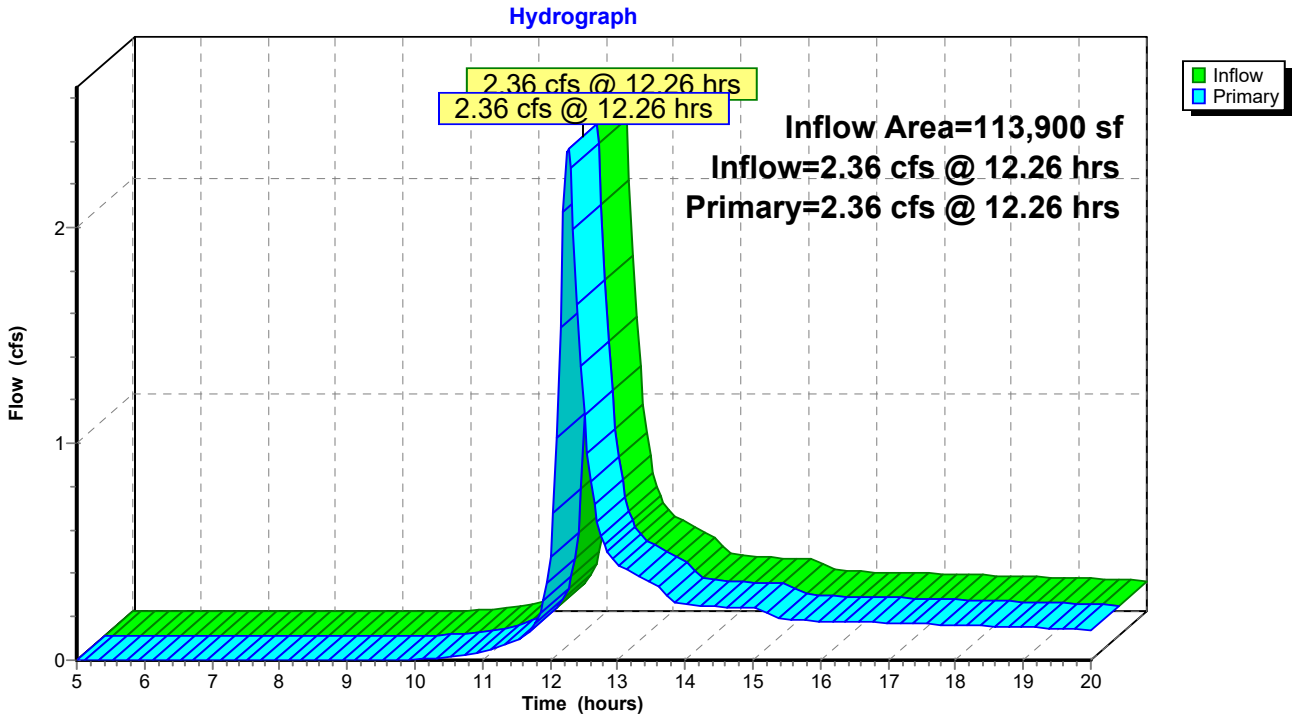


Summary for Link 13L: DP-4 (SOUTHERN PROPERTY LINE)

Inflow Area = 113,900 sf, 0.00% Impervious, Inflow Depth > 1.03" for 5-yr event
Inflow = 2.36 cfs @ 12.26 hrs, Volume= 9,734 cf
Primary = 2.36 cfs @ 12.26 hrs, Volume= 9,734 cf, Atten= 0%, Lag= 0.0 min

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

Link 13L: DP-4 (SOUTHERN PROPERTY LINE)



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

Subcatchment1S: EDA-11 Runoff Area=89,063 sf 2.62% Impervious Runoff Depth>1.22"
Flow Length=450' Tc=23.2 min CN=61 Runoff=1.85 cfs 9,018 cf

Subcatchment2S: EDA-12 Runoff Area=25,568 sf 0.00% Impervious Runoff Depth>1.16"
Flow Length=339' Tc=11.1 min CN=60 Runoff=0.73 cfs 2,478 cf

Subcatchment4S: EDA-22 Runoff Area=152,549 sf 0.00% Impervious Runoff Depth>1.35"
Flow Length=702' Tc=21.3 min CN=63 Runoff=3.74 cfs 17,137 cf

Subcatchment5S: EDA-21 Runoff Area=73,050 sf 0.00% Impervious Runoff Depth>1.87"
Flow Length=523' Tc=5.0 min CN=70 Runoff=4.38 cfs 11,365 cf

Subcatchment6S: EDA23 Runoff Area=20,150 sf 0.00% Impervious Runoff Depth>2.51"
Flow Length=369' Tc=8.2 min CN=78 Runoff=1.45 cfs 4,219 cf

Subcatchment7S: EDA-31 Runoff Area=13,468 sf 0.00% Impervious Runoff Depth>1.17"
Flow Length=111' Tc=6.5 min CN=60 Runoff=0.47 cfs 1,310 cf

Subcatchment8S: EDA-41 Runoff Area=69,521 sf 0.00% Impervious Runoff Depth>1.63"
Flow Length=362' Tc=16.3 min CN=67 Runoff=2.43 cfs 9,452 cf

Subcatchment9S: EDA-42 Runoff Area=44,379 sf 0.00% Impervious Runoff Depth>1.16"
Flow Length=212' Tc=17.6 min CN=60 Runoff=1.00 cfs 4,278 cf

Link 10L: DP-1 (EXISTING 18" RCP) Inflow=2.26 cfs 11,495 cf
Primary=2.26 cfs 11,495 cf

Link 11L: DP-2 (EXISTING WETLANDS) Inflow=7.48 cfs 32,722 cf
Primary=7.48 cfs 32,722 cf

Link 12L: DP-3 (NORTHERN PROPERTY LINE) Inflow=0.47 cfs 1,310 cf
Primary=0.47 cfs 1,310 cf

Link 13L: DP-4 (SOUTHERN PROPERTY LINE) Inflow=3.42 cfs 13,729 cf
Primary=3.42 cfs 13,729 cf

Total Runoff Area = 487,748 sf Runoff Volume = 59,257 cf Average Runoff Depth = 1.46"
99.52% Pervious = 485,414 sf 0.48% Impervious = 2,334 sf

Summary for Subcatchment 1S: EDA-11

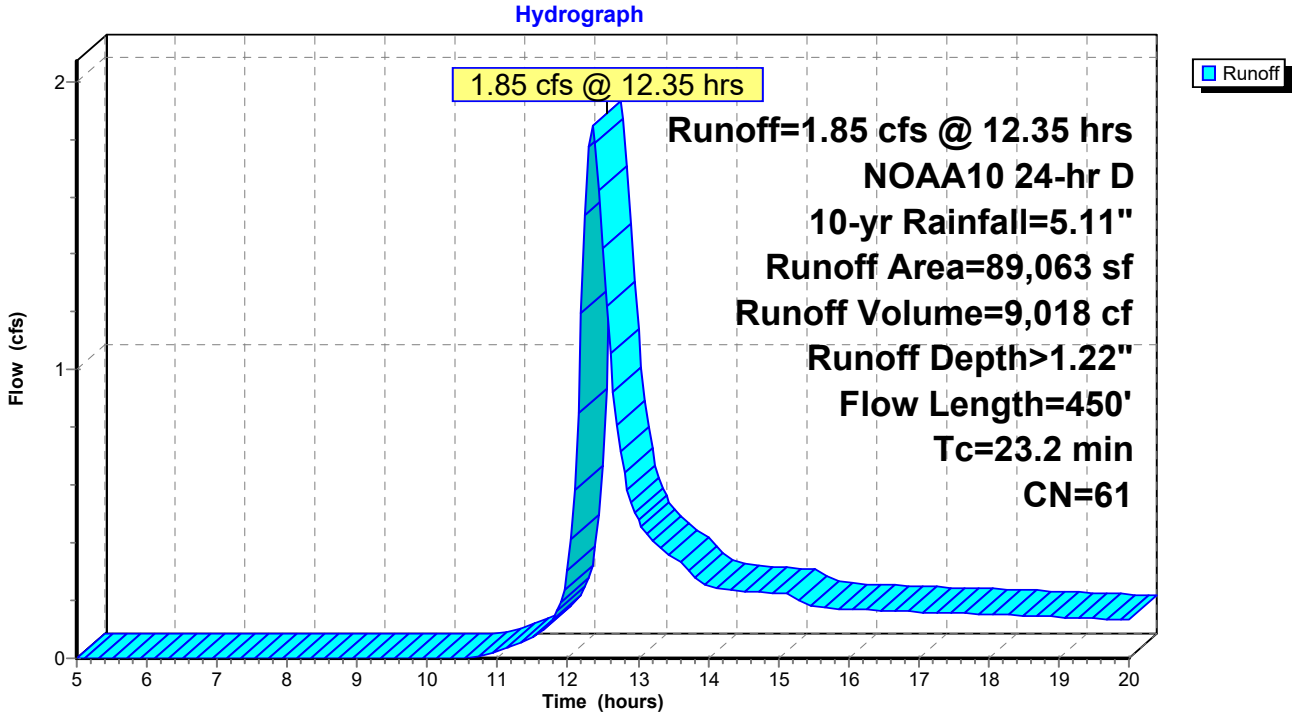
Runoff = 1.85 cfs @ 12.35 hrs, Volume= 9,018 cf, Depth> 1.22"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
86,729	60	Woods, Fair, HSG B
2,334	98	Paved parking, HSG D
89,063	61	Weighted Average
86,729		97.38% Pervious Area
2,334		2.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	95	0.0316	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
6.7	355	0.0310	0.88		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
23.2	450	Total			

Subcatchment 1S: EDA-11



Summary for Subcatchment 2S: EDA-12

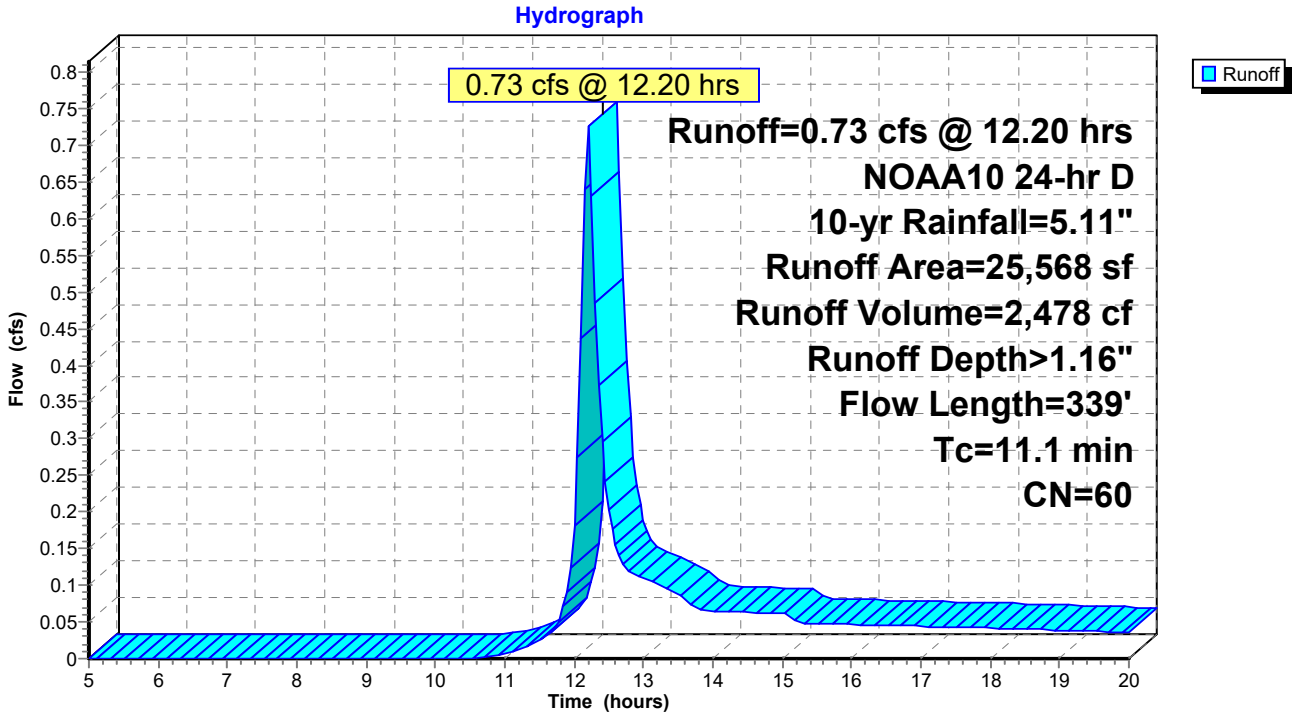
Runoff = 0.73 cfs @ 12.20 hrs, Volume= 2,478 cf, Depth> 1.16"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
25,568	60	Woods, Fair, HSG B
25,568		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	25	0.0480	0.09		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
0.6	65	0.1538	1.96		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
5.7	249	0.0210	0.72		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
11.1	339	Total			

Subcatchment 2S: EDA-12



Summary for Subcatchment 4S: EDA-22

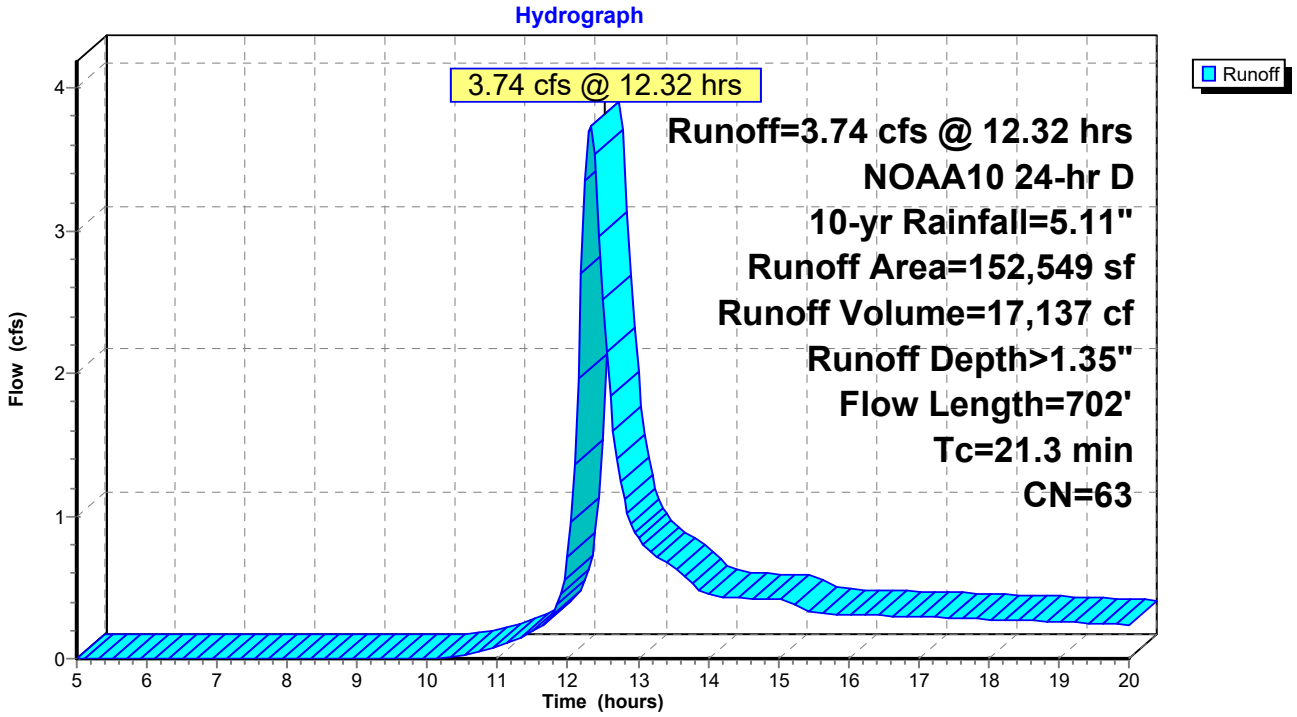
Runoff = 3.74 cfs @ 12.32 hrs, Volume= 17,137 cf, Depth> 1.35"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
126,832	60	Woods, Fair, HSG B
25,717	79	Woods, Fair, HSG D
152,549	63	Weighted Average
152,549		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	50	0.0275	0.08		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
10.9	652	0.0400	1.00		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
21.3	702	Total			

Subcatchment 4S: EDA-22



Summary for Subcatchment 5S: EDA-21

[49] Hint: Tc<2dt may require smaller dt

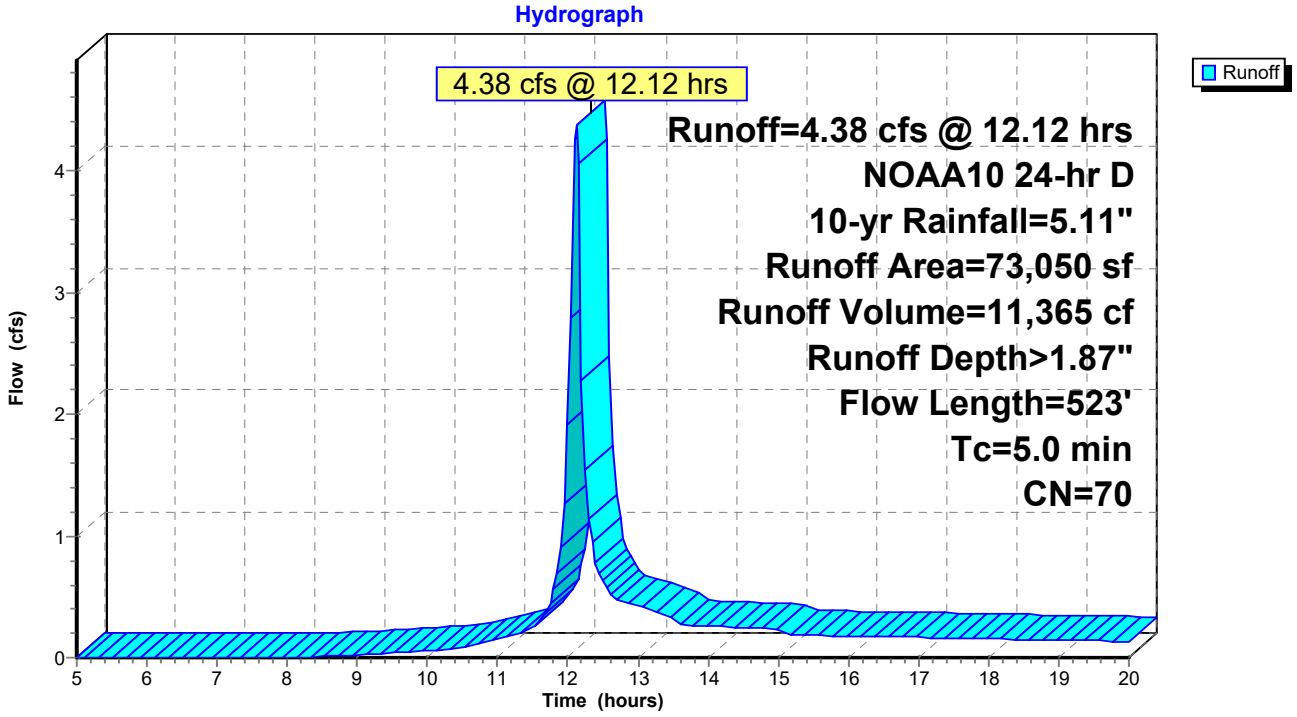
Runoff = 4.38 cfs @ 12.12 hrs, Volume= 11,365 cf, Depth> 1.87"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
35,444	60	Woods, Fair, HSG B
37,606	79	Woods, Fair, HSG D
73,050	70	Weighted Average
73,050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	5	0.1000	0.08		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
0.2	48	0.4300	3.28		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
2.8	470	0.3125	2.80		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
4.0	523	Total, Increased to minimum Tc = 5.0 min			

Subcatchment 5S: EDA-21



Summary for Subcatchment 6S: EDA23

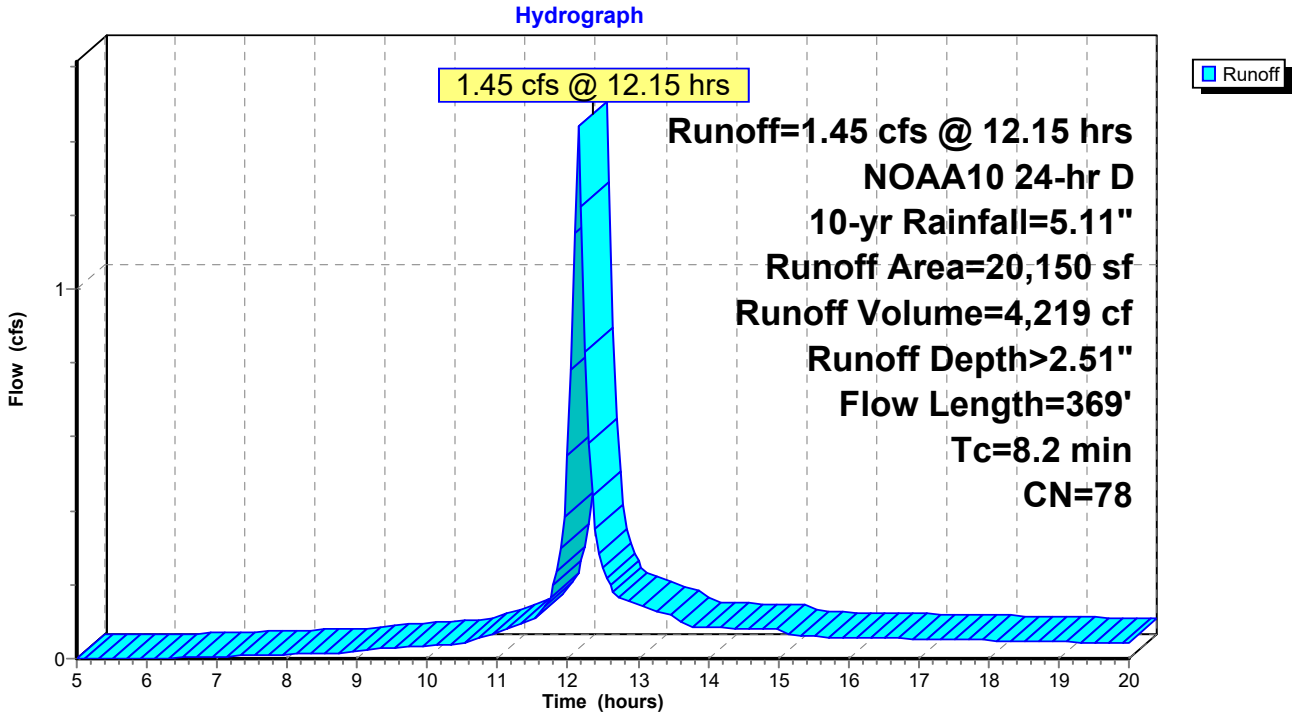
Runoff = 1.45 cfs @ 12.15 hrs, Volume= 4,219 cf, Depth> 2.51"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
4,687	60	Woods, Fair, HSG B
15,463	83	Woods, Poor, HSG D
20,150	78	Weighted Average
20,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	14	0.0357	0.07		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
4.8	355	0.0620	1.24		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
8.2	369	Total			

Subcatchment 6S: EDA23



Summary for Subcatchment 7S: EDA-31

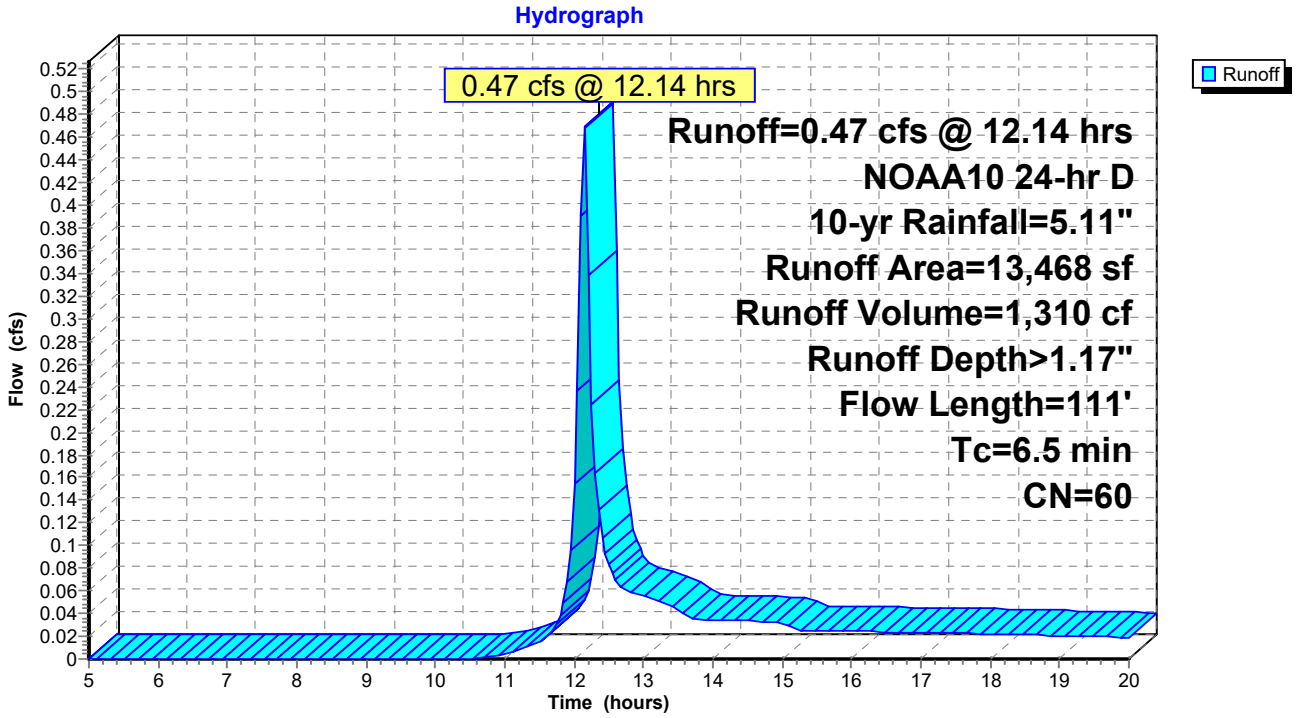
Runoff = 0.47 cfs @ 12.14 hrs, Volume= 1,310 cf, Depth> 1.17"
Routed to Link 12L : DP-3 (NORTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
13,468	60	Woods, Fair, HSG B
13,468		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	38	0.1000	0.13		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
1.5	73	0.0274	0.83		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
6.5	111	Total			

Subcatchment 7S: EDA-31



Summary for Subcatchment 8S: EDA-41

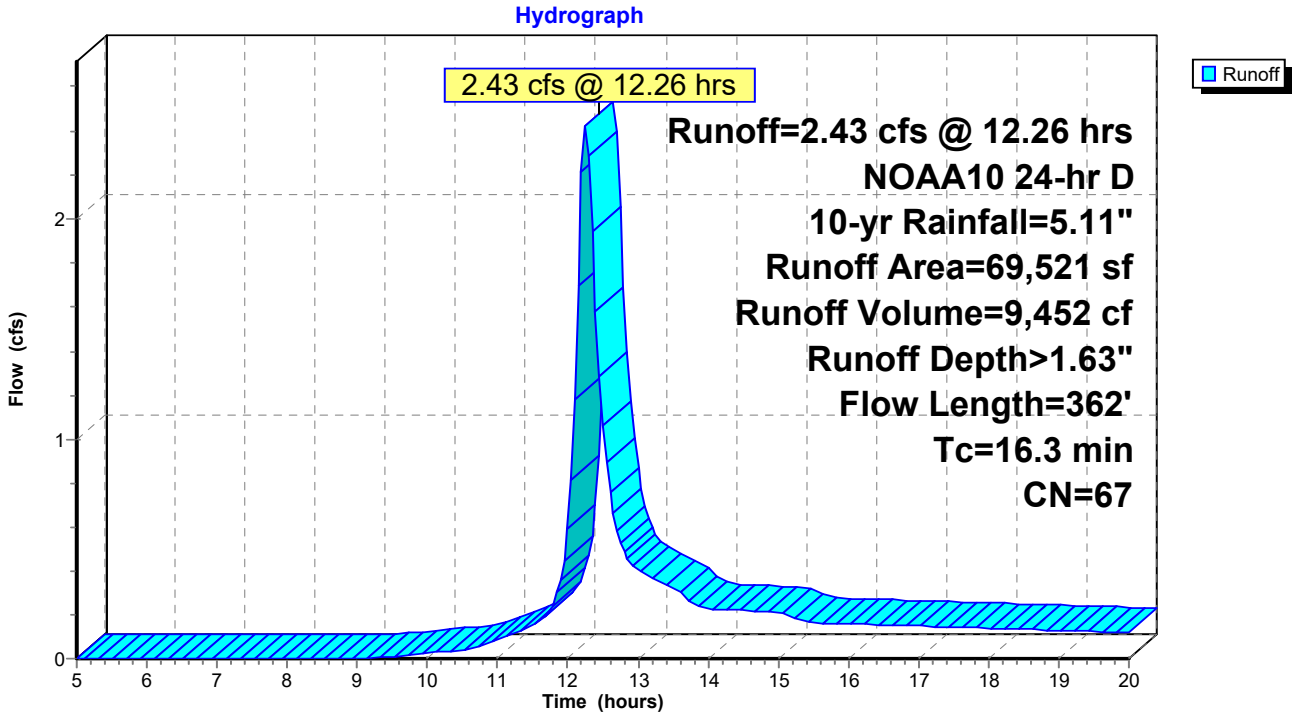
Runoff = 2.43 cfs @ 12.26 hrs, Volume= 9,452 cf, Depth> 1.63"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
44,573	60	Woods, Fair, HSG B
24,948	79	Woods, Fair, HSG D
69,521	67	Weighted Average
69,521		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	79	0.0380	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
3.1	283	0.0919	1.52		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
16.3	362	Total			

Subcatchment 8S: EDA-41



Summary for Subcatchment 9S: EDA-42

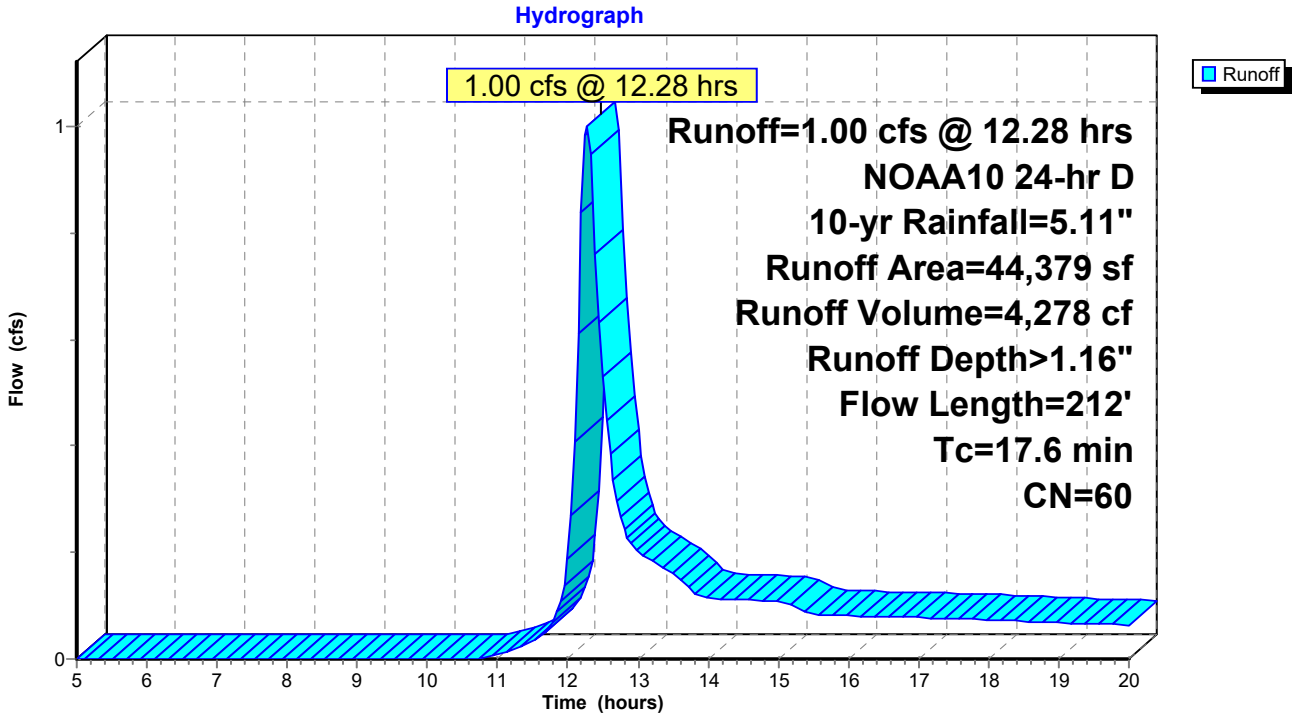
Runoff = 1.00 cfs @ 12.28 hrs, Volume= 4,278 cf, Depth> 1.16"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
44,379	60	Woods, Fair, HSG B
44,379		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	96	0.0365	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
1.9	116	0.0431	1.04		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
17.6	212	Total			

Subcatchment 9S: EDA-42

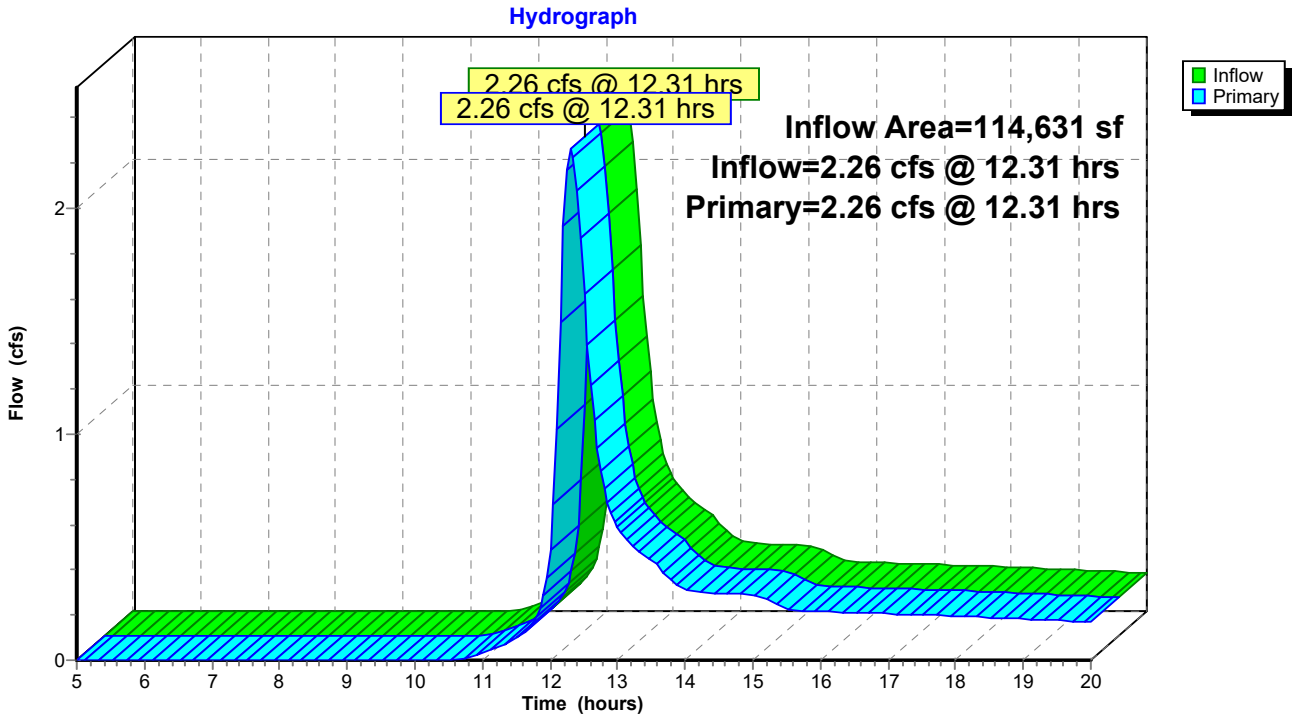


Summary for Link 10L: DP-1 (EXISTING 18" RCP)

Inflow Area = 114,631 sf, 2.04% Impervious, Inflow Depth > 1.20" for 10-yr event
Inflow = 2.26 cfs @ 12.31 hrs, Volume= 11,495 cf
Primary = 2.26 cfs @ 12.31 hrs, Volume= 11,495 cf, Atten= 0%, Lag= 0.0 min

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

Link 10L: DP-1 (EXISTING 18" RCP)

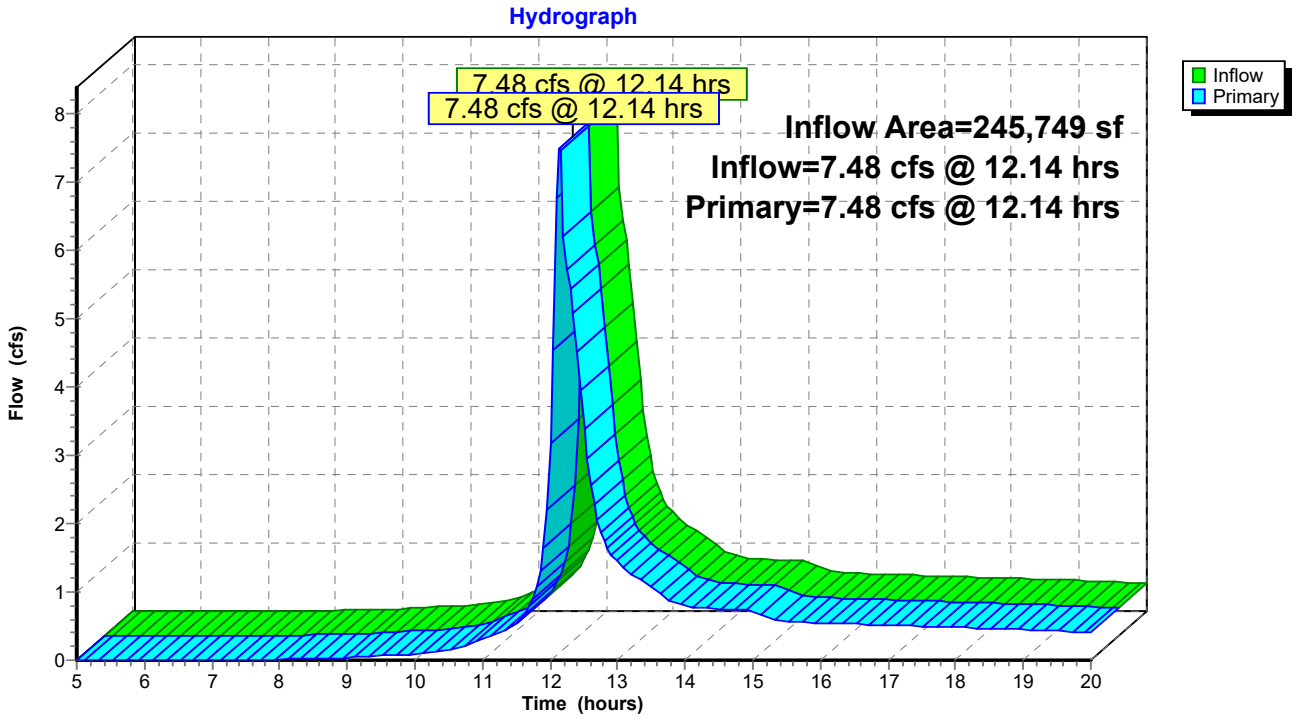


Summary for Link 11L: DP-2 (EXISTING WETLANDS)

Inflow Area = 245,749 sf, 0.00% Impervious, Inflow Depth > 1.60" for 10-yr event
Inflow = 7.48 cfs @ 12.14 hrs, Volume= 32,722 cf
Primary = 7.48 cfs @ 12.14 hrs, Volume= 32,722 cf, Atten= 0%, Lag= 0.0 min

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

Link 11L: DP-2 (EXISTING WETLANDS)

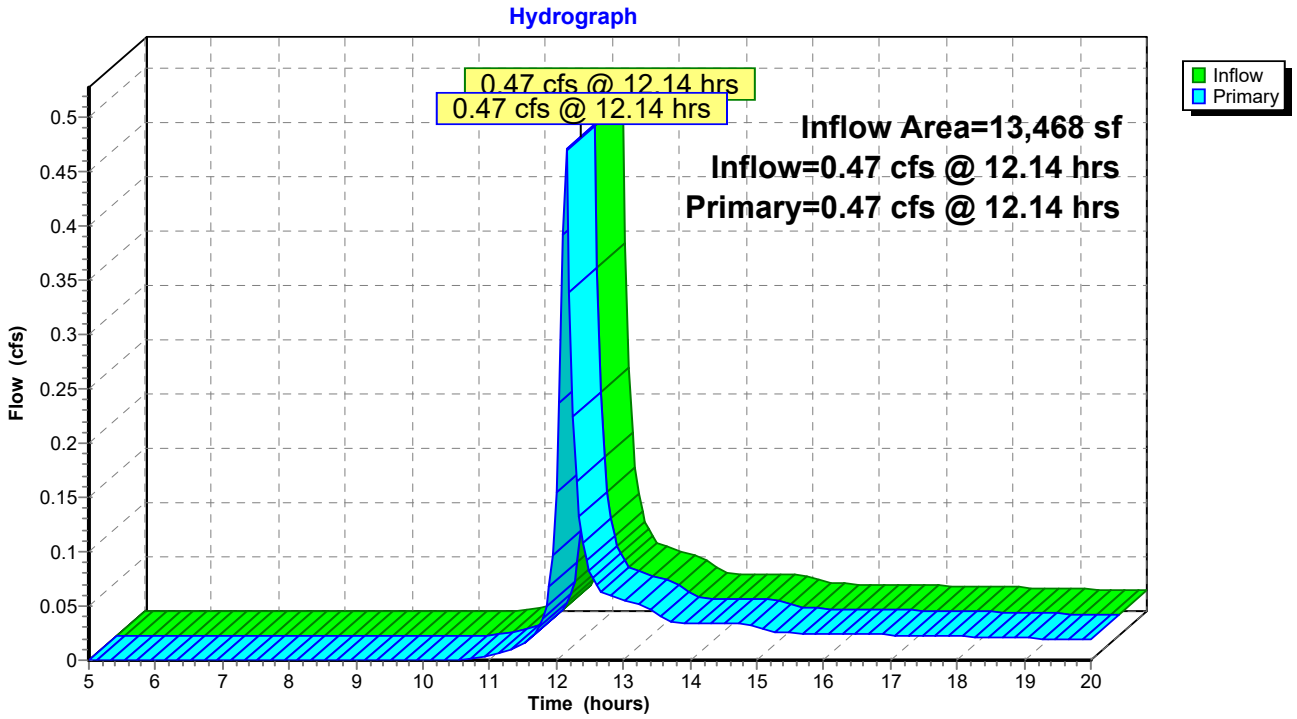


Summary for Link 12L: DP-3 (NORTHERN PROPERTY LINE)

Inflow Area = 13,468 sf, 0.00% Impervious, Inflow Depth > 1.17" for 10-yr event
Inflow = 0.47 cfs @ 12.14 hrs, Volume= 1,310 cf
Primary = 0.47 cfs @ 12.14 hrs, Volume= 1,310 cf, Atten= 0%, Lag= 0.0 min

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

Link 12L: DP-3 (NORTHERN PROPERTY LINE)

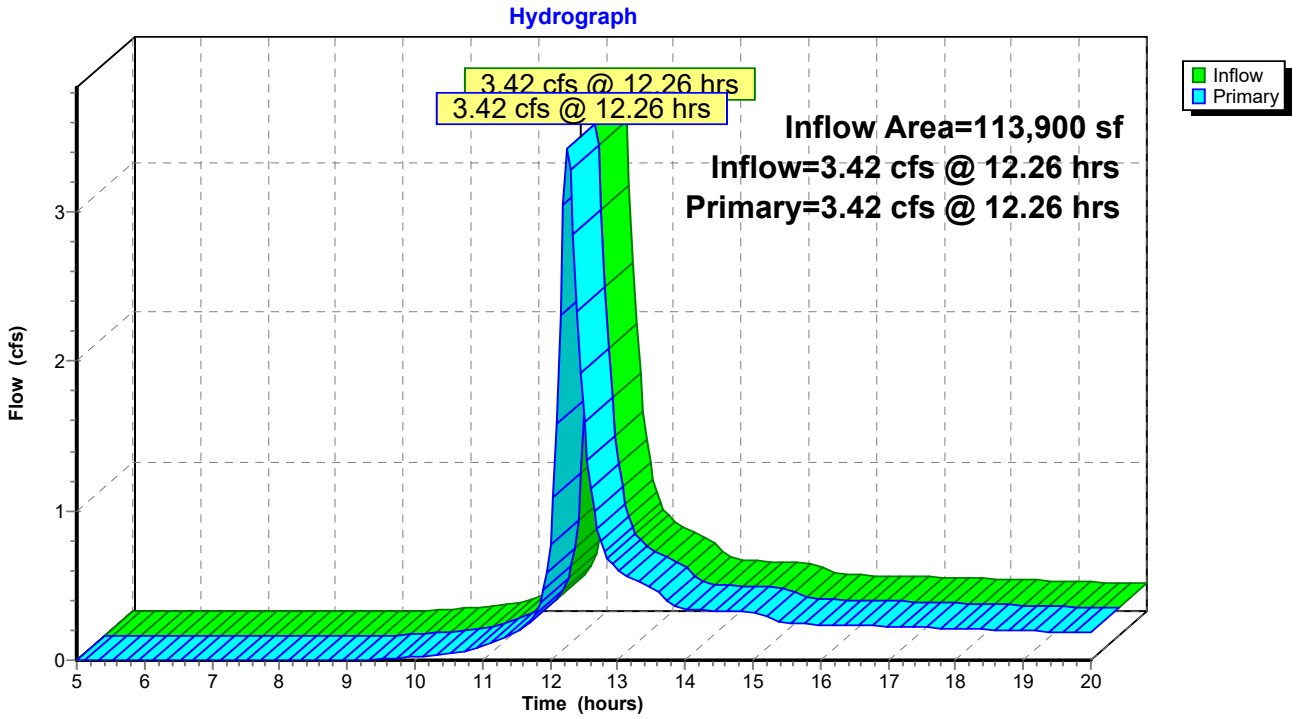


Summary for Link 13L: DP-4 (SOUTHERN PROPERTY LINE)

Inflow Area = 113,900 sf, 0.00% Impervious, Inflow Depth > 1.45" for 10-yr event
Inflow = 3.42 cfs @ 12.26 hrs, Volume= 13,729 cf
Primary = 3.42 cfs @ 12.26 hrs, Volume= 13,729 cf, Atten= 0%, Lag= 0.0 min

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

Link 13L: DP-4 (SOUTHERN PROPERTY LINE)



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

Subcatchment1S: EDA-11 Runoff Area=89,063 sf 2.62% Impervious Runoff Depth>1.81"
Flow Length=450' Tc=23.2 min CN=61 Runoff=2.84 cfs 13,431 cf

Subcatchment2S: EDA-12 Runoff Area=25,568 sf 0.00% Impervious Runoff Depth>1.75"
Flow Length=339' Tc=11.1 min CN=60 Runoff=1.12 cfs 3,720 cf

Subcatchment4S: EDA-22 Runoff Area=152,549 sf 0.00% Impervious Runoff Depth>1.97"
Flow Length=702' Tc=21.3 min CN=63 Runoff=5.59 cfs 25,098 cf

Subcatchment5S: EDA-21 Runoff Area=73,050 sf 0.00% Impervious Runoff Depth>2.60"
Flow Length=523' Tc=5.0 min CN=70 Runoff=6.09 cfs 15,830 cf

Subcatchment6S: EDA23 Runoff Area=20,150 sf 0.00% Impervious Runoff Depth>3.34"
Flow Length=369' Tc=8.2 min CN=78 Runoff=1.90 cfs 5,616 cf

Subcatchment7S: EDA-31 Runoff Area=13,468 sf 0.00% Impervious Runoff Depth>1.75"
Flow Length=111' Tc=6.5 min CN=60 Runoff=0.72 cfs 1,966 cf

Subcatchment8S: EDA-41 Runoff Area=69,521 sf 0.00% Impervious Runoff Depth>2.32"
Flow Length=362' Tc=16.3 min CN=67 Runoff=3.47 cfs 13,434 cf

Subcatchment9S: EDA-42 Runoff Area=44,379 sf 0.00% Impervious Runoff Depth>1.74"
Flow Length=212' Tc=17.6 min CN=60 Runoff=1.56 cfs 6,426 cf

Link 10L: DP-1 (EXISTING 18" RCP) Inflow=3.48 cfs 17,151 cf
Primary=3.48 cfs 17,151 cf

Link 11L: DP-2 (EXISTING WETLANDS) Inflow=10.61 cfs 46,545 cf
Primary=10.61 cfs 46,545 cf

Link 12L: DP-3 (NORTHERN PROPERTY LINE) Inflow=0.72 cfs 1,966 cf
Primary=0.72 cfs 1,966 cf

Link 13L: DP-4 (SOUTHERN PROPERTY LINE) Inflow=5.03 cfs 19,860 cf
Primary=5.03 cfs 19,860 cf

Total Runoff Area = 487,748 sf Runoff Volume = 85,521 cf Average Runoff Depth = 2.10"
99.52% Pervious = 485,414 sf 0.48% Impervious = 2,334 sf

Summary for Subcatchment 1S: EDA-11

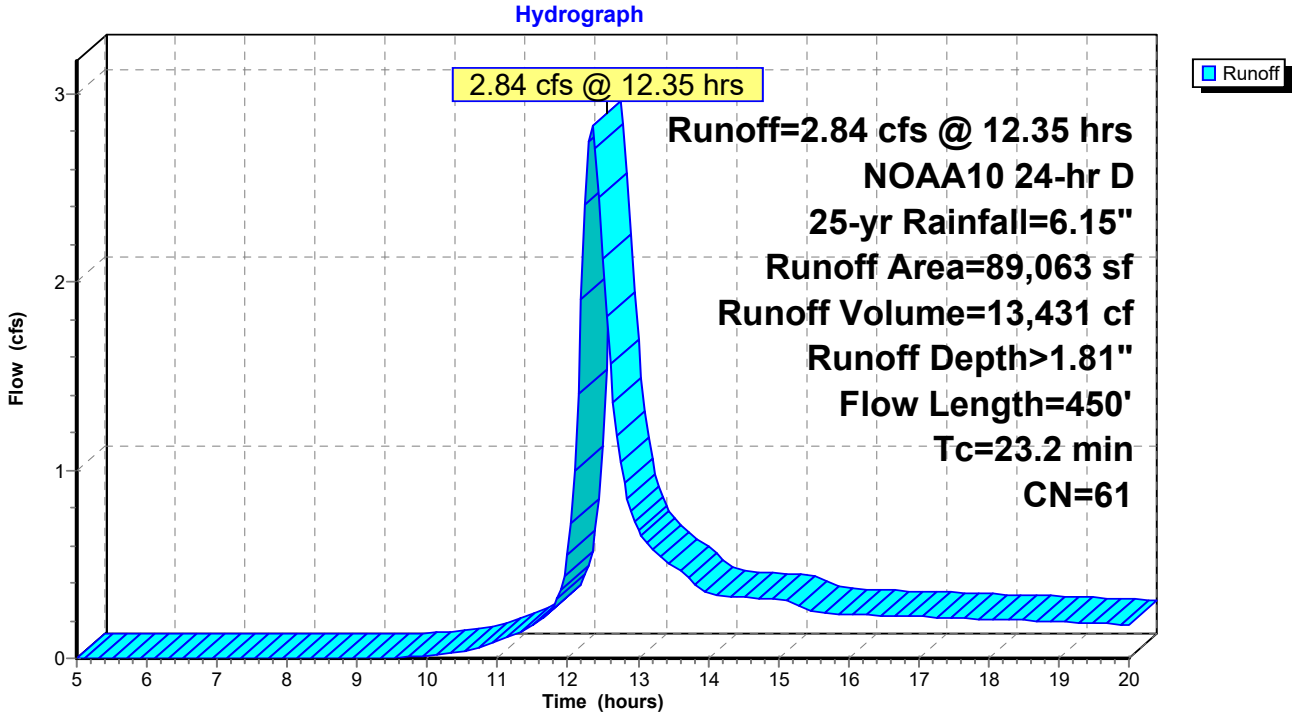
Runoff = 2.84 cfs @ 12.35 hrs, Volume= 13,431 cf, Depth> 1.81"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
86,729	60	Woods, Fair, HSG B
2,334	98	Paved parking, HSG D
89,063	61	Weighted Average
86,729		97.38% Pervious Area
2,334		2.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	95	0.0316	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
6.7	355	0.0310	0.88		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
23.2	450	Total			

Subcatchment 1S: EDA-11



Summary for Subcatchment 2S: EDA-12

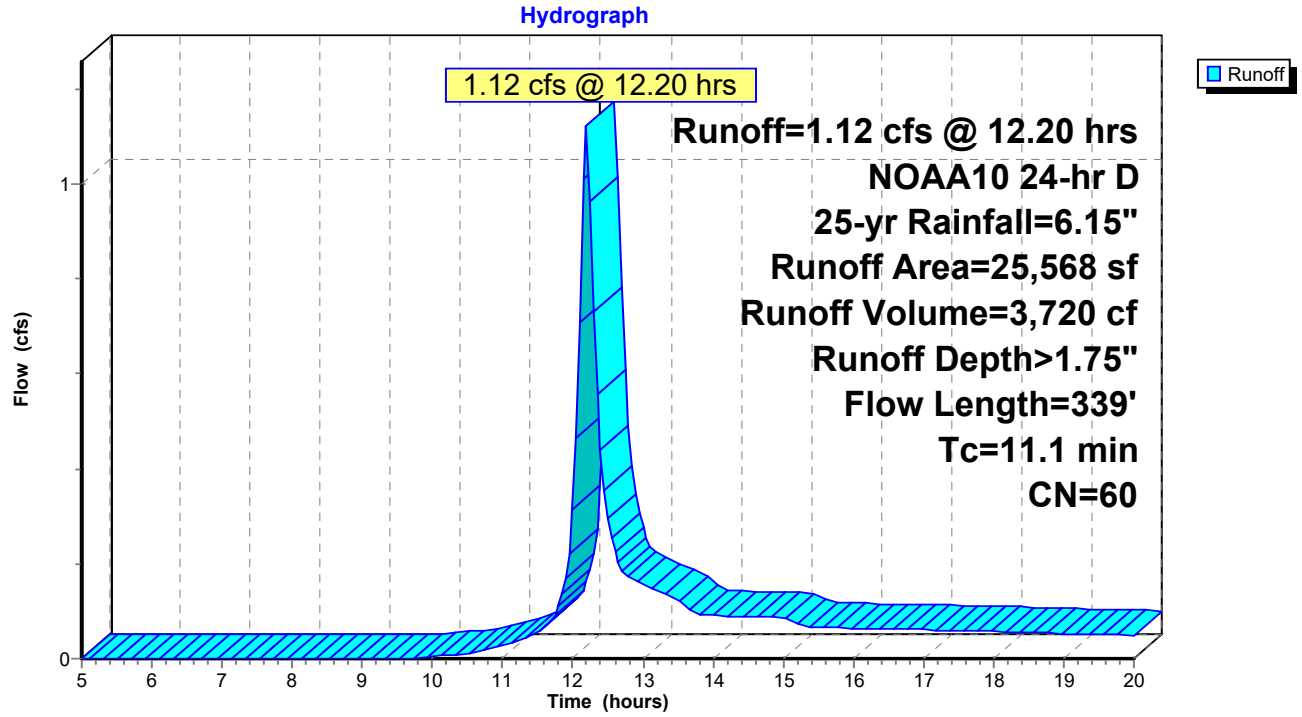
Runoff = 1.12 cfs @ 12.20 hrs, Volume= 3,720 cf, Depth> 1.75"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
25,568	60	Woods, Fair, HSG B
25,568		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	25	0.0480	0.09		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
0.6	65	0.1538	1.96		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
5.7	249	0.0210	0.72		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
11.1	339	Total			

Subcatchment 2S: EDA-12



Summary for Subcatchment 4S: EDA-22

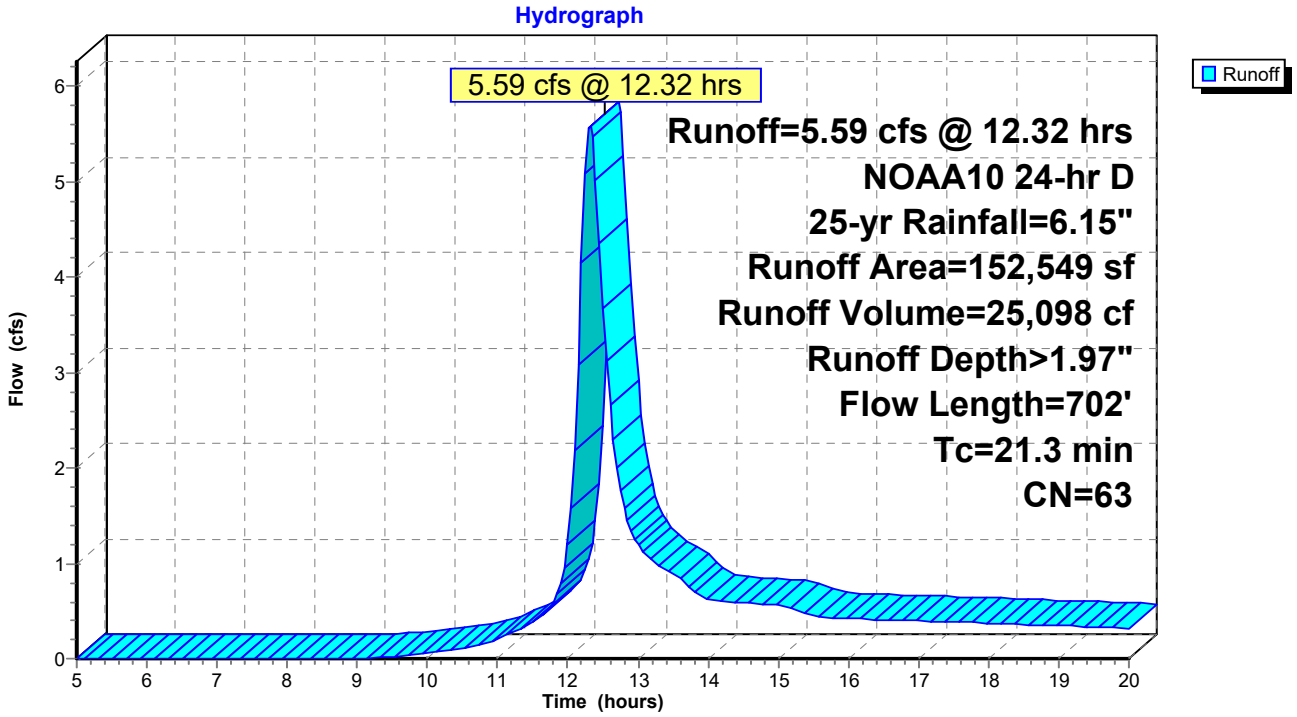
Runoff = 5.59 cfs @ 12.32 hrs, Volume= 25,098 cf, Depth> 1.97"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
126,832	60	Woods, Fair, HSG B
25,717	79	Woods, Fair, HSG D
152,549	63	Weighted Average
152,549		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	50	0.0275	0.08		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
10.9	652	0.0400	1.00		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
21.3	702	Total			

Subcatchment 4S: EDA-22



Summary for Subcatchment 5S: EDA-21

[49] Hint: Tc<2dt may require smaller dt

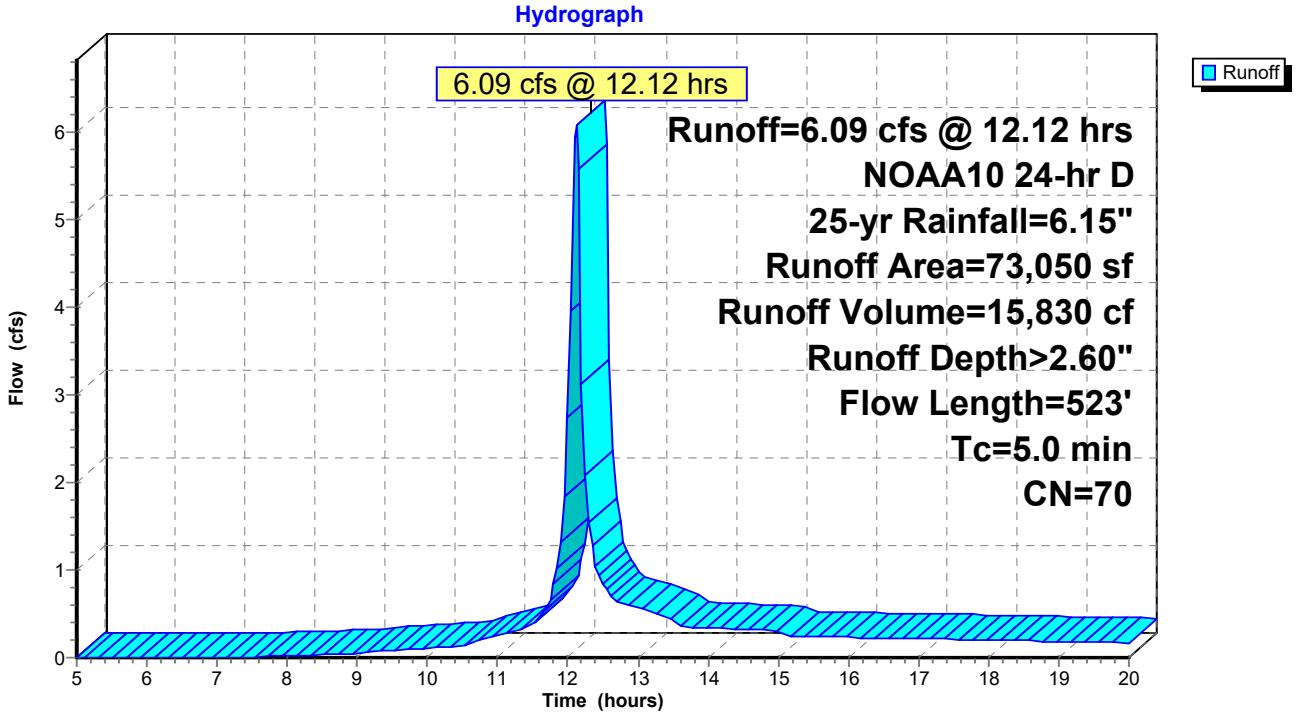
Runoff = 6.09 cfs @ 12.12 hrs, Volume= 15,830 cf, Depth> 2.60"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
35,444	60	Woods, Fair, HSG B
37,606	79	Woods, Fair, HSG D
73,050	70	Weighted Average
73,050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	5	0.1000	0.08		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
0.2	48	0.4300	3.28		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
2.8	470	0.3125	2.80		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
4.0	523	Total, Increased to minimum Tc = 5.0 min			

Subcatchment 5S: EDA-21



Summary for Subcatchment 6S: EDA23

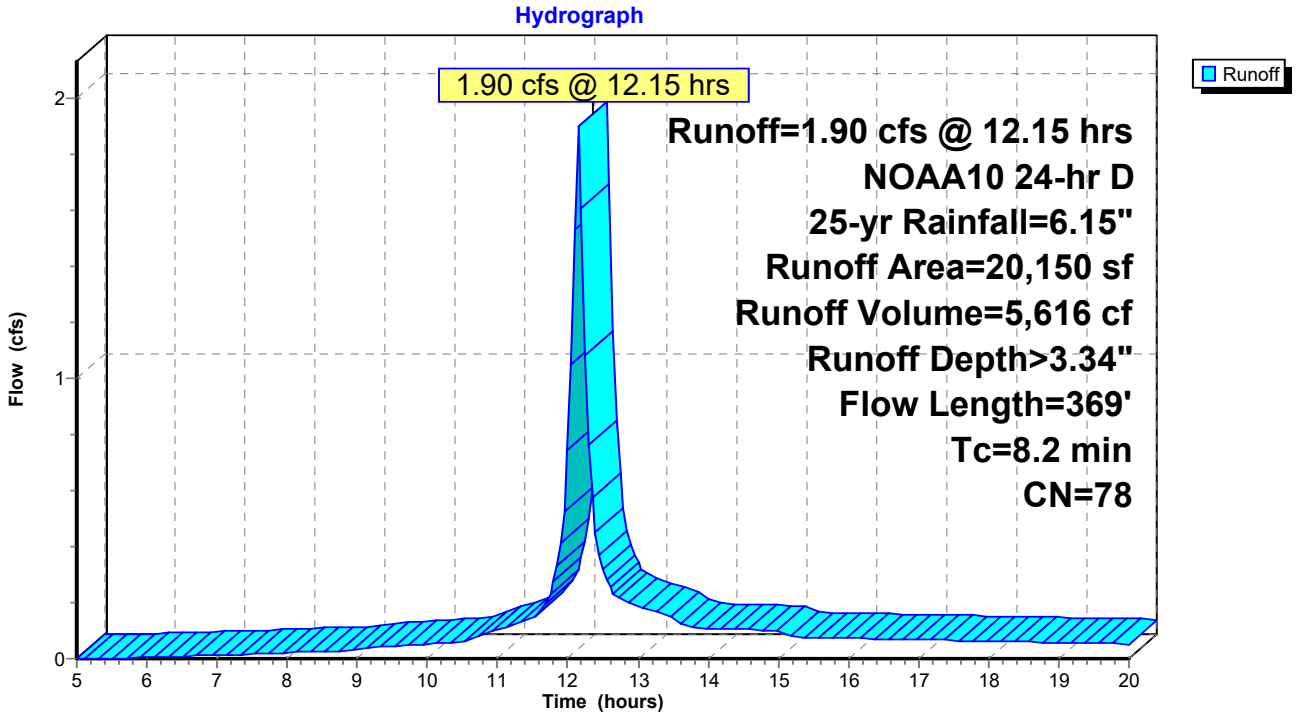
Runoff = 1.90 cfs @ 12.15 hrs, Volume= 5,616 cf, Depth> 3.34"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
4,687	60	Woods, Fair, HSG B
15,463	83	Woods, Poor, HSG D
20,150	78	Weighted Average
20,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	14	0.0357	0.07		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
4.8	355	0.0620	1.24		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
8.2	369	Total			

Subcatchment 6S: EDA23



Summary for Subcatchment 7S: EDA-31

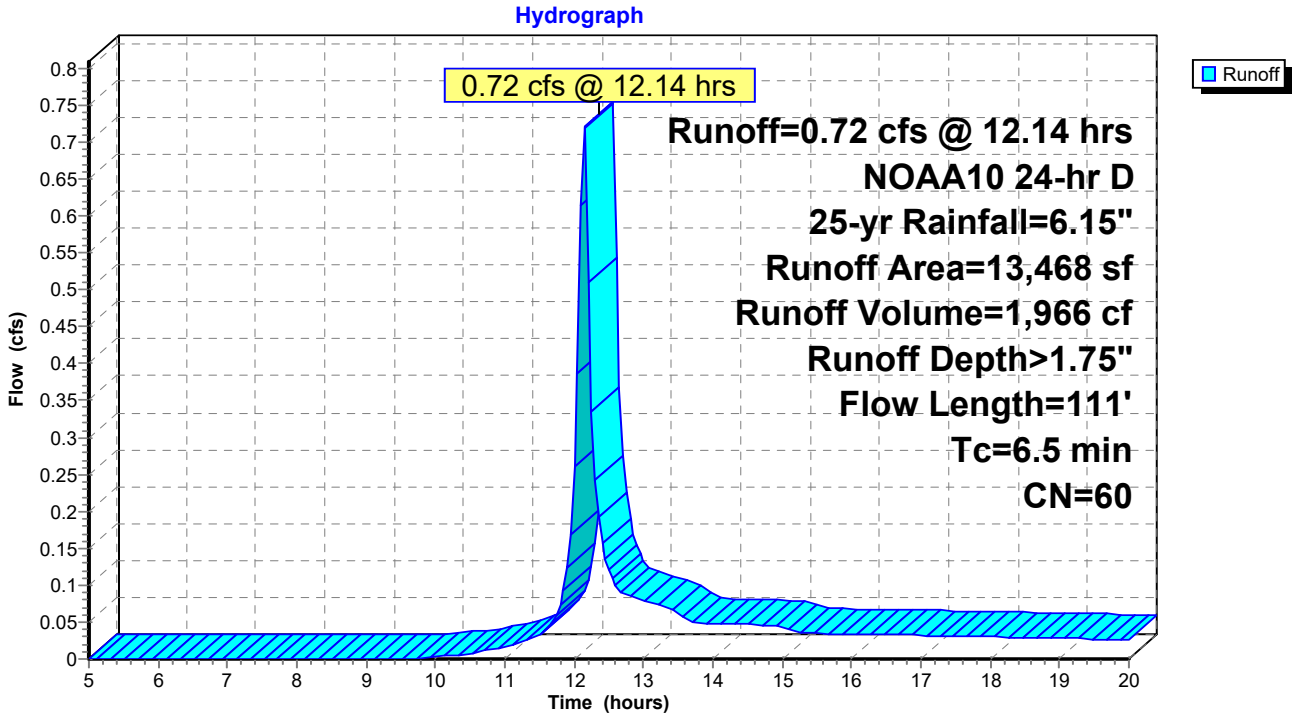
Runoff = 0.72 cfs @ 12.14 hrs, Volume= 1,966 cf, Depth> 1.75"
Routed to Link 12L : DP-3 (NORTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
13,468	60	Woods, Fair, HSG B
13,468		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	38	0.1000	0.13		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
1.5	73	0.0274	0.83		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
6.5	111	Total			

Subcatchment 7S: EDA-31



Summary for Subcatchment 8S: EDA-41

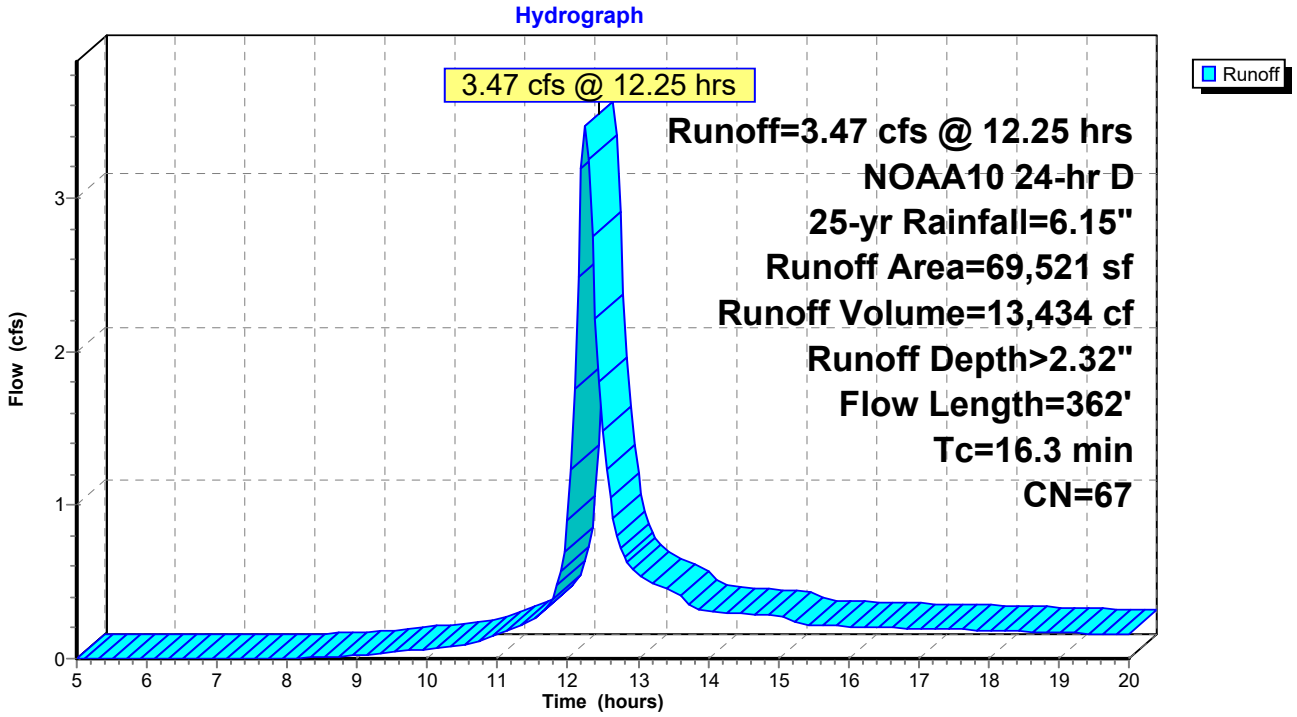
Runoff = 3.47 cfs @ 12.25 hrs, Volume= 13,434 cf, Depth> 2.32"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
44,573	60	Woods, Fair, HSG B
24,948	79	Woods, Fair, HSG D
69,521	67	Weighted Average
69,521		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	79	0.0380	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
3.1	283	0.0919	1.52		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
16.3	362	Total			

Subcatchment 8S: EDA-41



Summary for Subcatchment 9S: EDA-42

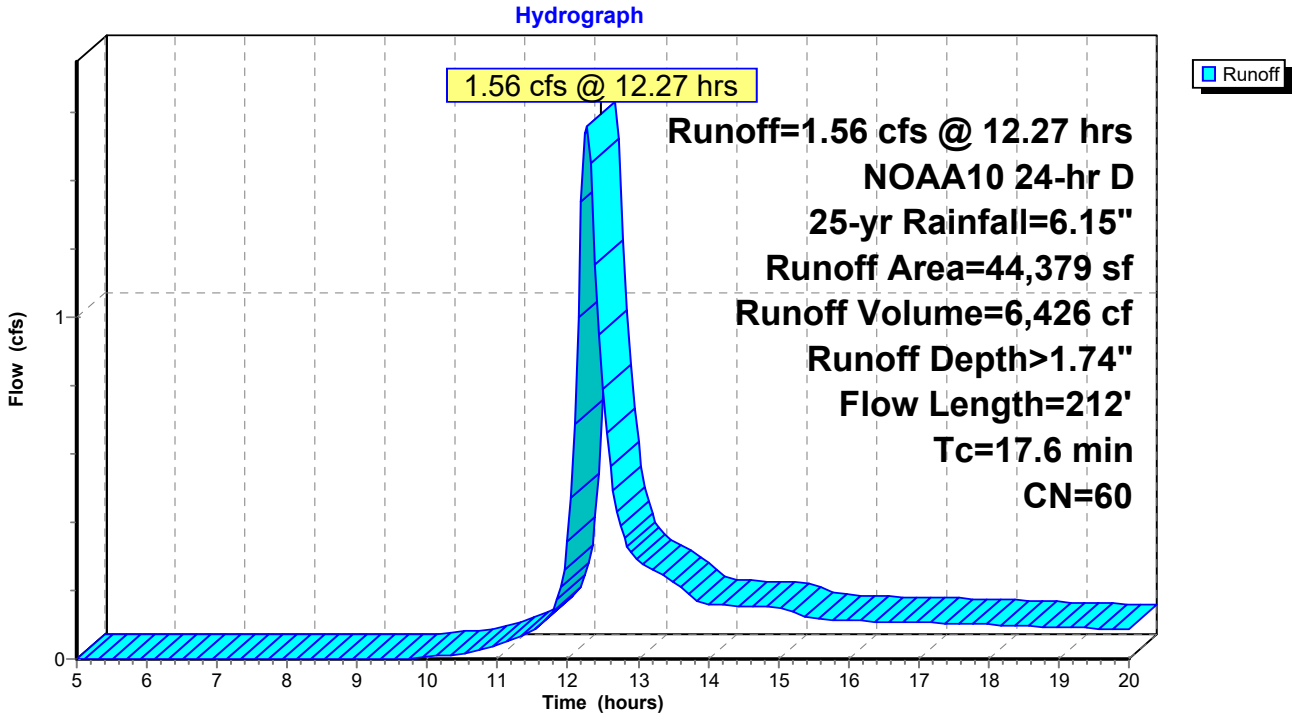
Runoff = 1.56 cfs @ 12.27 hrs, Volume= 6,426 cf, Depth> 1.74"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
44,379	60	Woods, Fair, HSG B
44,379		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	96	0.0365	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
1.9	116	0.0431	1.04		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
17.6	212	Total			

Subcatchment 9S: EDA-42

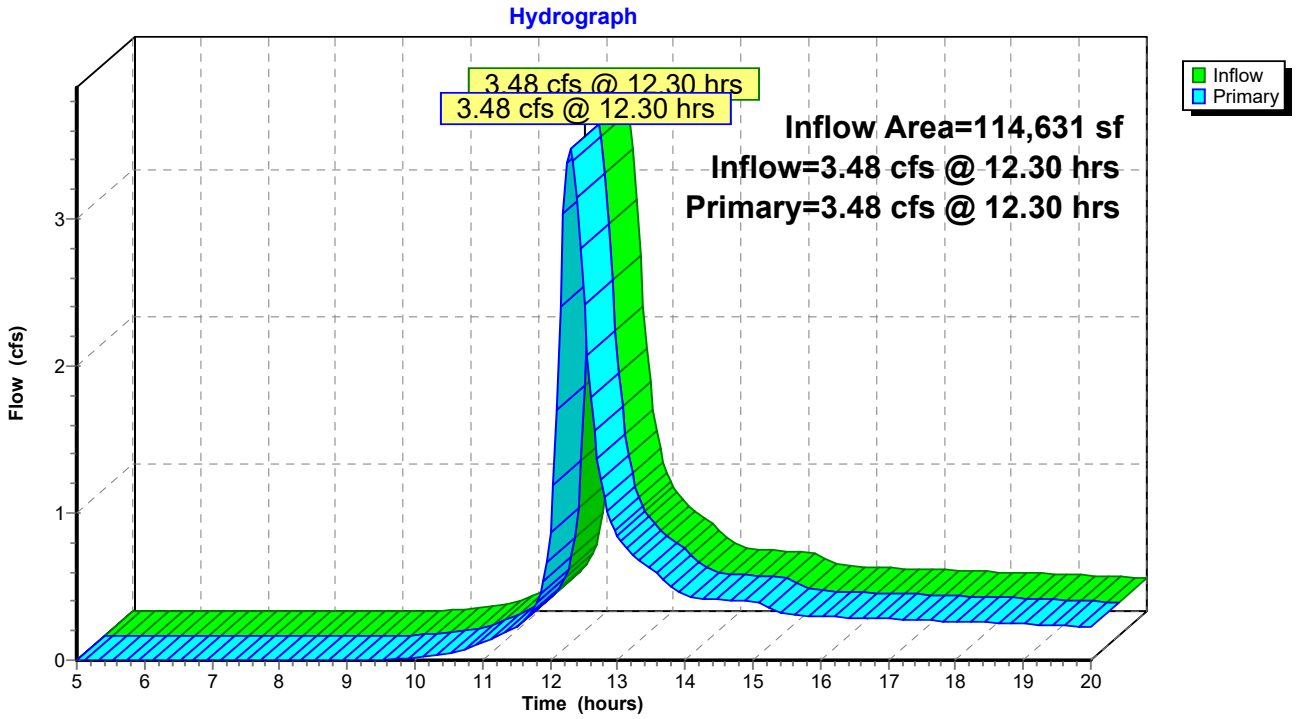


Summary for Link 10L: DP-1 (EXISTING 18" RCP)

Inflow Area = 114,631 sf, 2.04% Impervious, Inflow Depth > 1.80" for 25-yr event
Inflow = 3.48 cfs @ 12.30 hrs, Volume= 17,151 cf
Primary = 3.48 cfs @ 12.30 hrs, Volume= 17,151 cf, Atten= 0%, Lag= 0.0 min

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

Link 10L: DP-1 (EXISTING 18" RCP)

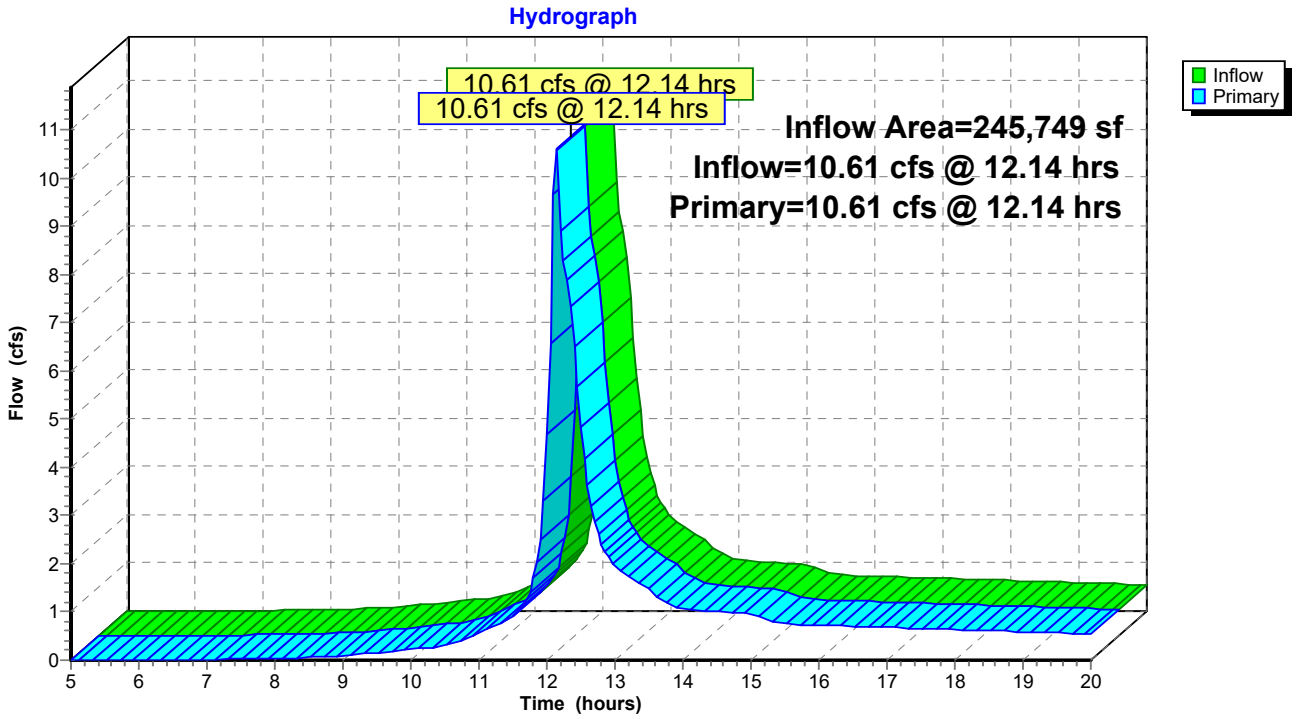


Summary for Link 11L: DP-2 (EXISTING WETLANDS)

Inflow Area = 245,749 sf, 0.00% Impervious, Inflow Depth > 2.27" for 25-yr event
Inflow = 10.61 cfs @ 12.14 hrs, Volume= 46,545 cf
Primary = 10.61 cfs @ 12.14 hrs, Volume= 46,545 cf, Atten= 0%, Lag= 0.0 min

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

Link 11L: DP-2 (EXISTING WETLANDS)

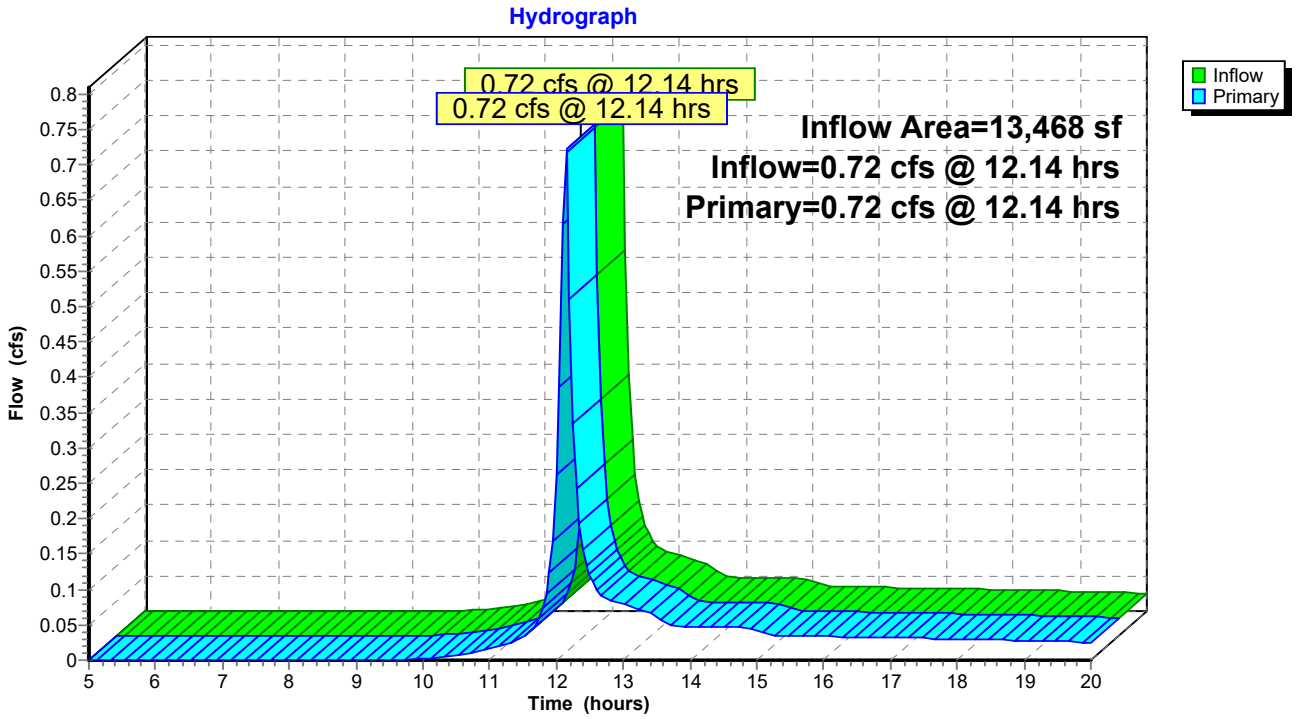


Summary for Link 12L: DP-3 (NORTHERN PROPERTY LINE)

Inflow Area = 13,468 sf, 0.00% Impervious, Inflow Depth > 1.75" for 25-yr event
Inflow = 0.72 cfs @ 12.14 hrs, Volume= 1,966 cf
Primary = 0.72 cfs @ 12.14 hrs, Volume= 1,966 cf, Atten= 0%, Lag= 0.0 min

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

Link 12L: DP-3 (NORTHERN PROPERTY LINE)

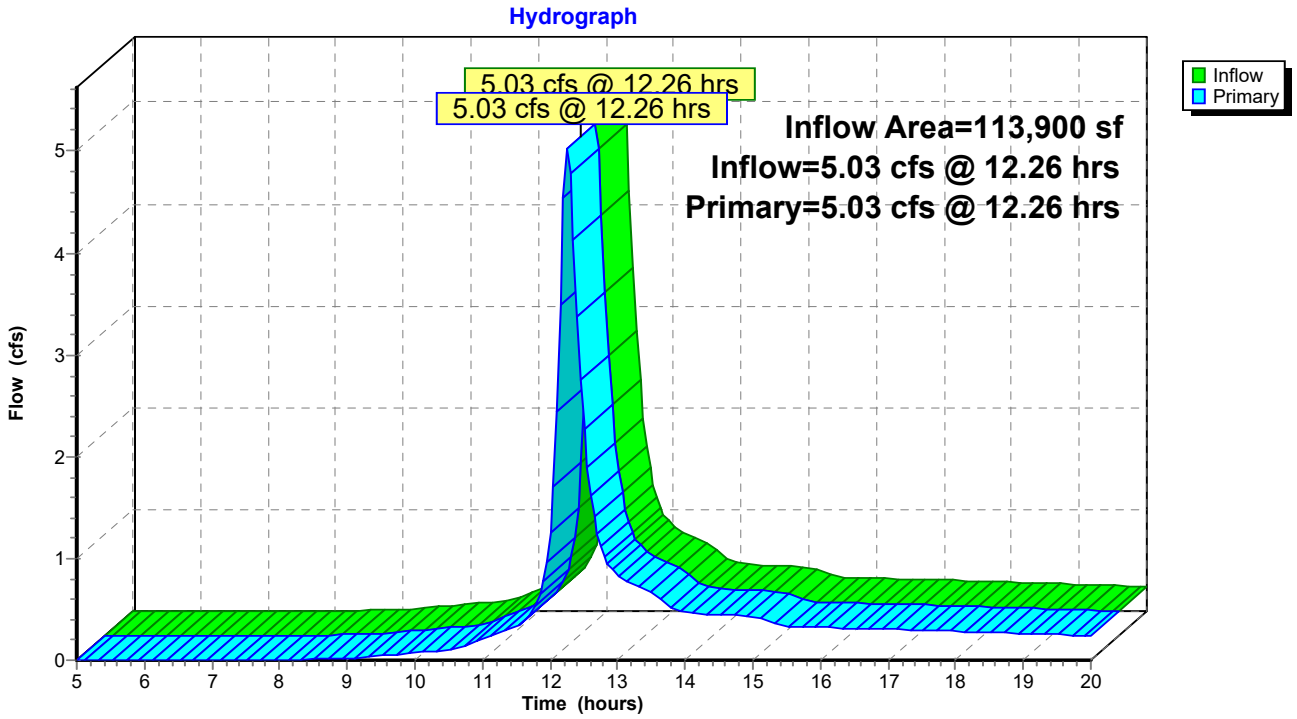


Summary for Link 13L: DP-4 (SOUTHERN PROPERTY LINE)

Inflow Area = 113,900 sf, 0.00% Impervious, Inflow Depth > 2.09" for 25-yr event
Inflow = 5.03 cfs @ 12.26 hrs, Volume= 19,860 cf
Primary = 5.03 cfs @ 12.26 hrs, Volume= 19,860 cf, Atten= 0%, Lag= 0.0 min

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

Link 13L: DP-4 (SOUTHERN PROPERTY LINE)



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

Subcatchment1S: EDA-11 Runoff Area=89,063 sf 2.62% Impervious Runoff Depth>2.29"
Flow Length=450' Tc=23.2 min CN=61 Runoff=3.62 cfs 16,994 cf

Subcatchment2S: EDA-12 Runoff Area=25,568 sf 0.00% Impervious Runoff Depth>2.22"
Flow Length=339' Tc=11.1 min CN=60 Runoff=1.44 cfs 4,727 cf

Subcatchment4S: EDA-22 Runoff Area=152,549 sf 0.00% Impervious Runoff Depth>2.48"
Flow Length=702' Tc=21.3 min CN=63 Runoff=7.06 cfs 31,474 cf

Subcatchment5S: EDA-21 Runoff Area=73,050 sf 0.00% Impervious Runoff Depth>3.17"
Flow Length=523' Tc=5.0 min CN=70 Runoff=7.40 cfs 19,319 cf

Subcatchment6S: EDA23 Runoff Area=20,150 sf 0.00% Impervious Runoff Depth>3.98"
Flow Length=369' Tc=8.2 min CN=78 Runoff=2.24 cfs 6,684 cf

Subcatchment7S: EDA-31 Runoff Area=13,468 sf 0.00% Impervious Runoff Depth>2.23"
Flow Length=111' Tc=6.5 min CN=60 Runoff=0.92 cfs 2,498 cf

Subcatchment8S: EDA-41 Runoff Area=69,521 sf 0.00% Impervious Runoff Depth>2.86"
Flow Length=362' Tc=16.3 min CN=67 Runoff=4.29 cfs 16,577 cf

Subcatchment9S: EDA-42 Runoff Area=44,379 sf 0.00% Impervious Runoff Depth>2.21"
Flow Length=212' Tc=17.6 min CN=60 Runoff=2.01 cfs 8,167 cf

Link 10L: DP-1 (EXISTING 18" RCP) Inflow=4.45 cfs 21,721 cf
Primary=4.45 cfs 21,721 cf

Link 11L: DP-2 (EXISTING WETLANDS) Inflow=13.03 cfs 57,477 cf
Primary=13.03 cfs 57,477 cf

Link 12L: DP-3 (NORTHERN PROPERTY LINE) Inflow=0.92 cfs 2,498 cf
Primary=0.92 cfs 2,498 cf

Link 13L: DP-4 (SOUTHERN PROPERTY LINE) Inflow=6.28 cfs 24,744 cf
Primary=6.28 cfs 24,744 cf

Total Runoff Area = 487,748 sf Runoff Volume = 106,439 cf Average Runoff Depth = 2.62"
99.52% Pervious = 485,414 sf 0.48% Impervious = 2,334 sf

Summary for Subcatchment 1S: EDA-11

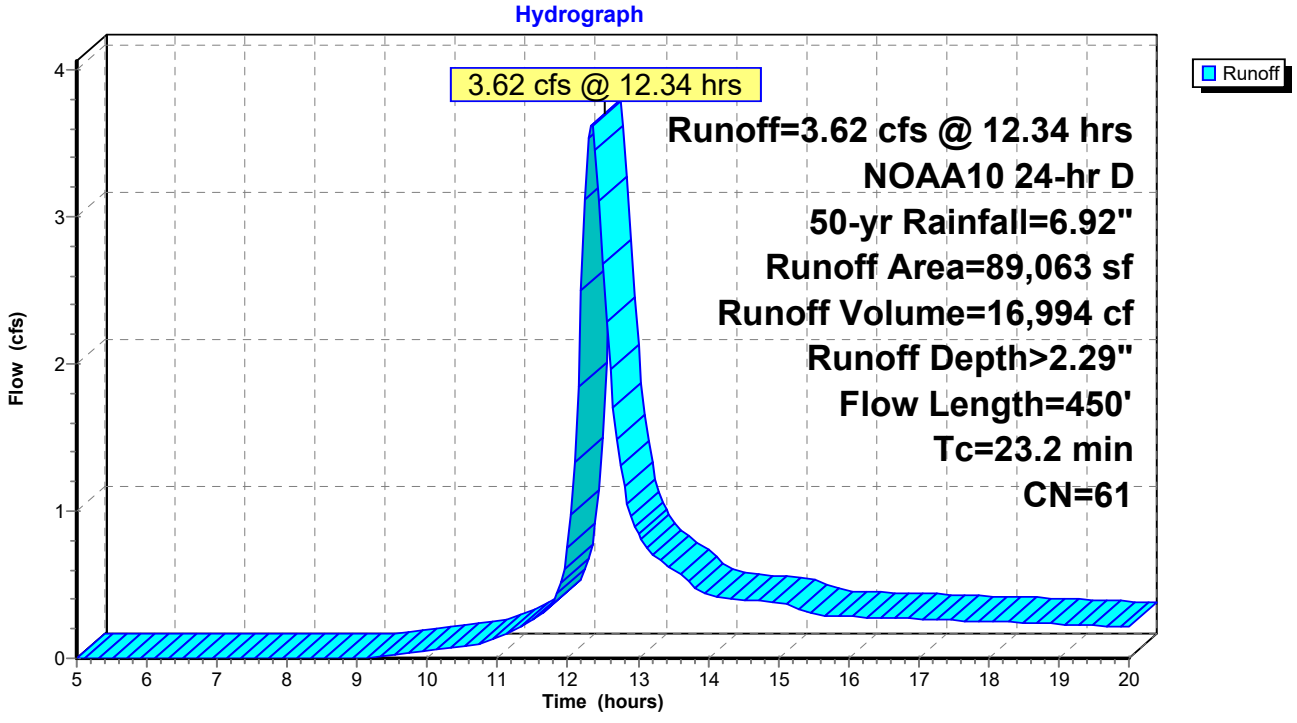
Runoff = 3.62 cfs @ 12.34 hrs, Volume= 16,994 cf, Depth> 2.29"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
86,729	60	Woods, Fair, HSG B
2,334	98	Paved parking, HSG D
89,063	61	Weighted Average
86,729		97.38% Pervious Area
2,334		2.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	95	0.0316	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
6.7	355	0.0310	0.88		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
23.2	450	Total			

Subcatchment 1S: EDA-11



Summary for Subcatchment 2S: EDA-12

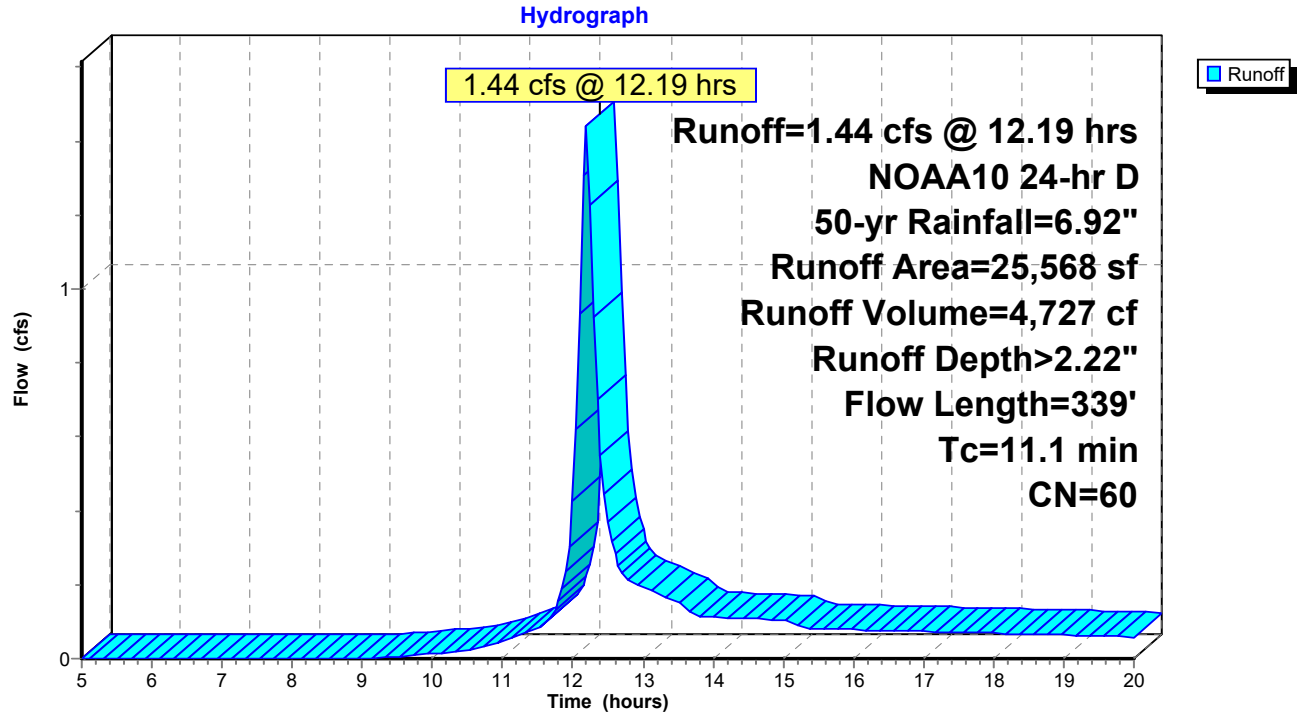
Runoff = 1.44 cfs @ 12.19 hrs, Volume= 4,727 cf, Depth> 2.22"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
25,568	60	Woods, Fair, HSG B
25,568		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	25	0.0480	0.09		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
0.6	65	0.1538	1.96		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
5.7	249	0.0210	0.72		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
11.1	339	Total			

Subcatchment 2S: EDA-12



Summary for Subcatchment 4S: EDA-22

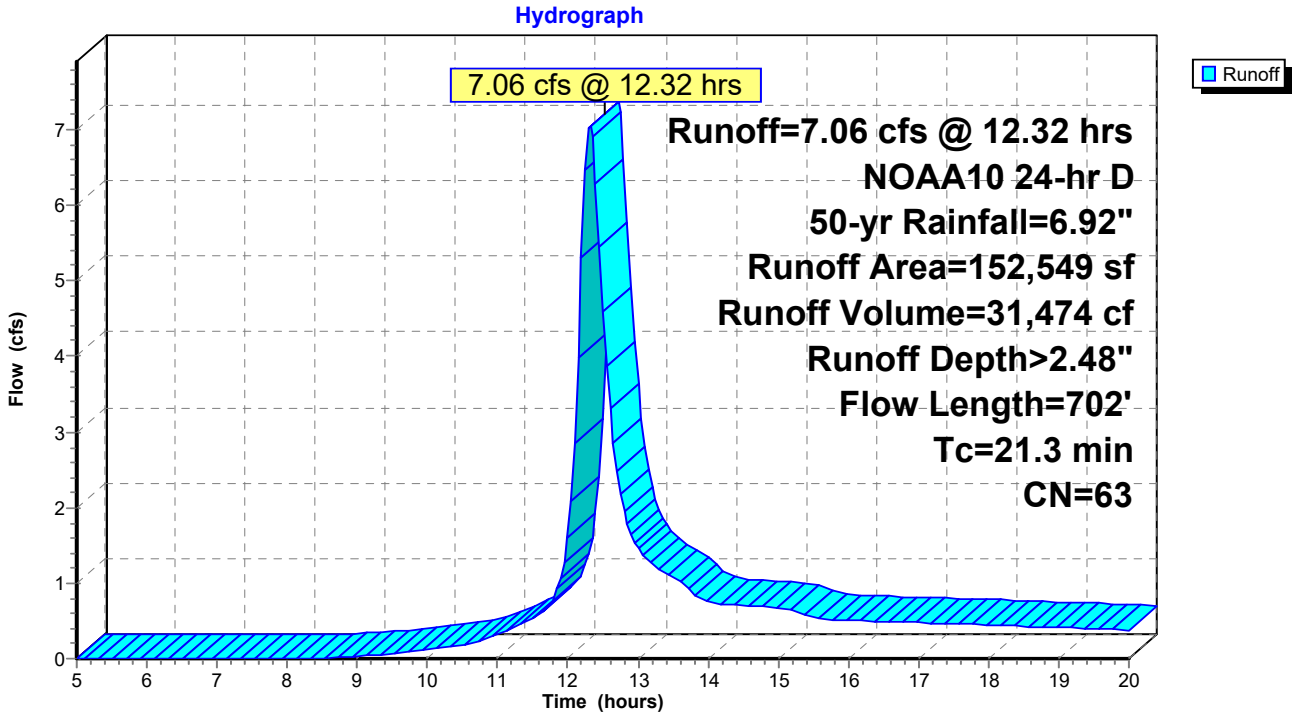
Runoff = 7.06 cfs @ 12.32 hrs, Volume= 31,474 cf, Depth> 2.48"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
126,832	60	Woods, Fair, HSG B
25,717	79	Woods, Fair, HSG D
152,549	63	Weighted Average
152,549		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	50	0.0275	0.08		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
10.9	652	0.0400	1.00		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
21.3	702	Total			

Subcatchment 4S: EDA-22



Summary for Subcatchment 5S: EDA-21

[49] Hint: Tc<2dt may require smaller dt

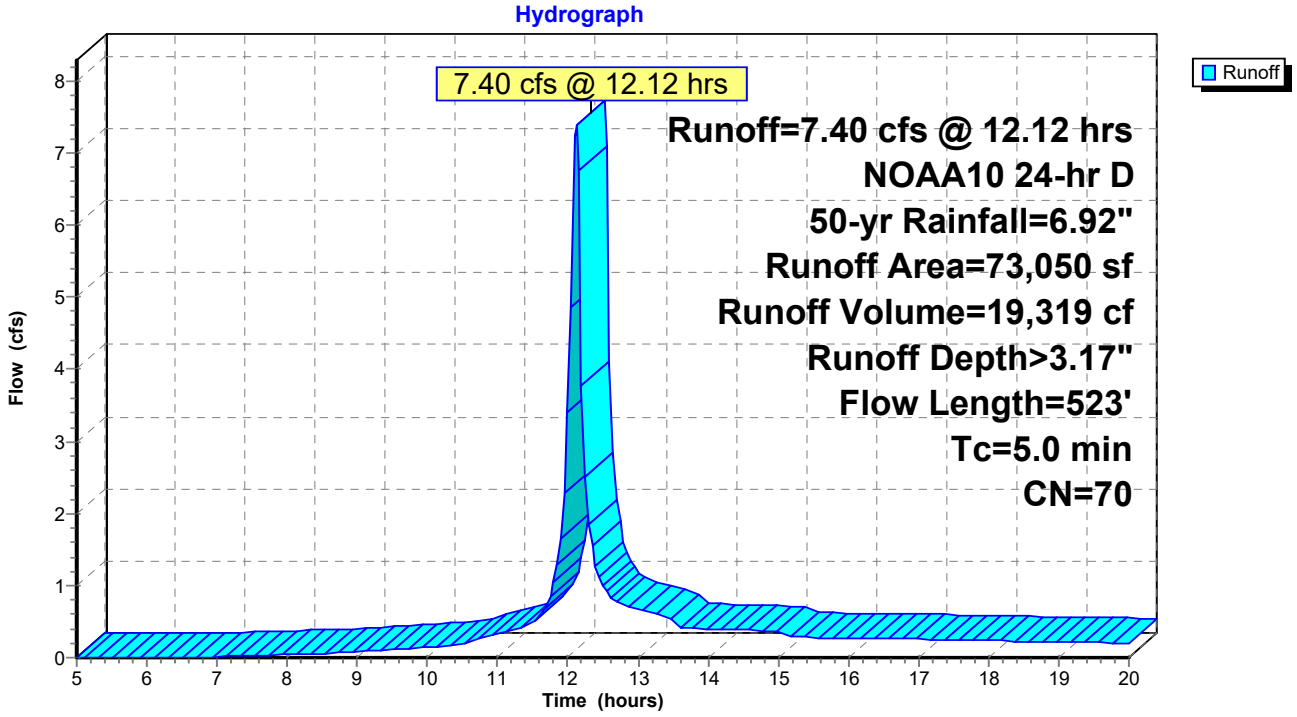
Runoff = 7.40 cfs @ 12.12 hrs, Volume= 19,319 cf, Depth> 3.17"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
35,444	60	Woods, Fair, HSG B
37,606	79	Woods, Fair, HSG D
73,050	70	Weighted Average
73,050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	5	0.1000	0.08		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
0.2	48	0.4300	3.28		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
2.8	470	0.3125	2.80		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
4.0	523	Total, Increased to minimum Tc = 5.0 min			

Subcatchment 5S: EDA-21



Summary for Subcatchment 6S: EDA23

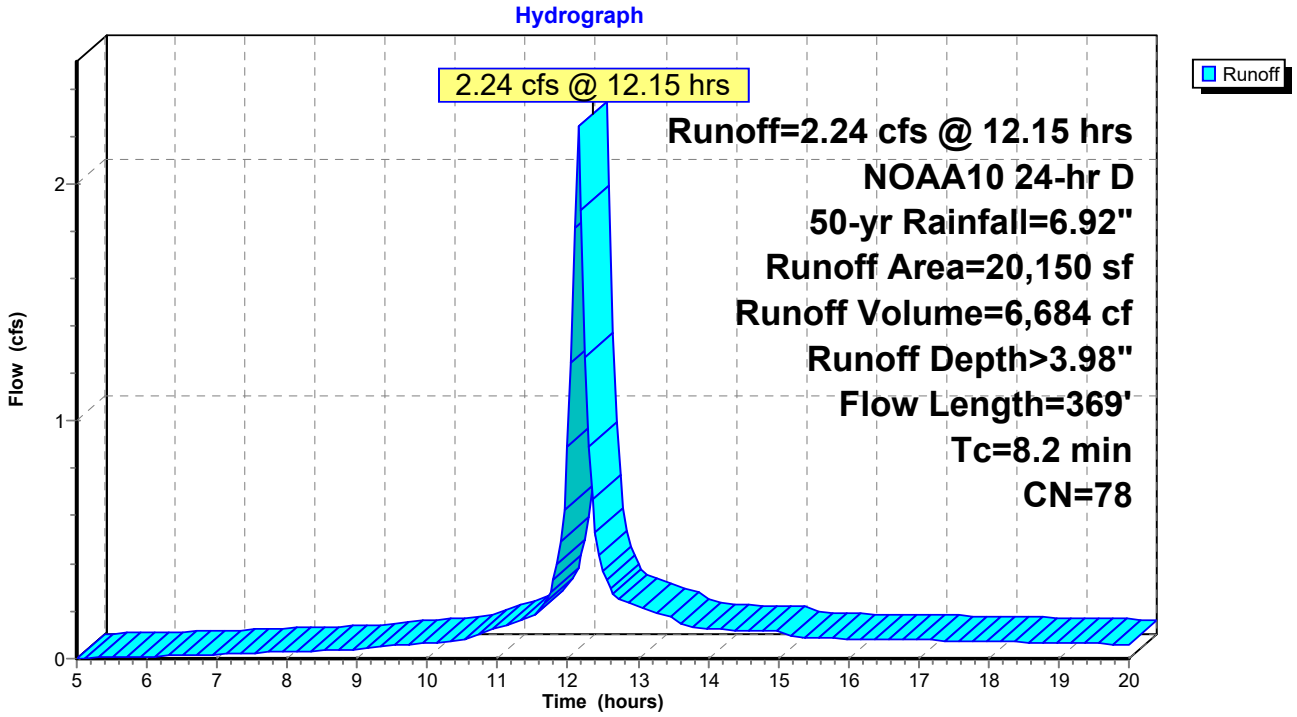
Runoff = 2.24 cfs @ 12.15 hrs, Volume= 6,684 cf, Depth> 3.98"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
4,687	60	Woods, Fair, HSG B
15,463	83	Woods, Poor, HSG D
20,150	78	Weighted Average
20,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	14	0.0357	0.07		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
4.8	355	0.0620	1.24		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
8.2	369	Total			

Subcatchment 6S: EDA23



Summary for Subcatchment 7S: EDA-31

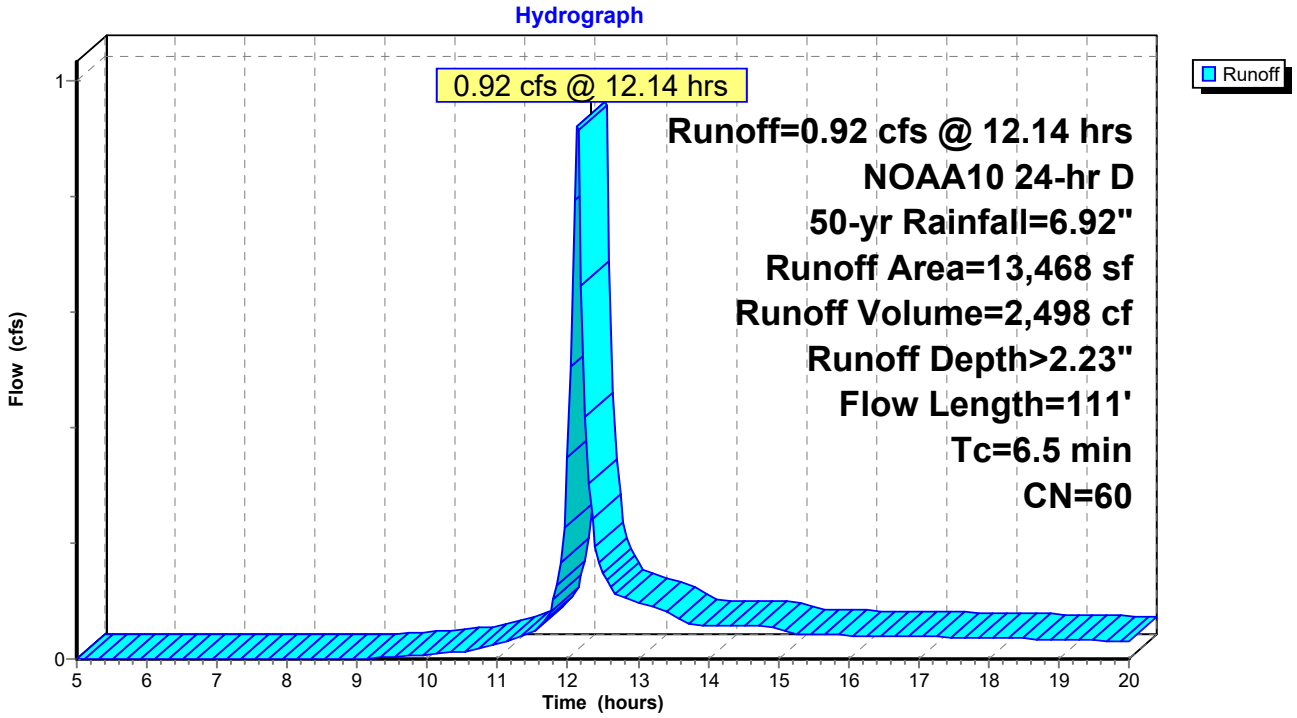
Runoff = 0.92 cfs @ 12.14 hrs, Volume= 2,498 cf, Depth> 2.23"
Routed to Link 12L : DP-3 (NORTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
13,468	60	Woods, Fair, HSG B
13,468		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	38	0.1000	0.13		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
1.5	73	0.0274	0.83		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
6.5	111	Total			

Subcatchment 7S: EDA-31



Summary for Subcatchment 8S: EDA-41

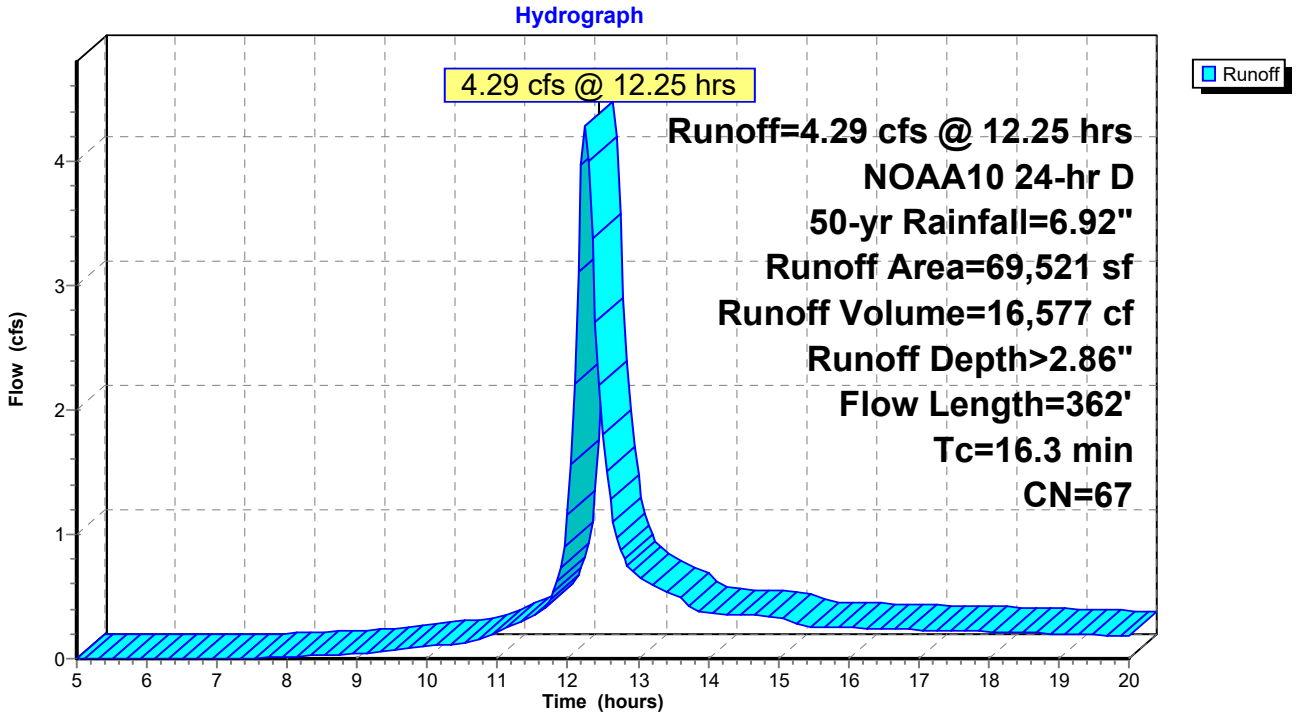
Runoff = 4.29 cfs @ 12.25 hrs, Volume= 16,577 cf, Depth> 2.86"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
44,573	60	Woods, Fair, HSG B
24,948	79	Woods, Fair, HSG D
69,521	67	Weighted Average
69,521		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	79	0.0380	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
3.1	283	0.0919	1.52		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
16.3	362	Total			

Subcatchment 8S: EDA-41



Summary for Subcatchment 9S: EDA-42

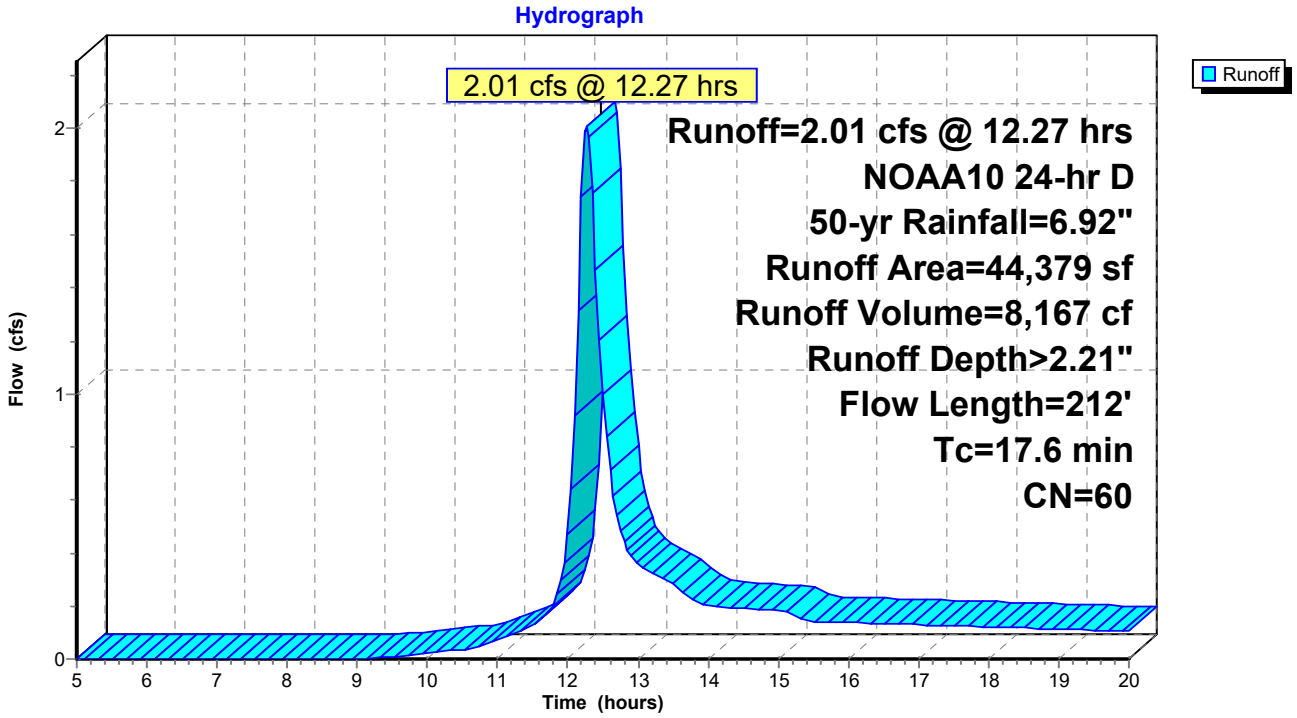
Runoff = 2.01 cfs @ 12.27 hrs, Volume= 8,167 cf, Depth> 2.21"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
44,379	60	Woods, Fair, HSG B
44,379		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	96	0.0365	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
1.9	116	0.0431	1.04		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
17.6	212	Total			

Subcatchment 9S: EDA-42

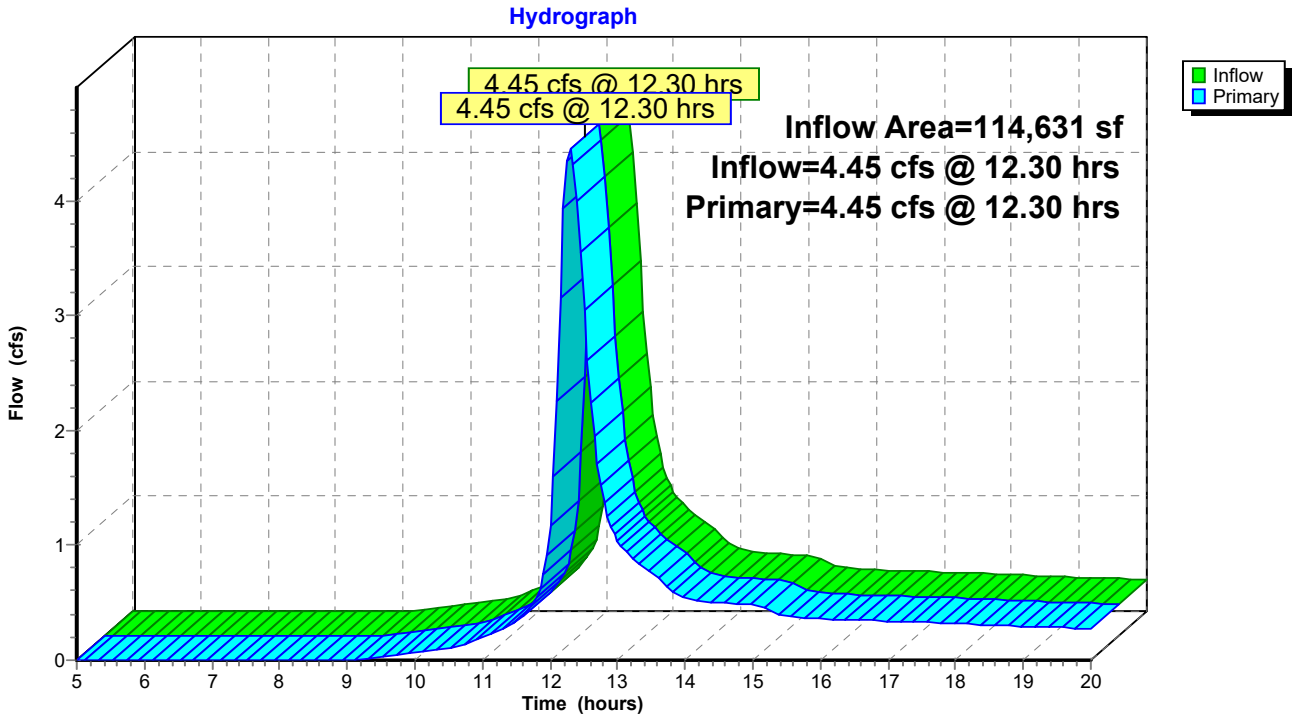


Summary for Link 10L: DP-1 (EXISTING 18" RCP)

Inflow Area = 114,631 sf, 2.04% Impervious, Inflow Depth > 2.27" for 50-yr event
Inflow = 4.45 cfs @ 12.30 hrs, Volume= 21,721 cf
Primary = 4.45 cfs @ 12.30 hrs, Volume= 21,721 cf, Atten= 0%, Lag= 0.0 min

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

Link 10L: DP-1 (EXISTING 18" RCP)

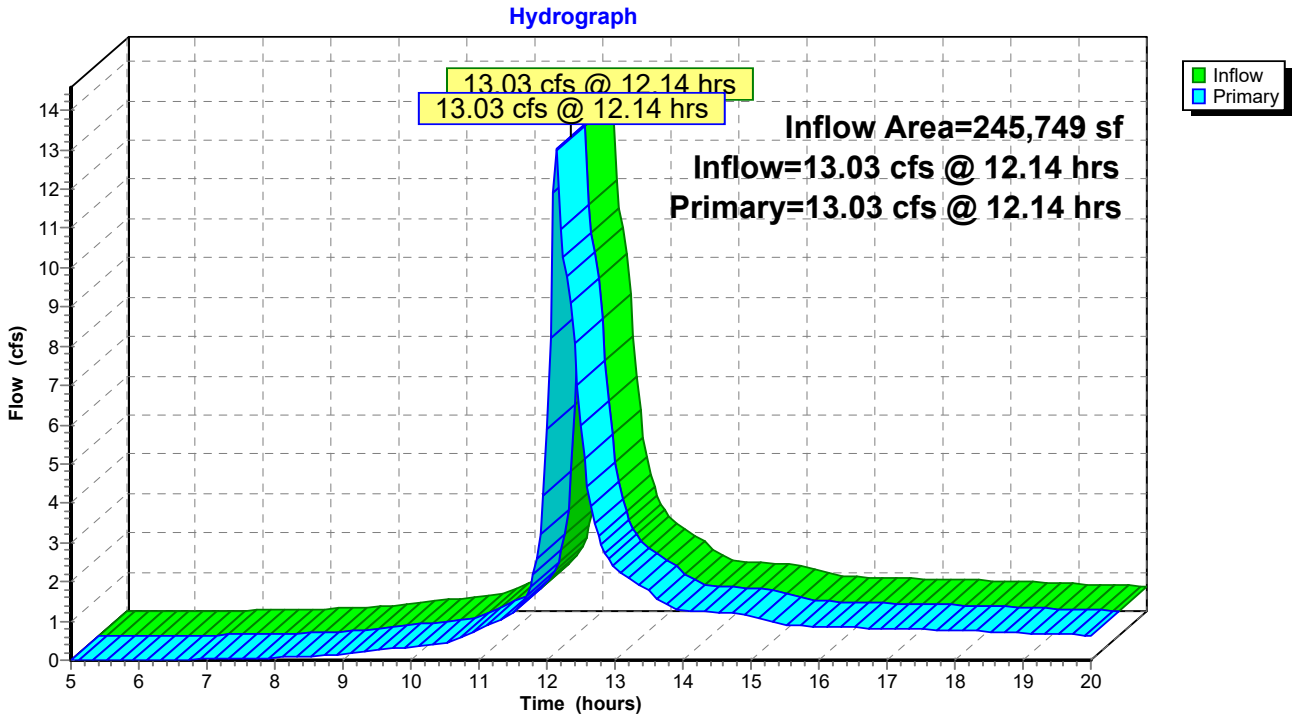


Summary for Link 11L: DP-2 (EXISTING WETLANDS)

Inflow Area = 245,749 sf, 0.00% Impervious, Inflow Depth > 2.81" for 50-yr event
Inflow = 13.03 cfs @ 12.14 hrs, Volume= 57,477 cf
Primary = 13.03 cfs @ 12.14 hrs, Volume= 57,477 cf, Atten= 0%, Lag= 0.0 min

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

Link 11L: DP-2 (EXISTING WETLANDS)

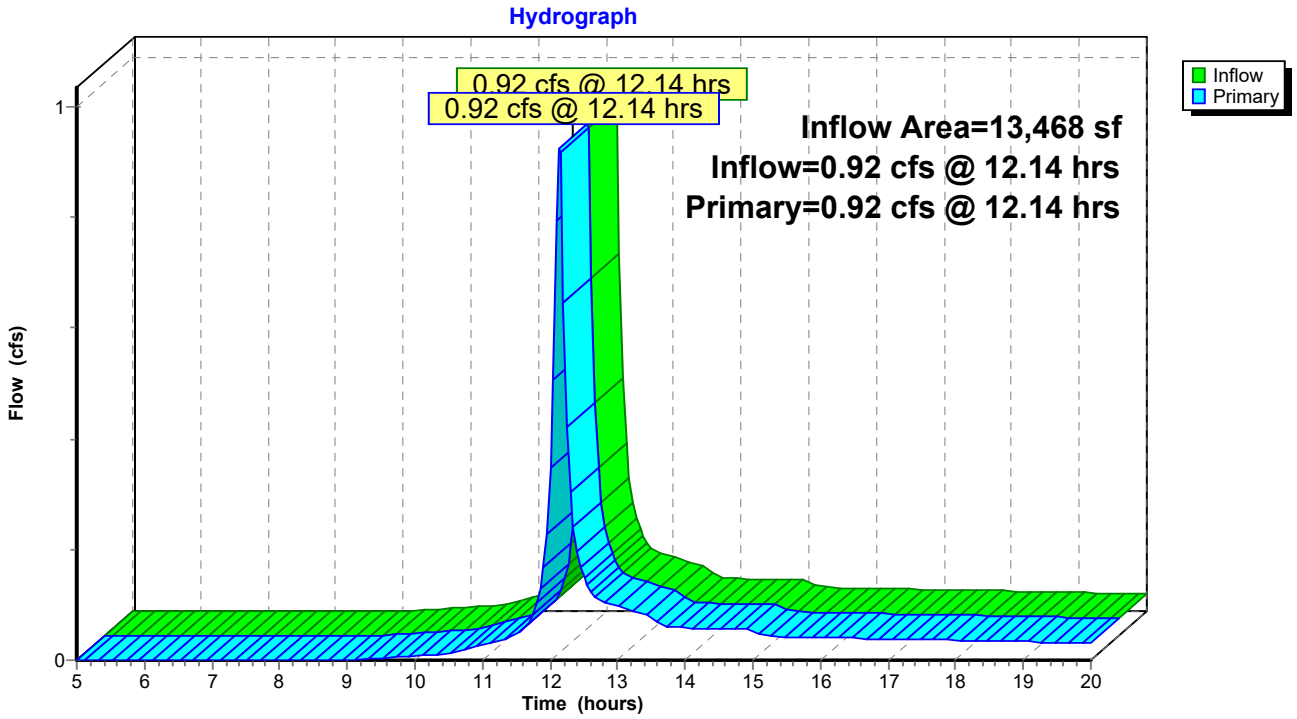


Summary for Link 12L: DP-3 (NORTHERN PROPERTY LINE)

Inflow Area = 13,468 sf, 0.00% Impervious, Inflow Depth > 2.23" for 50-yr event
Inflow = 0.92 cfs @ 12.14 hrs, Volume= 2,498 cf
Primary = 0.92 cfs @ 12.14 hrs, Volume= 2,498 cf, Atten= 0%, Lag= 0.0 min

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

Link 12L: DP-3 (NORTHERN PROPERTY LINE)

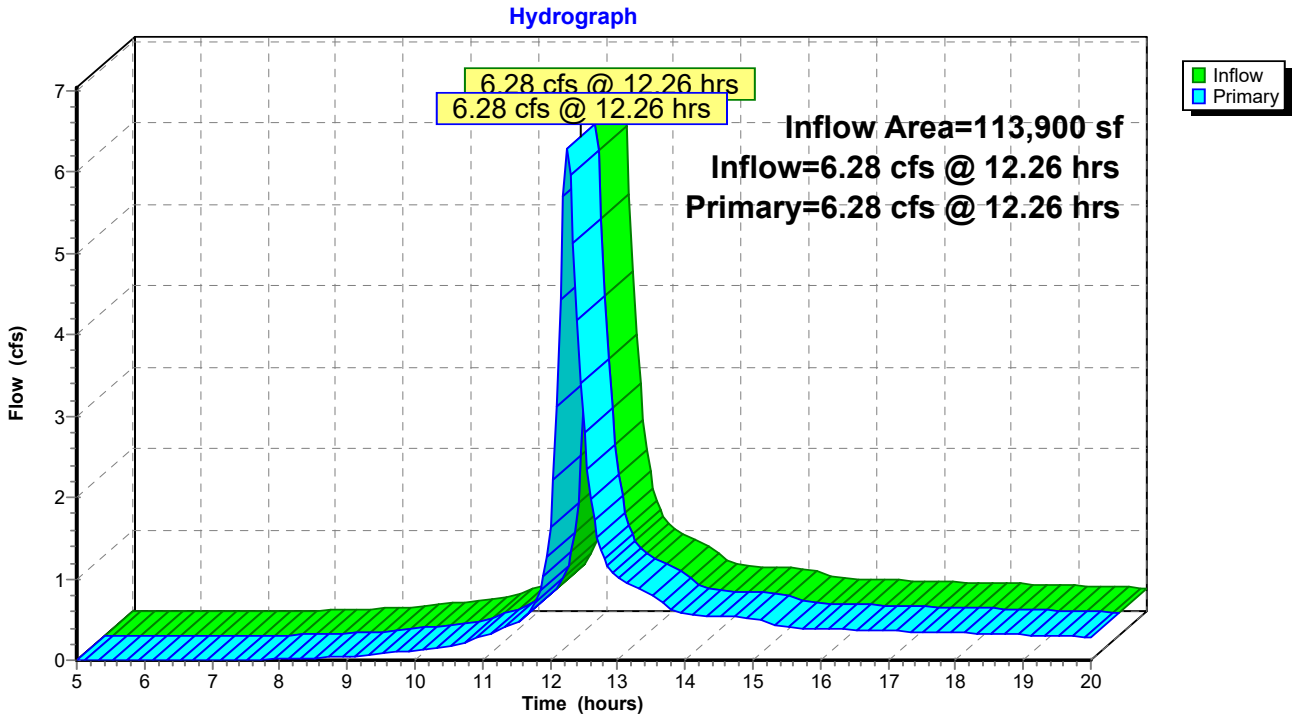


Summary for Link 13L: DP-4 (SOUTHERN PROPERTY LINE)

Inflow Area = 113,900 sf, 0.00% Impervious, Inflow Depth > 2.61" for 50-yr event
Inflow = 6.28 cfs @ 12.26 hrs, Volume= 24,744 cf
Primary = 6.28 cfs @ 12.26 hrs, Volume= 24,744 cf, Atten= 0%, Lag= 0.0 min

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

Link 13L: DP-4 (SOUTHERN PROPERTY LINE)



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

Subcatchment1S: EDA-11 Runoff Area=89,063 sf 2.62% Impervious Runoff Depth>2.83"
Flow Length=450' Tc=23.2 min CN=61 Runoff=4.50 cfs 21,010 cf

Subcatchment2S: EDA-12 Runoff Area=25,568 sf 0.00% Impervious Runoff Depth>2.75"
Flow Length=339' Tc=11.1 min CN=60 Runoff=1.79 cfs 5,864 cf

Subcatchment4S: EDA-22 Runoff Area=152,549 sf 0.00% Impervious Runoff Depth>3.04"
Flow Length=702' Tc=21.3 min CN=63 Runoff=8.68 cfs 38,622 cf

Subcatchment5S: EDA-21 Runoff Area=73,050 sf 0.00% Impervious Runoff Depth>3.81"
Flow Length=523' Tc=5.0 min CN=70 Runoff=8.82 cfs 23,165 cf

Subcatchment6S: EDA23 Runoff Area=20,150 sf 0.00% Impervious Runoff Depth>4.67"
Flow Length=369' Tc=8.2 min CN=78 Runoff=2.61 cfs 7,839 cf

Subcatchment7S: EDA-31 Runoff Area=13,468 sf 0.00% Impervious Runoff Depth>2.76"
Flow Length=111' Tc=6.5 min CN=60 Runoff=1.15 cfs 3,098 cf

Subcatchment8S: EDA-41 Runoff Area=69,521 sf 0.00% Impervious Runoff Depth>3.46"
Flow Length=362' Tc=16.3 min CN=67 Runoff=5.18 cfs 20,066 cf

Subcatchment9S: EDA-42 Runoff Area=44,379 sf 0.00% Impervious Runoff Depth>2.74"
Flow Length=212' Tc=17.6 min CN=60 Runoff=2.51 cfs 10,135 cf

Link 10L: DP-1 (EXISTING 18" RCP) Inflow=5.54 cfs 26,875 cf
Primary=5.54 cfs 26,875 cf

Link 11L: DP-2 (EXISTING WETLANDS) Inflow=15.68 cfs 69,627 cf
Primary=15.68 cfs 69,627 cf

Link 12L: DP-3 (NORTHERN PROPERTY LINE) Inflow=1.15 cfs 3,098 cf
Primary=1.15 cfs 3,098 cf

Link 13L: DP-4 (SOUTHERN PROPERTY LINE) Inflow=7.67 cfs 30,200 cf
Primary=7.67 cfs 30,200 cf

Total Runoff Area = 487,748 sf Runoff Volume = 129,800 cf Average Runoff Depth = 3.19"
99.52% Pervious = 485,414 sf 0.48% Impervious = 2,334 sf

Summary for Subcatchment 1S: EDA-11

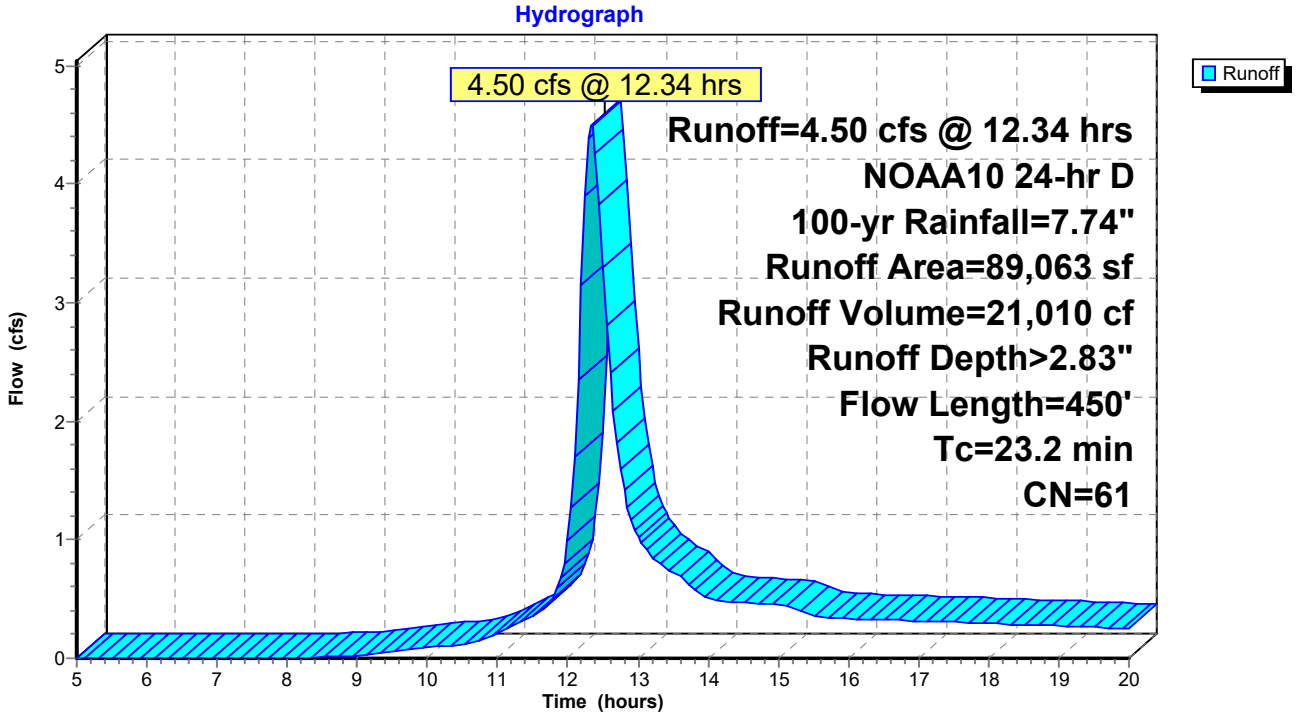
Runoff = 4.50 cfs @ 12.34 hrs, Volume= 21,010 cf, Depth> 2.83"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
86,729	60	Woods, Fair, HSG B
2,334	98	Paved parking, HSG D
89,063	61	Weighted Average
86,729		97.38% Pervious Area
2,334		2.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.5	95	0.0316	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
6.7	355	0.0310	0.88		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
23.2	450	Total			

Subcatchment 1S: EDA-11



Summary for Subcatchment 2S: EDA-12

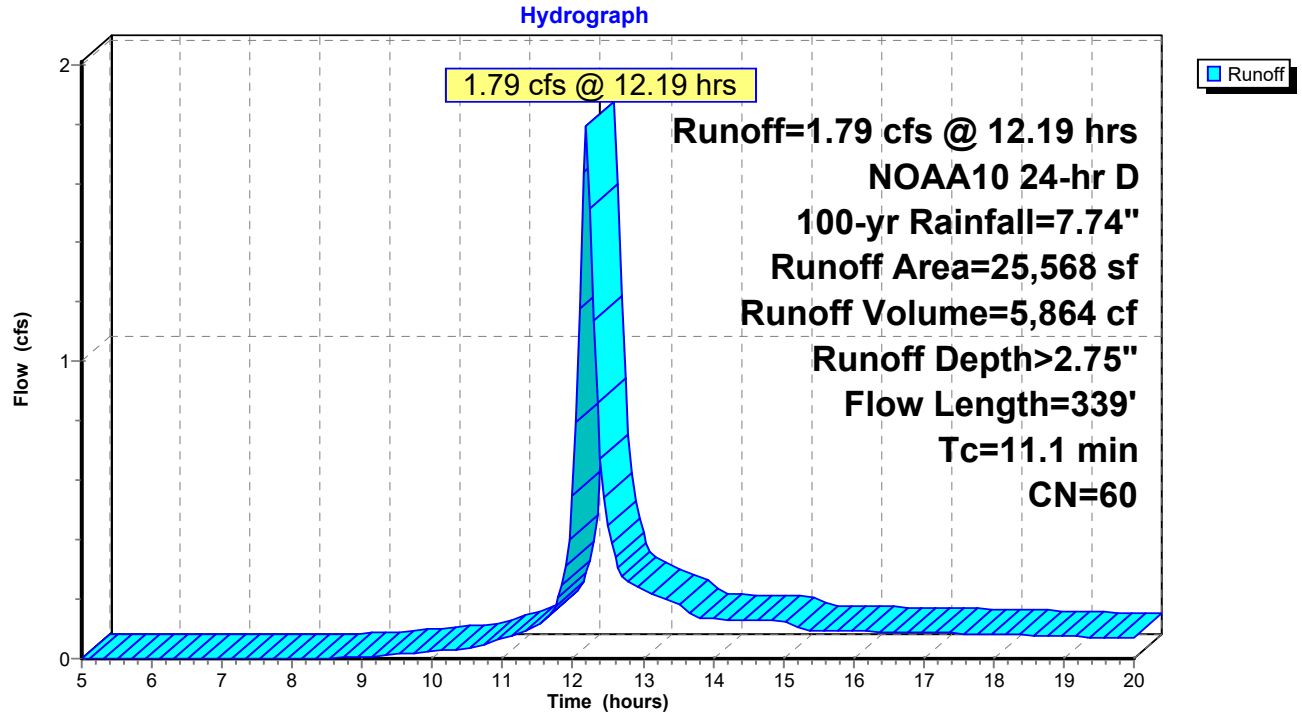
Runoff = 1.79 cfs @ 12.19 hrs, Volume= 5,864 cf, Depth> 2.75"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
25,568	60	Woods, Fair, HSG B
25,568		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	25	0.0480	0.09		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
0.6	65	0.1538	1.96		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
5.7	249	0.0210	0.72		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
11.1	339	Total			

Subcatchment 2S: EDA-12



Summary for Subcatchment 4S: EDA-22

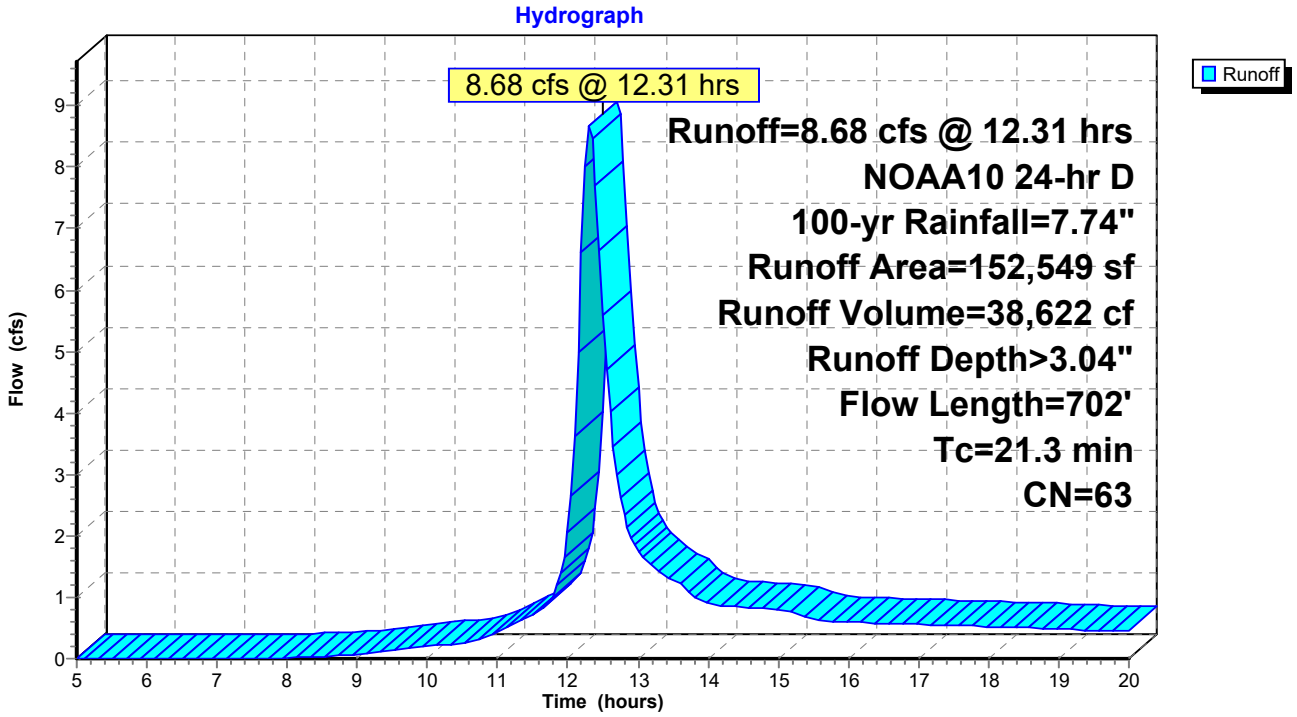
Runoff = 8.68 cfs @ 12.31 hrs, Volume= 38,622 cf, Depth> 3.04"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
126,832	60	Woods, Fair, HSG B
25,717	79	Woods, Fair, HSG D
152,549	63	Weighted Average
152,549		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	50	0.0275	0.08		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
10.9	652	0.0400	1.00		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
21.3	702	Total			

Subcatchment 4S: EDA-22



Summary for Subcatchment 5S: EDA-21

[49] Hint: Tc<2dt may require smaller dt

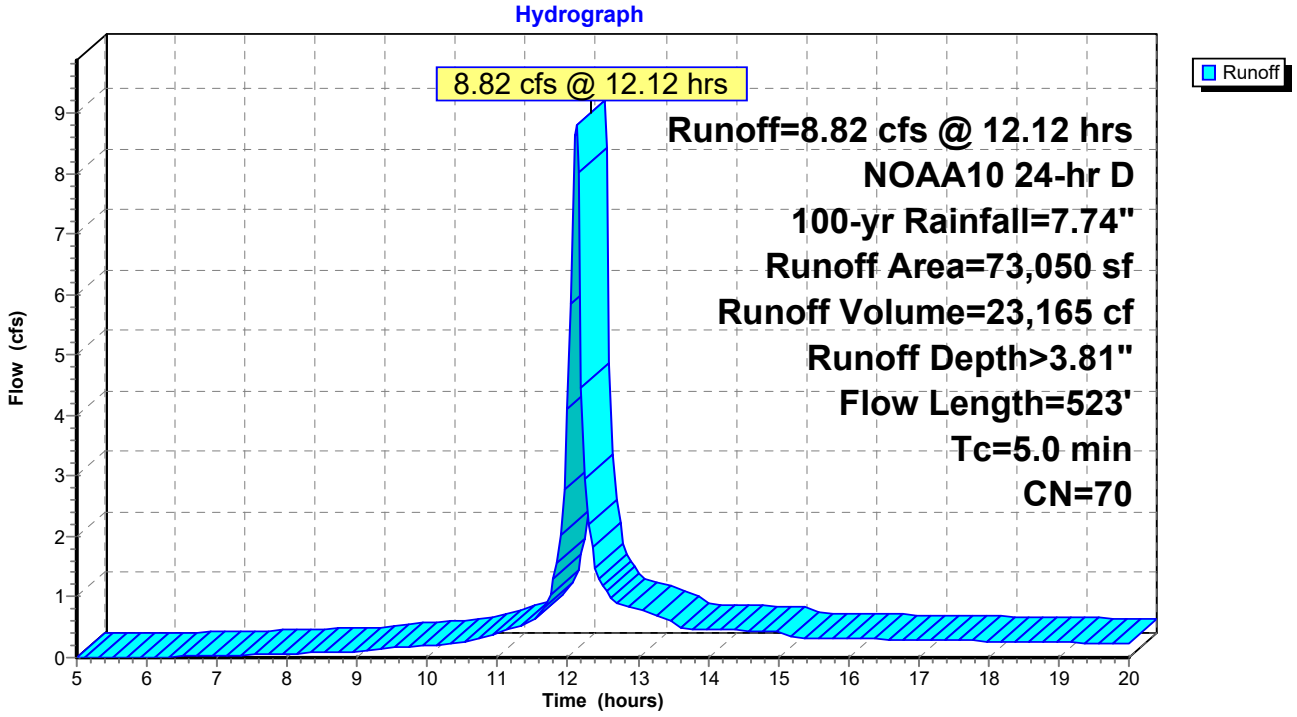
Runoff = 8.82 cfs @ 12.12 hrs, Volume= 23,165 cf, Depth> 3.81"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
35,444	60	Woods, Fair, HSG B
37,606	79	Woods, Fair, HSG D
73,050	70	Weighted Average
73,050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	5	0.1000	0.08		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
0.2	48	0.4300	3.28		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
2.8	470	0.3125	2.80		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
4.0	523	Total, Increased to minimum Tc = 5.0 min			

Subcatchment 5S: EDA-21



Summary for Subcatchment 6S: EDA23

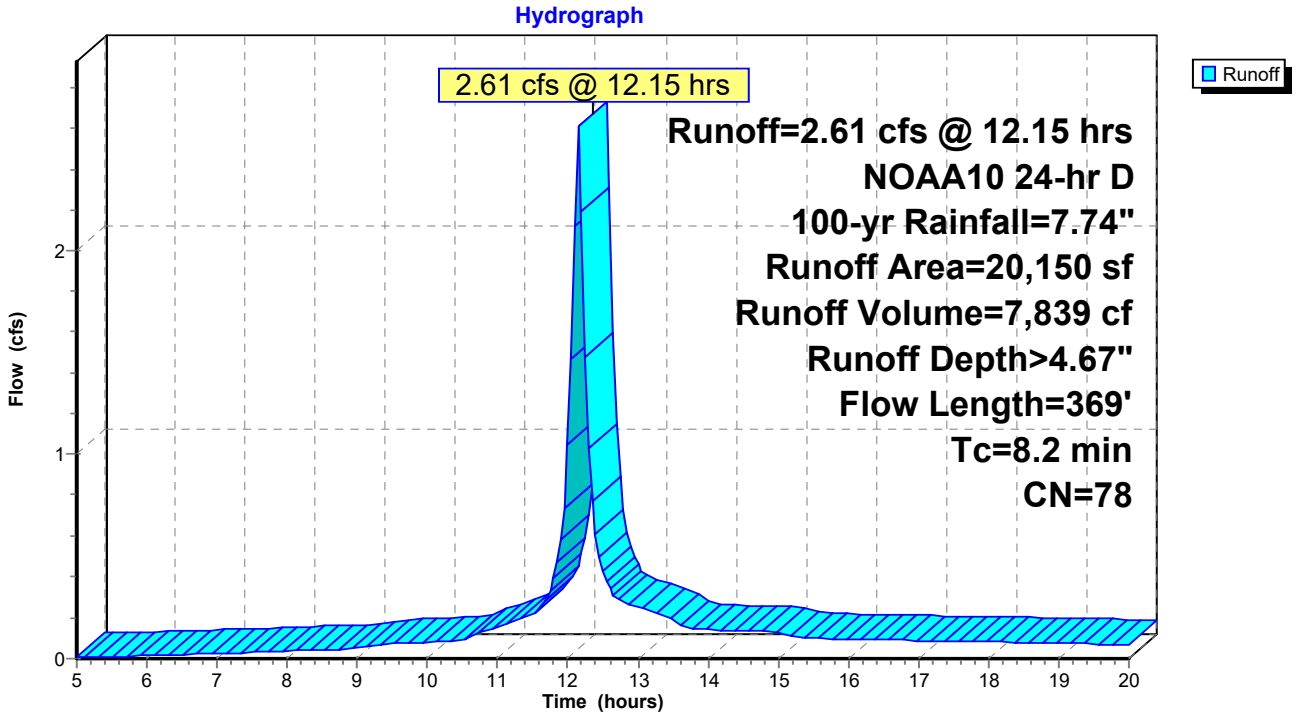
Runoff = 2.61 cfs @ 12.15 hrs, Volume= 7,839 cf, Depth> 4.67"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
4,687	60	Woods, Fair, HSG B
15,463	83	Woods, Poor, HSG D
20,150	78	Weighted Average
20,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	14	0.0357	0.07		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
4.8	355	0.0620	1.24		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
8.2	369	Total			

Subcatchment 6S: EDA23



Summary for Subcatchment 7S: EDA-31

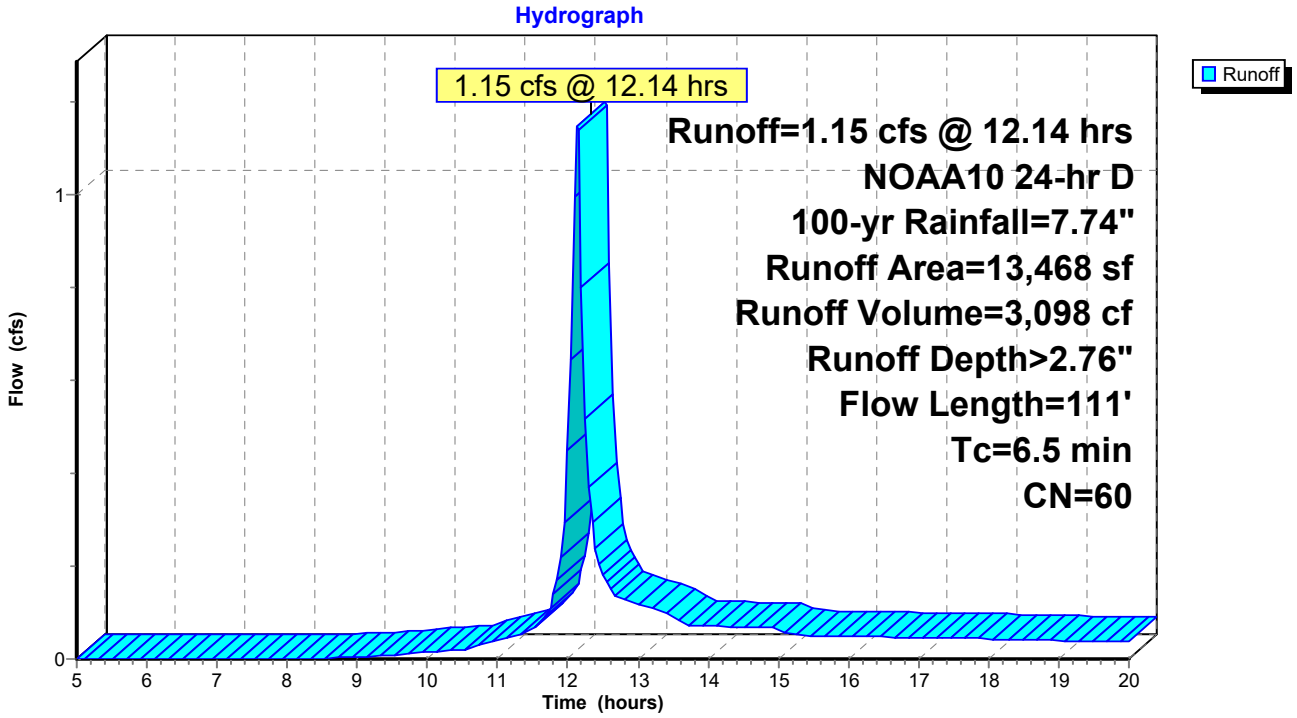
Runoff = 1.15 cfs @ 12.14 hrs, Volume= 3,098 cf, Depth> 2.76"
Routed to Link 12L : DP-3 (NORTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
13,468	60	Woods, Fair, HSG B
13,468		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	38	0.1000	0.13		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
1.5	73	0.0274	0.83		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
6.5	111	Total			

Subcatchment 7S: EDA-31



Summary for Subcatchment 8S: EDA-41

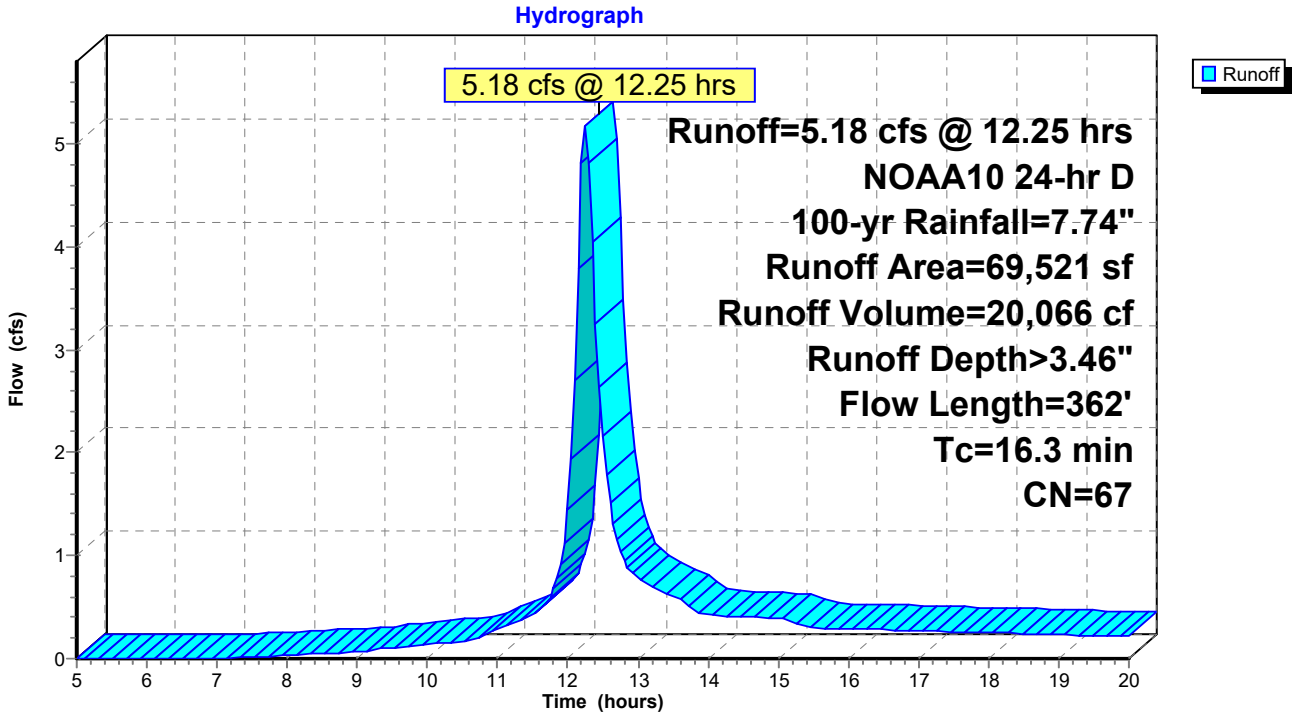
Runoff = 5.18 cfs @ 12.25 hrs, Volume= 20,066 cf, Depth> 3.46"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
44,573	60	Woods, Fair, HSG B
24,948	79	Woods, Fair, HSG D
69,521	67	Weighted Average
69,521		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.2	79	0.0380	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
3.1	283	0.0919	1.52		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
16.3	362	Total			

Subcatchment 8S: EDA-41



Summary for Subcatchment 9S: EDA-42

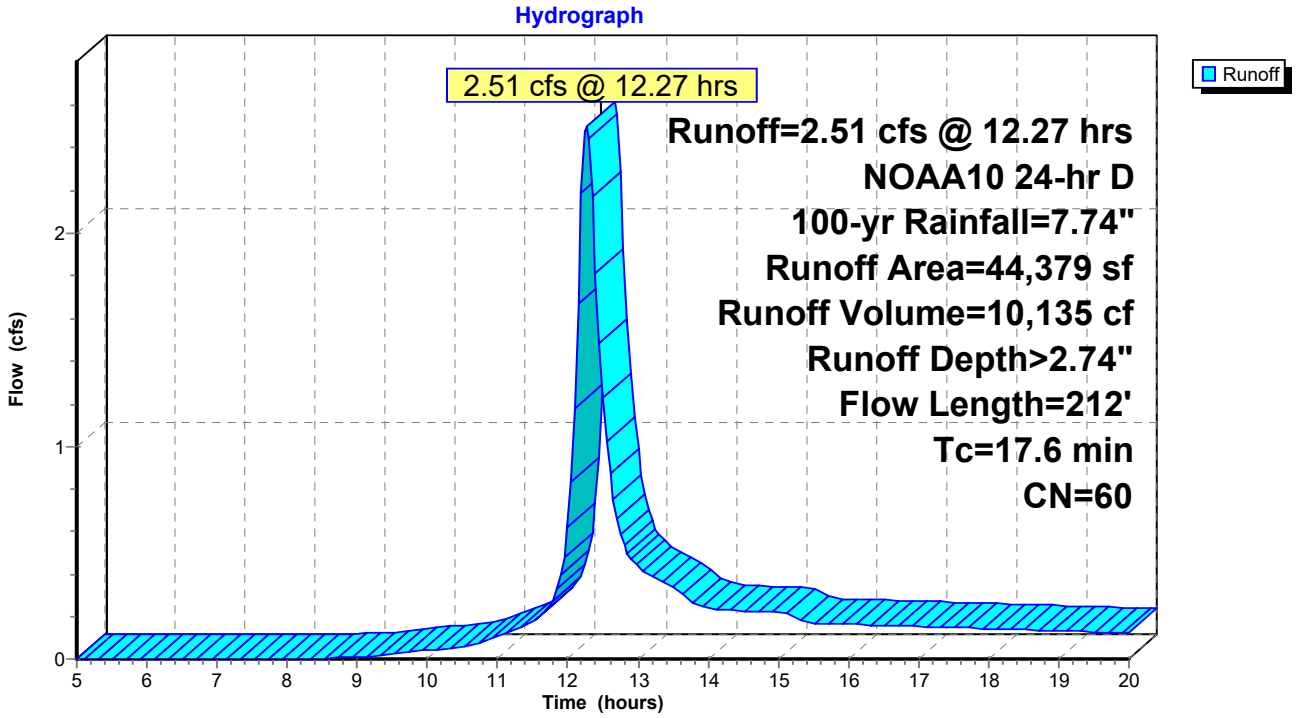
Runoff = 2.51 cfs @ 12.27 hrs, Volume= 10,135 cf, Depth> 2.74"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
44,379	60	Woods, Fair, HSG B
44,379		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.7	96	0.0365	0.10		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
1.9	116	0.0431	1.04		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
17.6	212	Total			

Subcatchment 9S: EDA-42

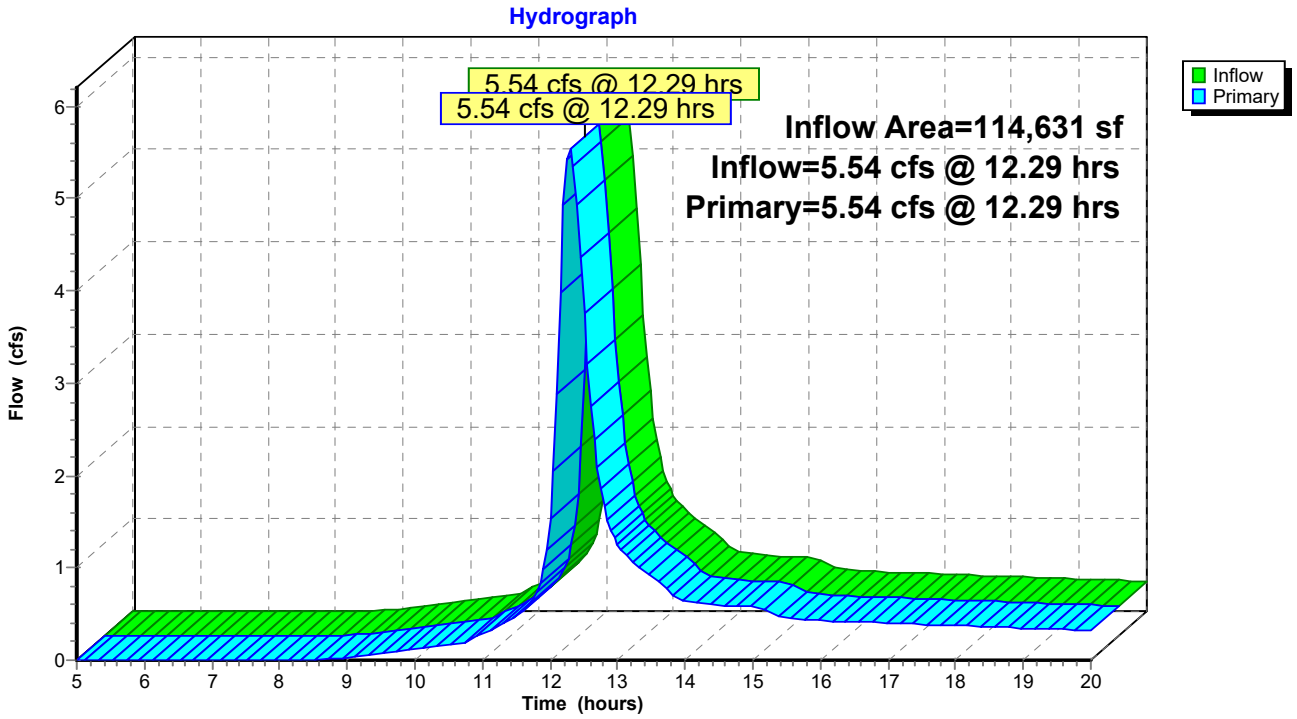


Summary for Link 10L: DP-1 (EXISTING 18" RCP)

Inflow Area = 114,631 sf, 2.04% Impervious, Inflow Depth > 2.81" for 100-yr event
Inflow = 5.54 cfs @ 12.29 hrs, Volume= 26,875 cf
Primary = 5.54 cfs @ 12.29 hrs, Volume= 26,875 cf, Atten= 0%, Lag= 0.0 min

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

Link 10L: DP-1 (EXISTING 18" RCP)

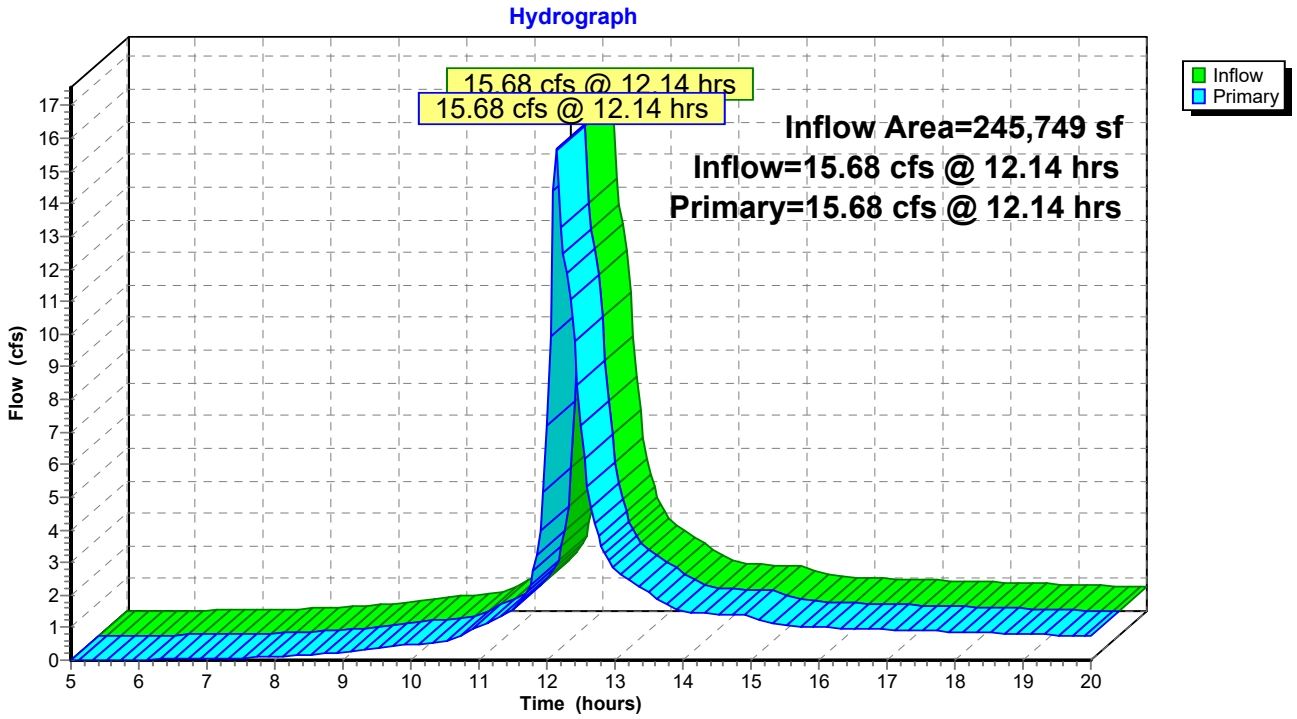


Summary for Link 11L: DP-2 (EXISTING WETLANDS)

Inflow Area = 245,749 sf, 0.00% Impervious, Inflow Depth > 3.40" for 100-yr event
Inflow = 15.68 cfs @ 12.14 hrs, Volume= 69,627 cf
Primary = 15.68 cfs @ 12.14 hrs, Volume= 69,627 cf, Atten= 0%, Lag= 0.0 min

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

Link 11L: DP-2 (EXISTING WETLANDS)

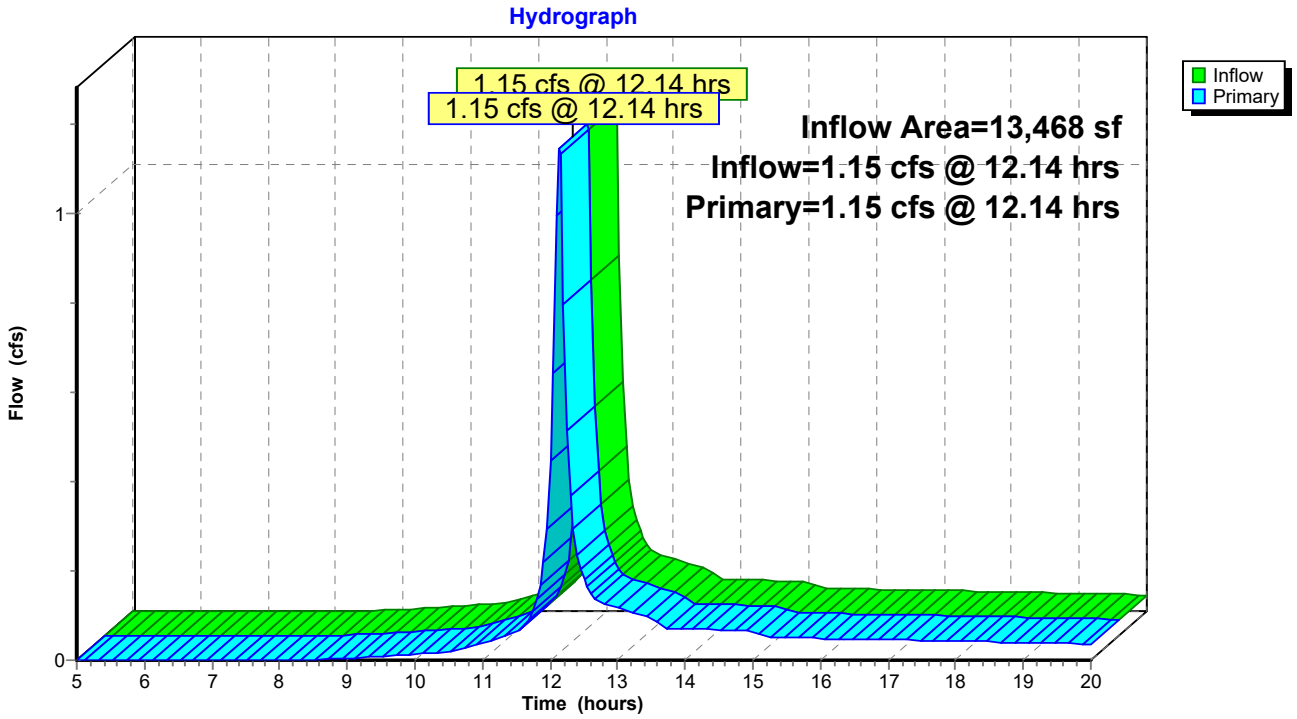


Summary for Link 12L: DP-3 (NORTHERN PROPERTY LINE)

Inflow Area = 13,468 sf, 0.00% Impervious, Inflow Depth > 2.76" for 100-yr event
Inflow = 1.15 cfs @ 12.14 hrs, Volume= 3,098 cf
Primary = 1.15 cfs @ 12.14 hrs, Volume= 3,098 cf, Atten= 0%, Lag= 0.0 min

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

Link 12L: DP-3 (NORTHERN PROPERTY LINE)

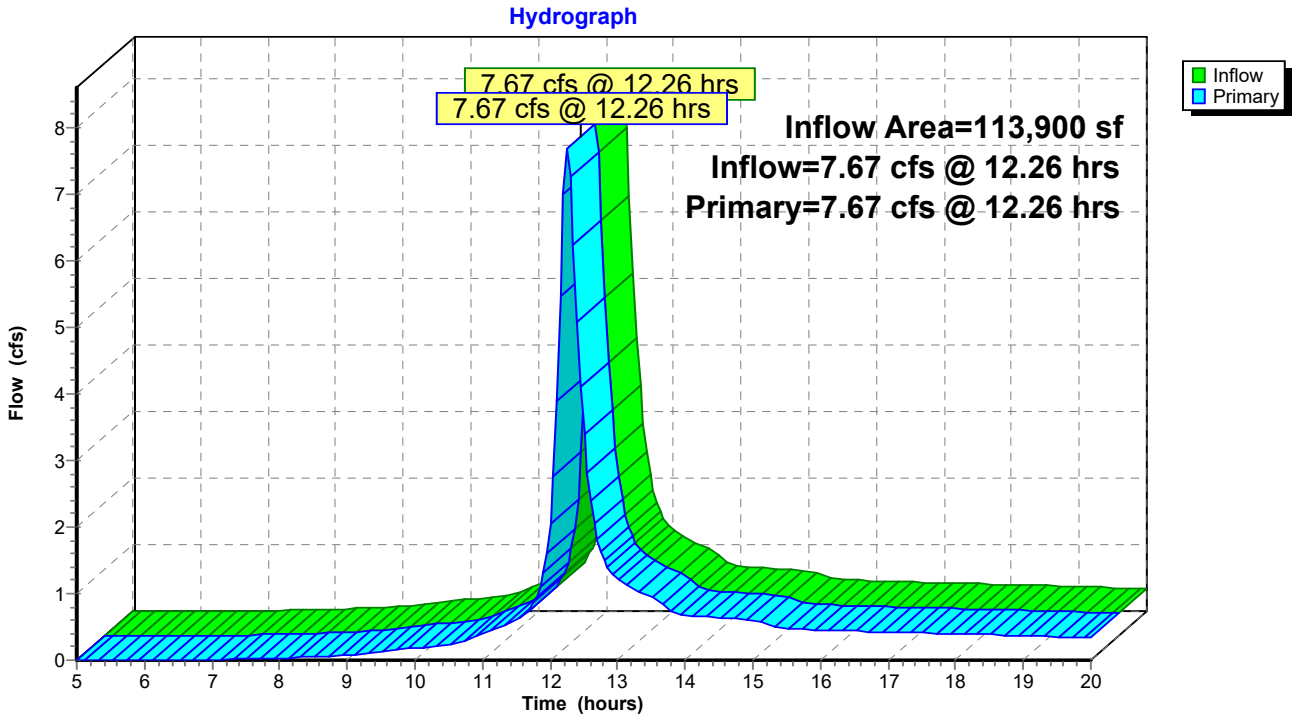


Summary for Link 13L: DP-4 (SOUTHERN PROPERTY LINE)

Inflow Area = 113,900 sf, 0.00% Impervious, Inflow Depth > 3.18" for 100-yr event
Inflow = 7.67 cfs @ 12.26 hrs, Volume= 30,200 cf
Primary = 7.67 cfs @ 12.26 hrs, Volume= 30,200 cf, Atten= 0%, Lag= 0.0 min

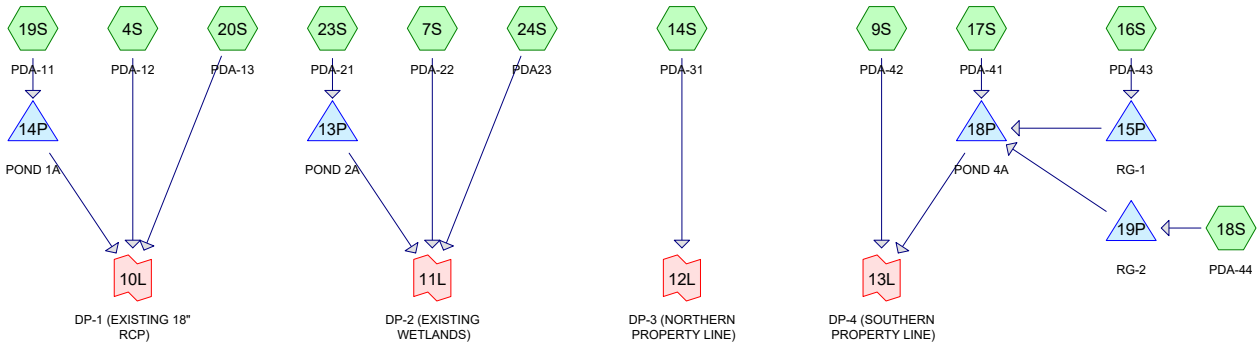
Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 13L: DP-4 (SOUTHERN PROPERTY LINE)



APPENDIX D

POST-DEVELOPMENT HYDROLOGIC ANALYSIS



Subcat Reach Pond Link

Routing Diagram for C-DAT-2502197-PROPOSED CONDITIONS
Prepared by BL Companies, Printed 6/30/2026
HydroCAD® 10.20-9a s/n 01334 © 2026 HydroCAD Software Solutions LLC

Project Notes

Copied 7 events from CT-LEDYARD-NOAA 24-hr S1 storm
Copied 7 events from CT-LEDYARD-NOAA 24-hr S1 storm
Defined 7 rainfall events from CT-LEDYARD-NOAA IDF
Defined 7 rainfall events from CT-LEDYARD-NOAA IDF
Copied 7 events from CT-LEDYARD-NOAA 24-hr S1 storm
Copied 7 events from CT-LEDYARD-NOAA10 24-hr S1 storm
Defined 7 rainfall events from CT-LEDYARD-NOAA10 IDF

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	NOAA10 24-hr	D	Default	24.00	1	2.90	2
2	2-yr	NOAA10 24-hr	D	Default	24.00	1	3.46	2
3	5-yr	NOAA10 24-hr	D	Default	24.00	1	4.36	2
4	10-yr	NOAA10 24-hr	D	Default	24.00	1	5.11	2
5	25-yr	NOAA10 24-hr	D	Default	24.00	1	6.15	2
6	50-yr	NOAA10 24-hr	D	Default	24.00	1	6.92	2
7	100-yr	NOAA10 24-hr	D	Default	24.00	1	7.74	2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
202,987	69	50-75% Grass cover, Fair, HSG B (4S, 9S, 16S, 17S, 18S, 19S, 20S, 23S)
10,439	84	50-75% Grass cover, Fair, HSG D (7S, 9S)
139,229	98	Paved parking, HSG D (4S, 17S, 20S, 23S)
11,467	98	Roofs, HSG D (16S, 19S)
38,577	60	Woods, Fair, HSG B (7S, 24S)
63,616	79	Woods, Fair, HSG D (7S, 9S, 17S)
15,463	83	Woods, Poor, HSG D (24S)
5,970	58	Woods/grass comb., Good, HSG B (14S)
487,748	**79**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
247,534	HSG B	4S, 7S, 9S, 14S, 16S, 17S, 18S, 19S, 20S, 23S, 24S
0	HSG C	
240,214	HSG D	4S, 7S, 9S, 16S, 17S, 19S, 20S, 23S, 24S
0	Other	
487,748		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	S N
0	202,987	0	10,439	0	213,426	50-75% Grass cover, Fair	
0	0	0	139,229	0	139,229	Paved parking	
0	0	0	11,467	0	11,467	Roofs	
0	38,577	0	63,616	0	102,193	Woods, Fair	
0	0	0	15,463	0	15,463	Woods, Poor	
0	5,970	0	0	0	5,970	Woods/grass comb., Good	
0	**247,534**	**0**	**240,214**	**0**	**487,748**	**TOTAL AREA**	

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	13P	258.60	258.25	32.0	0.0109	0.013	0.0	15.0	0.0	
2	14P	269.60	269.00	50.0	0.0120	0.013	0.0	15.0	0.0	
3	15P	271.60	270.60	85.0	0.0118	0.012	0.0	15.0	0.0	
4	18P	255.40	255.00	35.0	0.0114	0.013	0.0	15.0	0.0	
5	19P	272.50	271.70	58.0	0.0138	0.012	0.0	15.0	0.0	

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment4S: PDA-12 Runoff Area=14,885 sf 4.20% Impervious Runoff Depth=0.66"
Tc=6.0 min CN=70 Runoff=0.24 cfs 818 cf

Subcatchment7S: PDA-22 Runoff Area=68,140 sf 0.00% Impervious Runoff Depth=0.66"
Flow Length=330' Tc=9.1 min CN=70 Runoff=0.96 cfs 3,744 cf

Subcatchment9S: PDA-42 Runoff Area=13,364 sf 0.00% Impervious Runoff Depth=1.06"
Flow Length=190' Tc=8.1 min CN=78 Runoff=0.36 cfs 1,178 cf

Subcatchment14S: PDA-31 Runoff Area=5,970 sf 0.00% Impervious Runoff Depth=0.24"
Tc=6.0 min CN=58 Runoff=0.01 cfs 121 cf

Subcatchment16S: PDA-43 Runoff Area=16,462 sf 46.51% Impervious Runoff Depth=1.30"
Tc=6.0 min CN=82 Runoff=0.59 cfs 1,784 cf

Subcatchment17S: PDA-41 Runoff Area=147,914 sf 39.50% Impervious Runoff Depth=1.30"
Tc=6.0 min CN=82 Runoff=5.32 cfs 16,033 cf

Subcatchment18S: PDA-44 Runoff Area=1,640 sf 0.00% Impervious Runoff Depth=0.62"
Tc=0.0 min CN=69 Runoff=0.03 cfs 84 cf

Subcatchment19S: PDA-11 Runoff Area=14,783 sf 25.78% Impervious Runoff Depth=0.95"
Tc=6.0 min CN=76 Runoff=0.38 cfs 1,168 cf

Subcatchment20S: PDA-13 Runoff Area=10,198 sf 14.68% Impervious Runoff Depth=0.80"
Tc=6.0 min CN=73 Runoff=0.21 cfs 677 cf

Subcatchment23S: PDA-21 Runoff Area=174,242 sf 45.16% Impervious Runoff Depth=1.30"
Tc=6.0 min CN=82 Runoff=6.26 cfs 18,887 cf

Subcatchment24S: PDA23 Runoff Area=20,150 sf 0.00% Impervious Runoff Depth=1.06"
Flow Length=369' Tc=8.2 min CN=78 Runoff=0.53 cfs 1,777 cf

Pond 13P: POND 2A Peak Elev=262.38' Storage=12,828 cf Inflow=6.26 cfs 18,887 cf
Outflow=0.13 cfs 18,887 cf

Pond 14P: POND 1A Peak Elev=270.56' Storage=593 cf Inflow=0.38 cfs 1,168 cf
Discarded=0.01 cfs 914 cf Primary=0.01 cfs 254 cf Outflow=0.02 cfs 1,168 cf

Pond 15P: RG-1 Peak Elev=274.54' Storage=672 cf Inflow=0.59 cfs 1,784 cf
Outflow=0.06 cfs 1,784 cf

Pond 18P: POND 4A Peak Elev=260.19' Storage=11,671 cf Inflow=5.34 cfs 17,902 cf
Discarded=0.13 cfs 17,900 cf Primary=0.00 cfs 0 cf Outflow=0.13 cfs 17,900 cf

Pond 19P: RG-2 Peak Elev=274.04' Storage=16 cf Inflow=0.03 cfs 84 cf
Outflow=0.00 cfs 84 cf

Link 10L: DP-1 (EXISTING 18" RCP) Inflow=0.46 cfs 1,749 cf
Primary=0.46 cfs 1,749 cf

Link 11L: DP-2 (EXISTING WETLANDS) Inflow=1.60 cfs 24,408 cf
Primary=1.60 cfs 24,408 cf

Link 12L: DP-3 (NORTHERN PROPERTY LINE) Inflow=0.01 cfs 121 cf
Primary=0.01 cfs 121 cf

Link 13L: DP-4 (SOUTHERN PROPERTY LINE) Inflow=0.36 cfs 1,178 cf
Primary=0.36 cfs 1,178 cf

Total Runoff Area = 487,748 sf Runoff Volume = 46,272 cf Average Runoff Depth = 1.14"
69.10% Pervious = 337,052 sf 30.90% Impervious = 150,696 sf

Summary for Subcatchment 4S: PDA-12

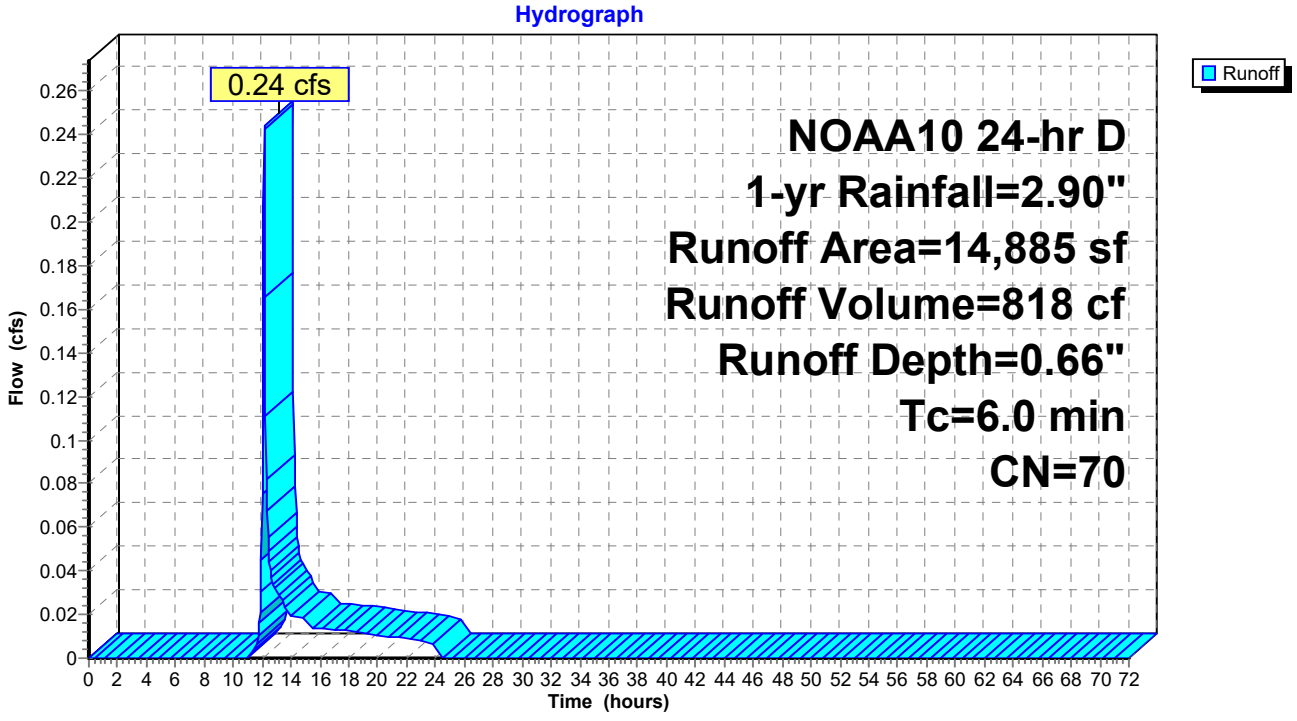
Runoff = 0.24 cfs @ 12.14 hrs, Volume= 818 cf, Depth= 0.66"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
14,260	69	50-75% Grass cover, Fair, HSG B
625	98	Paved parking, HSG D
14,885	70	Weighted Average
14,260		95.80% Pervious Area
625		4.20% Impervious Area

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

Subcatchment 4S: PDA-12



Summary for Subcatchment 7S: PDA-22

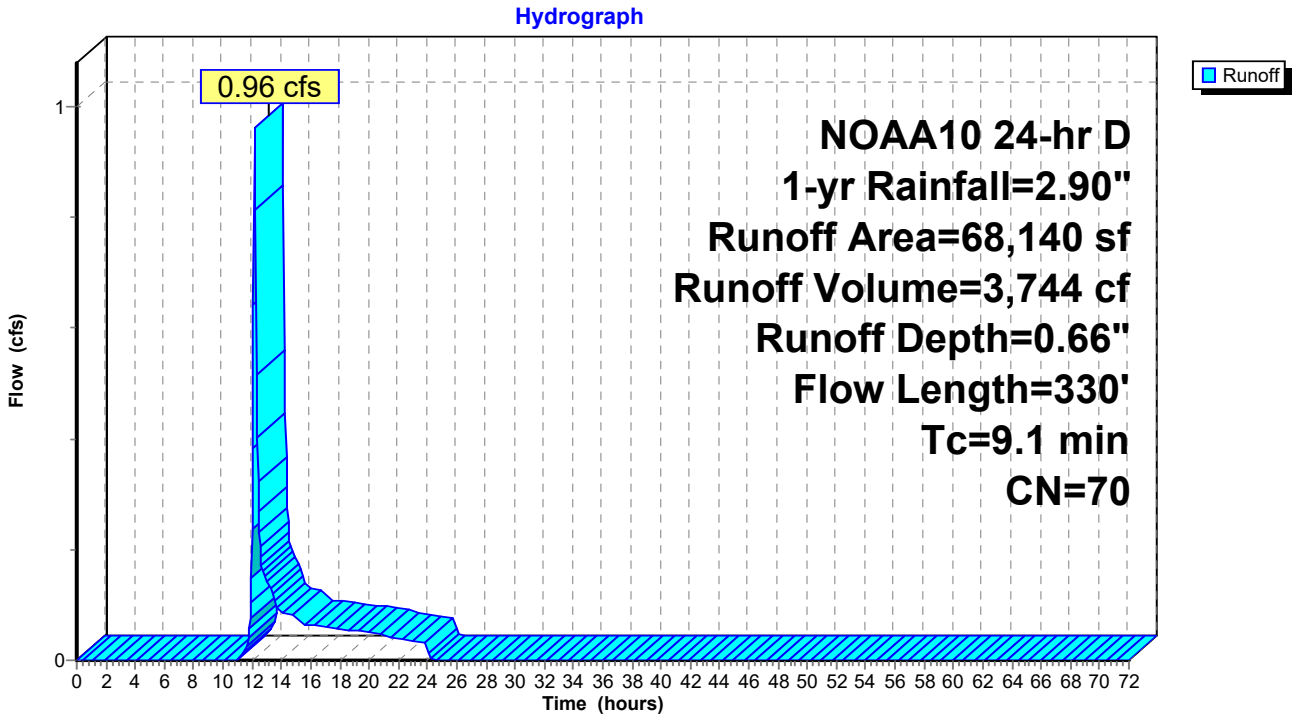
Runoff = 0.96 cfs @ 12.17 hrs, Volume= 3,744 cf, Depth= 0.66"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
33,890	60	Woods, Fair, HSG B
27,311	79	Woods, Fair, HSG D
6,939	84	50-75% Grass cover, Fair, HSG D
68,140	70	Weighted Average
68,140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	45	0.1500	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.46"
4.2	285	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.1	330	Total			

Subcatchment 7S: PDA-22



Summary for Subcatchment 9S: PDA-42

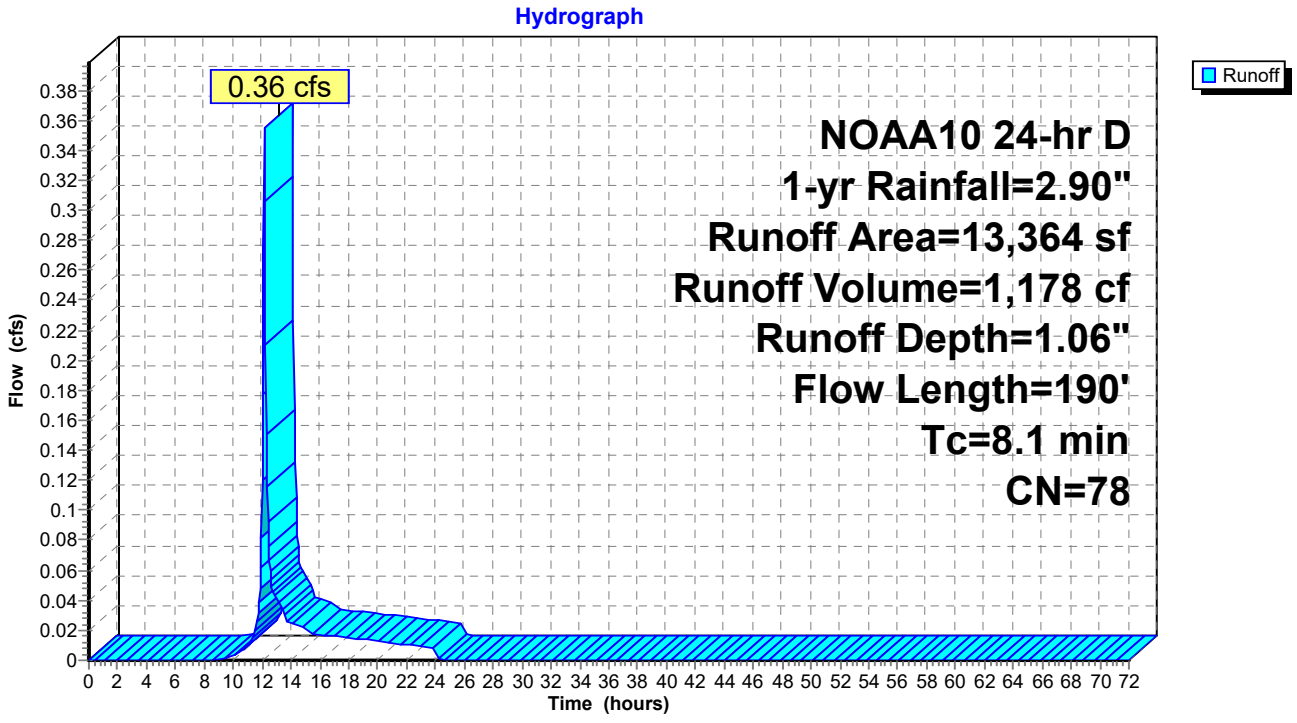
Runoff = 0.36 cfs @ 12.16 hrs, Volume= 1,178 cf, Depth= 1.06"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
2,571	69	50-75% Grass cover, Fair, HSG B
7,293	79	Woods, Fair, HSG D
3,500	84	50-75% Grass cover, Fair, HSG D
13,364	78	Weighted Average
13,364		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.0800	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.46"
1.3	140	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.1	190	Total			

Subcatchment 9S: PDA-42



Summary for Subcatchment 14S: PDA-31

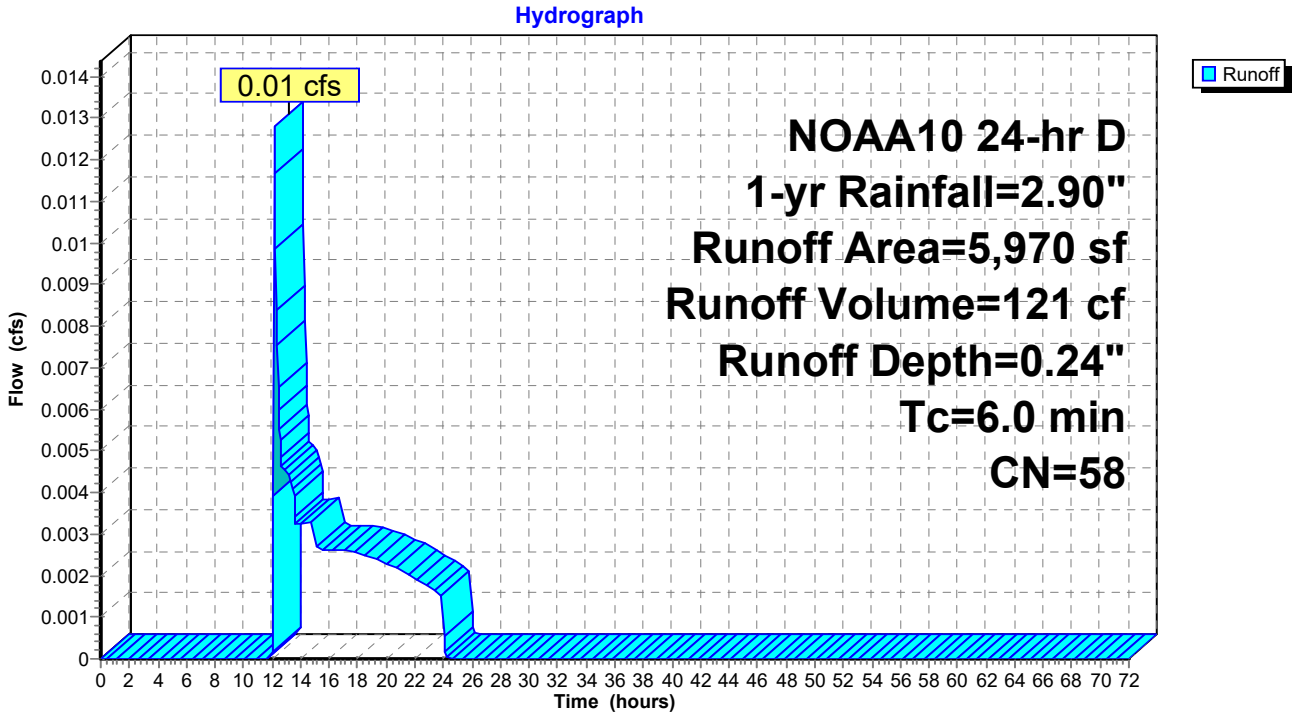
Runoff = 0.01 cfs @ 12.17 hrs, Volume= 121 cf, Depth= 0.24"
Routed to Link 12L : DP-3 (NORTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
5,970	58	Woods/grass comb., Good, HSG B
5,970		100.00% Pervious Area

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

Subcatchment 14S: PDA-31



Summary for Subcatchment 16S: PDA-43

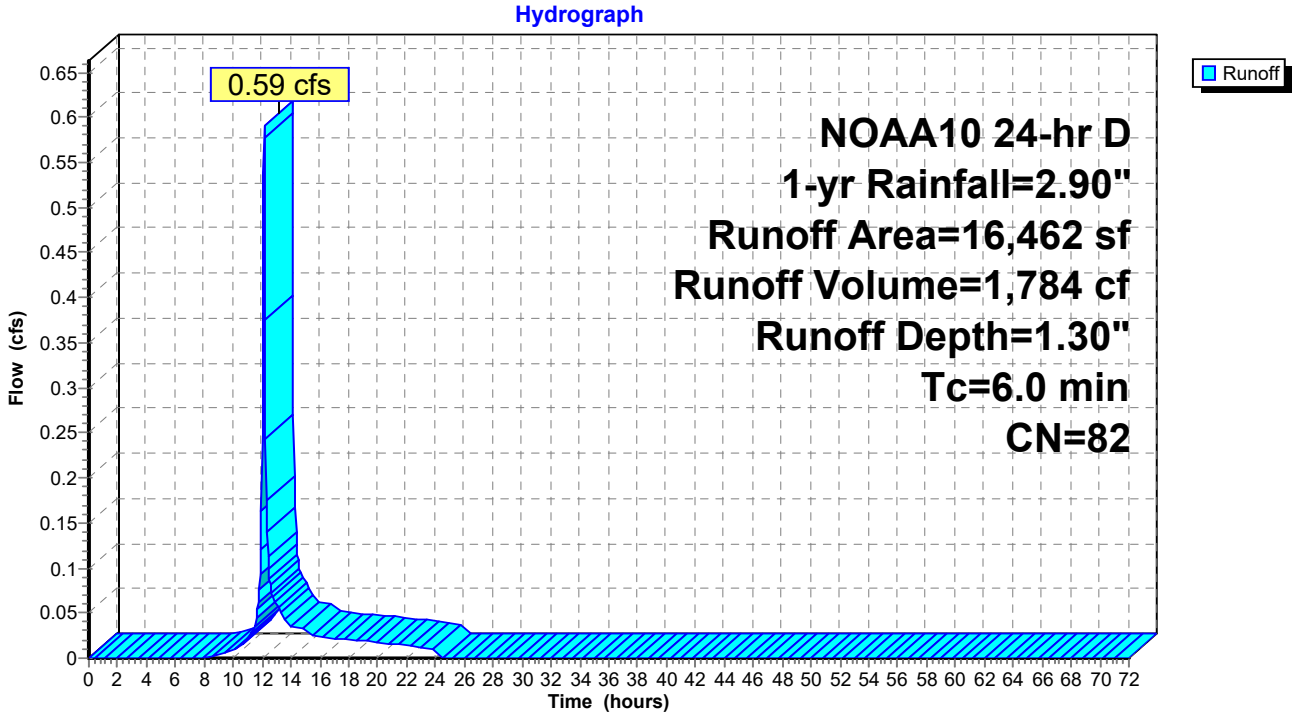
Runoff = 0.59 cfs @ 12.13 hrs, Volume= 1,784 cf, Depth= 1.30"
Routed to Pond 15P : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
7,656	98	Roofs, HSG D
8,806	69	50-75% Grass cover, Fair, HSG B
16,462	82	Weighted Average
8,806		53.49% Pervious Area
7,656		46.51% Impervious Area

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

Subcatchment 16S: PDA-43



Summary for Subcatchment 17S: PDA-41

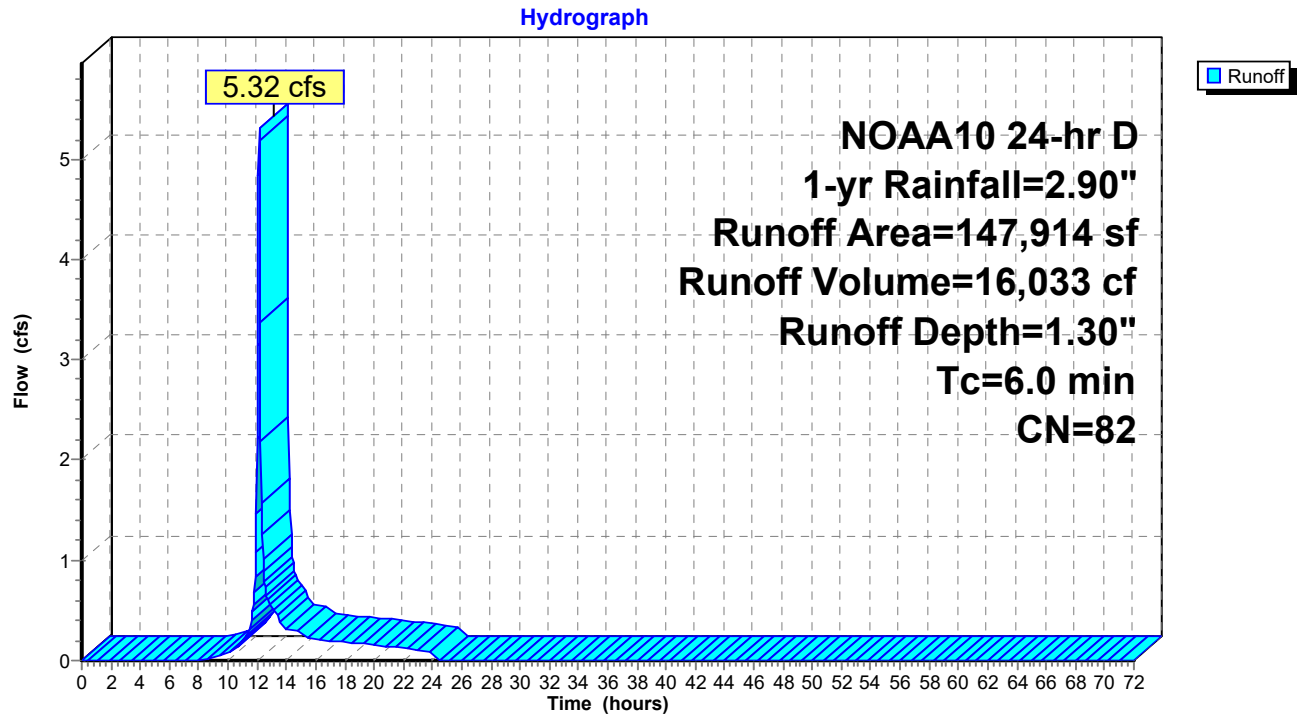
Runoff = 5.32 cfs @ 12.13 hrs, Volume= 16,033 cf, Depth= 1.30"
Routed to Pond 18P : POND 4A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
58,419	98	Paved parking, HSG D
60,483	69	50-75% Grass cover, Fair, HSG B
29,012	79	Woods, Fair, HSG D
147,914	82	Weighted Average
89,495		60.50% Pervious Area
58,419		39.50% Impervious Area

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

Subcatchment 17S: PDA-41



Summary for Subcatchment 18S: PDA-44

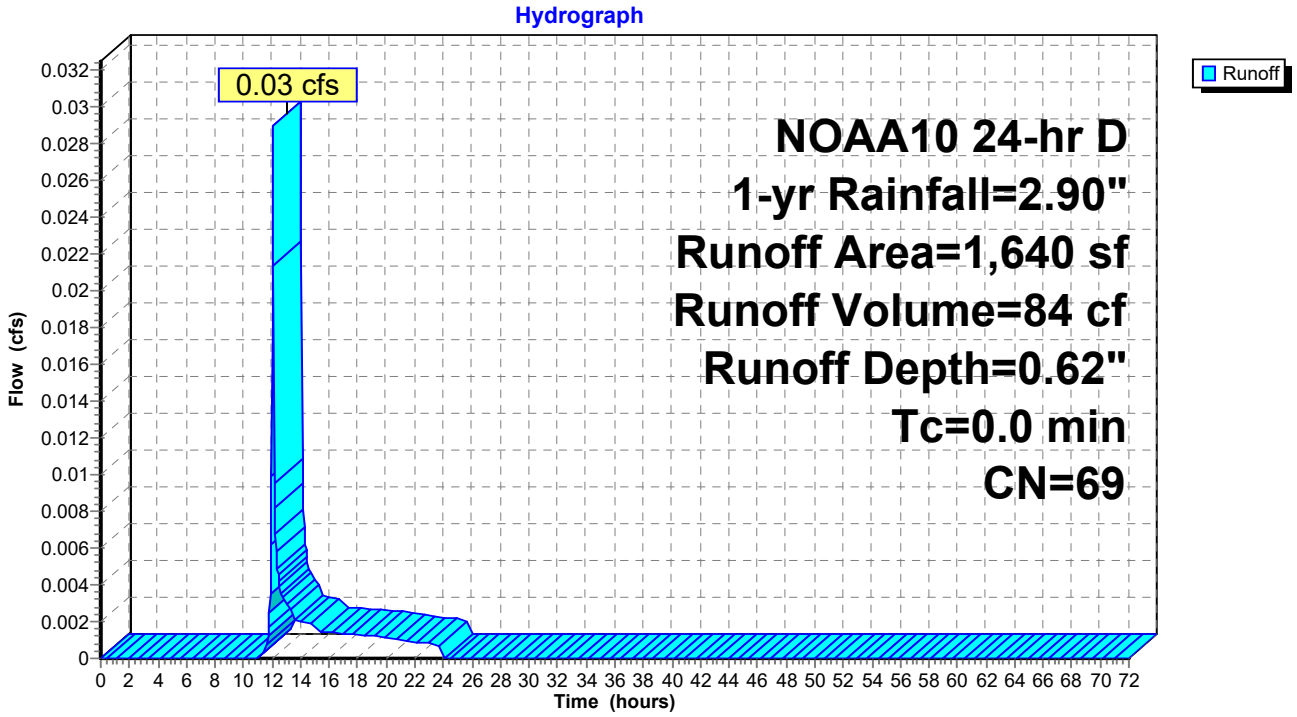
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.03 cfs @ 12.05 hrs, Volume= 84 cf, Depth= 0.62"
Routed to Pond 19P : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
1,640	69	50-75% Grass cover, Fair, HSG B
1,640		100.00% Pervious Area

Subcatchment 18S: PDA-44



Summary for Subcatchment 19S: PDA-11

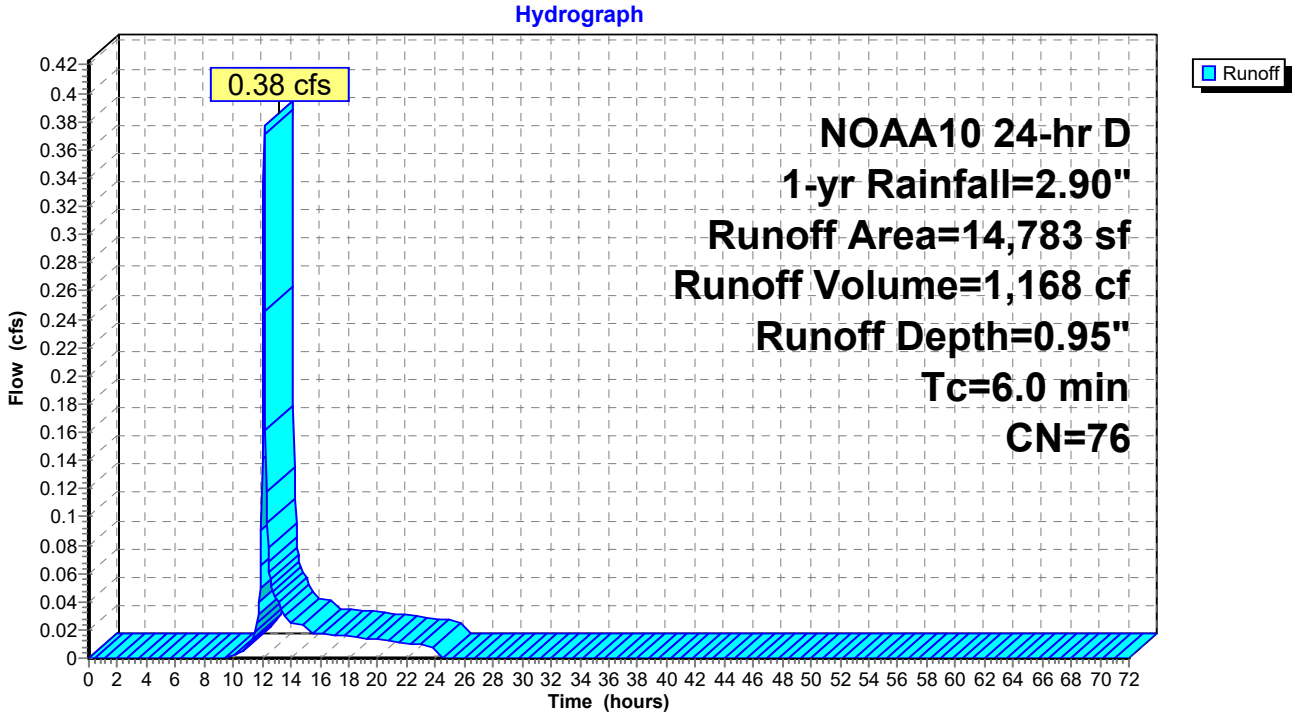
Runoff = 0.38 cfs @ 12.14 hrs, Volume= 1,168 cf, Depth= 0.95"
Routed to Pond 14P : POND 1A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
3,811	98	Roofs, HSG D
10,972	69	50-75% Grass cover, Fair, HSG B
14,783	76	Weighted Average
10,972		74.22% Pervious Area
3,811		25.78% Impervious Area

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

Subcatchment 19S: PDA-11



Summary for Subcatchment 20S: PDA-13

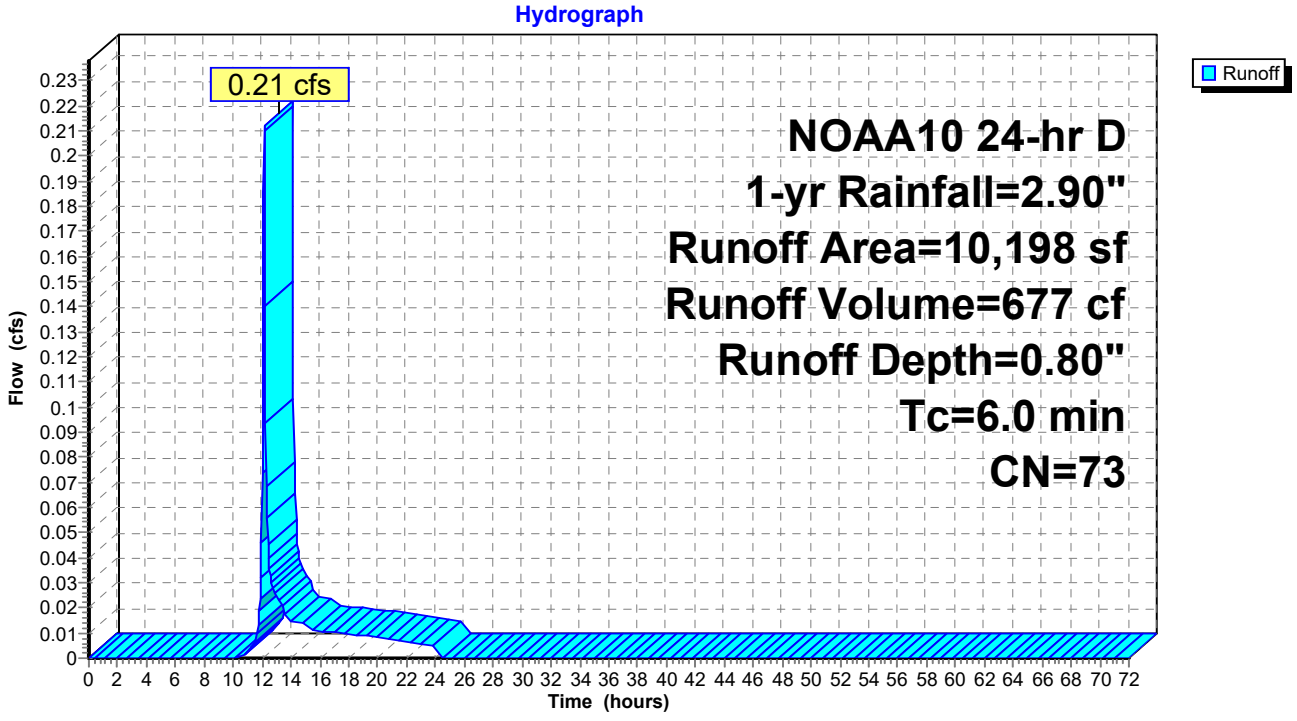
Runoff = 0.21 cfs @ 12.14 hrs, Volume= 677 cf, Depth= 0.80"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
8,701	69	50-75% Grass cover, Fair, HSG B
1,497	98	Paved parking, HSG D
10,198	73	Weighted Average
8,701		85.32% Pervious Area
1,497		14.68% Impervious Area

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

Subcatchment 20S: PDA-13



Summary for Subcatchment 23S: PDA-21

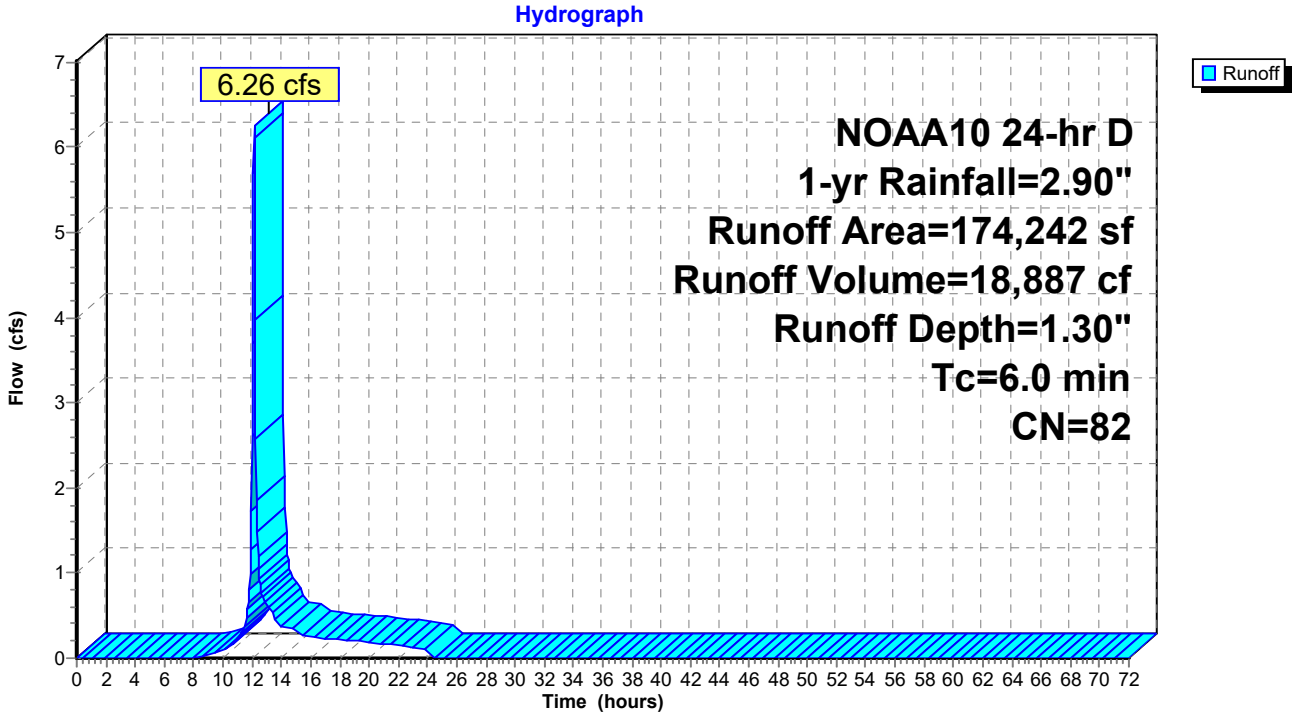
Runoff = 6.26 cfs @ 12.13 hrs, Volume= 18,887 cf, Depth= 1.30"
Routed to Pond 13P : POND 2A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
78,688	98	Paved parking, HSG D
95,554	69	50-75% Grass cover, Fair, HSG B
174,242	82	Weighted Average
95,554		54.84% Pervious Area
78,688		45.16% Impervious Area

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

Subcatchment 23S: PDA-21



Summary for Subcatchment 24S: PDA23

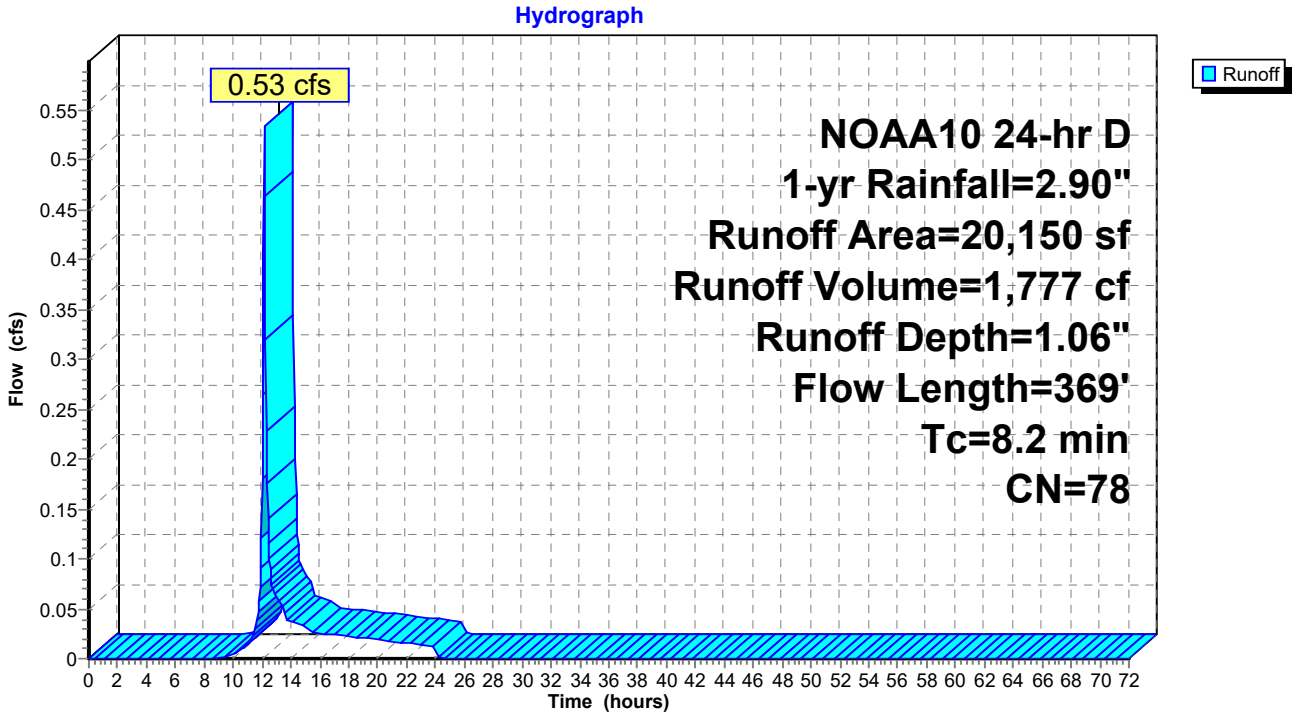
Runoff = 0.53 cfs @ 12.16 hrs, Volume= 1,777 cf, Depth= 1.06"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 1-yr Rainfall=2.90"

Area (sf)	CN	Description
4,687	60	Woods, Fair, HSG B
15,463	83	Woods, Poor, HSG D
20,150	78	Weighted Average
20,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	14	0.0357	0.07		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
4.8	355	0.0620	1.24		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
8.2	369	Total			

Subcatchment 24S: PDA23



Summary for Pond 13P: POND 2A

Inflow Area = 174,242 sf, 45.16% Impervious, Inflow Depth = 1.30" for 1-yr event
Inflow = 6.26 cfs @ 12.13 hrs, Volume= 18,887 cf
Outflow = 0.13 cfs @ 23.23 hrs, Volume= 18,887 cf, Atten= 98%, Lag= 665.8 min
Primary = 0.13 cfs @ 23.23 hrs, Volume= 18,887 cf
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 262.38' @ 23.23 hrs Surf.Area= 10,894 sf Storage= 12,828 cf

Plug-Flow detention time= 1,074.2 min calculated for 18,887 cf (100% of inflow)
Center-of-Mass det. time= 1,074.0 min (1,948.7 - 874.7)

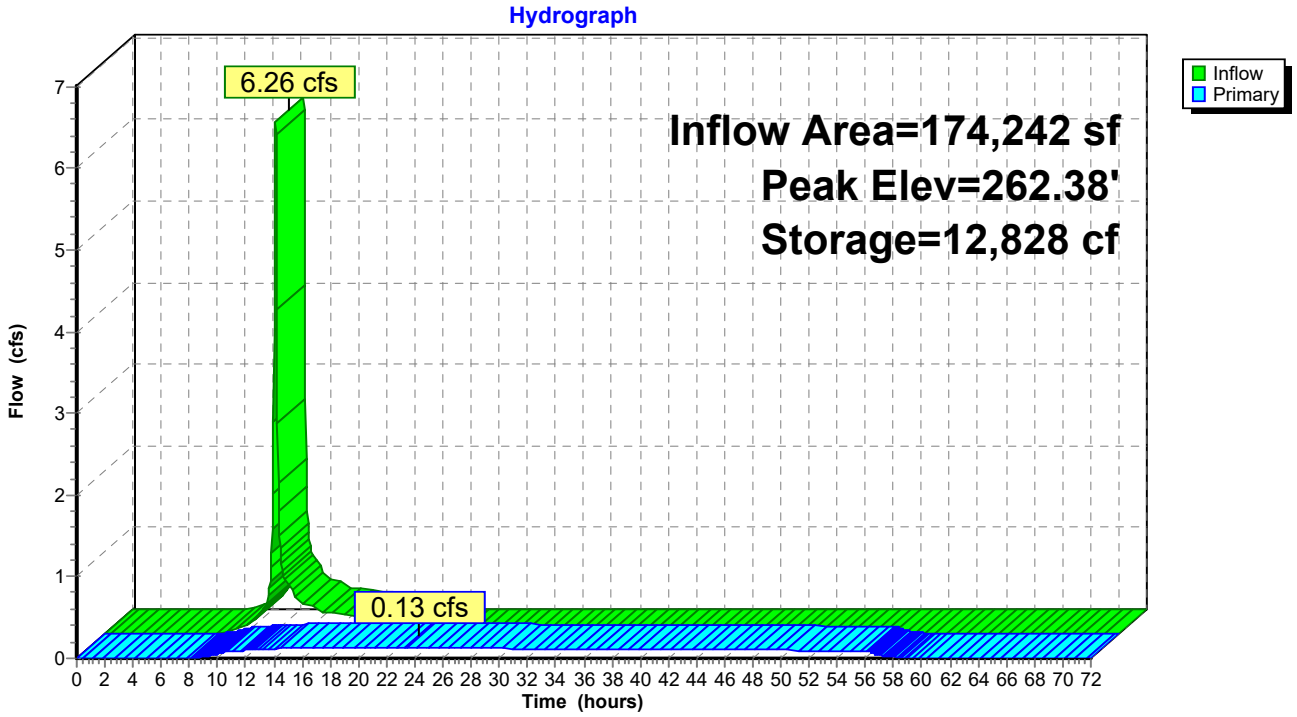
Volume	Invert	Avail.Storage	Storage Description
#1	261.00'	49,547 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
261.00	7,809	0	0
262.00	9,940	8,875	8,875
263.00	12,454	11,197	20,072
264.00	14,724	13,589	33,661
265.00	17,049	15,887	49,547

Device	Routing	Invert	Outlet Devices
#1	Primary	258.60'	**15.0" Round Culvert** L= 32.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 258.60' / 258.25' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	264.50'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	263.60'	**20.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	261.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.13 cfs @ 23.23 hrs HW=262.38' (Free Discharge)
└**1=Culvert** (Passes 0.13 cfs of 10.49 cfs potential flow)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  ├**3=Orifice/Grate** (Controls 0.00 cfs)
  └**4=Exfiltration** (Exfiltration Controls 0.13 cfs)

Pond 13P: POND 2A



Summary for Pond 14P: POND 1A

Inflow Area = 14,783 sf, 25.78% Impervious, Inflow Depth = 0.95" for 1-yr event
Inflow = 0.38 cfs @ 12.14 hrs, Volume= 1,168 cf
Outflow = 0.02 cfs @ 15.16 hrs, Volume= 1,168 cf, Atten= 95%, Lag= 181.1 min
Discarded = 0.01 cfs @ 15.16 hrs, Volume= 914 cf
Primary = 0.01 cfs @ 15.16 hrs, Volume= 254 cf
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 270.56' @ 15.16 hrs Surf.Area= 1,252 sf Storage= 593 cf

Plug-Flow detention time= 651.3 min calculated for 1,167 cf (100% of inflow)
Center-of-Mass det. time= 652.1 min (1,554.0 - 901.9)

Volume	Invert	Avail.Storage	Storage Description
#1	270.00'	3,233 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

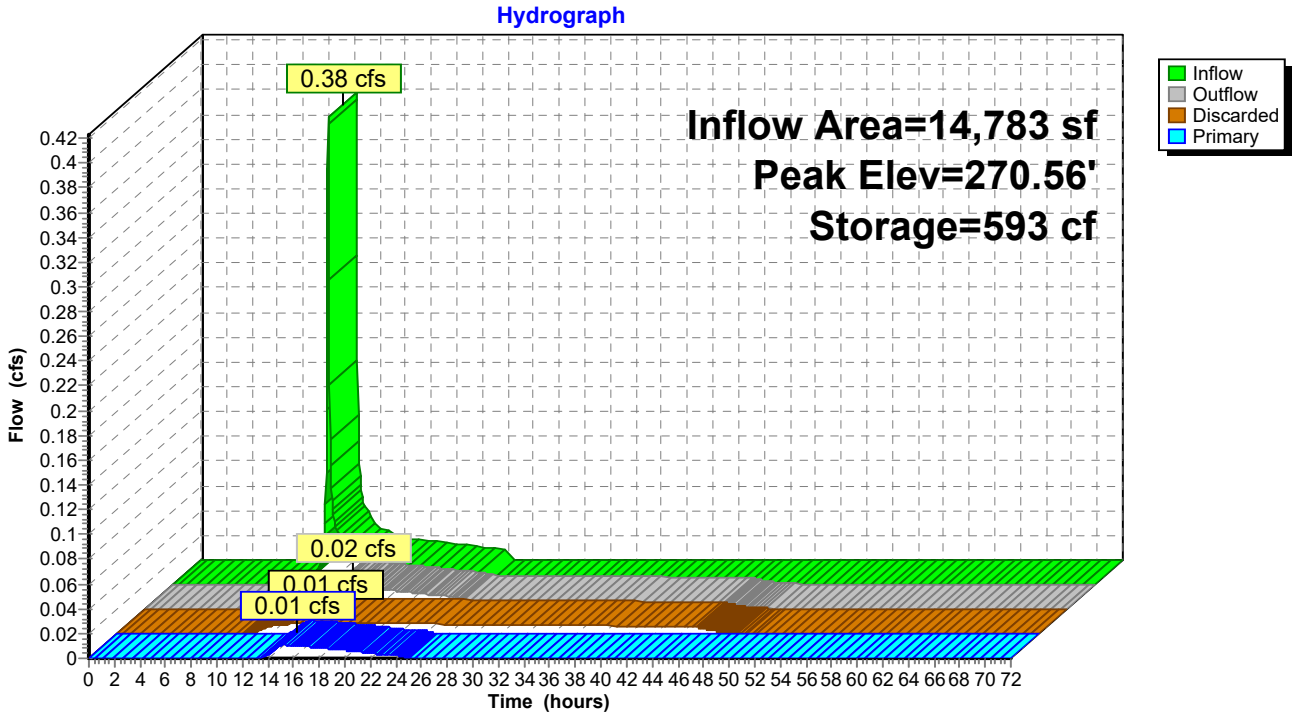
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
270.00	892	175.0	0	0	892
271.00	1,583	241.0	1,221	1,221	3,087
272.00	2,473	323.0	2,012	3,233	6,778

Device	Routing	Invert	Outlet Devices
#1	Primary	269.60'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 269.60' / 269.00' S= 0.0120 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	270.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	271.80'	**36.0" W x 24.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	270.00'	**0.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 255.00'

Discarded OutFlow Max=0.01 cfs @ 15.16 hrs HW=270.56' (Free Discharge)
└**4=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.01 cfs @ 15.16 hrs HW=270.56' (Free Discharge)
└**1=Culvert** (Passes 0.01 cfs of 3.35 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.01 cfs @ 0.81 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 14P: POND 1A



Summary for Pond 15P: RG-1

Inflow Area = 16,462 sf, 46.51% Impervious, Inflow Depth = 1.30" for 1-yr event
Inflow = 0.59 cfs @ 12.13 hrs, Volume= 1,784 cf
Outflow = 0.06 cfs @ 12.83 hrs, Volume= 1,784 cf, Atten= 89%, Lag= 41.9 min
Primary = 0.06 cfs @ 12.83 hrs, Volume= 1,784 cf
Routed to Pond 18P : POND 4A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 274.54' @ 12.83 hrs Surf.Area= 1,440 sf Storage= 672 cf

Plug-Flow detention time= 362.6 min calculated for 1,783 cf (100% of inflow)
Center-of-Mass det. time= 363.0 min (1,237.7 - 874.7)

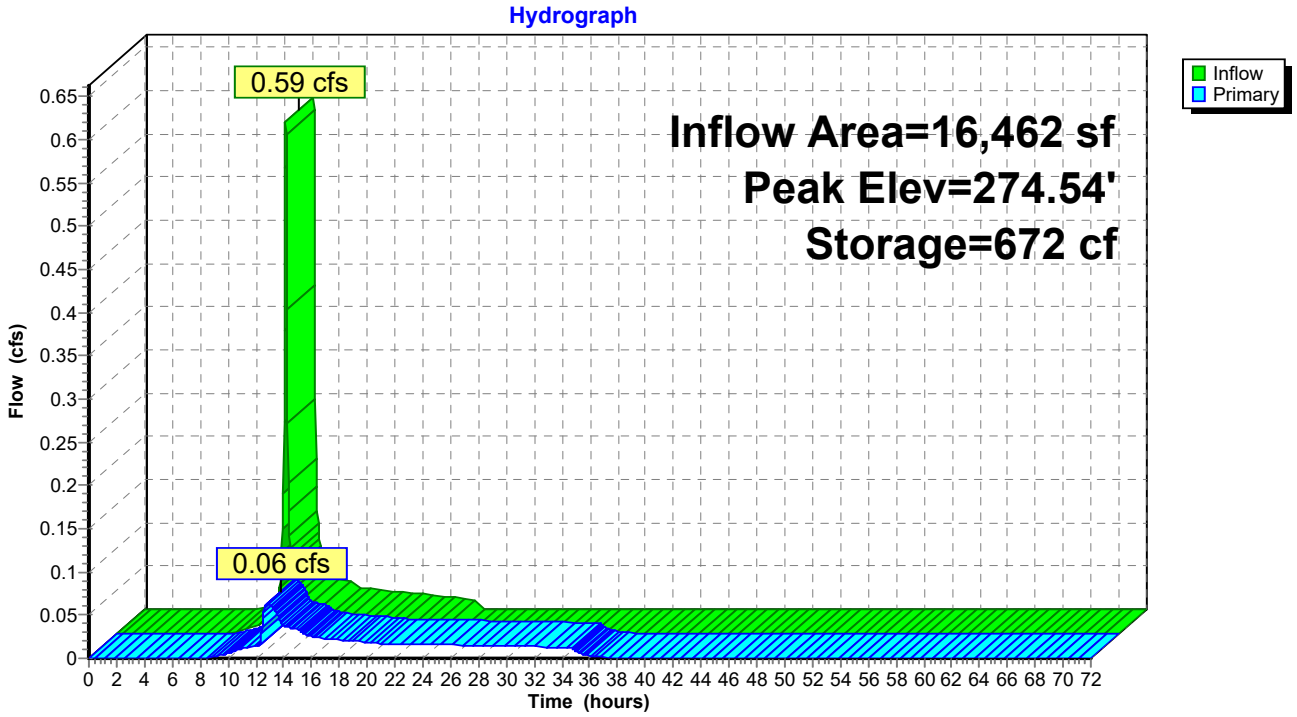
Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	3,629 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	1,058	203.0	0	0	1,058
275.00	1,811	247.0	1,418	1,418	2,650
276.00	2,637	281.0	2,211	3,629	4,102

Device	Routing	Invert	Outlet Devices
#1	Primary	271.60'	**15.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 271.60' / 270.60' S= 0.0118 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	274.50'	**20.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.06 cfs @ 12.83 hrs HW=274.54' (Free Discharge)
└**1=Culvert** (Passes 0.06 cfs of 8.99 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.04 cfs @ 0.64 fps)
└**3=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond 15P: RG-1


Hydrograph
0.59 cfs
0.06 cfs
Inflow Area=16,462 sf
Peak Elev=274.54'
Storage=672 cf
Inflow
Primary
Flow (cfs)
0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 0.45 0.5 0.55 0.6 0.65
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72

Summary for Pond 18P: POND 4A

Inflow Area = 166,016 sf, 39.80% Impervious, Inflow Depth = 1.29" for 1-yr event
Inflow = 5.34 cfs @ 12.13 hrs, Volume= 17,902 cf
Outflow = 0.13 cfs @ 22.92 hrs, Volume= 17,900 cf, Atten= 98%, Lag= 647.3 min
Discarded = 0.13 cfs @ 22.92 hrs, Volume= 17,900 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 260.19' @ 22.92 hrs Surf.Area= 11,034 sf Storage= 11,671 cf

Plug-Flow detention time= 1,104.3 min calculated for 17,888 cf (100% of inflow)
Center-of-Mass det. time= 1,104.7 min (2,016.0 - 911.3)

Volume	Invert	Avail.Storage	Storage Description
#1	259.00'	51,513 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

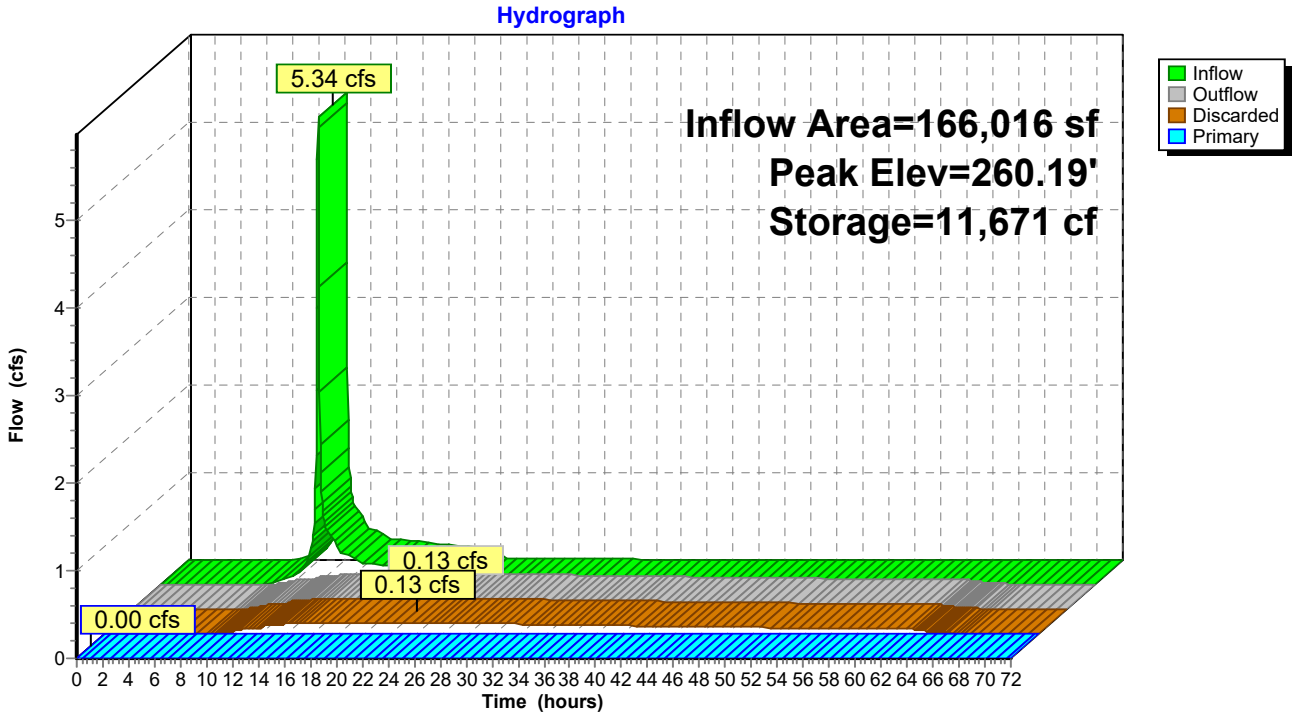
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
259.00	8,546	0	0
260.00	10,596	9,571	9,571
261.00	12,850	11,723	21,294
262.00	14,969	13,910	35,204
263.00	17,649	16,309	51,513

Device	Routing	Invert	Outlet Devices
#1	Primary	255.40'	**15.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 255.40' / 255.00' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	260.80'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	262.00'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	259.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 258.00'

Discarded OutFlow Max=0.13 cfs @ 22.92 hrs HW=260.19' (Free Discharge)
└**4=Exfiltration** (Controls 0.13 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=259.00' (Free Discharge)
└**1=Culvert** (Passes 0.00 cfs of 10.19 cfs potential flow)
├**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 18P: POND 4A



Summary for Pond 19P: RG-2

Inflow Area = 1,640 sf, 0.00% Impervious, Inflow Depth = 0.62" for 1-yr event
Inflow = 0.03 cfs @ 12.05 hrs, Volume= 84 cf
Outflow = 0.00 cfs @ 12.38 hrs, Volume= 84 cf, Atten= 84%, Lag= 19.6 min
Primary = 0.00 cfs @ 12.38 hrs, Volume= 84 cf
Routed to Pond 18P : POND 4A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 274.04' @ 12.38 hrs Surf.Area= 404 sf Storage= 16 cf

Plug-Flow detention time= 34.9 min calculated for 84 cf (100% of inflow)
Center-of-Mass det. time= 34.9 min (964.8 - 929.9)

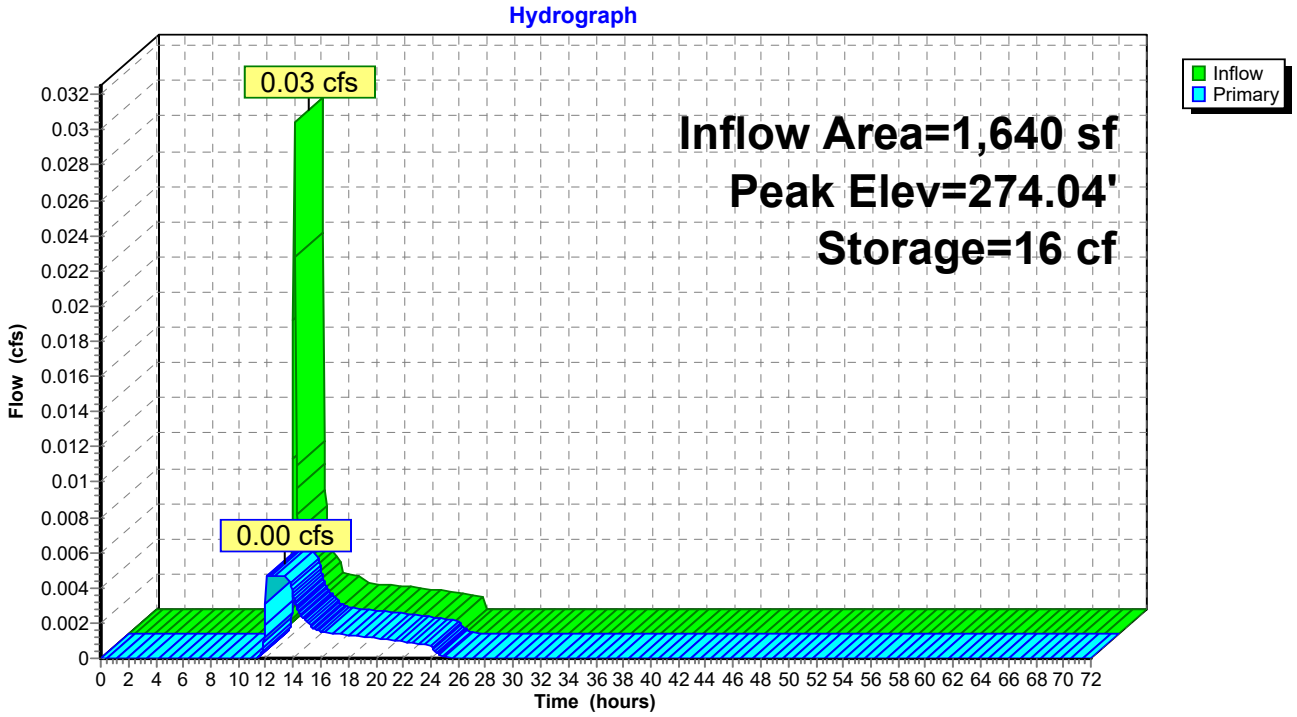
Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	1,334 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	395	78.0	0	0	395
275.00	658	97.0	521	521	674
276.00	979	116.0	813	1,334	1,013

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	**15.0" Round Culvert** L= 58.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.70' S= 0.0138 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	274.50'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.00 cfs @ 12.38 hrs HW=274.04' (Free Discharge)
└**1=Culvert** (Passes 0.00 cfs of 5.65 cfs potential flow)
└**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Exfiltration** (Exfiltration Controls 0.00 cfs)

Pond 19P: RG-2

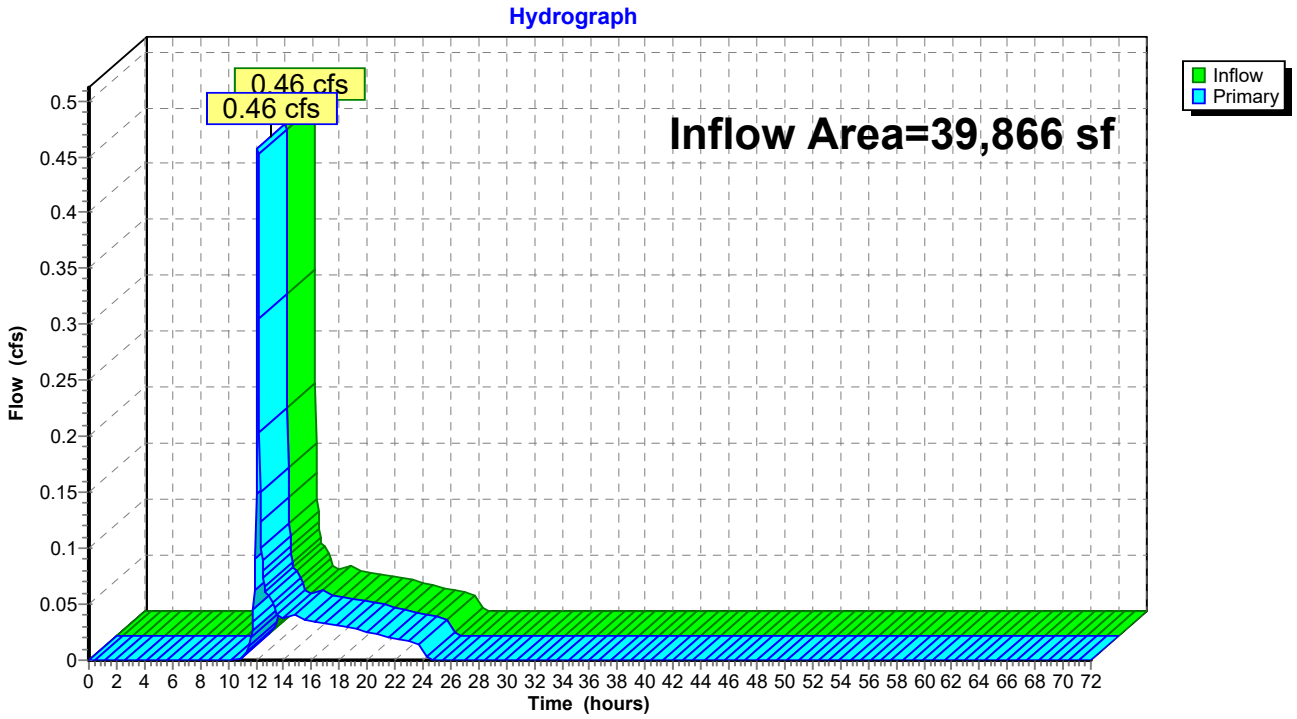

Hydrograph
0.03 cfs
0.00 cfs
Inflow Area=1,640 sf
Peak Elev=274.04'
Storage=16 cf
Inflow
Primary
Flow (cfs)
0 0.002 0.004 0.006 0.008 0.01 0.012 0.014 0.016 0.018 0.02 0.022 0.024 0.026 0.028 0.03 0.032
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Link 10L: DP-1 (EXISTING 18" RCP)

Inflow Area = 39,866 sf, 14.88% Impervious, Inflow Depth = 0.53" for 1-yr event
Inflow = 0.46 cfs @ 12.14 hrs, Volume= 1,749 cf
Primary = 0.46 cfs @ 12.14 hrs, Volume= 1,749 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 10L: DP-1 (EXISTING 18" RCP)

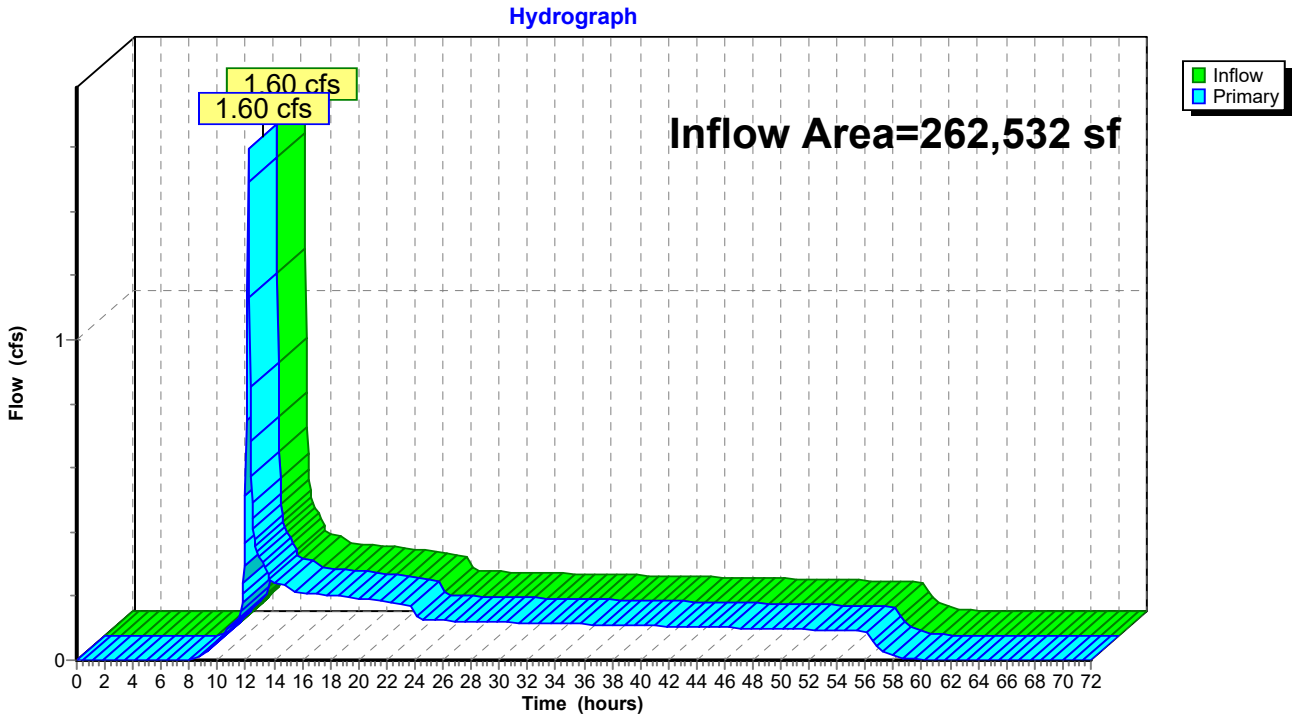


Summary for Link 11L: DP-2 (EXISTING WETLANDS)

Inflow Area = 262,532 sf, 29.97% Impervious, Inflow Depth = 1.12" for 1-yr event
Inflow = 1.60 cfs @ 12.17 hrs, Volume= 24,408 cf
Primary = 1.60 cfs @ 12.17 hrs, Volume= 24,408 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 11L: DP-2 (EXISTING WETLANDS)

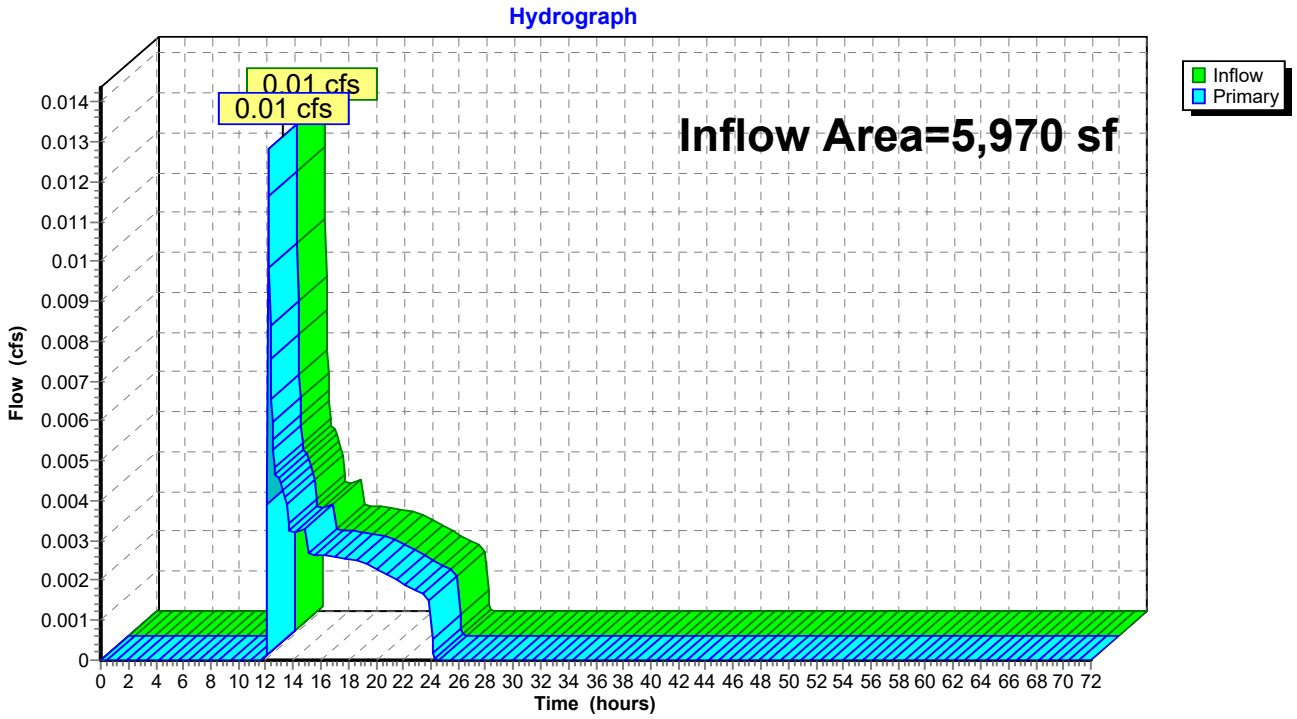


Summary for Link 12L: DP-3 (NORTHERN PROPERTY LINE)

Inflow Area = 5,970 sf, 0.00% Impervious, Inflow Depth = 0.24" for 1-yr event
Inflow = 0.01 cfs @ 12.17 hrs, Volume= 121 cf
Primary = 0.01 cfs @ 12.17 hrs, Volume= 121 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 12L: DP-3 (NORTHERN PROPERTY LINE)

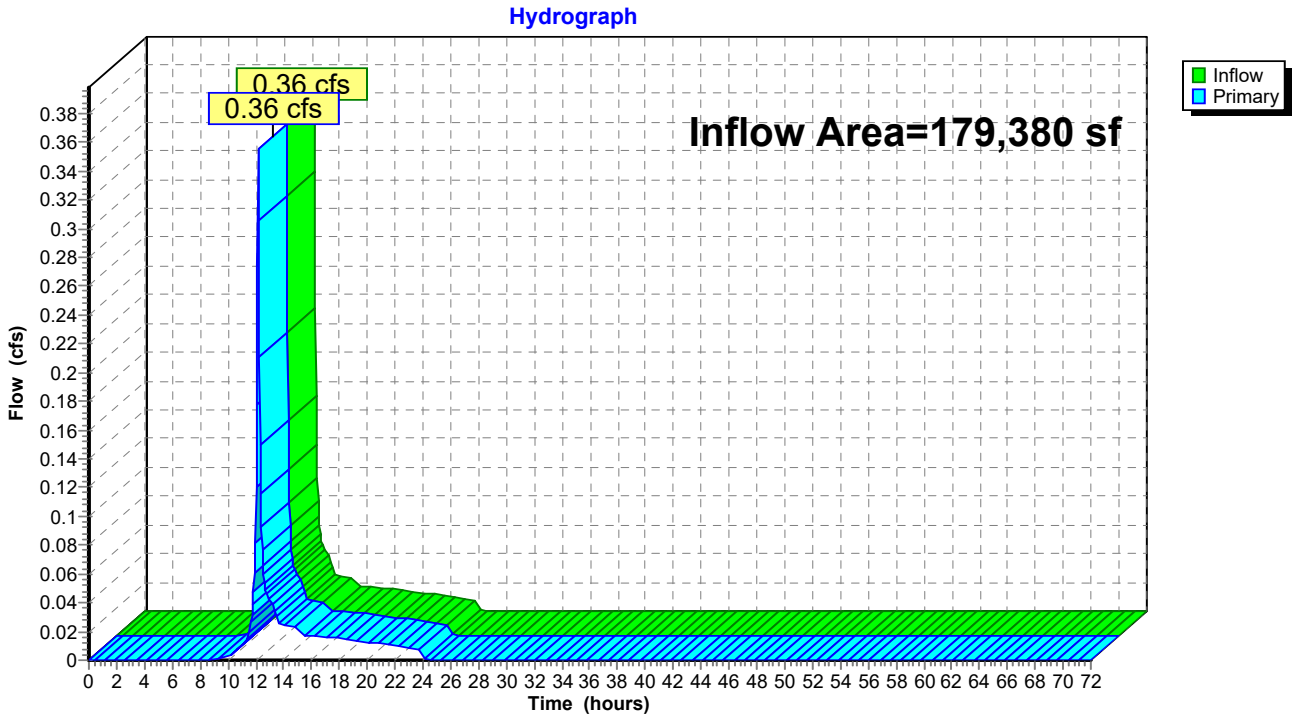


Summary for Link 13L: DP-4 (SOUTHERN PROPERTY LINE)

Inflow Area = 179,380 sf, 36.84% Impervious, Inflow Depth = 0.08" for 1-yr event
Inflow = 0.36 cfs @ 12.16 hrs, Volume= 1,178 cf
Primary = 0.36 cfs @ 12.16 hrs, Volume= 1,178 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 13L: DP-4 (SOUTHERN PROPERTY LINE)



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment4S: PDA-12 Runoff Area=14,885 sf 4.20% Impervious Runoff Depth=0.98"
Tc=6.0 min CN=70 Runoff=0.39 cfs 1,220 cf

Subcatchment7S: PDA-22 Runoff Area=68,140 sf 0.00% Impervious Runoff Depth=0.98"
Flow Length=330' Tc=9.1 min CN=70 Runoff=1.53 cfs 5,585 cf

Subcatchment9S: PDA-42 Runoff Area=13,364 sf 0.00% Impervious Runoff Depth=1.47"
Flow Length=190' Tc=8.1 min CN=78 Runoff=0.50 cfs 1,634 cf

Subcatchment14S: PDA-31 Runoff Area=5,970 sf 0.00% Impervious Runoff Depth=0.44"
Tc=6.0 min CN=58 Runoff=0.05 cfs 218 cf

Subcatchment16S: PDA-43 Runoff Area=16,462 sf 46.51% Impervious Runoff Depth=1.75"
Tc=6.0 min CN=82 Runoff=0.80 cfs 2,400 cf

Subcatchment17S: PDA-41 Runoff Area=147,914 sf 39.50% Impervious Runoff Depth=1.75"
Tc=6.0 min CN=82 Runoff=7.16 cfs 21,566 cf

Subcatchment18S: PDA-44 Runoff Area=1,640 sf 0.00% Impervious Runoff Depth=0.93"
Tc=0.0 min CN=69 Runoff=0.05 cfs 127 cf

Subcatchment19S: PDA-11 Runoff Area=14,783 sf 25.78% Impervious Runoff Depth=1.34"
Tc=6.0 min CN=76 Runoff=0.54 cfs 1,646 cf

Subcatchment20S: PDA-13 Runoff Area=10,198 sf 14.68% Impervious Runoff Depth=1.15"
Tc=6.0 min CN=73 Runoff=0.32 cfs 980 cf

Subcatchment23S: PDA-21 Runoff Area=174,242 sf 45.16% Impervious Runoff Depth=1.75"
Tc=6.0 min CN=82 Runoff=8.43 cfs 25,405 cf

Subcatchment24S: PDA23 Runoff Area=20,150 sf 0.00% Impervious Runoff Depth=1.47"
Flow Length=369' Tc=8.2 min CN=78 Runoff=0.75 cfs 2,463 cf

Pond 13P: POND 2A Peak Elev=262.87' Storage=18,458 cf Inflow=8.43 cfs 25,405 cf
Outflow=0.14 cfs 25,401 cf

Pond 14P: POND 1A Peak Elev=270.62' Storage=669 cf Inflow=0.54 cfs 1,646 cf
Discarded=0.01 cfs 948 cf Primary=0.04 cfs 698 cf Outflow=0.05 cfs 1,646 cf

Pond 15P: RG-1 Peak Elev=274.61' Storage=781 cf Inflow=0.80 cfs 2,400 cf
Outflow=0.23 cfs 2,400 cf

Pond 18P: POND 4A Peak Elev=260.61' Storage=16,443 cf Inflow=7.17 cfs 24,094 cf
Discarded=0.16 cfs 23,859 cf Primary=0.00 cfs 0 cf Outflow=0.16 cfs 23,859 cf

Pond 19P: RG-2 Peak Elev=274.08' Storage=32 cf Inflow=0.05 cfs 127 cf
Outflow=0.00 cfs 127 cf

Link 10L: DP-1 (EXISTING 18" RCP) Inflow=0.70 cfs 2,898 cf
Primary=0.70 cfs 2,898 cf

Link 11L: DP-2 (EXISTING WETLANDS) Inflow=2.39 cfs 33,449 cf
Primary=2.39 cfs 33,449 cf

Link 12L: DP-3 (NORTHERN PROPERTY LINE) Inflow=0.05 cfs 218 cf
Primary=0.05 cfs 218 cf

Link 13L: DP-4 (SOUTHERN PROPERTY LINE) Inflow=0.50 cfs 1,634 cf
Primary=0.50 cfs 1,634 cf

Total Runoff Area = 487,748 sf Runoff Volume = 63,244 cf Average Runoff Depth = 1.56"
69.10% Pervious = 337,052 sf 30.90% Impervious = 150,696 sf

Summary for Subcatchment 4S: PDA-12

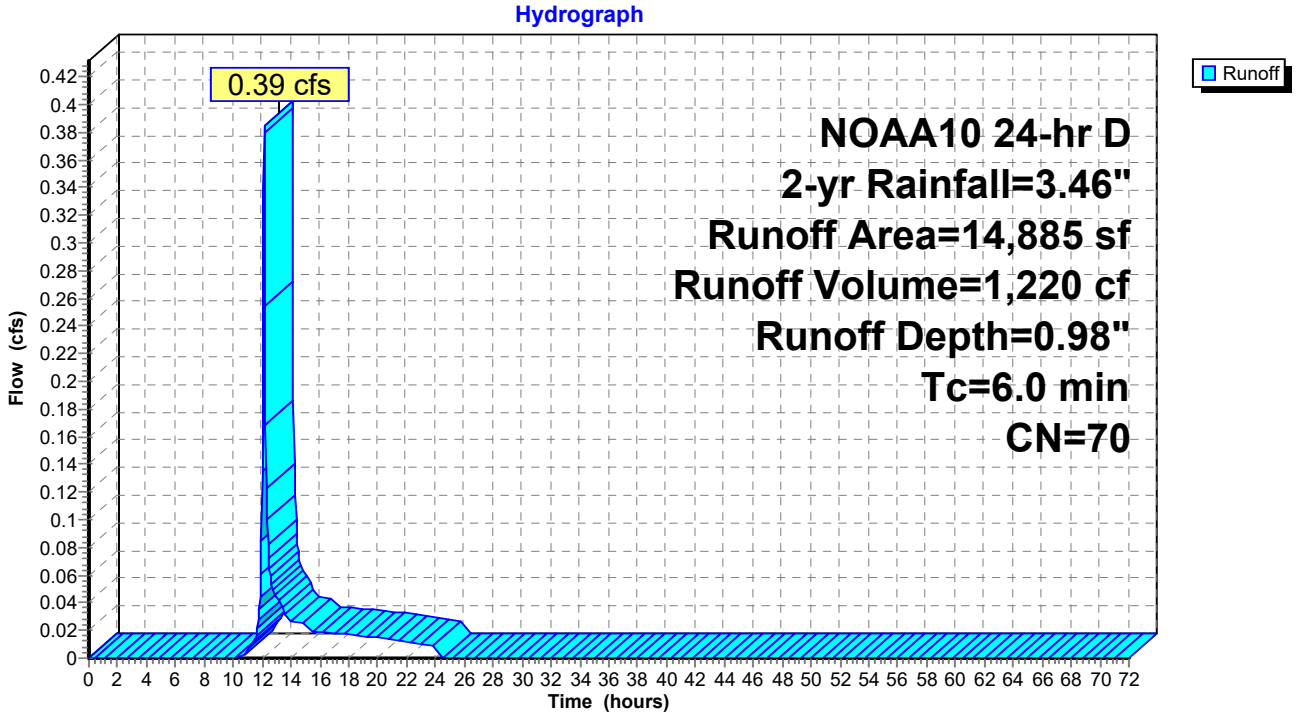
Runoff = 0.39 cfs @ 12.14 hrs, Volume= 1,220 cf, Depth= 0.98"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
14,260	69	50-75% Grass cover, Fair, HSG B
625	98	Paved parking, HSG D
14,885	70	Weighted Average
14,260		95.80% Pervious Area
625		4.20% Impervious Area

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

Subcatchment 4S: PDA-12



Summary for Subcatchment 7S: PDA-22

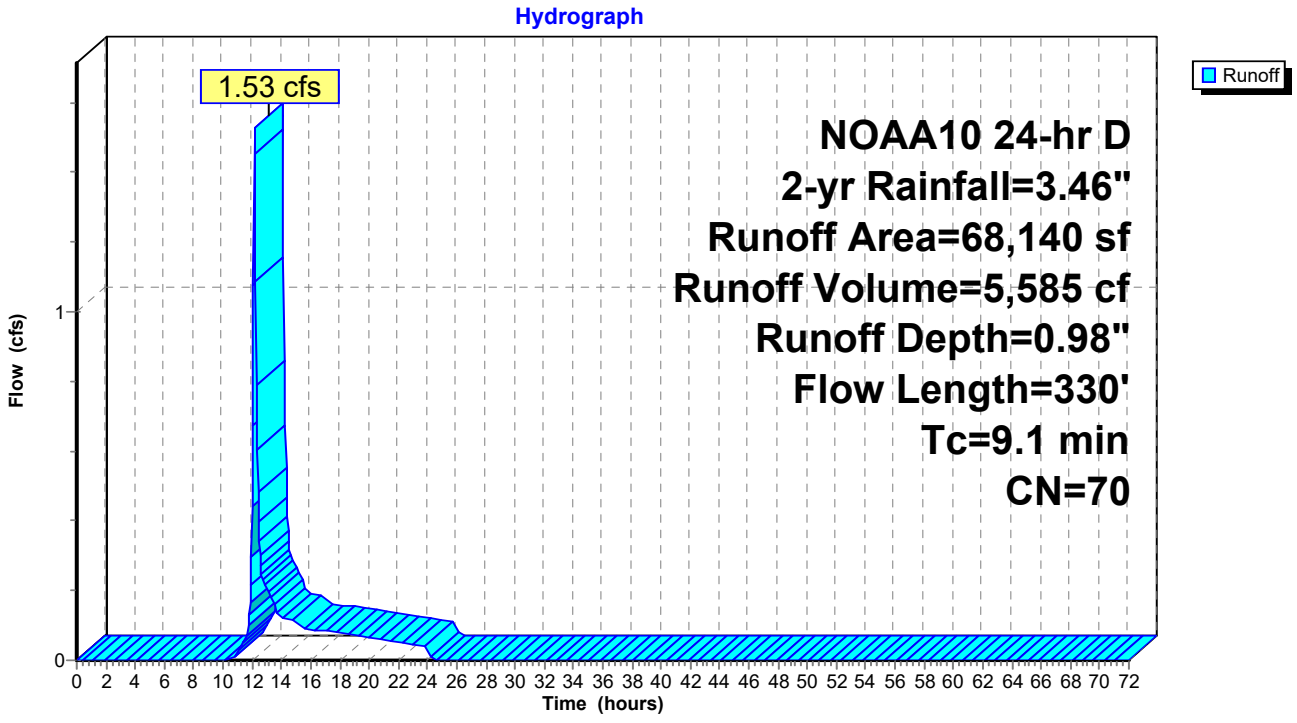
Runoff = 1.53 cfs @ 12.17 hrs, Volume= 5,585 cf, Depth= 0.98"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
33,890	60	Woods, Fair, HSG B
27,311	79	Woods, Fair, HSG D
6,939	84	50-75% Grass cover, Fair, HSG D
68,140	70	Weighted Average
68,140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	45	0.1500	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.46"
4.2	285	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.1	330	Total			

Subcatchment 7S: PDA-22



Summary for Subcatchment 9S: PDA-42

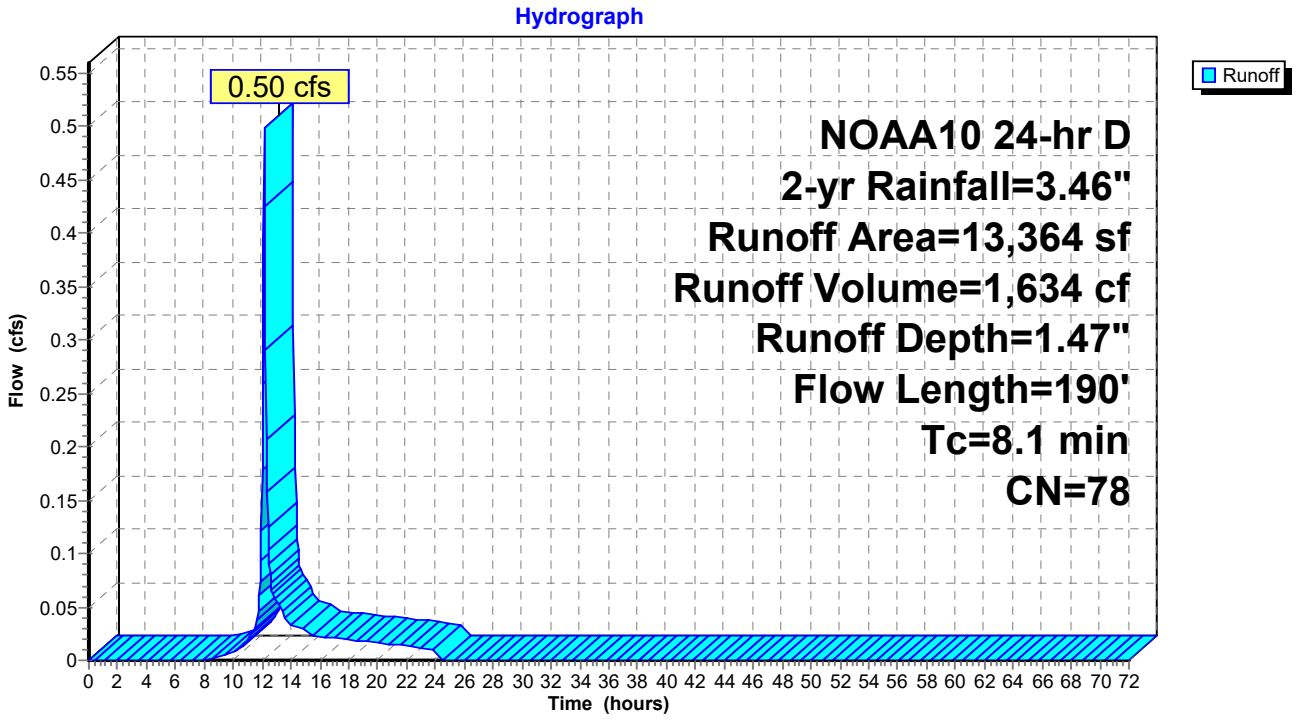
Runoff = 0.50 cfs @ 12.15 hrs, Volume= 1,634 cf, Depth= 1.47"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
2,571	69	50-75% Grass cover, Fair, HSG B
7,293	79	Woods, Fair, HSG D
3,500	84	50-75% Grass cover, Fair, HSG D
13,364	78	Weighted Average
13,364		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.0800	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.46"
1.3	140	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.1	190	Total			

Subcatchment 9S: PDA-42



Summary for Subcatchment 14S: PDA-31

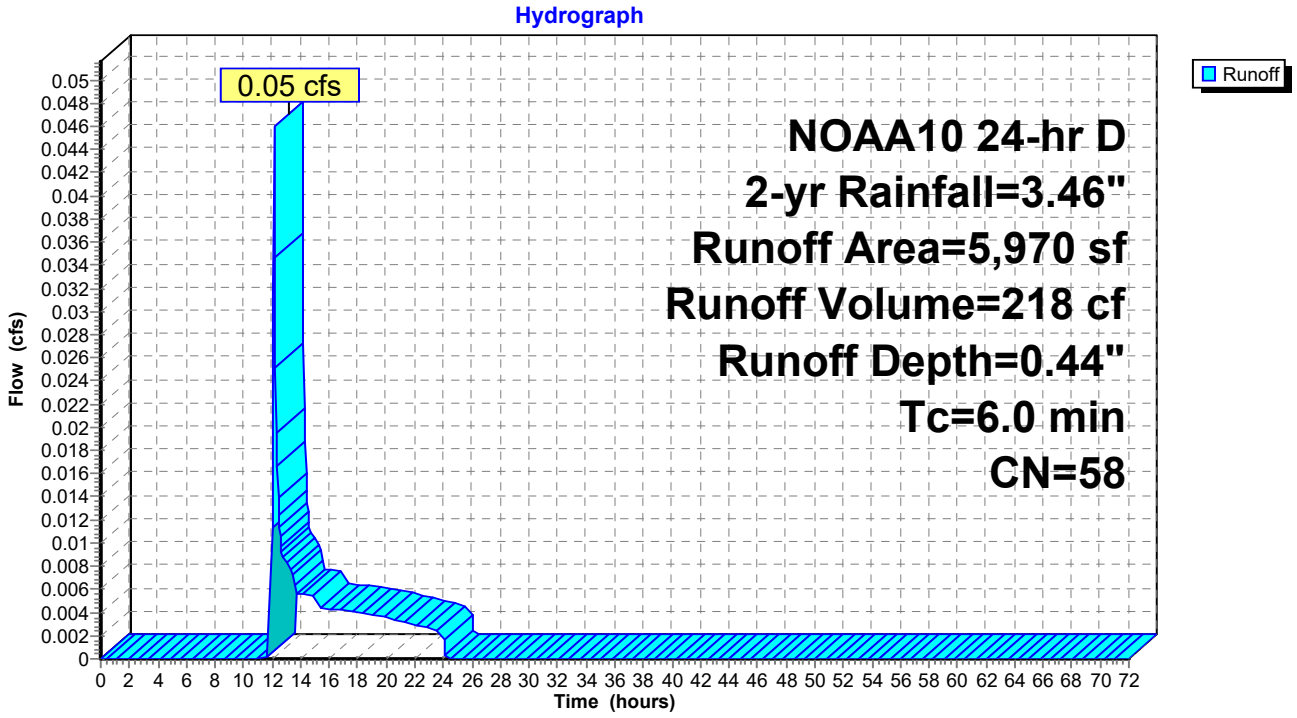
Runoff = 0.05 cfs @ 12.15 hrs, Volume= 218 cf, Depth= 0.44"
Routed to Link 12L : DP-3 (NORTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
5,970	58	Woods/grass comb., Good, HSG B
5,970		100.00% Pervious Area

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

Subcatchment 14S: PDA-31



Summary for Subcatchment 16S: PDA-43

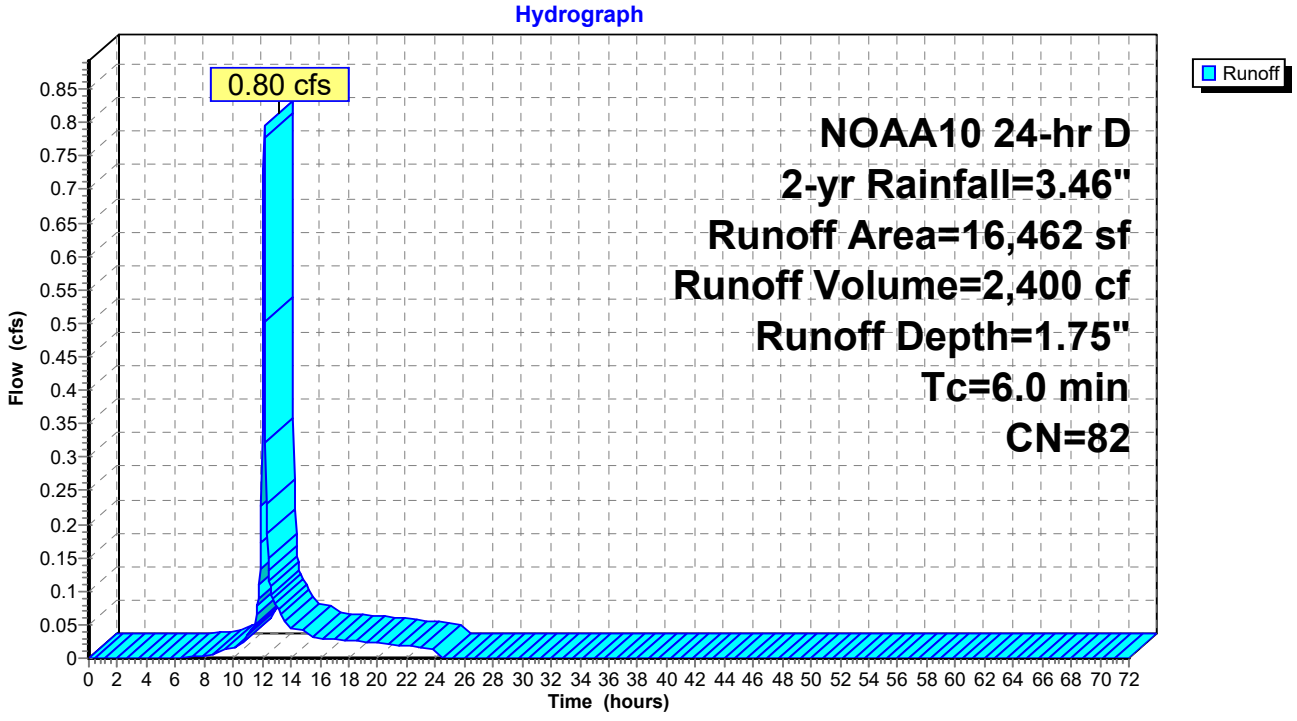
Runoff = 0.80 cfs @ 12.13 hrs, Volume= 2,400 cf, Depth= 1.75"
Routed to Pond 15P : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
7,656	98	Roofs, HSG D
8,806	69	50-75% Grass cover, Fair, HSG B
16,462	82	Weighted Average
8,806		53.49% Pervious Area
7,656		46.51% Impervious Area

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

Subcatchment 16S: PDA-43



Summary for Subcatchment 17S: PDA-41

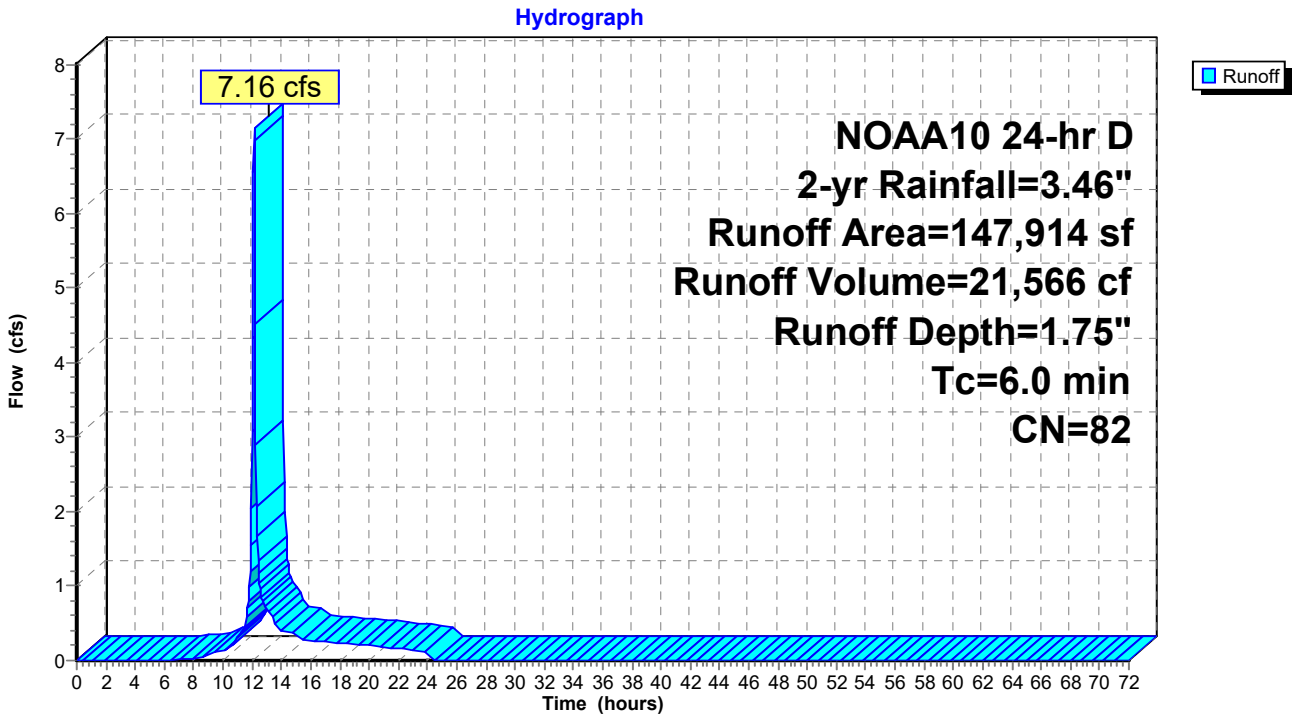
Runoff = 7.16 cfs @ 12.13 hrs, Volume= 21,566 cf, Depth= 1.75"
Routed to Pond 18P : POND 4A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
58,419	98	Paved parking, HSG D
60,483	69	50-75% Grass cover, Fair, HSG B
29,012	79	Woods, Fair, HSG D
147,914	82	Weighted Average
89,495		60.50% Pervious Area
58,419		39.50% Impervious Area

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

Subcatchment 17S: PDA-41



Summary for Subcatchment 18S: PDA-44

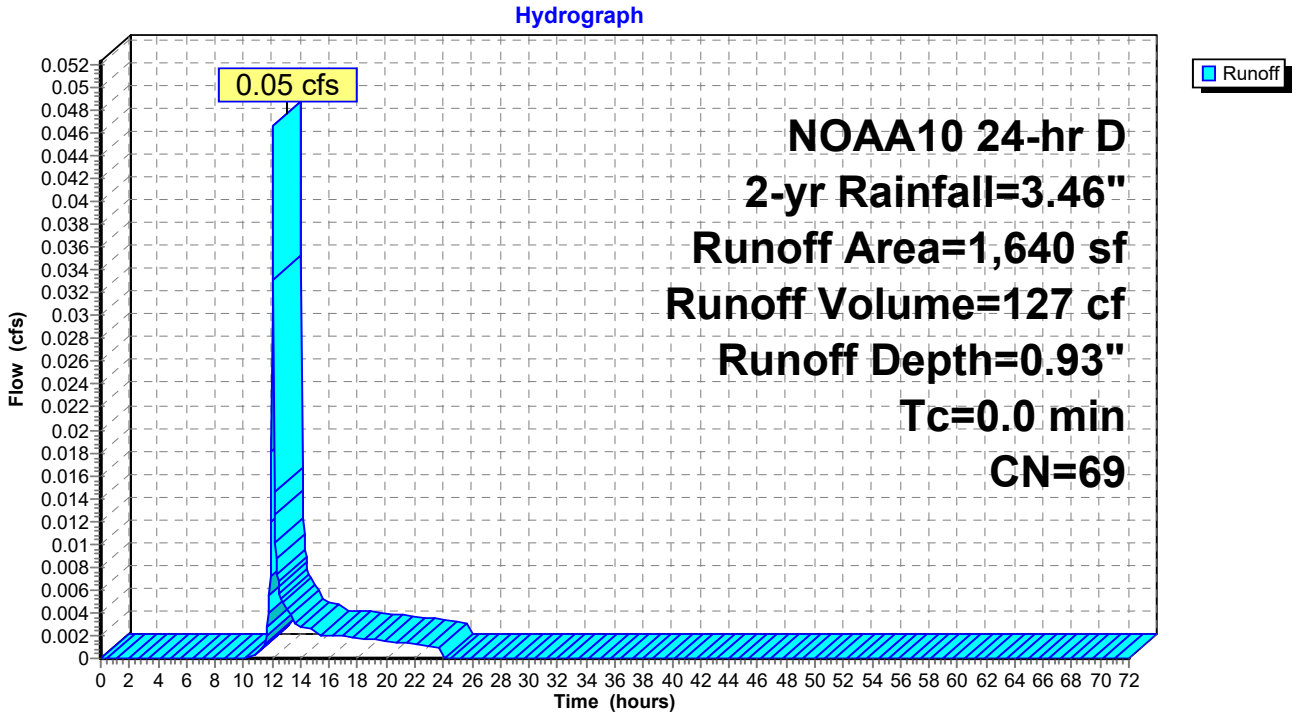
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.05 cfs @ 12.05 hrs, Volume= 127 cf, Depth= 0.93"
Routed to Pond 19P : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
1,640	69	50-75% Grass cover, Fair, HSG B
1,640		100.00% Pervious Area

Subcatchment 18S: PDA-44



Summary for Subcatchment 19S: PDA-11

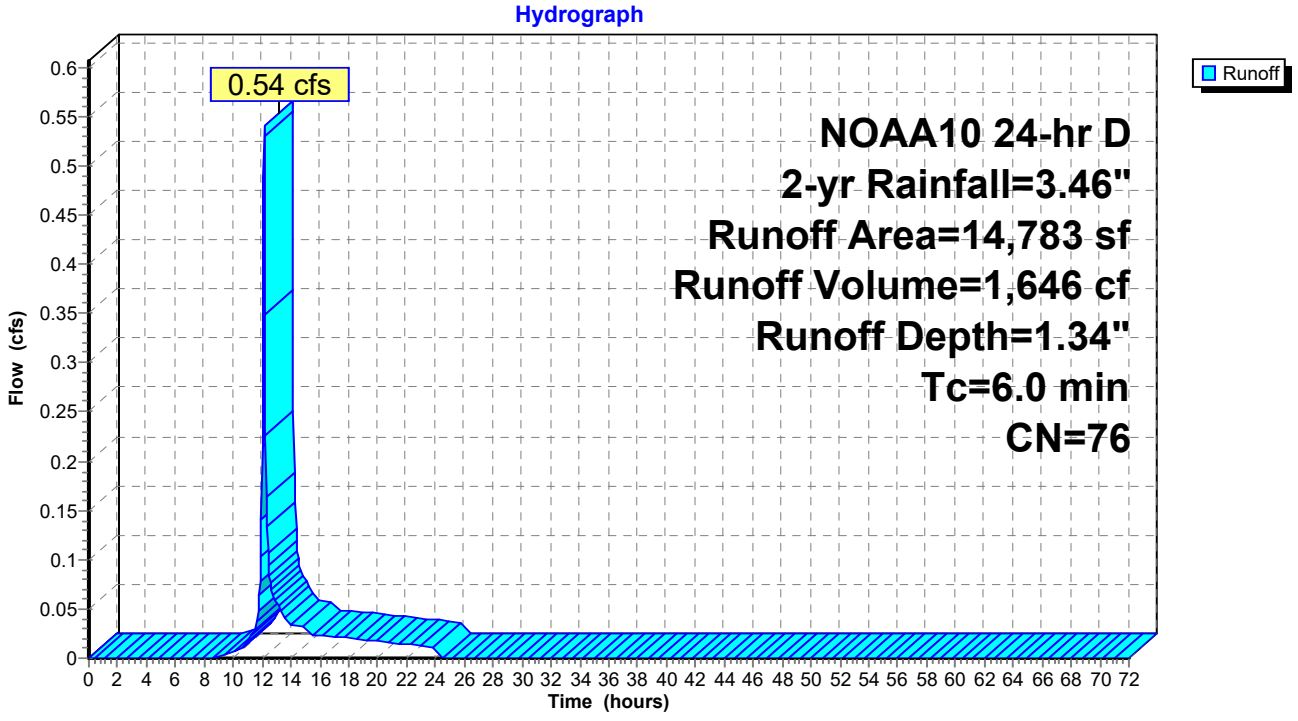
Runoff = 0.54 cfs @ 12.13 hrs, Volume= 1,646 cf, Depth= 1.34"
Routed to Pond 14P : POND 1A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
3,811	98	Roofs, HSG D
10,972	69	50-75% Grass cover, Fair, HSG B
14,783	76	Weighted Average
10,972		74.22% Pervious Area
3,811		25.78% Impervious Area

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

Subcatchment 19S: PDA-11



Summary for Subcatchment 20S: PDA-13

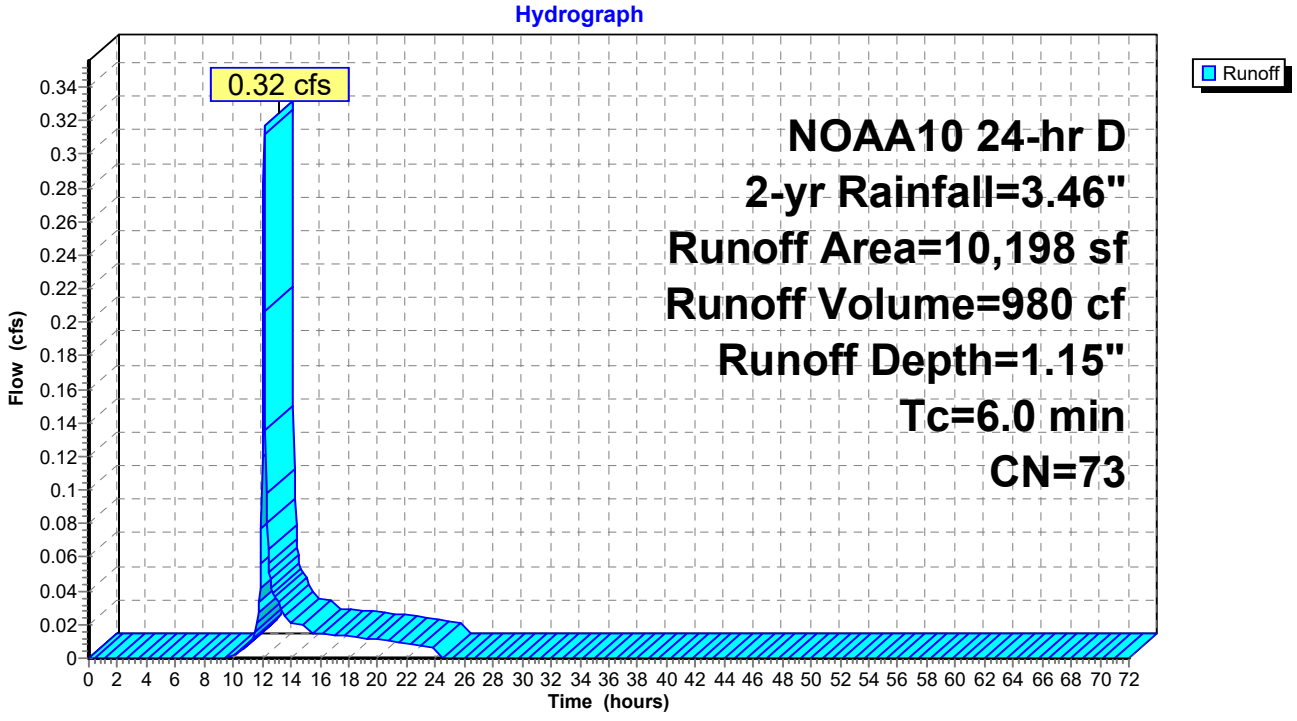
Runoff = 0.32 cfs @ 12.14 hrs, Volume= 980 cf, Depth= 1.15"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
8,701	69	50-75% Grass cover, Fair, HSG B
1,497	98	Paved parking, HSG D
10,198	73	Weighted Average
8,701		85.32% Pervious Area
1,497		14.68% Impervious Area

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

Subcatchment 20S: PDA-13



Summary for Subcatchment 23S: PDA-21

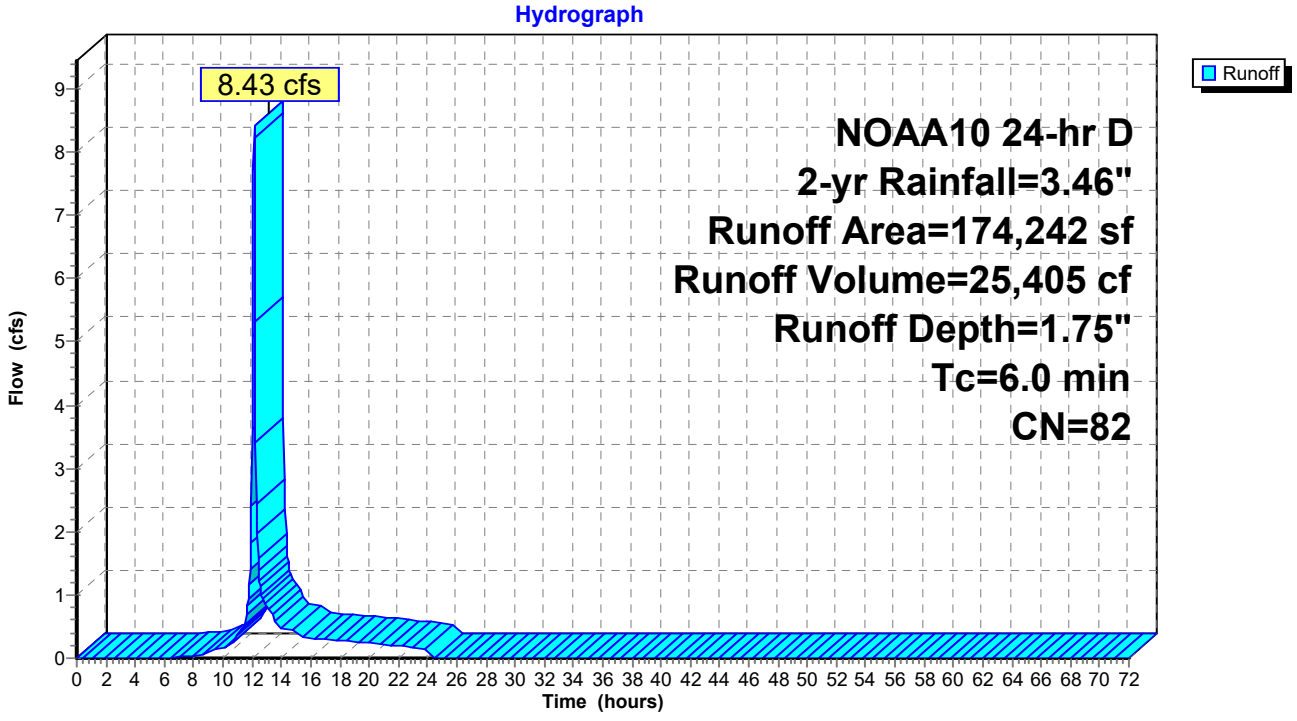
Runoff = 8.43 cfs @ 12.13 hrs, Volume= 25,405 cf, Depth= 1.75"
Routed to Pond 13P : POND 2A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
78,688	98	Paved parking, HSG D
95,554	69	50-75% Grass cover, Fair, HSG B
174,242	82	Weighted Average
95,554		54.84% Pervious Area
78,688		45.16% Impervious Area

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

Subcatchment 23S: PDA-21



Summary for Subcatchment 24S: PDA23

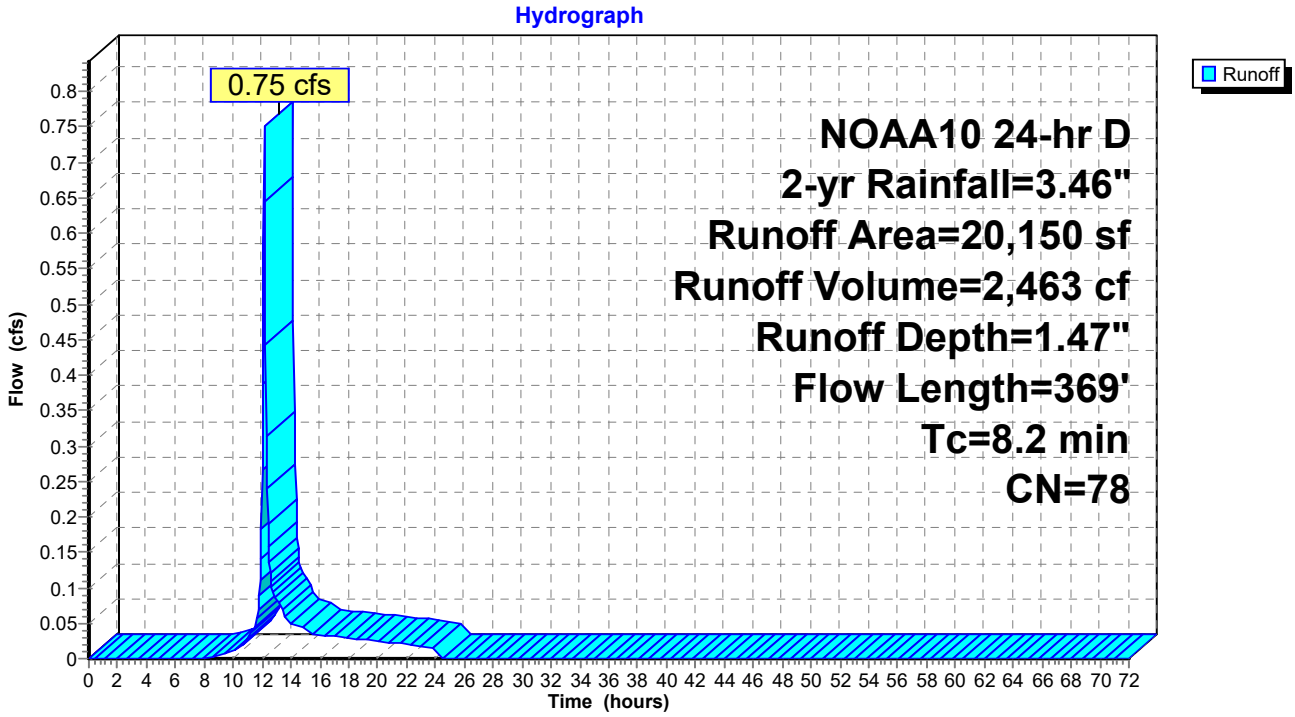
Runoff = 0.75 cfs @ 12.16 hrs, Volume= 2,463 cf, Depth= 1.47"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 2-yr Rainfall=3.46"

Area (sf)	CN	Description
4,687	60	Woods, Fair, HSG B
15,463	83	Woods, Poor, HSG D
20,150	78	Weighted Average
20,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	14	0.0357	0.07		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
4.8	355	0.0620	1.24		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
8.2	369	Total			

Subcatchment 24S: PDA23



Summary for Pond 13P: POND 2A

Inflow Area = 174,242 sf, 45.16% Impervious, Inflow Depth = 1.75" for 2-yr event
Inflow = 8.43 cfs @ 12.13 hrs, Volume= 25,405 cf
Outflow = 0.14 cfs @ 24.00 hrs, Volume= 25,401 cf, Atten= 98%, Lag= 712.1 min
Primary = 0.14 cfs @ 24.00 hrs, Volume= 25,401 cf
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 262.87' @ 24.00 hrs Surf.Area= 12,124 sf Storage= 18,458 cf

Plug-Flow detention time= 1,371.1 min calculated for 25,383 cf (100% of inflow)
Center-of-Mass det. time= 1,372.0 min (2,234.9 - 862.9)

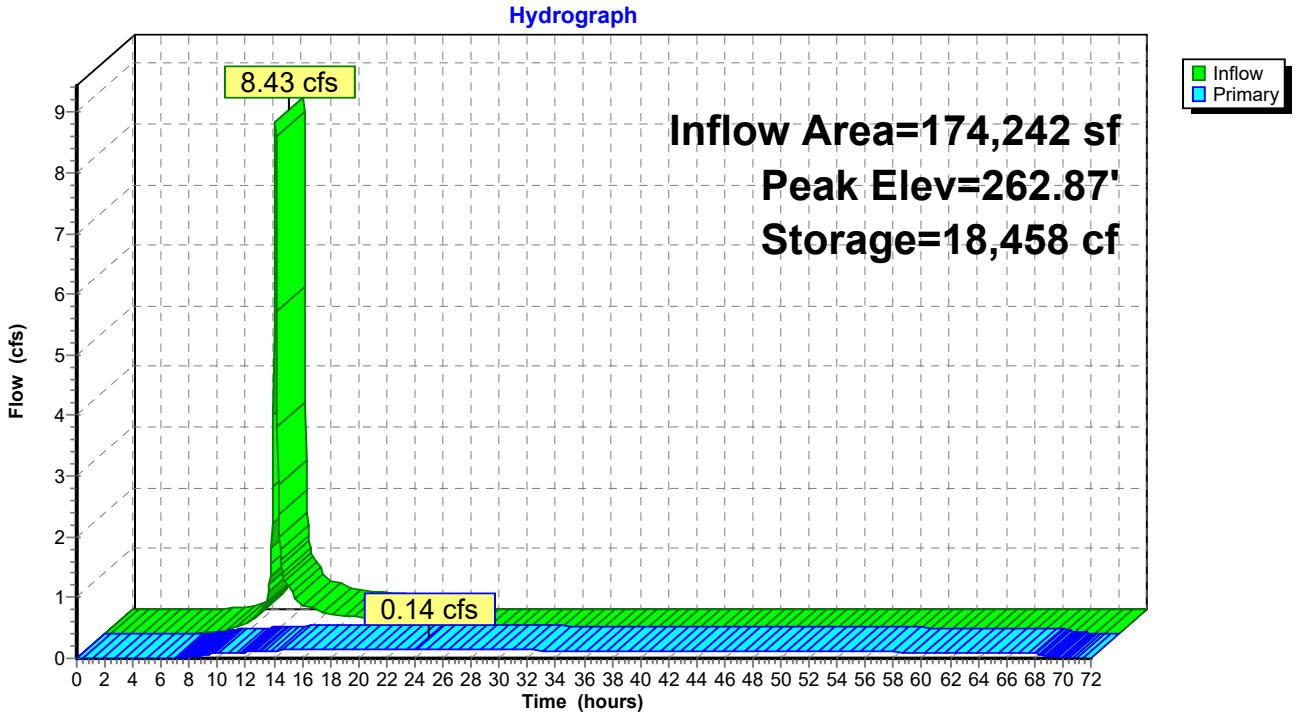
Volume	Invert	Avail.Storage	Storage Description
#1	261.00'	49,547 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
261.00	7,809	0	0
262.00	9,940	8,875	8,875
263.00	12,454	11,197	20,072
264.00	14,724	13,589	33,661
265.00	17,049	15,887	49,547

Device	Routing	Invert	Outlet Devices
#1	Primary	258.60'	**15.0" Round Culvert** L= 32.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 258.60' / 258.25' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	264.50'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	263.60'	**20.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	261.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.14 cfs @ 24.00 hrs HW=262.87' (Free Discharge)
└**1=Culvert** (Passes 0.14 cfs of 11.28 cfs potential flow)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  ├**3=Orifice/Grate** (Controls 0.00 cfs)
  └**4=Exfiltration** (Exfiltration Controls 0.14 cfs)

Pond 13P: POND 2A



Summary for Pond 14P: POND 1A

Inflow Area = 14,783 sf, 25.78% Impervious, Inflow Depth = 1.34" for 2-yr event
Inflow = 0.54 cfs @ 12.13 hrs, Volume= 1,646 cf
Outflow = 0.05 cfs @ 13.31 hrs, Volume= 1,646 cf, Atten= 91%, Lag= 70.5 min
Discarded = 0.01 cfs @ 13.31 hrs, Volume= 948 cf
Primary = 0.04 cfs @ 13.31 hrs, Volume= 698 cf
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 270.62' @ 13.31 hrs Surf.Area= 1,294 sf Storage= 669 cf

Plug-Flow detention time= 493.1 min calculated for 1,646 cf (100% of inflow)
Center-of-Mass det. time= 492.7 min (1,380.8 - 888.1)

Volume	Invert	Avail.Storage	Storage Description
#1	270.00'	3,233 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

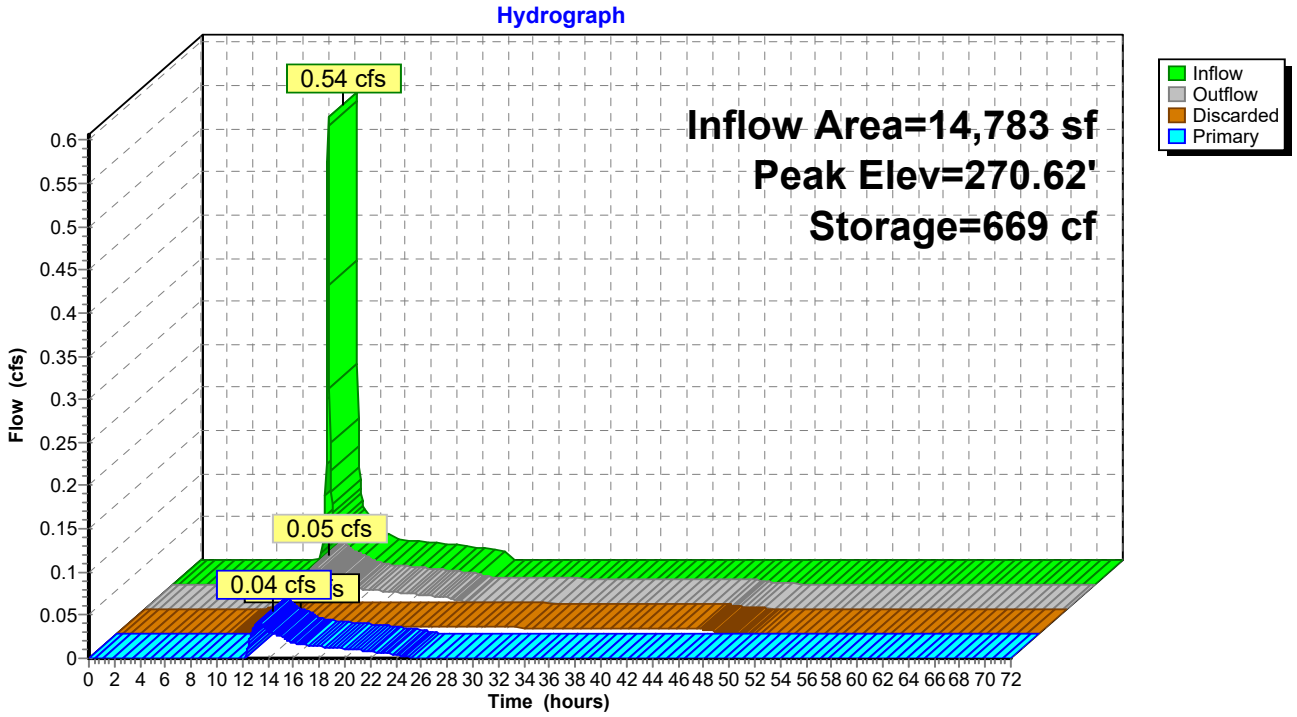
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
270.00	892	175.0	0	0	892
271.00	1,583	241.0	1,221	1,221	3,087
272.00	2,473	323.0	2,012	3,233	6,778

Device	Routing	Invert	Outlet Devices
#1	Primary	269.60'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 269.60' / 269.00' S= 0.0120 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	270.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	271.80'	**36.0" W x 24.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	270.00'	**0.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 255.00'

Discarded OutFlow Max=0.01 cfs @ 13.31 hrs HW=270.62' (Free Discharge)
└**4=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.04 cfs @ 13.31 hrs HW=270.62' (Free Discharge)
└**1=Culvert** (Passes 0.04 cfs of 3.66 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.04 cfs @ 1.16 fps)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 14P: POND 1A



Summary for Pond 15P: RG-1

Inflow Area = 16,462 sf, 46.51% Impervious, Inflow Depth = 1.75" for 2-yr event
Inflow = 0.80 cfs @ 12.13 hrs, Volume= 2,400 cf
Outflow = 0.23 cfs @ 12.32 hrs, Volume= 2,400 cf, Atten= 72%, Lag= 11.0 min
Primary = 0.23 cfs @ 12.32 hrs, Volume= 2,400 cf
Routed to Pond 18P : POND 4A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 274.61' @ 12.32 hrs Surf.Area= 1,497 sf Storage= 781 cf

Plug-Flow detention time= 284.7 min calculated for 2,399 cf (100% of inflow)
Center-of-Mass det. time= 285.1 min (1,148.0 - 862.9)

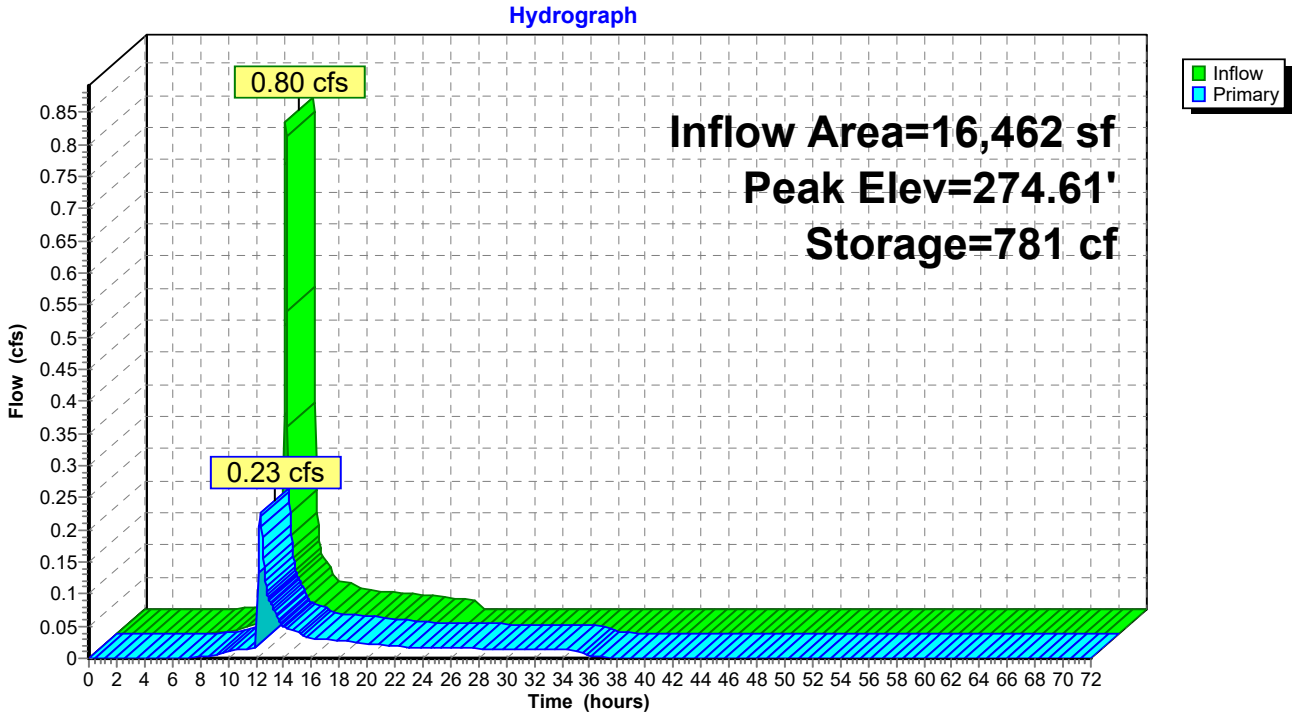
Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	3,629 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	1,058	203.0	0	0	1,058
275.00	1,811	247.0	1,418	1,418	2,650
276.00	2,637	281.0	2,211	3,629	4,102

Device	Routing	Invert	Outlet Devices
#1	Primary	271.60'	**15.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 271.60' / 270.60' S= 0.0118 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	274.50'	**20.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.22 cfs @ 12.32 hrs HW=274.61' (Free Discharge)
└**1=Culvert** (Passes 0.22 cfs of 9.13 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.20 cfs @ 1.08 fps)
└**3=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond 15P: RG-1


Hydrograph
Inflow
Primary
0.80 cfs
0.23 cfs
Inflow Area=16,462 sf
Peak Elev=274.61'
Storage=781 cf
Flow (cfs)
Time (hours)

Summary for Pond 18P: POND 4A

Inflow Area = 166,016 sf, 39.80% Impervious, Inflow Depth = 1.74" for 2-yr event
Inflow = 7.17 cfs @ 12.13 hrs, Volume= 24,094 cf
Outflow = 0.16 cfs @ 22.93 hrs, Volume= 23,859 cf, Atten= 98%, Lag= 647.8 min
Discarded = 0.16 cfs @ 22.93 hrs, Volume= 23,859 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 260.61' @ 22.93 hrs Surf.Area= 11,969 sf Storage= 16,443 cf

Plug-Flow detention time= 1,269.0 min calculated for 23,842 cf (99% of inflow)
Center-of-Mass det. time= 1,258.8 min (2,150.7 - 891.9)

Volume	Invert	Avail.Storage	Storage Description
#1	259.00'	51,513 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

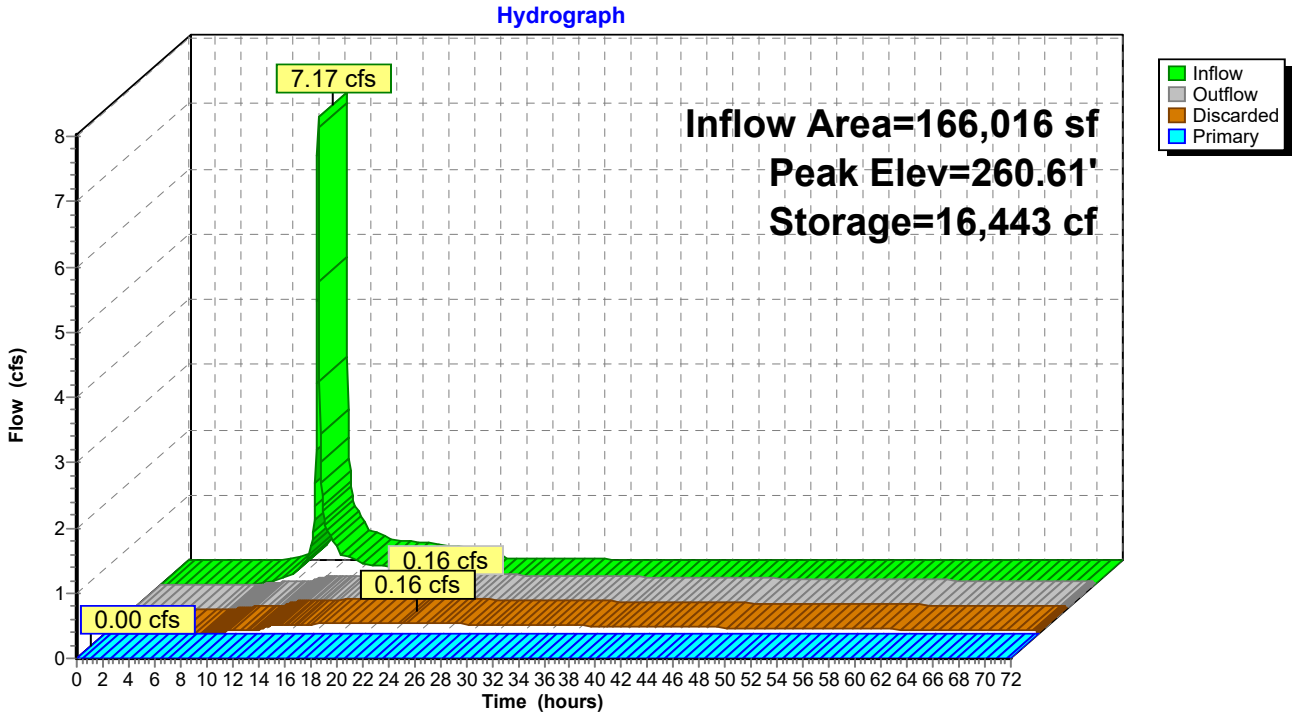
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
259.00	8,546	0	0
260.00	10,596	9,571	9,571
261.00	12,850	11,723	21,294
262.00	14,969	13,910	35,204
263.00	17,649	16,309	51,513

Device	Routing	Invert	Outlet Devices
#1	Primary	255.40'	**15.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 255.40' / 255.00' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	260.80'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	262.00'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	259.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 258.00'

Discarded OutFlow Max=0.16 cfs @ 22.93 hrs HW=260.61' (Free Discharge)
└**4=Exfiltration** (Controls 0.16 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=259.00' (Free Discharge)
└**1=Culvert** (Passes 0.00 cfs of 10.19 cfs potential flow)
├**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 18P: POND 4A



Summary for Pond 19P: RG-2

Inflow Area = 1,640 sf, 0.00% Impervious, Inflow Depth = 0.93" for 2-yr event
Inflow = 0.05 cfs @ 12.05 hrs, Volume= 127 cf
Outflow = 0.00 cfs @ 12.81 hrs, Volume= 127 cf, Atten= 90%, Lag= 45.6 min
Primary = 0.00 cfs @ 12.81 hrs, Volume= 127 cf
Routed to Pond 18P : POND 4A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 274.08' @ 12.81 hrs Surf.Area= 413 sf Storage= 32 cf

Plug-Flow detention time= 59.9 min calculated for 127 cf (100% of inflow)
Center-of-Mass det. time= 60.0 min (971.8 - 911.8)

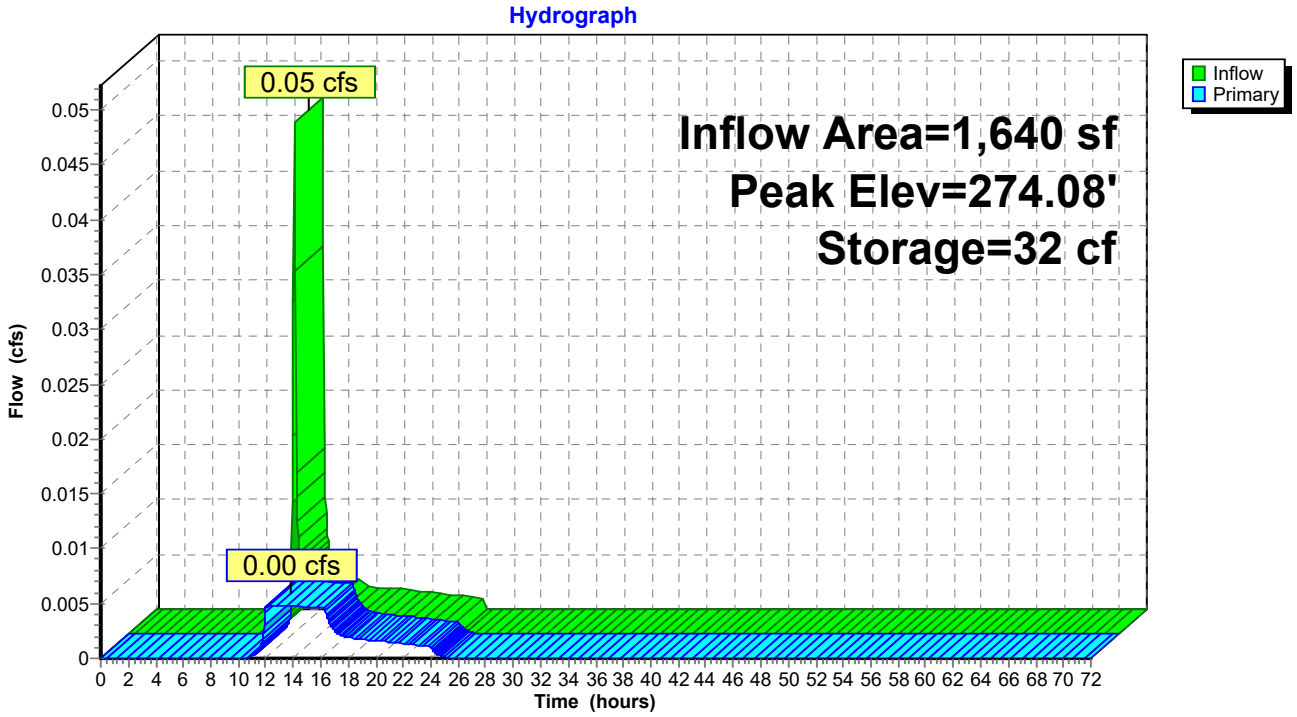
Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	1,334 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	395	78.0	0	0	395
275.00	658	97.0	521	521	674
276.00	979	116.0	813	1,334	1,013

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	**15.0" Round Culvert** L= 58.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.70' S= 0.0138 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	274.50'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.00 cfs @ 12.81 hrs HW=274.08' (Free Discharge)
└**1=Culvert** (Passes 0.00 cfs of 5.77 cfs potential flow)
└**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Exfiltration** (Exfiltration Controls 0.00 cfs)

Pond 19P: RG-2

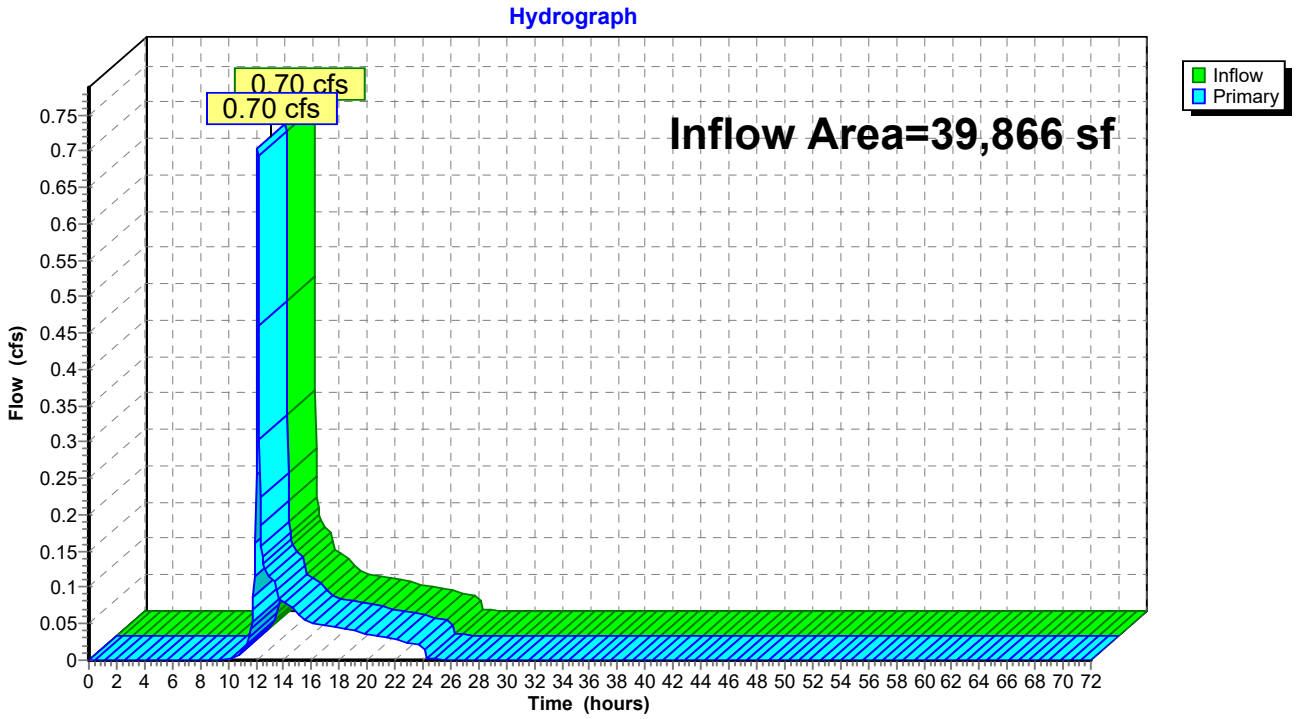

Hydrograph
Inflow
Primary
0.05 cfs
0.00 cfs
Inflow Area=1,640 sf
Peak Elev=274.08'
Storage=32 cf
Flow (cfs)
0 0.005 0.01 0.015 0.02 0.025 0.03 0.035 0.04 0.045 0.05
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72

Summary for Link 10L: DP-1 (EXISTING 18" RCP)

Inflow Area = 39,866 sf, 14.88% Impervious, Inflow Depth = 0.87" for 2-yr event
Inflow = 0.70 cfs @ 12.14 hrs, Volume= 2,898 cf
Primary = 0.70 cfs @ 12.14 hrs, Volume= 2,898 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 10L: DP-1 (EXISTING 18" RCP)

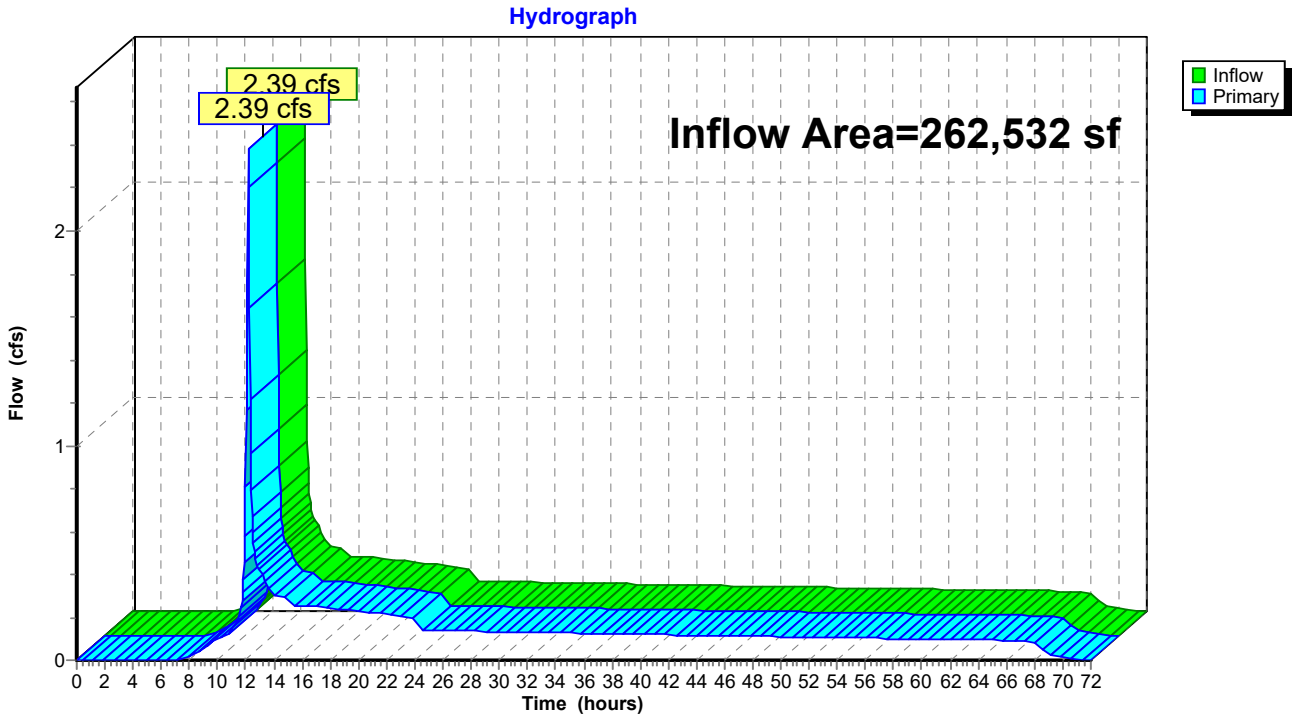


Summary for Link 11L: DP-2 (EXISTING WETLANDS)

Inflow Area = 262,532 sf, 29.97% Impervious, Inflow Depth > 1.53" for 2-yr event
Inflow = 2.39 cfs @ 12.17 hrs, Volume= 33,449 cf
Primary = 2.39 cfs @ 12.17 hrs, Volume= 33,449 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 11L: DP-2 (EXISTING WETLANDS)

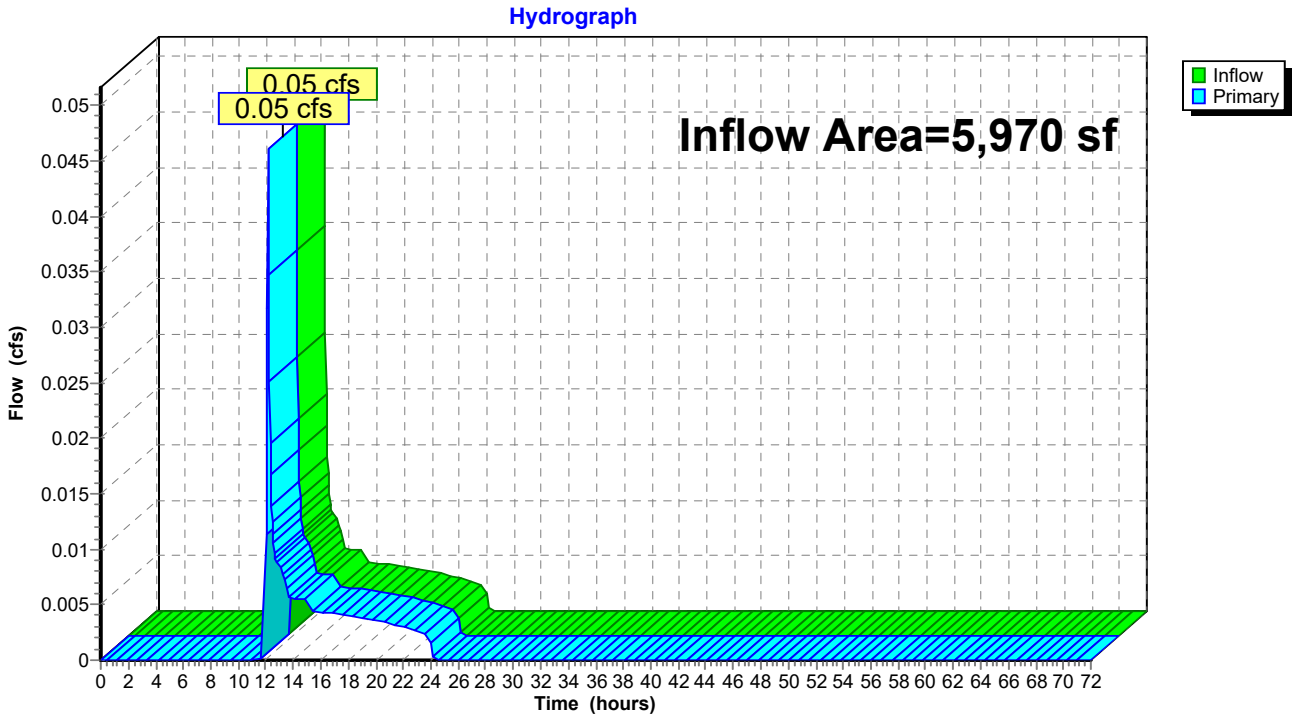


Summary for Link 12L: DP-3 (NORTHERN PROPERTY LINE)

Inflow Area = 5,970 sf, 0.00% Impervious, Inflow Depth = 0.44" for 2-yr event
Inflow = 0.05 cfs @ 12.15 hrs, Volume= 218 cf
Primary = 0.05 cfs @ 12.15 hrs, Volume= 218 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 12L: DP-3 (NORTHERN PROPERTY LINE)

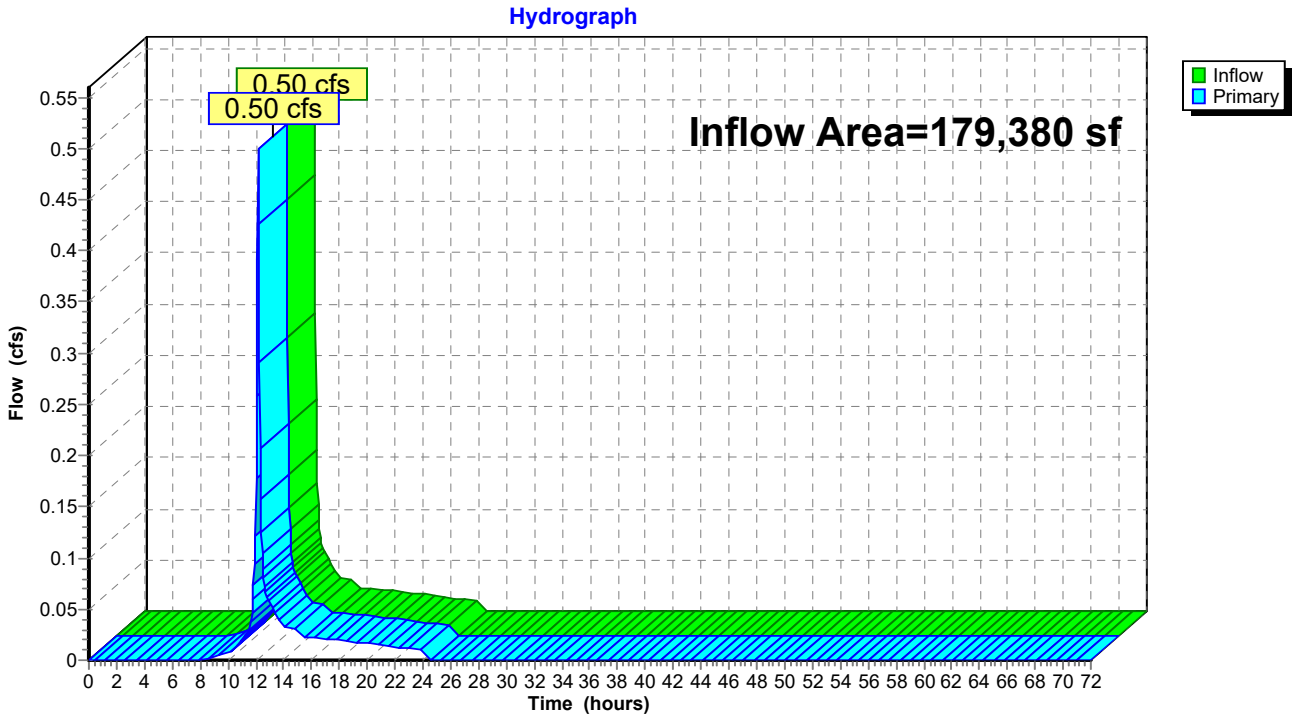


Summary for Link 13L: DP-4 (SOUTHERN PROPERTY LINE)

Inflow Area = 179,380 sf, 36.84% Impervious, Inflow Depth = 0.11" for 2-yr event
Inflow = 0.50 cfs @ 12.15 hrs, Volume= 1,634 cf
Primary = 0.50 cfs @ 12.15 hrs, Volume= 1,634 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 13L: DP-4 (SOUTHERN PROPERTY LINE)



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment4S: PDA-12 Runoff Area=14,885 sf 4.20% Impervious Runoff Depth=1.58"
Tc=6.0 min CN=70 Runoff=0.64 cfs 1,954 cf

Subcatchment7S: PDA-22 Runoff Area=68,140 sf 0.00% Impervious Runoff Depth=1.58"
Flow Length=330' Tc=9.1 min CN=70 Runoff=2.56 cfs 8,946 cf

Subcatchment9S: PDA-42 Runoff Area=13,364 sf 0.00% Impervious Runoff Depth=2.18"
Flow Length=190' Tc=8.1 min CN=78 Runoff=0.75 cfs 2,425 cf

Subcatchment14S: PDA-31 Runoff Area=5,970 sf 0.00% Impervious Runoff Depth=0.84"
Tc=6.0 min CN=58 Runoff=0.12 cfs 415 cf

Subcatchment16S: PDA-43 Runoff Area=16,462 sf 46.51% Impervious Runoff Depth=2.51"
Tc=6.0 min CN=82 Runoff=1.14 cfs 3,448 cf

Subcatchment17S: PDA-41 Runoff Area=147,914 sf 39.50% Impervious Runoff Depth=2.51"
Tc=6.0 min CN=82 Runoff=10.22 cfs 30,984 cf

Subcatchment18S: PDA-44 Runoff Area=1,640 sf 0.00% Impervious Runoff Depth=1.51"
Tc=0.0 min CN=69 Runoff=0.08 cfs 206 cf

Subcatchment19S: PDA-11 Runoff Area=14,783 sf 25.78% Impervious Runoff Depth=2.02"
Tc=6.0 min CN=76 Runoff=0.83 cfs 2,487 cf

Subcatchment20S: PDA-13 Runoff Area=10,198 sf 14.68% Impervious Runoff Depth=1.79"
Tc=6.0 min CN=73 Runoff=0.50 cfs 1,522 cf

Subcatchment23S: PDA-21 Runoff Area=174,242 sf 45.16% Impervious Runoff Depth=2.51"
Tc=6.0 min CN=82 Runoff=12.04 cfs 36,499 cf

Subcatchment24S: PDA23 Runoff Area=20,150 sf 0.00% Impervious Runoff Depth=2.18"
Flow Length=369' Tc=8.2 min CN=78 Runoff=1.12 cfs 3,657 cf

Pond 13P: POND 2A Peak Elev=263.62' Storage=28,208 cf Inflow=12.04 cfs 36,499 cf
Outflow=0.18 cfs 31,245 cf

Pond 14P: POND 1A Peak Elev=270.76' Storage=859 cf Inflow=0.83 cfs 2,487 cf
Discarded=0.01 cfs 992 cf Primary=0.18 cfs 1,495 cf Outflow=0.18 cfs 2,487 cf

Pond 15P: RG-1 Peak Elev=274.74' Storage=981 cf Inflow=1.14 cfs 3,448 cf
Outflow=0.66 cfs 3,448 cf

Pond 18P: POND 4A Peak Elev=261.02' Storage=21,592 cf Inflow=10.66 cfs 34,639 cf
Discarded=0.19 cfs 28,437 cf Primary=0.17 cfs 4,732 cf Outflow=0.36 cfs 33,168 cf

Pond 19P: RG-2 Peak Elev=274.17' Storage=69 cf Inflow=0.08 cfs 206 cf
Outflow=0.01 cfs 206 cf

Link 10L: DP-1 (EXISTING 18" RCP) Inflow=1.17 cfs 4,971 cf
Primary=1.17 cfs 4,971 cf

Link 11L: DP-2 (EXISTING WETLANDS) Inflow=3.80 cfs 43,847 cf
Primary=3.80 cfs 43,847 cf

Link 12L: DP-3 (NORTHERN PROPERTY LINE) Inflow=0.12 cfs 415 cf
Primary=0.12 cfs 415 cf

Link 13L: DP-4 (SOUTHERN PROPERTY LINE) Inflow=0.75 cfs 7,157 cf
Primary=0.75 cfs 7,157 cf

Total Runoff Area = 487,748 sf Runoff Volume = 92,544 cf Average Runoff Depth = 2.28"
69.10% Pervious = 337,052 sf 30.90% Impervious = 150,696 sf

Summary for Subcatchment 4S: PDA-12

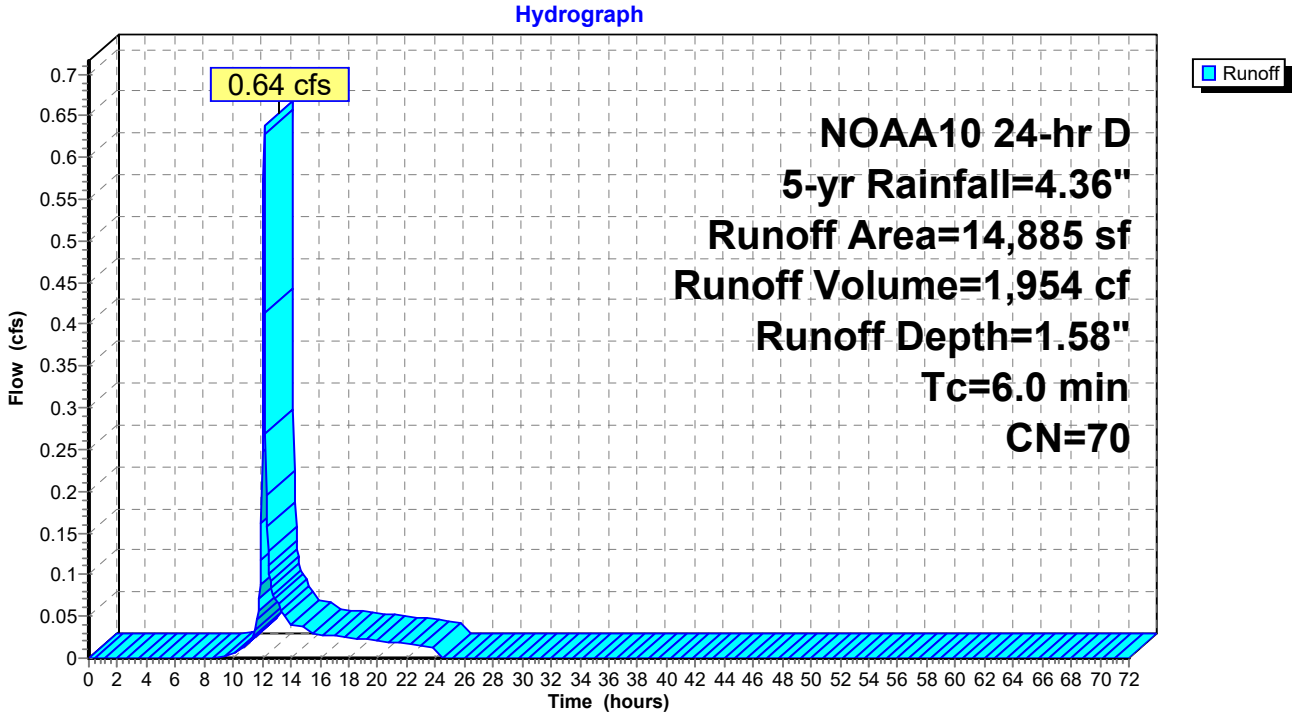
Runoff = 0.64 cfs @ 12.14 hrs, Volume= 1,954 cf, Depth= 1.58"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
14,260	69	50-75% Grass cover, Fair, HSG B
625	98	Paved parking, HSG D
14,885	70	Weighted Average
14,260		95.80% Pervious Area
625		4.20% Impervious Area

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

Subcatchment 4S: PDA-12



Summary for Subcatchment 7S: PDA-22

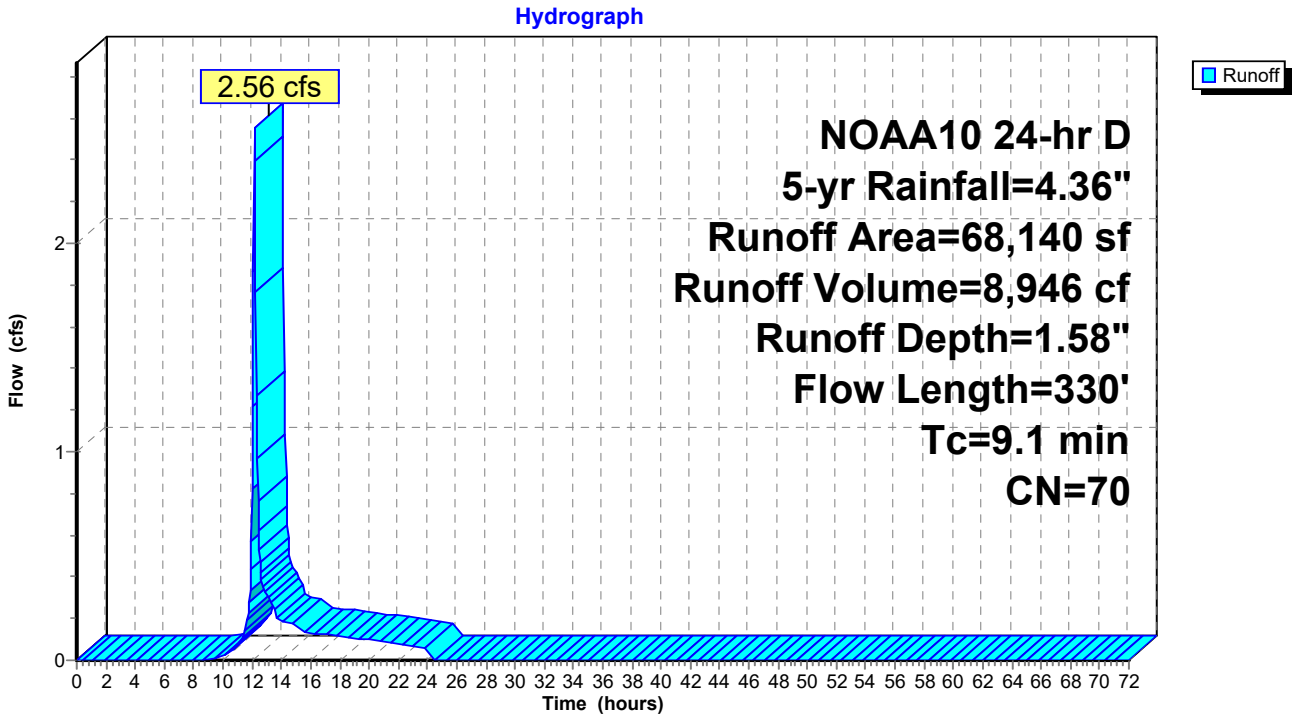
Runoff = 2.56 cfs @ 12.17 hrs, Volume= 8,946 cf, Depth= 1.58"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
33,890	60	Woods, Fair, HSG B
27,311	79	Woods, Fair, HSG D
6,939	84	50-75% Grass cover, Fair, HSG D
68,140	70	Weighted Average
68,140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	45	0.1500	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.46"
4.2	285	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.1	330	Total			

Subcatchment 7S: PDA-22



Summary for Subcatchment 9S: PDA-42

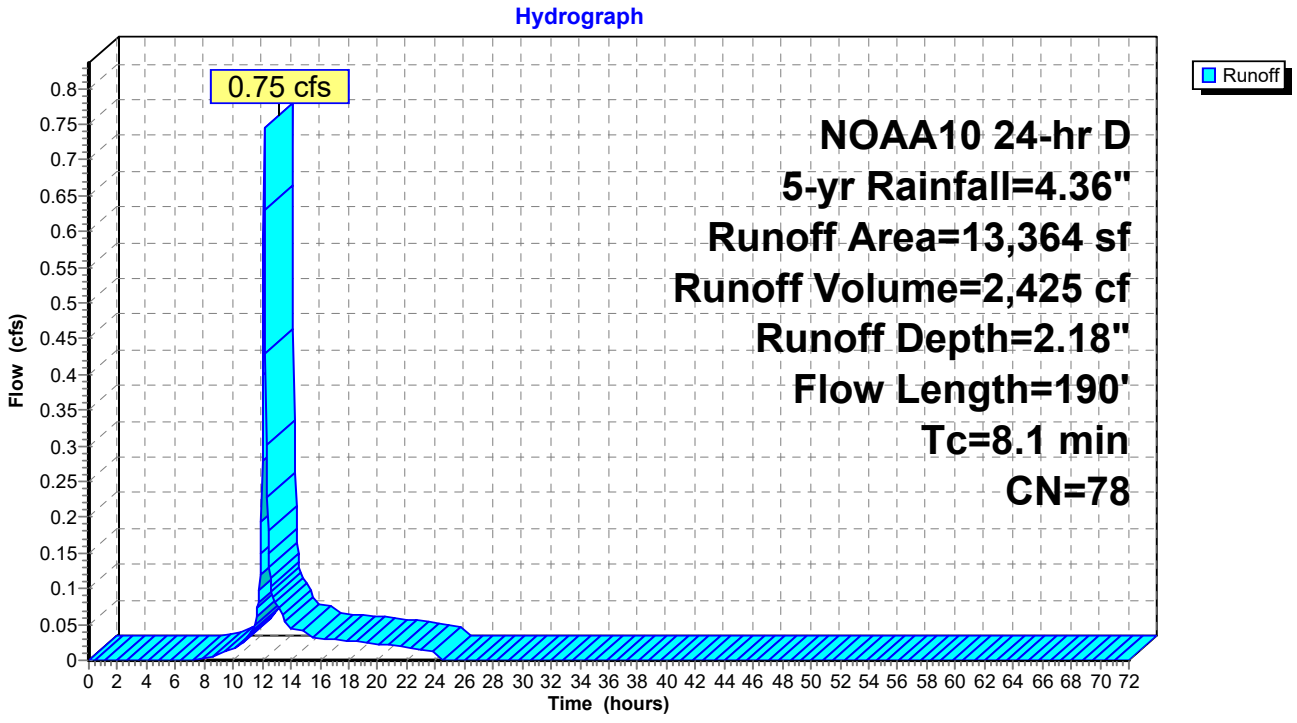
Runoff = 0.75 cfs @ 12.15 hrs, Volume= 2,425 cf, Depth= 2.18"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
2,571	69	50-75% Grass cover, Fair, HSG B
7,293	79	Woods, Fair, HSG D
3,500	84	50-75% Grass cover, Fair, HSG D
13,364	78	Weighted Average
13,364		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.0800	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.46"
1.3	140	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.1	190	Total			

Subcatchment 9S: PDA-42



Summary for Subcatchment 14S: PDA-31

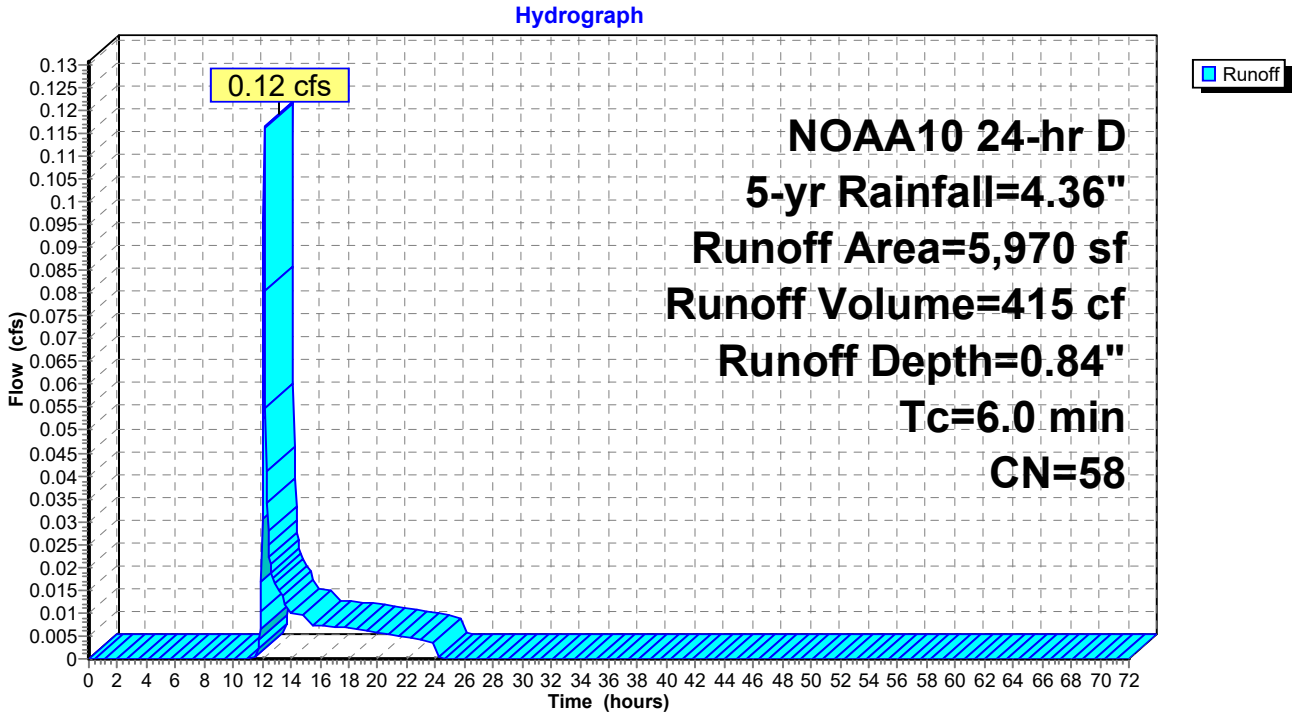
Runoff = 0.12 cfs @ 12.14 hrs, Volume= 415 cf, Depth= 0.84"
Routed to Link 12L : DP-3 (NORTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
5,970	58	Woods/grass comb., Good, HSG B
5,970		100.00% Pervious Area

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

Subcatchment 14S: PDA-31



Summary for Subcatchment 16S: PDA-43

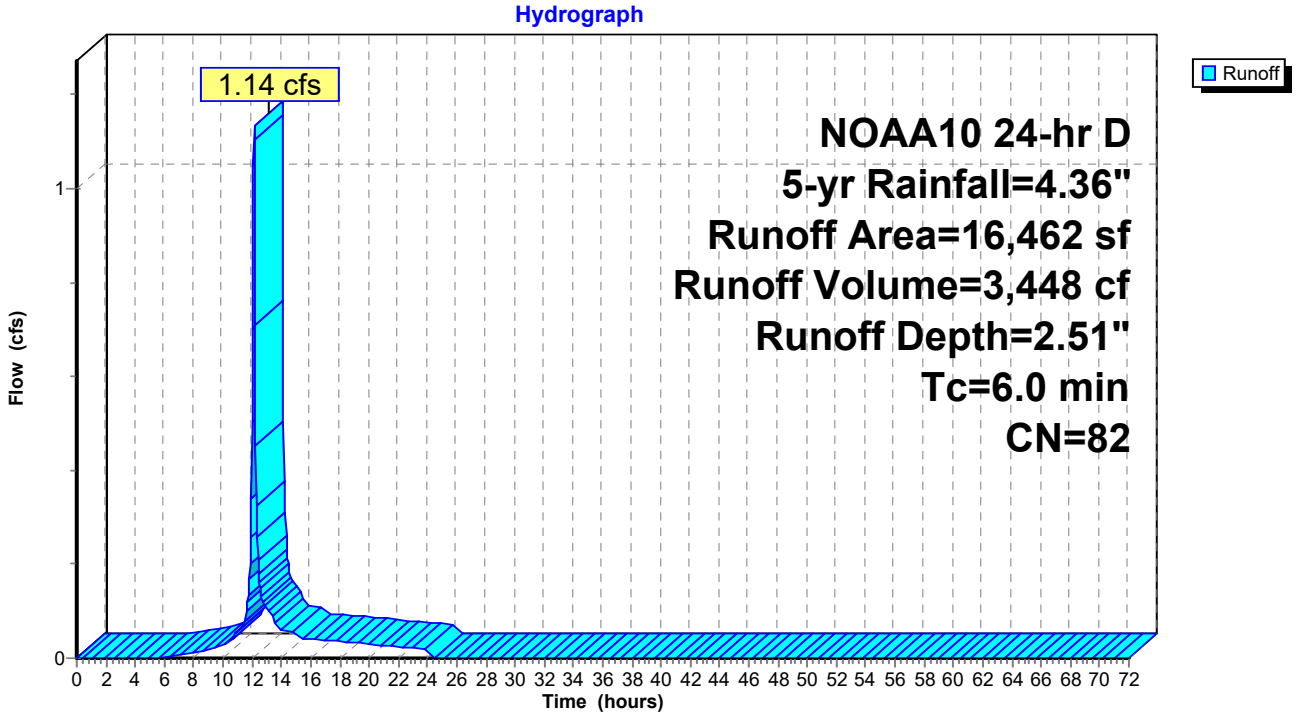
Runoff = 1.14 cfs @ 12.13 hrs, Volume= 3,448 cf, Depth= 2.51"
Routed to Pond 15P : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
7,656	98	Roofs, HSG D
8,806	69	50-75% Grass cover, Fair, HSG B
16,462	82	Weighted Average
8,806		53.49% Pervious Area
7,656		46.51% Impervious Area

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

Subcatchment 16S: PDA-43



Summary for Subcatchment 17S: PDA-41

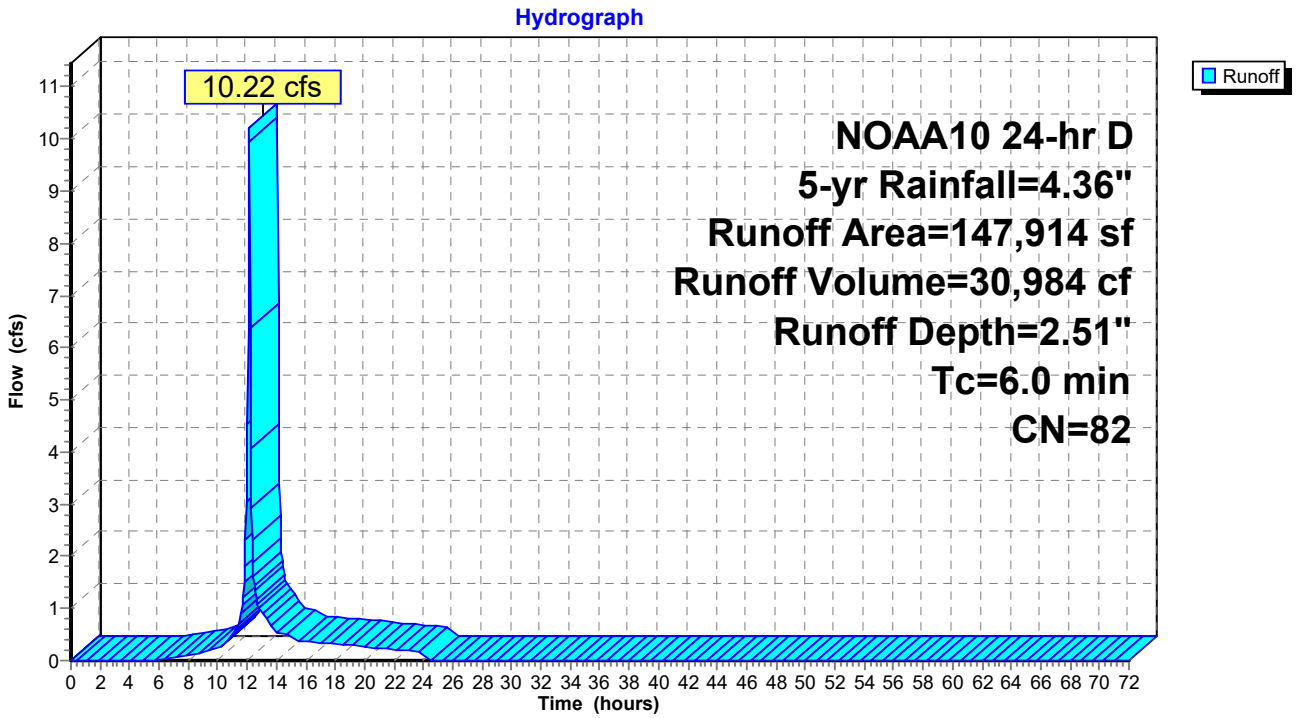
Runoff = 10.22 cfs @ 12.13 hrs, Volume= 30,984 cf, Depth= 2.51"
Routed to Pond 18P : POND 4A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
58,419	98	Paved parking, HSG D
60,483	69	50-75% Grass cover, Fair, HSG B
29,012	79	Woods, Fair, HSG D
147,914	82	Weighted Average
89,495		60.50% Pervious Area
58,419		39.50% Impervious Area

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

Subcatchment 17S: PDA-41



Summary for Subcatchment 18S: PDA-44

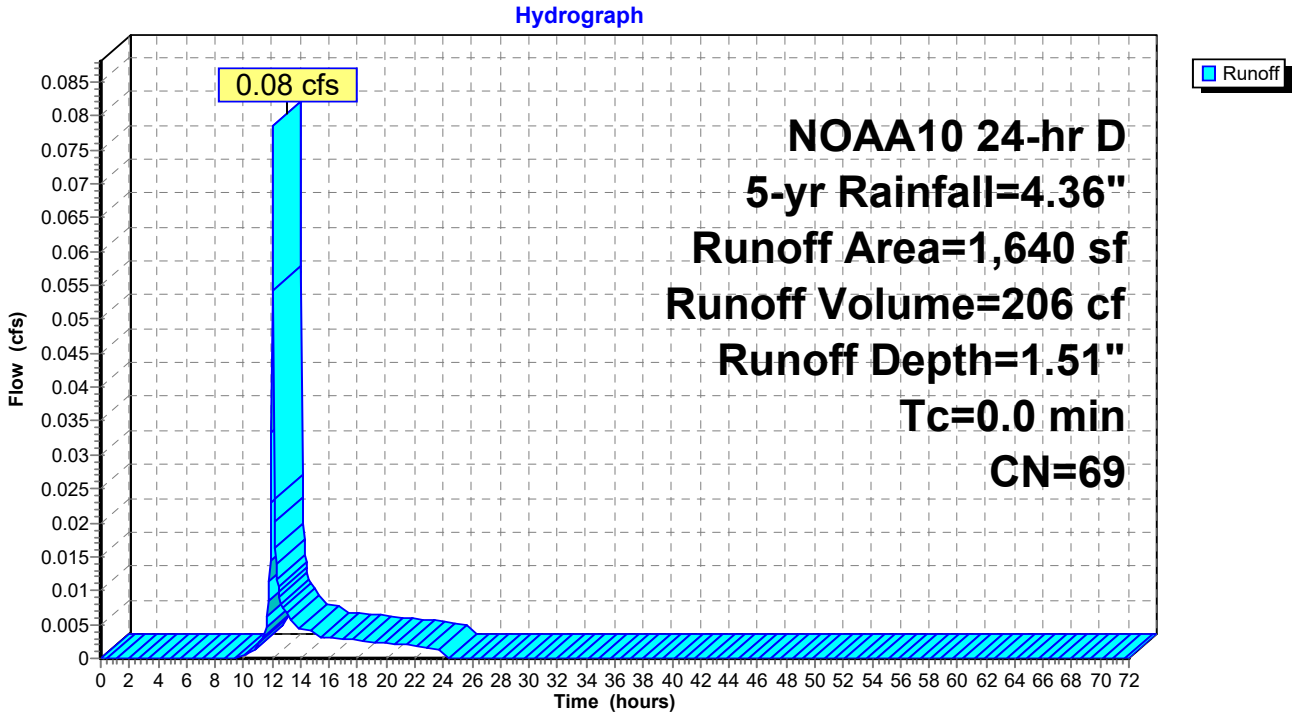
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.08 cfs @ 12.05 hrs, Volume= 206 cf, Depth= 1.51"
Routed to Pond 19P : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
1,640	69	50-75% Grass cover, Fair, HSG B
1,640		100.00% Pervious Area

Subcatchment 18S: PDA-44



Summary for Subcatchment 19S: PDA-11

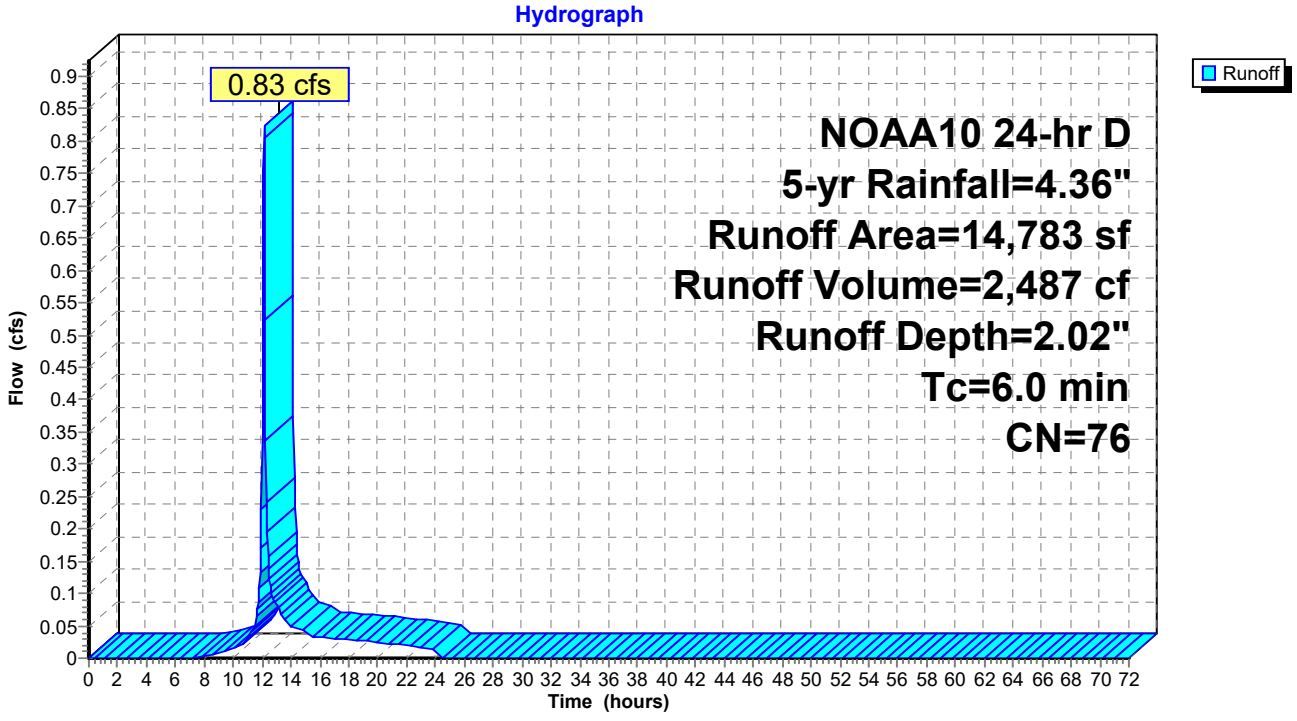
Runoff = 0.83 cfs @ 12.13 hrs, Volume= 2,487 cf, Depth= 2.02"
Routed to Pond 14P : POND 1A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
3,811	98	Roofs, HSG D
10,972	69	50-75% Grass cover, Fair, HSG B
14,783	76	Weighted Average
10,972		74.22% Pervious Area
3,811		25.78% Impervious Area

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

Subcatchment 19S: PDA-11



Summary for Subcatchment 20S: PDA-13

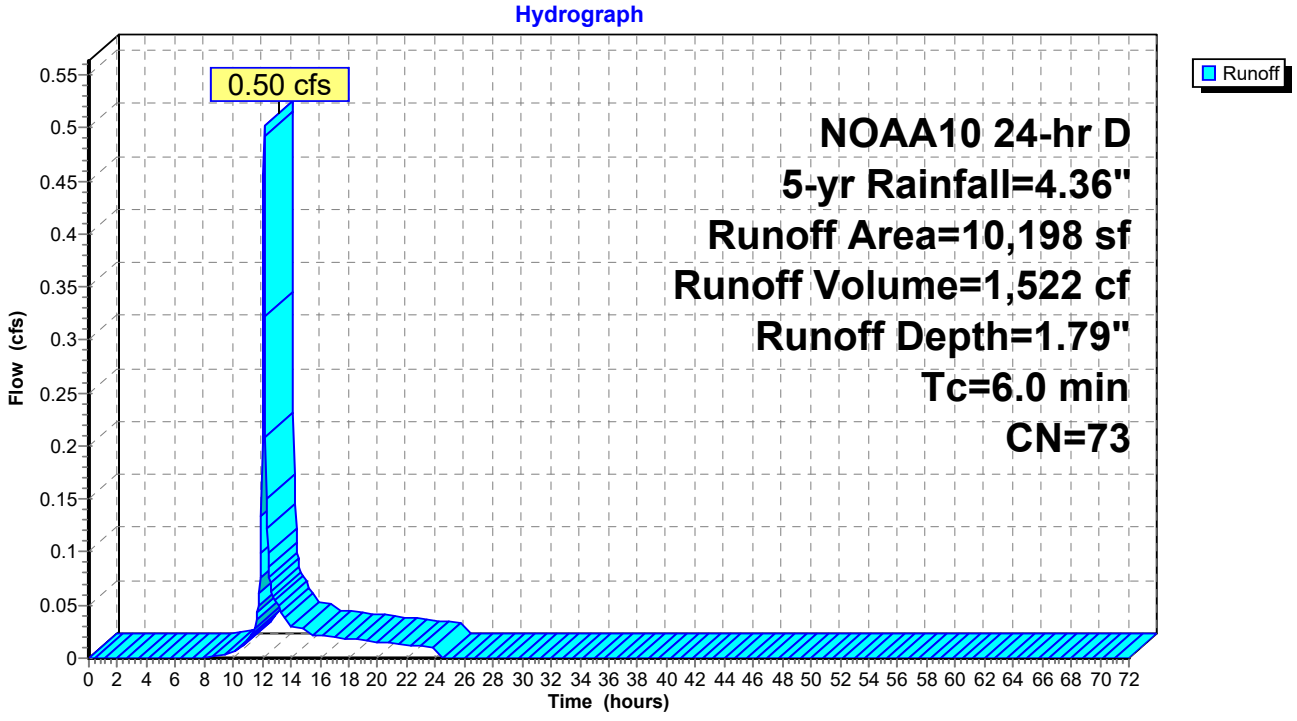
Runoff = 0.50 cfs @ 12.13 hrs, Volume= 1,522 cf, Depth= 1.79"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
8,701	69	50-75% Grass cover, Fair, HSG B
1,497	98	Paved parking, HSG D
10,198	73	Weighted Average
8,701		85.32% Pervious Area
1,497		14.68% Impervious Area

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

Subcatchment 20S: PDA-13



Summary for Subcatchment 23S: PDA-21

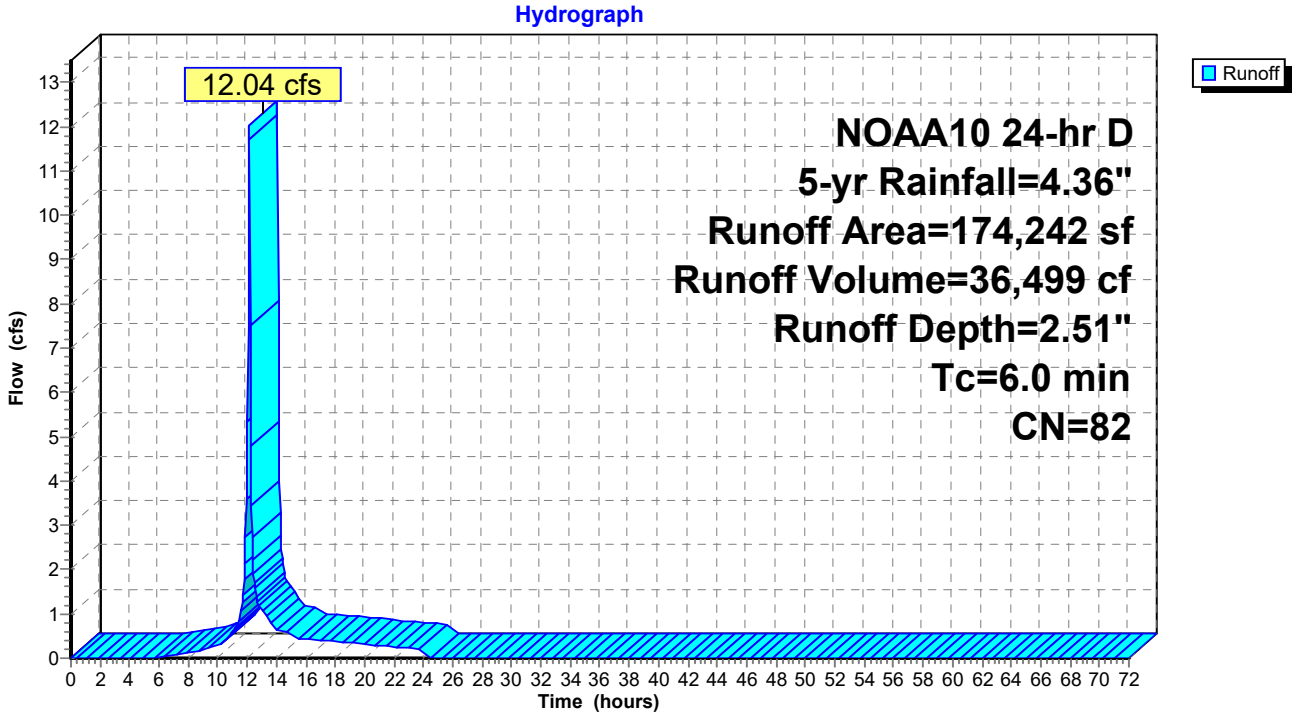
Runoff = 12.04 cfs @ 12.13 hrs, Volume= 36,499 cf, Depth= 2.51"
Routed to Pond 13P : POND 2A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
78,688	98	Paved parking, HSG D
95,554	69	50-75% Grass cover, Fair, HSG B
174,242	82	Weighted Average
95,554		54.84% Pervious Area
78,688		45.16% Impervious Area

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

Subcatchment 23S: PDA-21



Summary for Subcatchment 24S: PDA23

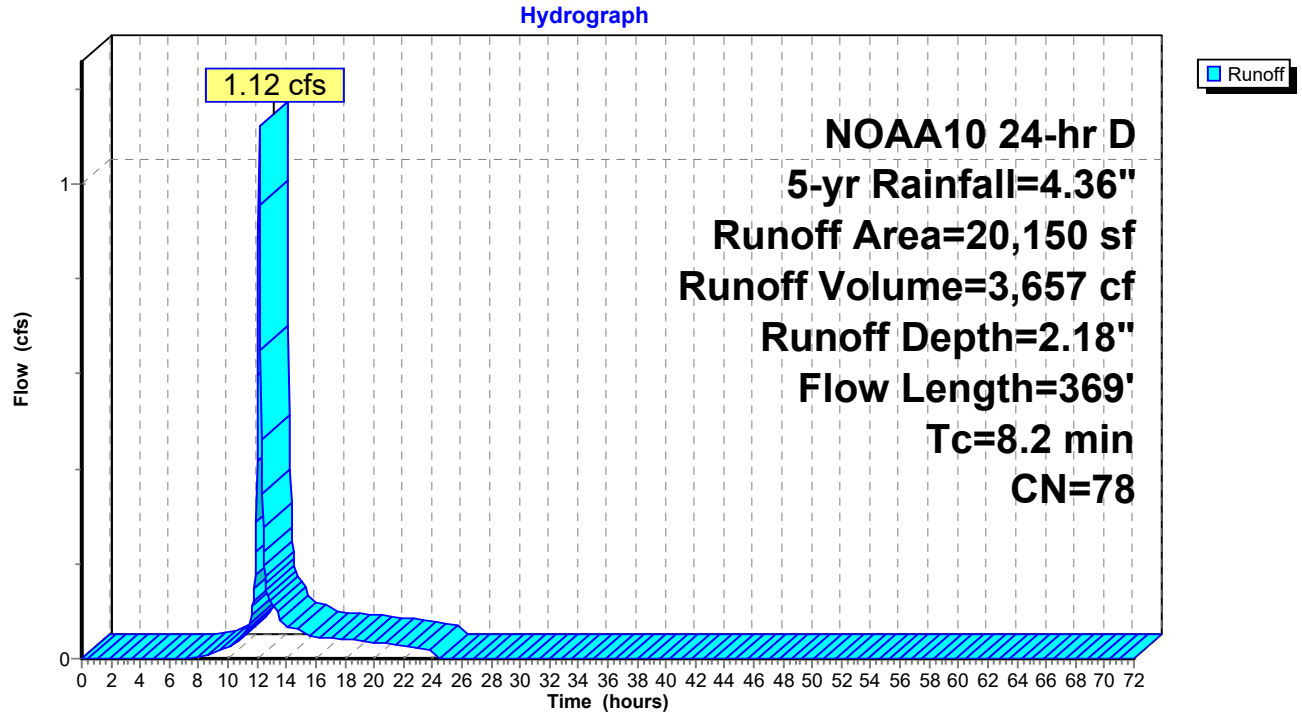
Runoff = 1.12 cfs @ 12.15 hrs, Volume= 3,657 cf, Depth= 2.18"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 5-yr Rainfall=4.36"

Area (sf)	CN	Description
4,687	60	Woods, Fair, HSG B
15,463	83	Woods, Poor, HSG D
20,150	78	Weighted Average
20,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	14	0.0357	0.07		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
4.8	355	0.0620	1.24		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
8.2	369	Total			

Subcatchment 24S: PDA23



Summary for Pond 13P: POND 2A

Inflow Area = 174,242 sf, 45.16% Impervious, Inflow Depth = 2.51" for 5-yr event
Inflow = 12.04 cfs @ 12.13 hrs, Volume= 36,499 cf
Outflow = 0.18 cfs @ 24.00 hrs, Volume= 31,245 cf, Atten= 99%, Lag= 712.0 min
Primary = 0.18 cfs @ 24.00 hrs, Volume= 31,245 cf
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 263.62' @ 24.00 hrs Surf.Area= 13,858 sf Storage= 28,208 cf

Plug-Flow detention time= 1,531.0 min calculated for 31,245 cf (86% of inflow)
Center-of-Mass det. time= 1,460.6 min (2,309.1 - 848.5)

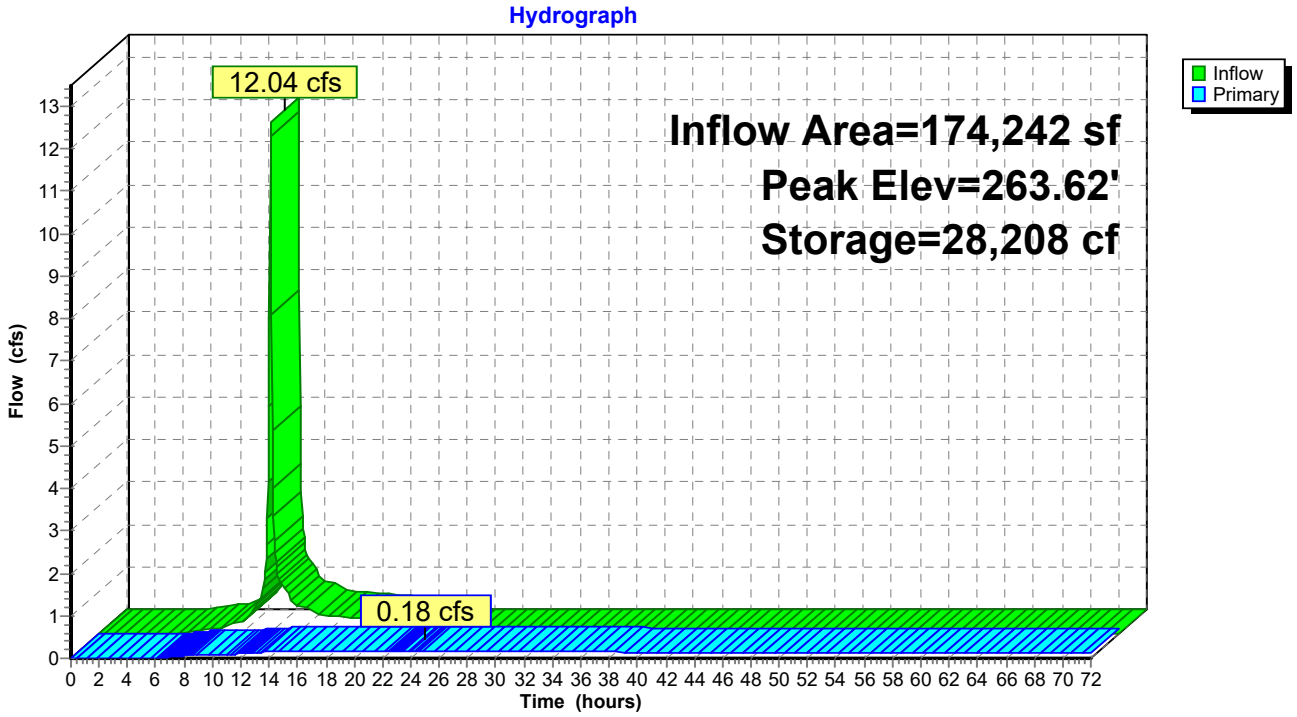
Volume	Invert	Avail.Storage	Storage Description
#1	261.00'	49,547 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
261.00	7,809	0	0
262.00	9,940	8,875	8,875
263.00	12,454	11,197	20,072
264.00	14,724	13,589	33,661
265.00	17,049	15,887	49,547

Device	Routing	Invert	Outlet Devices
#1	Primary	258.60'	**15.0" Round Culvert** L= 32.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 258.60' / 258.25' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	264.50'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	263.60'	**20.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	261.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.17 cfs @ 24.00 hrs HW=263.62' (Free Discharge)
└**1=Culvert** (Passes 0.17 cfs of 12.39 cfs potential flow)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  ├**3=Orifice/Grate** (Orifice Controls 0.01 cfs @ 0.44 fps)
  └**4=Exfiltration** (Exfiltration Controls 0.16 cfs)

Pond 13P: POND 2A



Summary for Pond 14P: POND 1A

Inflow Area = 14,783 sf, 25.78% Impervious, Inflow Depth = 2.02" for 5-yr event
Inflow = 0.83 cfs @ 12.13 hrs, Volume= 2,487 cf
Outflow = 0.18 cfs @ 12.37 hrs, Volume= 2,487 cf, Atten= 78%, Lag= 14.0 min
Discarded = 0.01 cfs @ 12.37 hrs, Volume= 992 cf
Primary = 0.18 cfs @ 12.37 hrs, Volume= 1,495 cf
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 270.76' @ 12.37 hrs Surf.Area= 1,397 sf Storage= 859 cf

Plug-Flow detention time= 347.5 min calculated for 2,487 cf (100% of inflow)
Center-of-Mass det. time= 347.2 min (1,218.8 - 871.7)

Volume	Invert	Avail.Storage	Storage Description
#1	270.00'	3,233 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

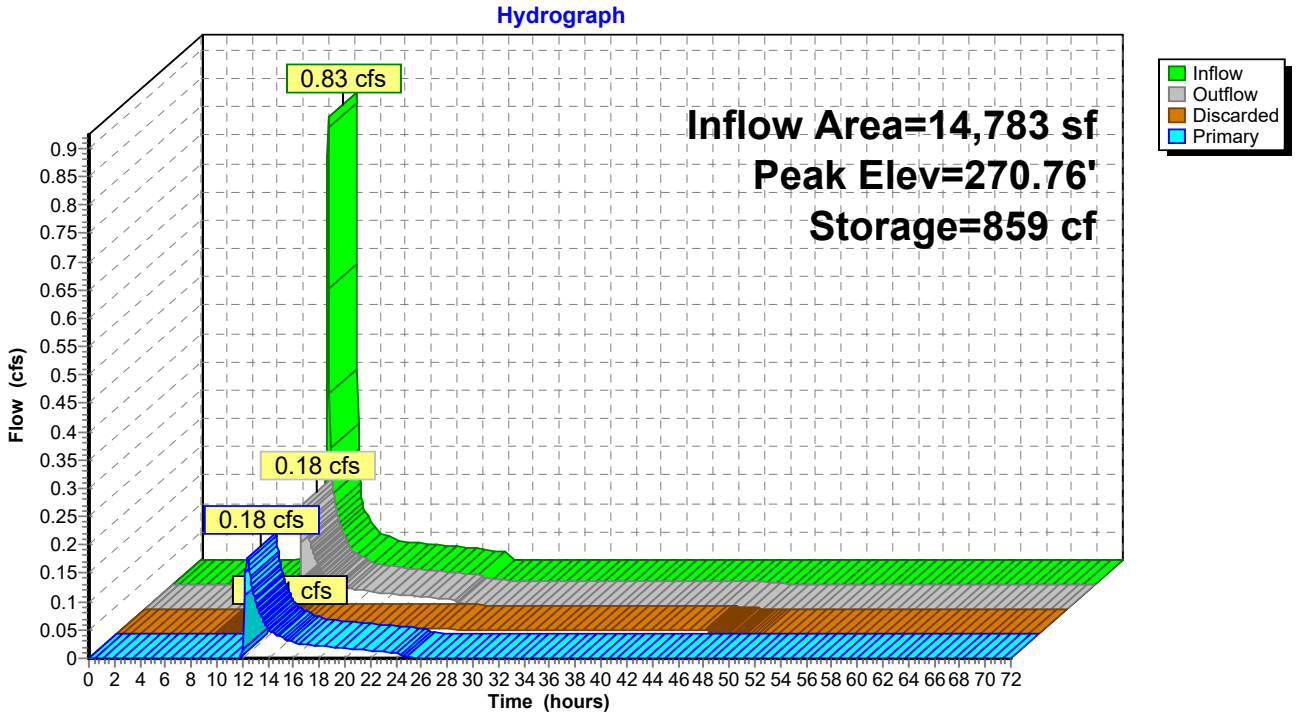
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
270.00	892	175.0	0	0	892
271.00	1,583	241.0	1,221	1,221	3,087
272.00	2,473	323.0	2,012	3,233	6,778

Device	Routing	Invert	Outlet Devices
#1	Primary	269.60'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 269.60' / 269.00' S= 0.0120 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	270.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	271.80'	**36.0" W x 24.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	270.00'	**0.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 255.00'

Discarded OutFlow Max=0.01 cfs @ 12.37 hrs HW=270.76' (Free Discharge)
└**4=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.17 cfs @ 12.37 hrs HW=270.76' (Free Discharge)
└**1=Culvert** (Passes 0.17 cfs of 4.34 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.17 cfs @ 1.72 fps)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 14P: POND 1A



Summary for Pond 15P: RG-1

Inflow Area = 16,462 sf, 46.51% Impervious, Inflow Depth = 2.51" for 5-yr event
Inflow = 1.14 cfs @ 12.13 hrs, Volume= 3,448 cf
Outflow = 0.66 cfs @ 12.22 hrs, Volume= 3,448 cf, Atten= 42%, Lag= 5.2 min
Primary = 0.66 cfs @ 12.22 hrs, Volume= 3,448 cf
Routed to Pond 18P : POND 4A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 274.74' @ 12.22 hrs Surf.Area= 1,599 sf Storage= 981 cf

Plug-Flow detention time= 209.2 min calculated for 3,446 cf (100% of inflow)
Center-of-Mass det. time= 209.6 min (1,058.2 - 848.5)

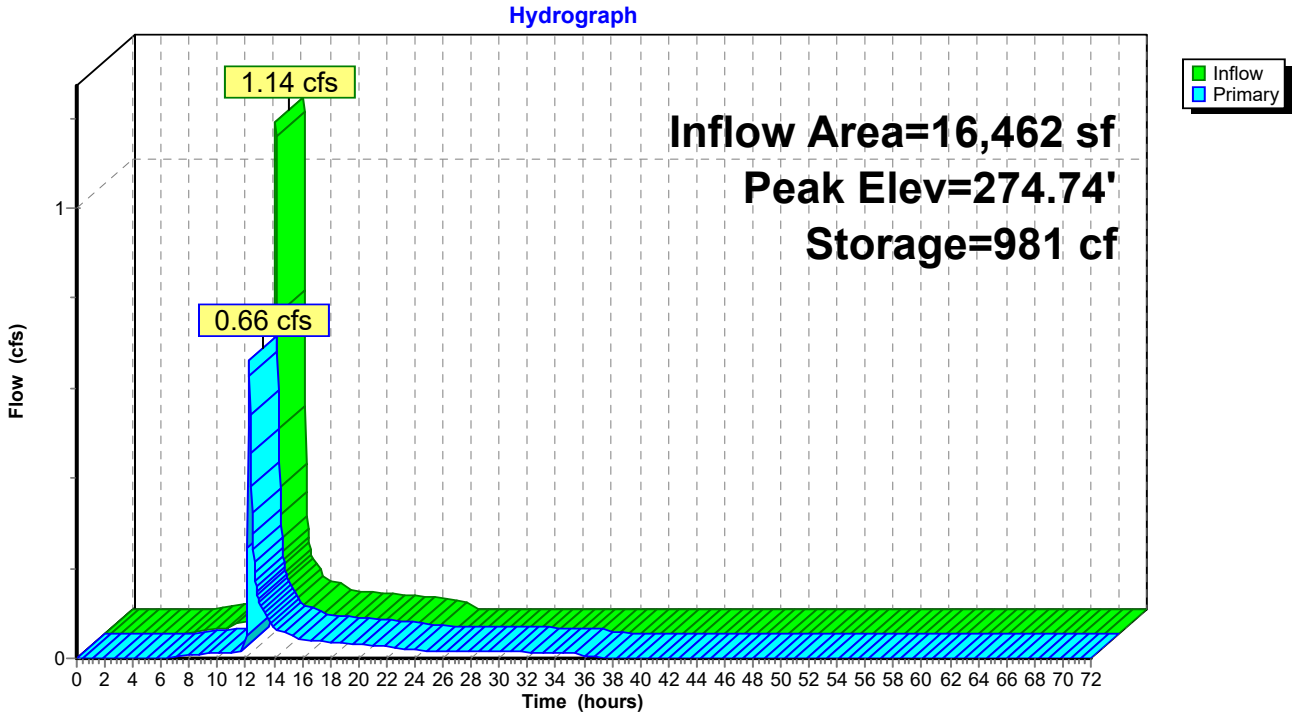
Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	3,629 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	1,058	203.0	0	0	1,058
275.00	1,811	247.0	1,418	1,418	2,650
276.00	2,637	281.0	2,211	3,629	4,102

Device	Routing	Invert	Outlet Devices
#1	Primary	271.60'	**15.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 271.60' / 270.60' S= 0.0118 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	274.50'	**20.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.64 cfs @ 12.22 hrs HW=274.74' (Free Discharge)
└**1=Culvert** (Passes 0.64 cfs of 9.37 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.62 cfs @ 1.57 fps)
└**3=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond 15P: RG-1


Hydrograph
1.14 cfs
0.66 cfs
Inflow Area=16,462 sf
Peak Elev=274.74'
Storage=981 cf
Inflow
Primary
Flow (cfs)
0
1
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond 18P: POND 4A

Inflow Area = 166,016 sf, 39.80% Impervious, Inflow Depth = 2.50" for 5-yr event
Inflow = 10.66 cfs @ 12.13 hrs, Volume= 34,639 cf
Outflow = 0.36 cfs @ 18.25 hrs, Volume= 33,168 cf, Atten= 97%, Lag= 367.1 min
Discarded = 0.19 cfs @ 18.25 hrs, Volume= 28,437 cf
Primary = 0.17 cfs @ 18.25 hrs, Volume= 4,732 cf
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 261.02' @ 18.25 hrs Surf.Area= 12,899 sf Storage= 21,592 cf

Plug-Flow detention time= 1,145.6 min calculated for 33,145 cf (96% of inflow)
Center-of-Mass det. time= 1,115.8 min (1,986.3 - 870.5)

Volume	Invert	Avail.Storage	Storage Description
#1	259.00'	51,513 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

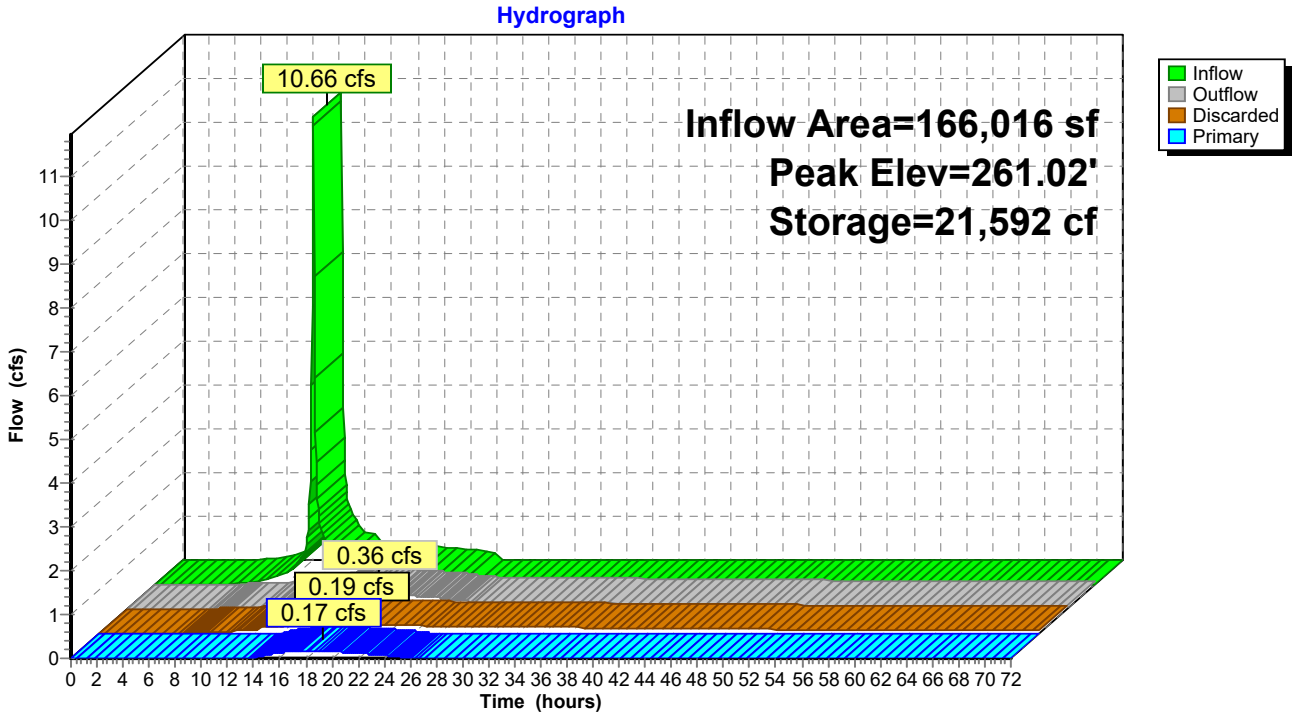
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
259.00	8,546	0	0
260.00	10,596	9,571	9,571
261.00	12,850	11,723	21,294
262.00	14,969	13,910	35,204
263.00	17,649	16,309	51,513

Device	Routing	Invert	Outlet Devices
#1	Primary	255.40'	**15.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 255.40' / 255.00' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	260.80'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	262.00'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	259.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 258.00'

Discarded OutFlow Max=0.19 cfs @ 18.25 hrs HW=261.02' (Free Discharge)
└**4=Exfiltration** (Controls 0.19 cfs)

Primary OutFlow Max=0.16 cfs @ 18.25 hrs HW=261.02' (Free Discharge)
└**1=Culvert** (Passes 0.16 cfs of 13.21 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.16 cfs @ 1.61 fps)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 18P: POND 4A



Summary for Pond 19P: RG-2

Inflow Area = 1,640 sf, 0.00% Impervious, Inflow Depth = 1.51" for 5-yr event
Inflow = 0.08 cfs @ 12.05 hrs, Volume= 206 cf
Outflow = 0.01 cfs @ 13.49 hrs, Volume= 206 cf, Atten= 94%, Lag= 86.6 min
Primary = 0.01 cfs @ 13.49 hrs, Volume= 206 cf
Routed to Pond 18P : POND 4A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 274.17' @ 13.49 hrs Surf.Area= 434 sf Storage= 69 cf

Plug-Flow detention time= 138.2 min calculated for 206 cf (100% of inflow)
Center-of-Mass det. time= 138.2 min (1,030.1 - 891.9)

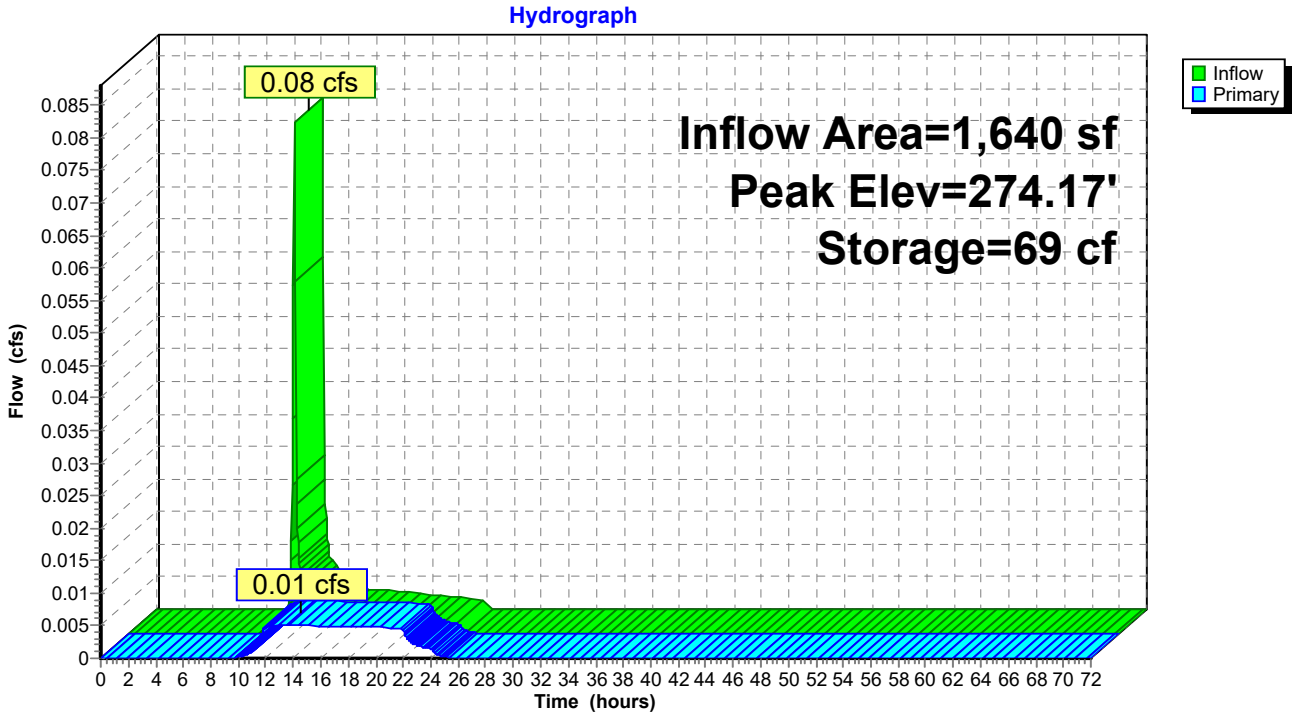
Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	1,334 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	395	78.0	0	0	395
275.00	658	97.0	521	521	674
276.00	979	116.0	813	1,334	1,013

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	**15.0" Round Culvert** L= 58.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.70' S= 0.0138 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	274.50'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.01 cfs @ 13.49 hrs HW=274.17' (Free Discharge)
└**1=Culvert** (Passes 0.01 cfs of 6.03 cfs potential flow)
└**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Pond 19P: RG-2

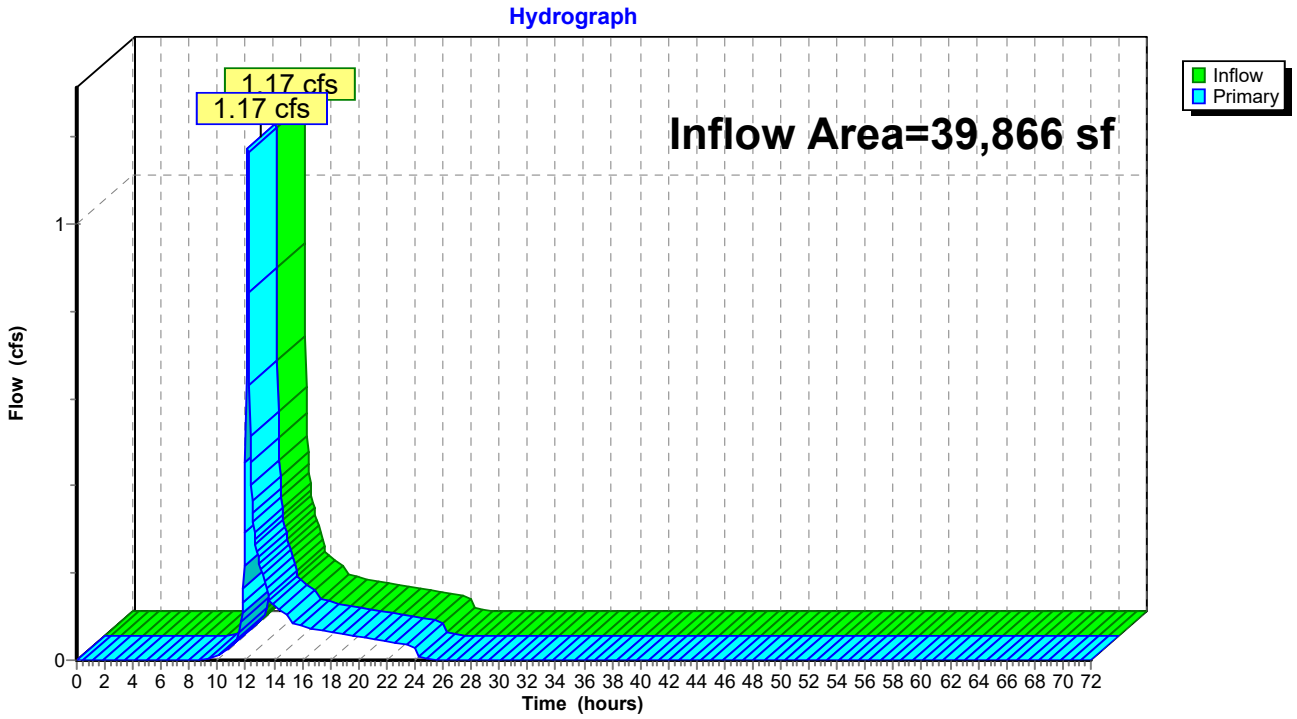

Hydrograph
Inflow
Primary
0.08 cfs
0.01 cfs
Inflow Area=1,640 sf
Peak Elev=274.17'
Storage=69 cf
Flow (cfs)
0 0.005 0.01 0.015 0.02 0.025 0.03 0.035 0.04 0.045 0.05 0.055 0.06 0.065 0.07 0.075 0.08 0.085
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72

Summary for Link 10L: DP-1 (EXISTING 18" RCP)

Inflow Area = 39,866 sf, 14.88% Impervious, Inflow Depth = 1.50" for 5-yr event
Inflow = 1.17 cfs @ 12.14 hrs, Volume= 4,971 cf
Primary = 1.17 cfs @ 12.14 hrs, Volume= 4,971 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 10L: DP-1 (EXISTING 18" RCP)

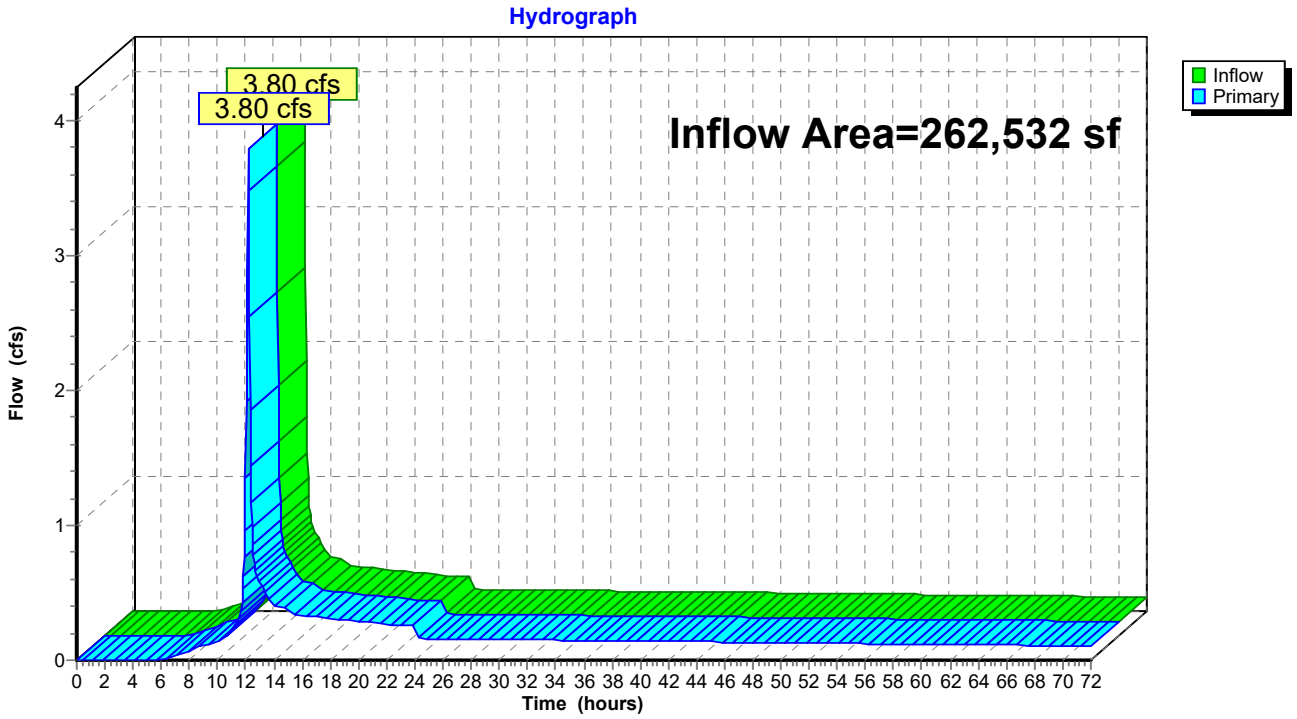


Summary for Link 11L: DP-2 (EXISTING WETLANDS)

Inflow Area = 262,532 sf, 29.97% Impervious, Inflow Depth > 2.00" for 5-yr event
Inflow = 3.80 cfs @ 12.16 hrs, Volume= 43,847 cf
Primary = 3.80 cfs @ 12.16 hrs, Volume= 43,847 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 11L: DP-2 (EXISTING WETLANDS)

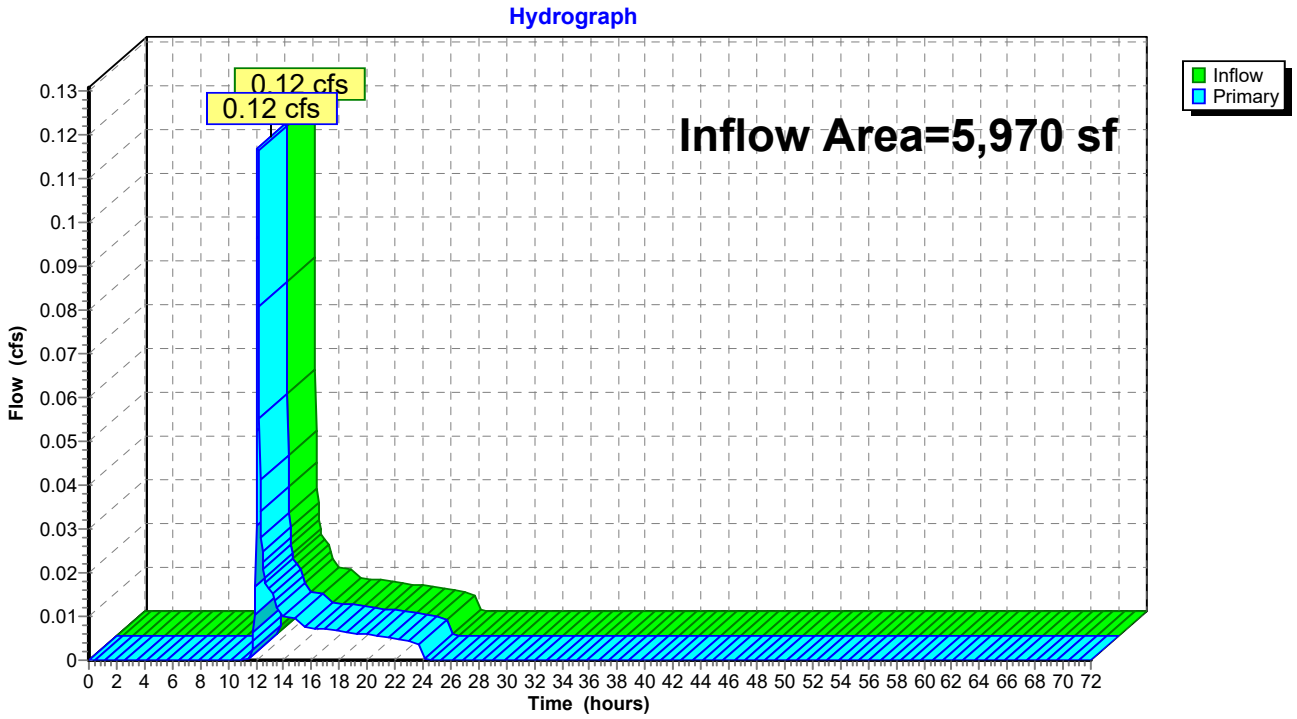


Summary for Link 12L: DP-3 (NORTHERN PROPERTY LINE)

Inflow Area = 5,970 sf, 0.00% Impervious, Inflow Depth = 0.84" for 5-yr event
Inflow = 0.12 cfs @ 12.14 hrs, Volume= 415 cf
Primary = 0.12 cfs @ 12.14 hrs, Volume= 415 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 12L: DP-3 (NORTHERN PROPERTY LINE)

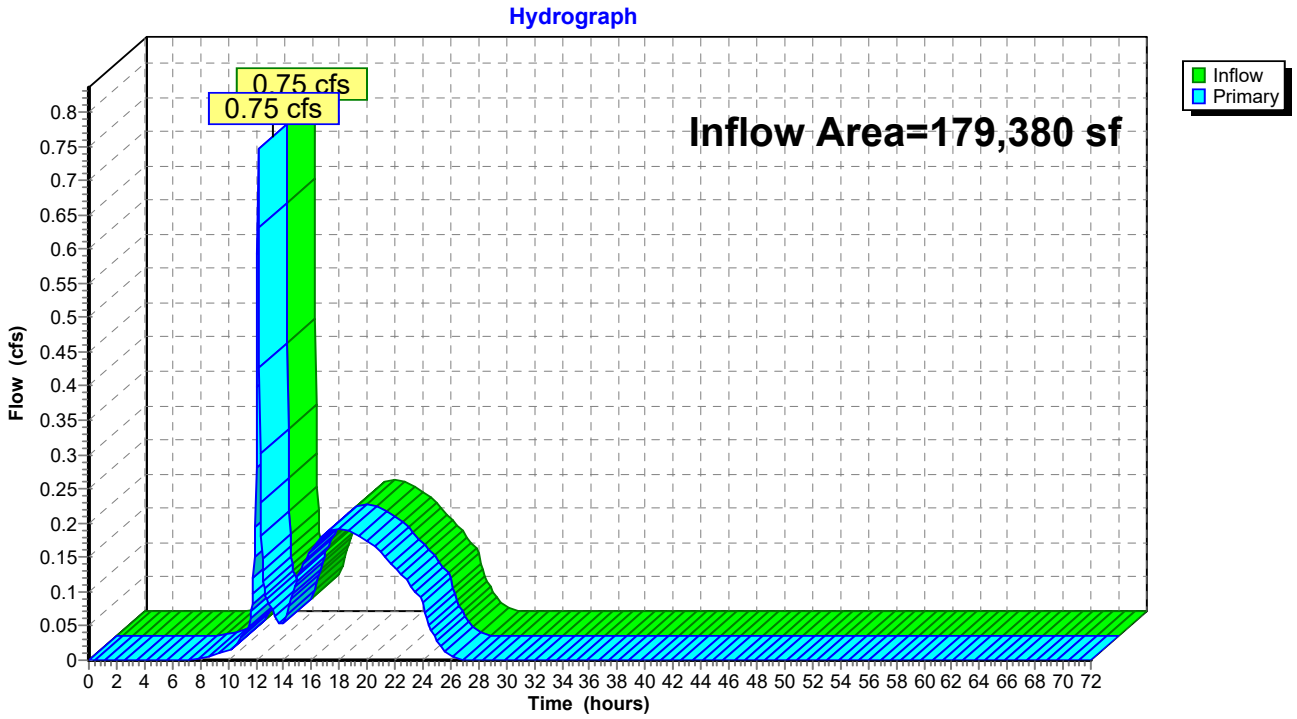


Summary for Link 13L: DP-4 (SOUTHERN PROPERTY LINE)

Inflow Area = 179,380 sf, 36.84% Impervious, Inflow Depth = 0.48" for 5-yr event
Inflow = 0.75 cfs @ 12.15 hrs, Volume= 7,157 cf
Primary = 0.75 cfs @ 12.15 hrs, Volume= 7,157 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 13L: DP-4 (SOUTHERN PROPERTY LINE)



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment4S: PDA-12 Runoff Area=14,885 sf 4.20% Impervious Runoff Depth=2.12"
Tc=6.0 min CN=70 Runoff=0.87 cfs 2,628 cf

Subcatchment7S: PDA-22 Runoff Area=68,140 sf 0.00% Impervious Runoff Depth=2.12"
Flow Length=330' Tc=9.1 min CN=70 Runoff=3.49 cfs 12,028 cf

Subcatchment9S: PDA-42 Runoff Area=13,364 sf 0.00% Impervious Runoff Depth=2.81"
Flow Length=190' Tc=8.1 min CN=78 Runoff=0.96 cfs 3,124 cf

Subcatchment14S: PDA-31 Runoff Area=5,970 sf 0.00% Impervious Runoff Depth=1.23"
Tc=6.0 min CN=58 Runoff=0.19 cfs 612 cf

Subcatchment16S: PDA-43 Runoff Area=16,462 sf 46.51% Impervious Runoff Depth=3.18"
Tc=6.0 min CN=82 Runoff=1.43 cfs 4,359 cf

Subcatchment17S: PDA-41 Runoff Area=147,914 sf 39.50% Impervious Runoff Depth=3.18"
Tc=6.0 min CN=82 Runoff=12.83 cfs 39,168 cf

Subcatchment18S: PDA-44 Runoff Area=1,640 sf 0.00% Impervious Runoff Depth=2.04"
Tc=0.0 min CN=69 Runoff=0.11 cfs 278 cf

Subcatchment19S: PDA-11 Runoff Area=14,783 sf 25.78% Impervious Runoff Depth=2.63"
Tc=6.0 min CN=76 Runoff=1.07 cfs 3,236 cf

Subcatchment20S: PDA-13 Runoff Area=10,198 sf 14.68% Impervious Runoff Depth=2.37"
Tc=6.0 min CN=73 Runoff=0.67 cfs 2,012 cf

Subcatchment23S: PDA-21 Runoff Area=174,242 sf 45.16% Impervious Runoff Depth=3.18"
Tc=6.0 min CN=82 Runoff=15.12 cfs 46,140 cf

Subcatchment24S: PDA23 Runoff Area=20,150 sf 0.00% Impervious Runoff Depth=2.81"
Flow Length=369' Tc=8.2 min CN=78 Runoff=1.45 cfs 4,711 cf

Pond 13P: POND 2A Peak Elev=263.75' Storage=30,083 cf Inflow=15.12 cfs 46,140 cf
Outflow=0.48 cfs 40,479 cf

Pond 14P: POND 1A Peak Elev=270.90' Storage=1,061 cf Inflow=1.07 cfs 3,236 cf
Discarded=0.01 cfs 1,023 cf Primary=0.36 cfs 2,212 cf Outflow=0.37 cfs 3,236 cf

Pond 15P: RG-1 Peak Elev=274.82' Storage=1,106 cf Inflow=1.43 cfs 4,359 cf
Outflow=0.99 cfs 4,359 cf

Pond 18P: POND 4A Peak Elev=261.20' Storage=23,946 cf Inflow=13.66 cfs 43,806 cf
Discarded=0.20 cfs 29,455 cf Primary=0.48 cfs 12,757 cf Outflow=0.68 cfs 42,212 cf

Pond 19P: RG-2 Peak Elev=274.25' Storage=106 cf Inflow=0.11 cfs 278 cf
Outflow=0.01 cfs 278 cf

Link 10L: DP-1 (EXISTING 18" RCP) Inflow=1.74 cfs 6,851 cf
Primary=1.74 cfs 6,851 cf

Link 11L: DP-2 (EXISTING WETLANDS) Inflow=5.06 cfs 57,218 cf
Primary=5.06 cfs 57,218 cf

Link 12L: DP-3 (NORTHERN PROPERTY LINE) Inflow=0.19 cfs 612 cf
Primary=0.19 cfs 612 cf

Link 13L: DP-4 (SOUTHERN PROPERTY LINE) Inflow=0.96 cfs 15,881 cf
Primary=0.96 cfs 15,881 cf

Total Runoff Area = 487,748 sf Runoff Volume = 118,295 cf Average Runoff Depth = 2.91"
69.10% Pervious = 337,052 sf 30.90% Impervious = 150,696 sf

Summary for Subcatchment 4S: PDA-12

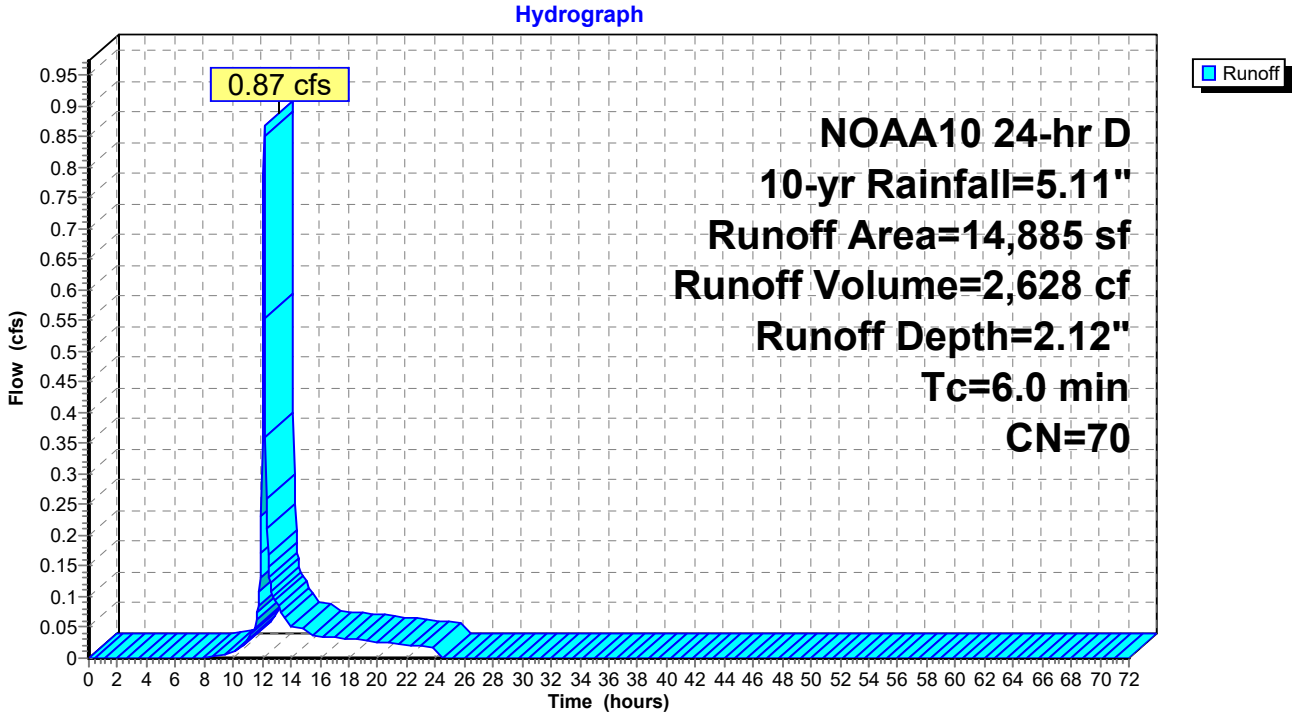
Runoff = 0.87 cfs @ 12.13 hrs, Volume= 2,628 cf, Depth= 2.12"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
14,260	69	50-75% Grass cover, Fair, HSG B
625	98	Paved parking, HSG D
14,885	70	Weighted Average
14,260		95.80% Pervious Area
625		4.20% Impervious Area

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

Subcatchment 4S: PDA-12



Summary for Subcatchment 7S: PDA-22

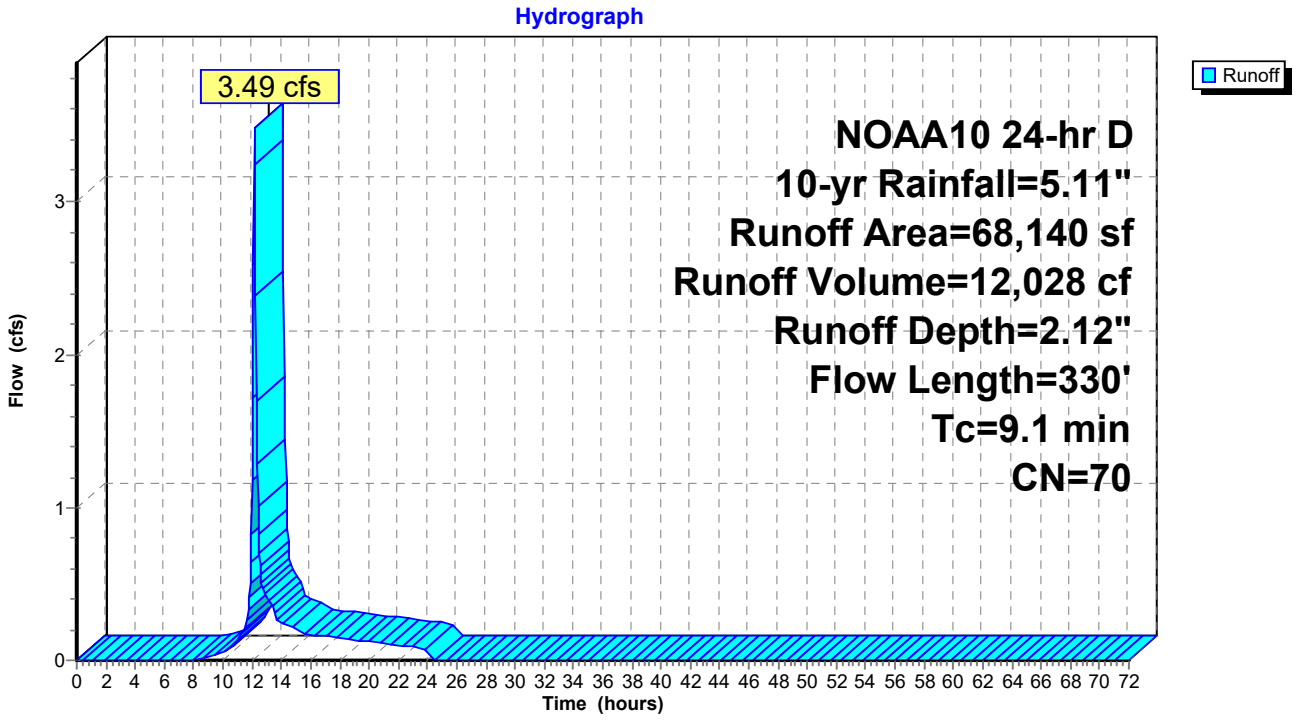
Runoff = 3.49 cfs @ 12.17 hrs, Volume= 12,028 cf, Depth= 2.12"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
33,890	60	Woods, Fair, HSG B
27,311	79	Woods, Fair, HSG D
6,939	84	50-75% Grass cover, Fair, HSG D
68,140	70	Weighted Average
68,140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	45	0.1500	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.46"
4.2	285	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.1	330	Total			

Subcatchment 7S: PDA-22



Summary for Subcatchment 9S: PDA-42

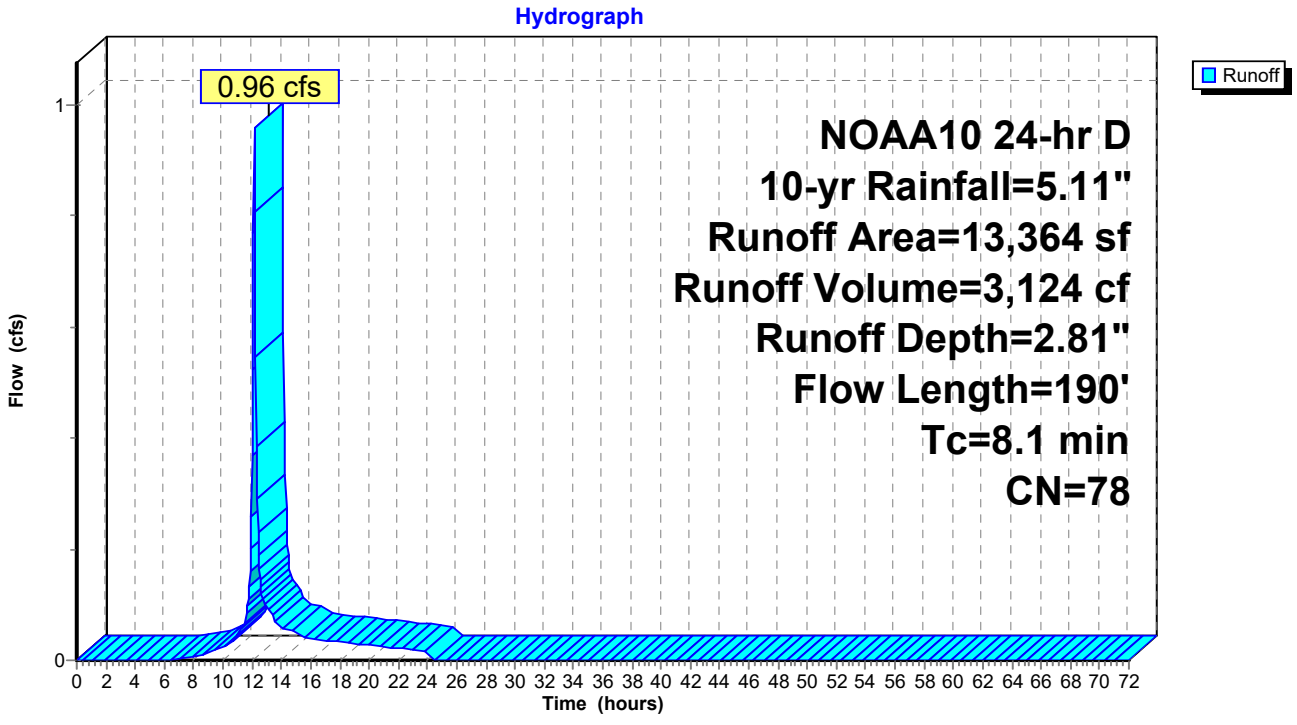
Runoff = 0.96 cfs @ 12.15 hrs, Volume= 3,124 cf, Depth= 2.81"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
2,571	69	50-75% Grass cover, Fair, HSG B
7,293	79	Woods, Fair, HSG D
3,500	84	50-75% Grass cover, Fair, HSG D
13,364	78	Weighted Average
13,364		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.0800	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.46"
1.3	140	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.1	190	Total			

Subcatchment 9S: PDA-42



Summary for Subcatchment 14S: PDA-31

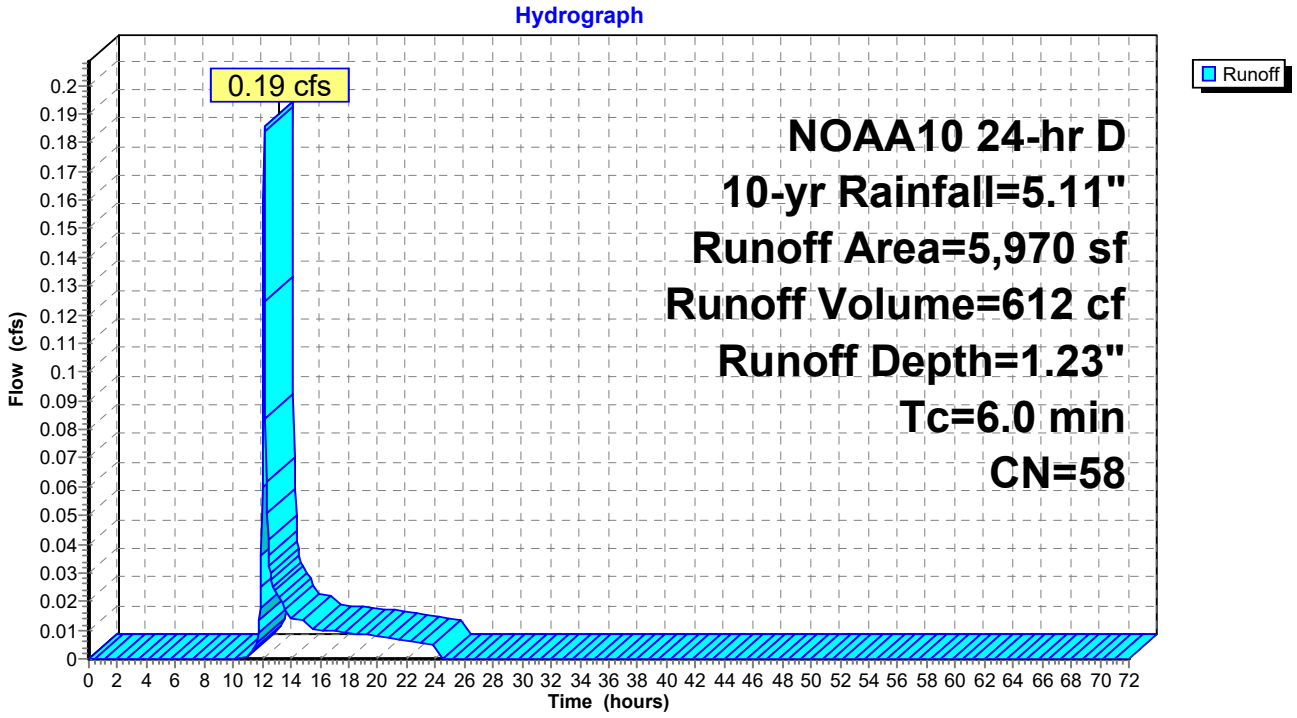
Runoff = 0.19 cfs @ 12.14 hrs, Volume= 612 cf, Depth= 1.23"
Routed to Link 12L : DP-3 (NORTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
5,970	58	Woods/grass comb., Good, HSG B
5,970		100.00% Pervious Area

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

Subcatchment 14S: PDA-31



Summary for Subcatchment 16S: PDA-43

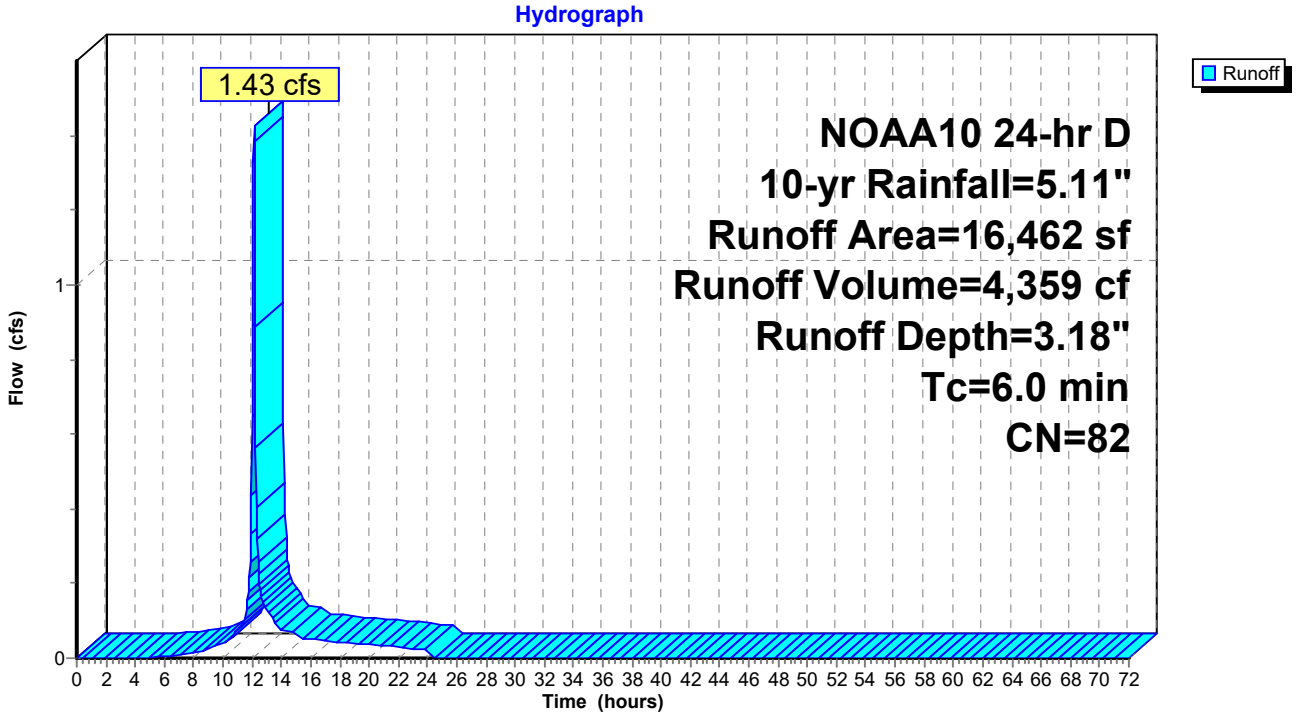
Runoff = 1.43 cfs @ 12.13 hrs, Volume= 4,359 cf, Depth= 3.18"
Routed to Pond 15P : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
7,656	98	Roofs, HSG D
8,806	69	50-75% Grass cover, Fair, HSG B
16,462	82	Weighted Average
8,806		53.49% Pervious Area
7,656		46.51% Impervious Area

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

Subcatchment 16S: PDA-43



Summary for Subcatchment 17S: PDA-41

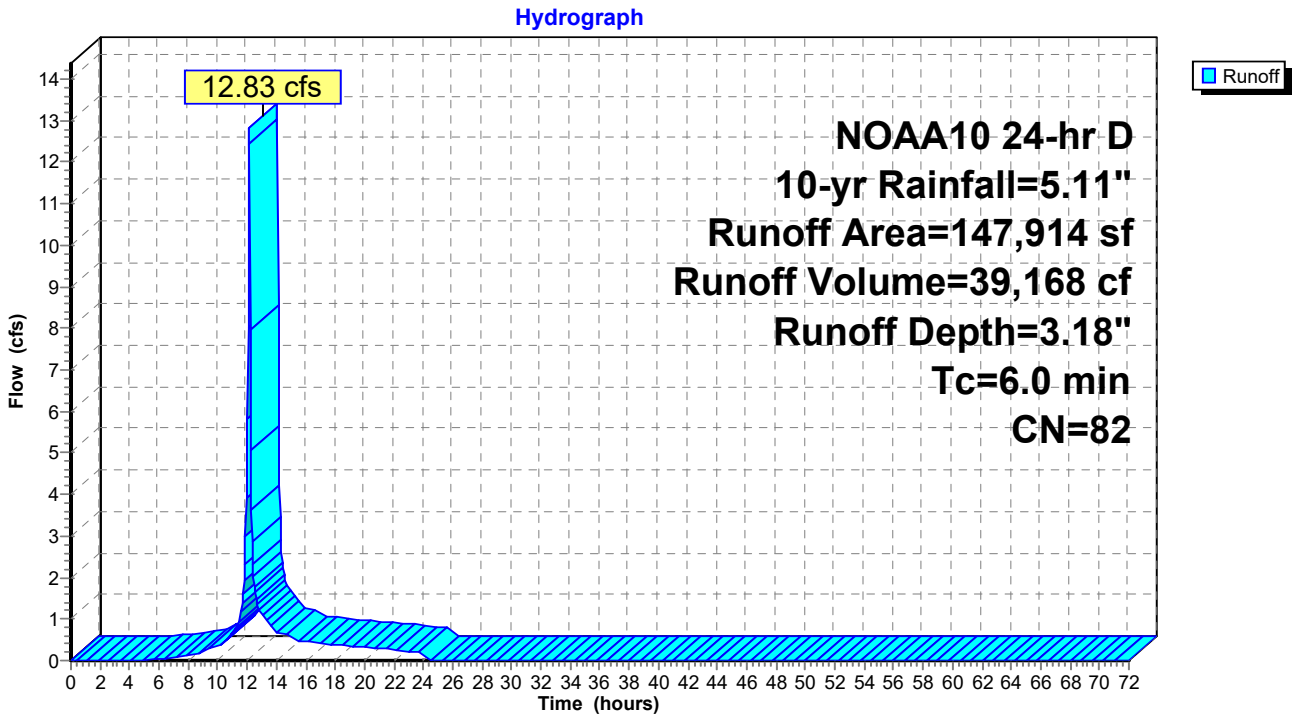
Runoff = 12.83 cfs @ 12.13 hrs, Volume= 39,168 cf, Depth= 3.18"
Routed to Pond 18P : POND 4A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
58,419	98	Paved parking, HSG D
60,483	69	50-75% Grass cover, Fair, HSG B
29,012	79	Woods, Fair, HSG D
147,914	82	Weighted Average
89,495		60.50% Pervious Area
58,419		39.50% Impervious Area

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

Subcatchment 17S: PDA-41



Summary for Subcatchment 18S: PDA-44

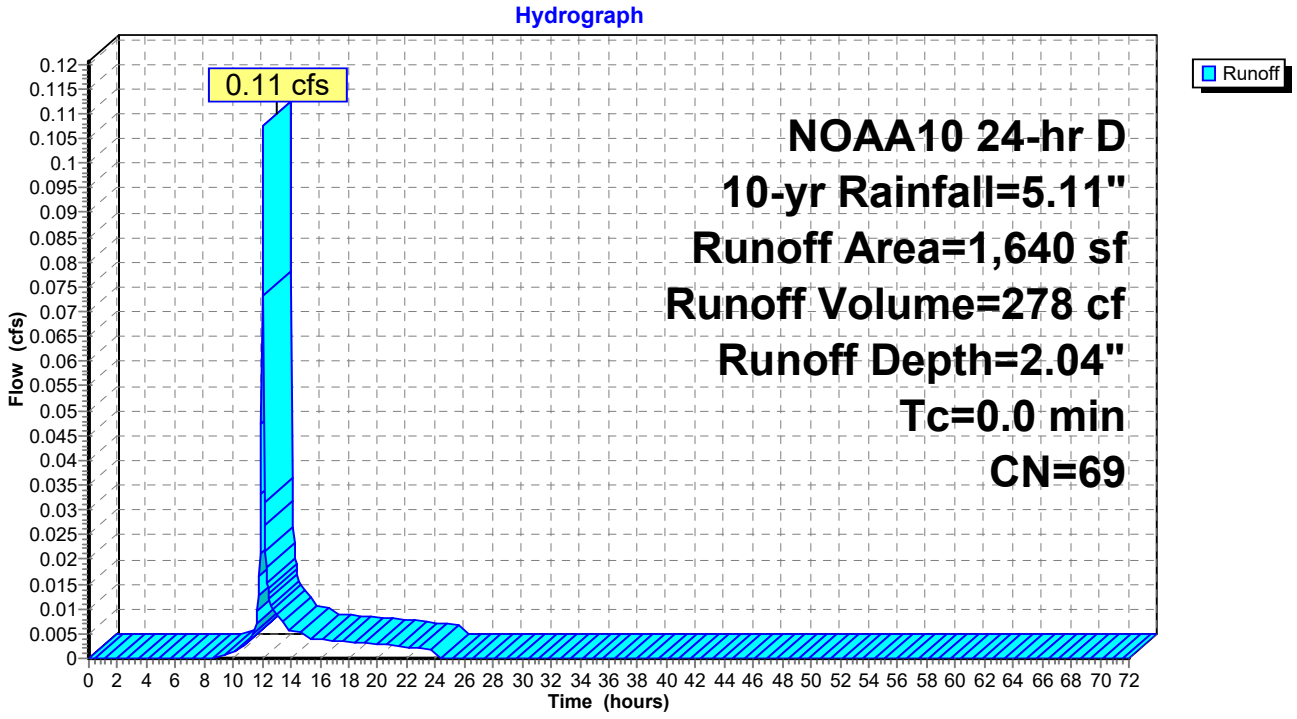
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.11 cfs @ 12.05 hrs, Volume= 278 cf, Depth= 2.04"
Routed to Pond 19P : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
1,640	69	50-75% Grass cover, Fair, HSG B
1,640		100.00% Pervious Area

Subcatchment 18S: PDA-44



Summary for Subcatchment 19S: PDA-11

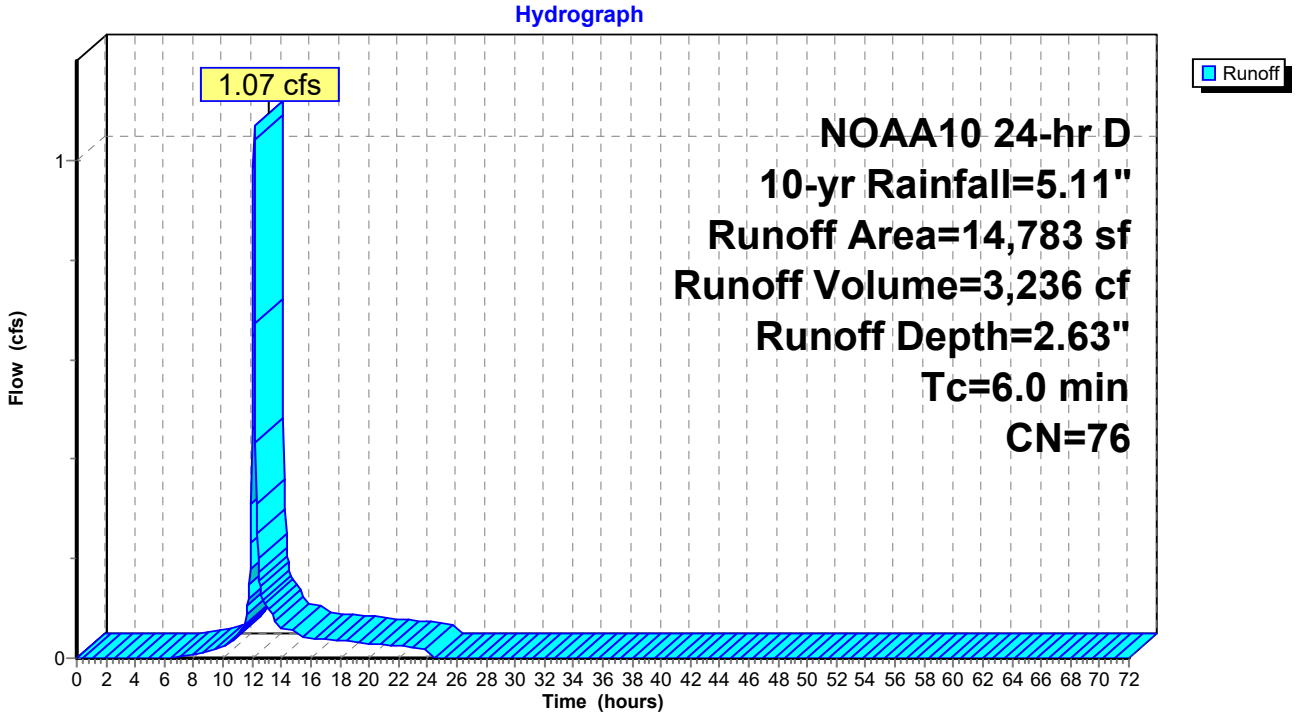
Runoff = 1.07 cfs @ 12.13 hrs, Volume= 3,236 cf, Depth= 2.63"
Routed to Pond 14P : POND 1A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
3,811	98	Roofs, HSG D
10,972	69	50-75% Grass cover, Fair, HSG B
14,783	76	Weighted Average
10,972		74.22% Pervious Area
3,811		25.78% Impervious Area

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

Subcatchment 19S: PDA-11



Summary for Subcatchment 20S: PDA-13

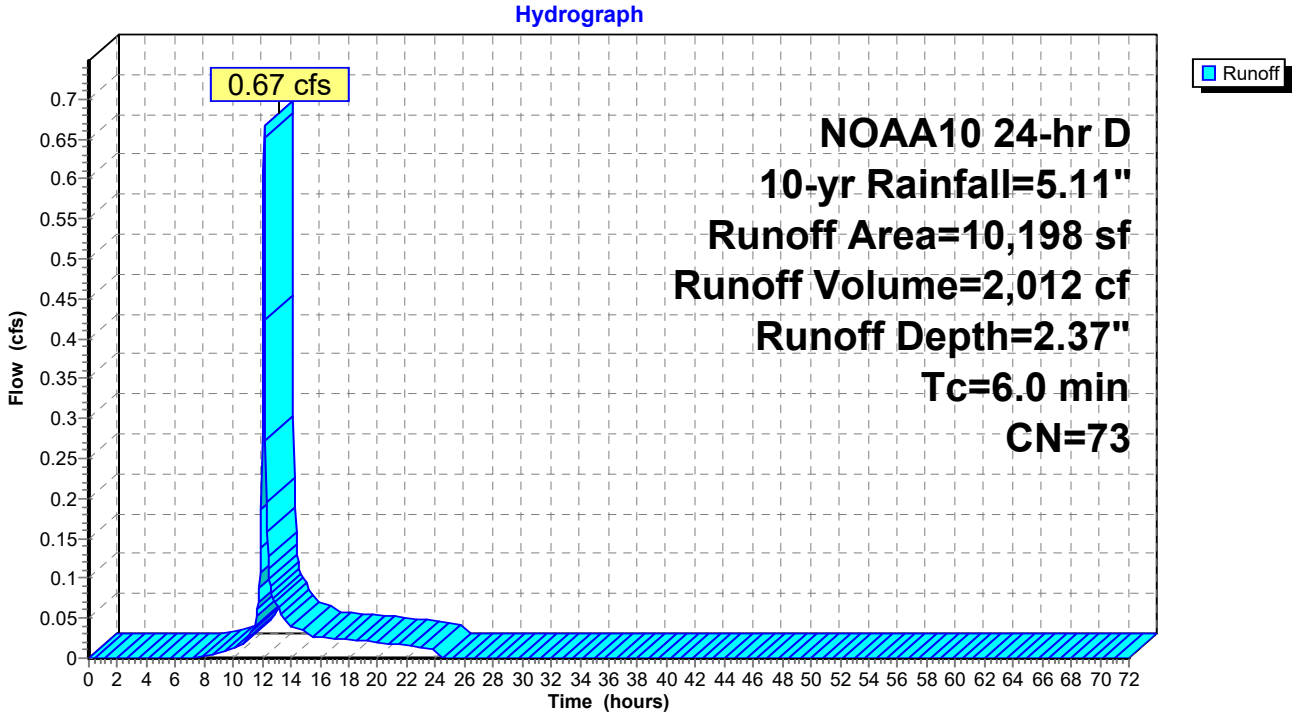
Runoff = 0.67 cfs @ 12.13 hrs, Volume= 2,012 cf, Depth= 2.37"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
8,701	69	50-75% Grass cover, Fair, HSG B
1,497	98	Paved parking, HSG D
10,198	73	Weighted Average
8,701		85.32% Pervious Area
1,497		14.68% Impervious Area

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

Subcatchment 20S: PDA-13



Summary for Subcatchment 23S: PDA-21

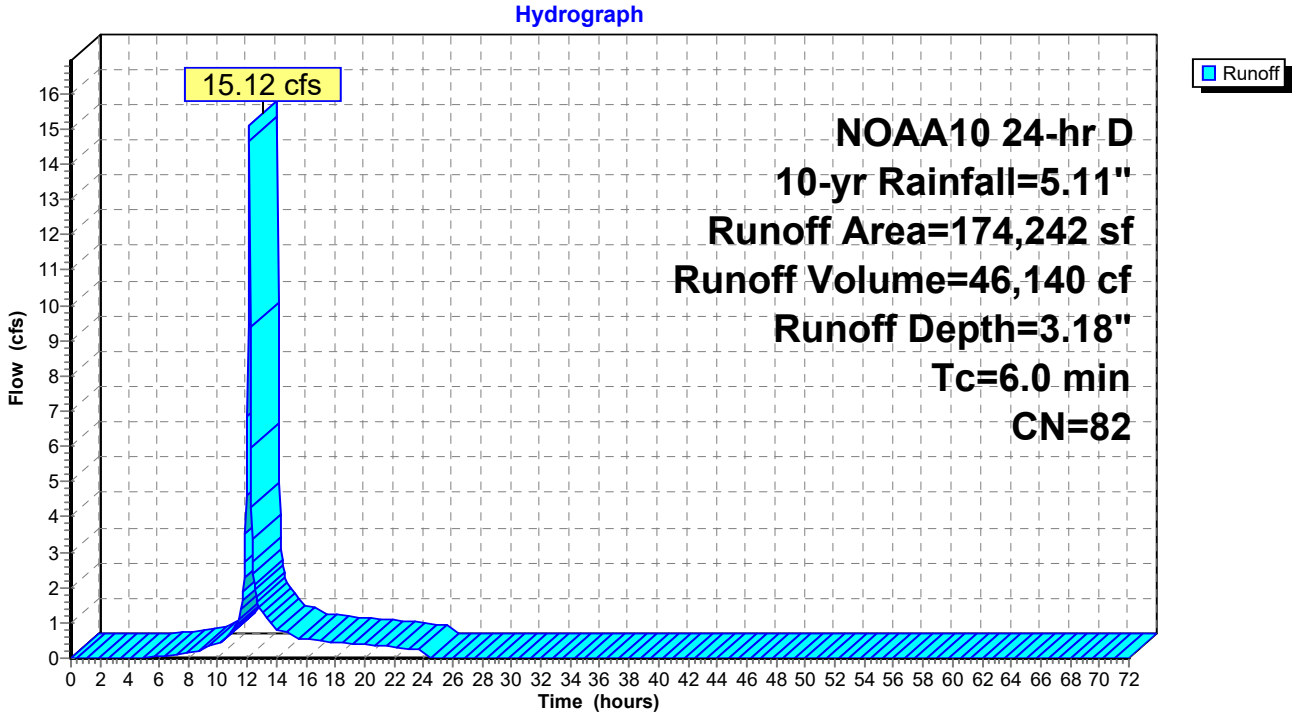
Runoff = 15.12 cfs @ 12.13 hrs, Volume= 46,140 cf, Depth= 3.18"
Routed to Pond 13P : POND 2A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
78,688	98	Paved parking, HSG D
95,554	69	50-75% Grass cover, Fair, HSG B
174,242	82	Weighted Average
95,554		54.84% Pervious Area
78,688		45.16% Impervious Area

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

Subcatchment 23S: PDA-21



Summary for Subcatchment 24S: PDA23

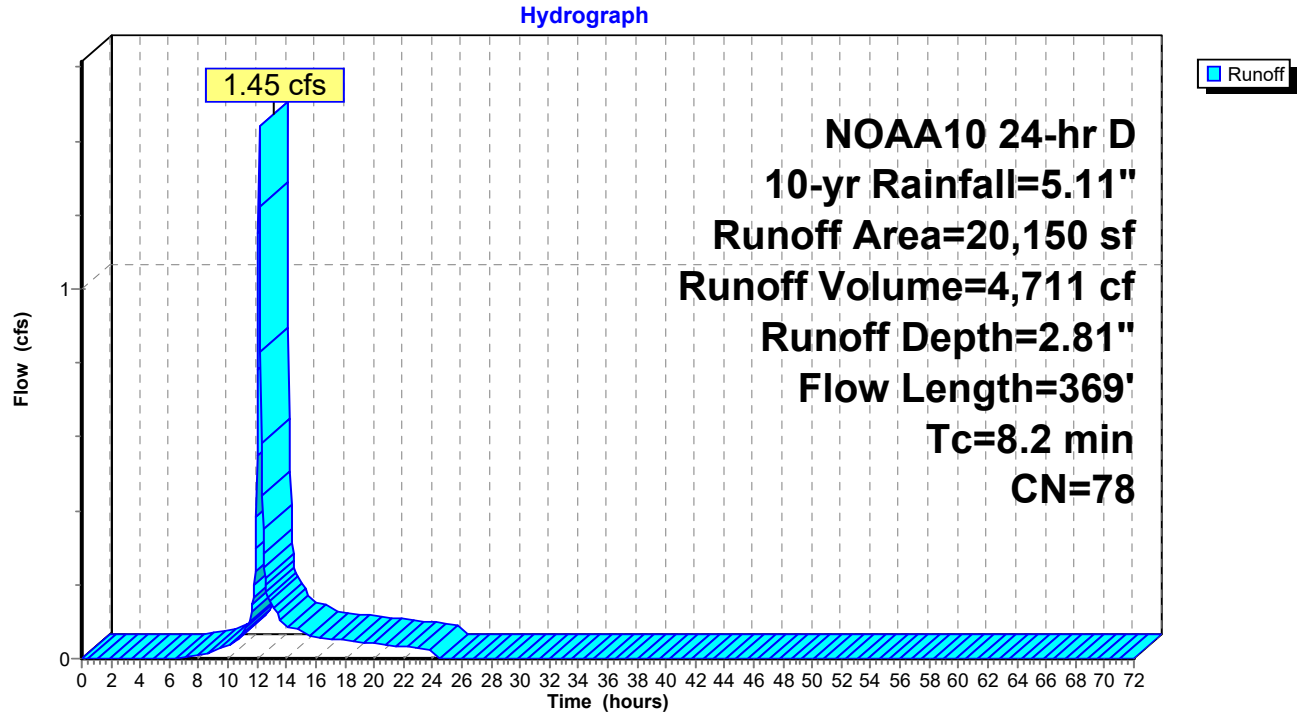
Runoff = 1.45 cfs @ 12.15 hrs, Volume= 4,711 cf, Depth= 2.81"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 10-yr Rainfall=5.11"

Area (sf)	CN	Description
4,687	60	Woods, Fair, HSG B
15,463	83	Woods, Poor, HSG D
20,150	78	Weighted Average
20,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	14	0.0357	0.07		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
4.8	355	0.0620	1.24		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
8.2	369	Total			

Subcatchment 24S: PDA23



Summary for Pond 13P: POND 2A

Inflow Area = 174,242 sf, 45.16% Impervious, Inflow Depth = 3.18" for 10-yr event
Inflow = 15.12 cfs @ 12.13 hrs, Volume= 46,140 cf
Outflow = 0.48 cfs @ 17.35 hrs, Volume= 40,479 cf, Atten= 97%, Lag= 313.1 min
Primary = 0.48 cfs @ 17.35 hrs, Volume= 40,479 cf
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 263.75' @ 17.35 hrs Surf.Area= 14,162 sf Storage= 30,083 cf

Plug-Flow detention time= 1,268.3 min calculated for 40,479 cf (88% of inflow)
Center-of-Mass det. time= 1,206.3 min (2,045.5 - 839.2)

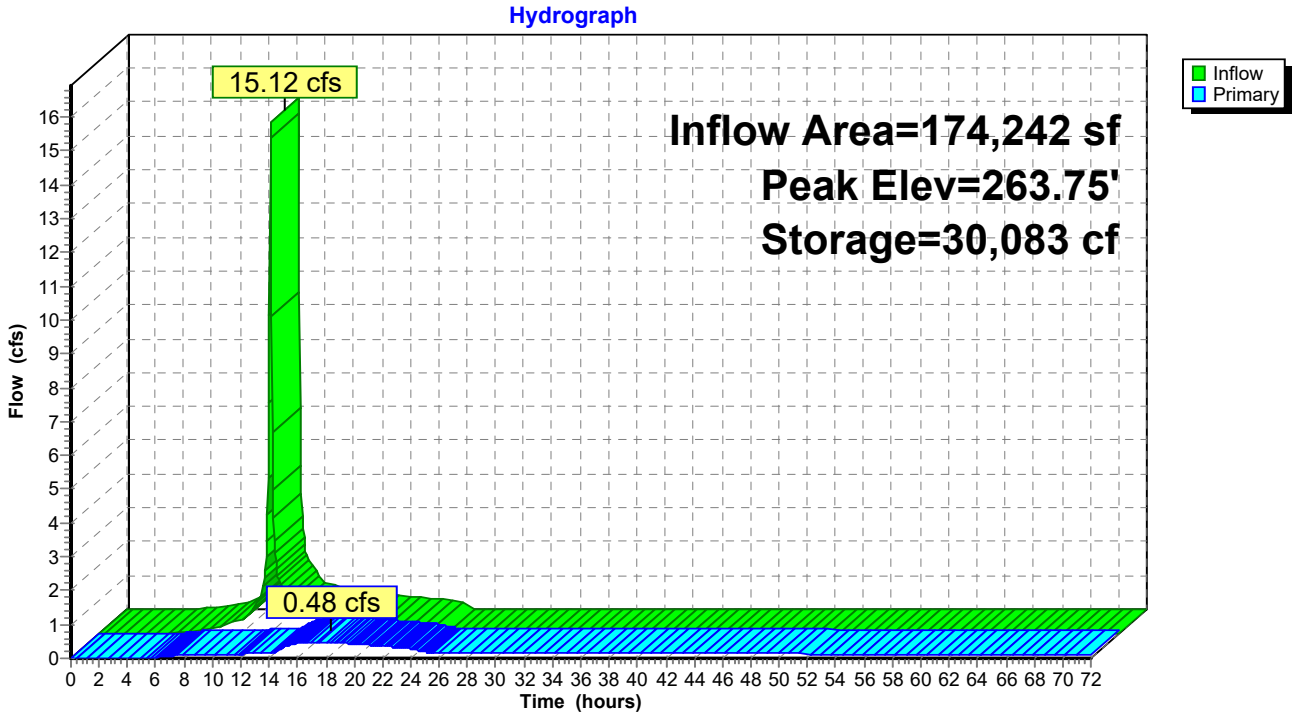
Volume	Invert	Avail.Storage	Storage Description
#1	261.00'	49,547 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
261.00	7,809	0	0
262.00	9,940	8,875	8,875
263.00	12,454	11,197	20,072
264.00	14,724	13,589	33,661
265.00	17,049	15,887	49,547

Device	Routing	Invert	Outlet Devices
#1	Primary	258.60'	**15.0" Round Culvert** L= 32.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 258.60' / 258.25' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	264.50'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	263.60'	**20.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	261.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.48 cfs @ 17.35 hrs HW=263.75' (Free Discharge)
└**1=Culvert** (Passes 0.48 cfs of 12.57 cfs potential flow)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  ├**3=Orifice/Grate** (Orifice Controls 0.32 cfs @ 1.25 fps)
  └**4=Exfiltration** (Exfiltration Controls 0.16 cfs)

Pond 13P: POND 2A



Summary for Pond 14P: POND 1A

Inflow Area = 14,783 sf, 25.78% Impervious, Inflow Depth = 2.63" for 10-yr event
Inflow = 1.07 cfs @ 12.13 hrs, Volume= 3,236 cf
Outflow = 0.37 cfs @ 12.28 hrs, Volume= 3,236 cf, Atten= 66%, Lag= 8.8 min
Discarded = 0.01 cfs @ 12.28 hrs, Volume= 1,023 cf
Primary = 0.36 cfs @ 12.28 hrs, Volume= 2,212 cf
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 270.90' @ 12.28 hrs Surf.Area= 1,502 sf Storage= 1,061 cf

Plug-Flow detention time= 279.6 min calculated for 3,236 cf (100% of inflow)
Center-of-Mass det. time= 279.3 min (1,140.5 - 861.2)

Volume	Invert	Avail.Storage	Storage Description
#1	270.00'	3,233 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

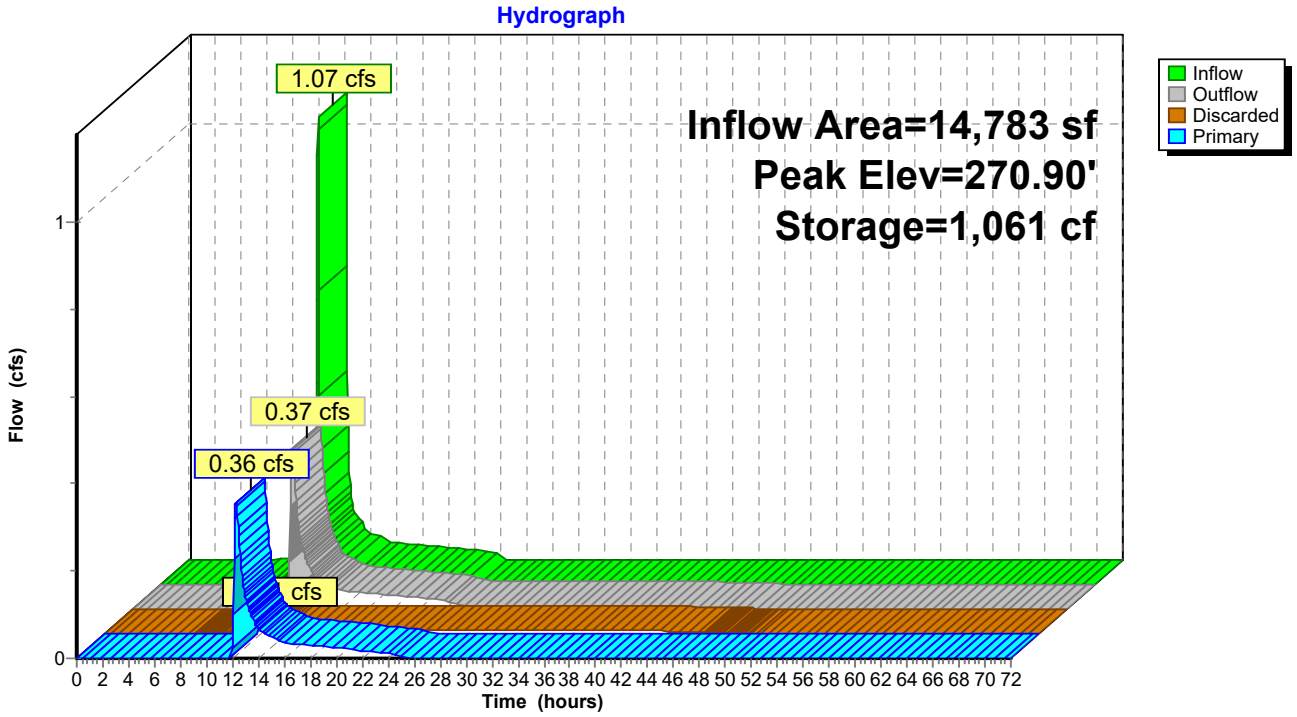
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
270.00	892	175.0	0	0	892
271.00	1,583	241.0	1,221	1,221	3,087
272.00	2,473	323.0	2,012	3,233	6,778

Device	Routing	Invert	Outlet Devices
#1	Primary	269.60'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 269.60' / 269.00' S= 0.0120 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	270.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	271.80'	**36.0" W x 24.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	270.00'	**0.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 255.00'

Discarded OutFlow Max=0.01 cfs @ 12.28 hrs HW=270.89' (Free Discharge)
└**4=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.36 cfs @ 12.28 hrs HW=270.89' (Free Discharge)
└**1=Culvert** (Passes 0.36 cfs of 4.84 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.36 cfs @ 2.14 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 14P: POND 1A



Summary for Pond 15P: RG-1

Inflow Area = 16,462 sf, 46.51% Impervious, Inflow Depth = 3.18" for 10-yr event
Inflow = 1.43 cfs @ 12.13 hrs, Volume= 4,359 cf
Outflow = 0.99 cfs @ 12.20 hrs, Volume= 4,359 cf, Atten= 31%, Lag= 4.1 min
Primary = 0.99 cfs @ 12.20 hrs, Volume= 4,359 cf
Routed to Pond 18P : POND 4A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 274.82' @ 12.20 hrs Surf.Area= 1,661 sf Storage= 1,106 cf

Plug-Flow detention time= 172.7 min calculated for 4,356 cf (100% of inflow)
Center-of-Mass det. time= 173.2 min (1,012.4 - 839.2)

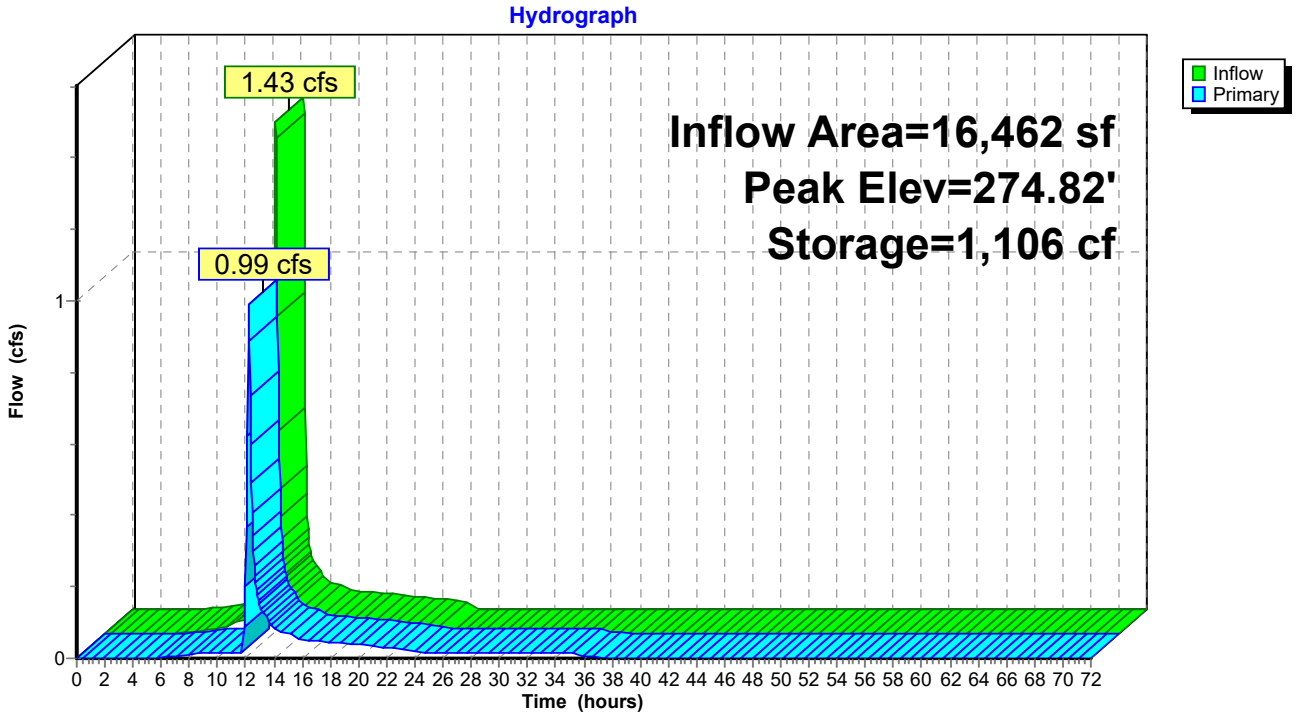
Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	3,629 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	1,058	203.0	0	0	1,058
275.00	1,811	247.0	1,418	1,418	2,650
276.00	2,637	281.0	2,211	3,629	4,102

Device	Routing	Invert	Outlet Devices
#1	Primary	271.60'	**15.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 271.60' / 270.60' S= 0.0118 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	274.50'	**20.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.99 cfs @ 12.20 hrs HW=274.82' (Free Discharge)
└**1=Culvert** (Passes 0.99 cfs of 9.50 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.97 cfs @ 1.82 fps)
  └**3=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond 15P: RG-1


Hydrograph
1.43 cfs
0.99 cfs
Inflow Area=16,462 sf
Peak Elev=274.82'
Storage=1,106 cf
Inflow
Primary
Flow (cfs)
0
1
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond 18P: POND 4A

Inflow Area = 166,016 sf, 39.80% Impervious, Inflow Depth = 3.17" for 10-yr event
Inflow = 13.66 cfs @ 12.13 hrs, Volume= 43,806 cf
Outflow = 0.68 cfs @ 15.02 hrs, Volume= 42,212 cf, Atten= 95%, Lag= 173.2 min
Discarded = 0.20 cfs @ 15.02 hrs, Volume= 29,455 cf
Primary = 0.48 cfs @ 15.02 hrs, Volume= 12,757 cf
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 261.20' @ 15.02 hrs Surf.Area= 13,280 sf Storage= 23,946 cf

Plug-Flow detention time= 948.8 min calculated for 42,212 cf (96% of inflow)
Center-of-Mass det. time= 922.2 min (1,780.4 - 858.2)

Volume	Invert	Avail.Storage	Storage Description
#1	259.00'	51,513 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

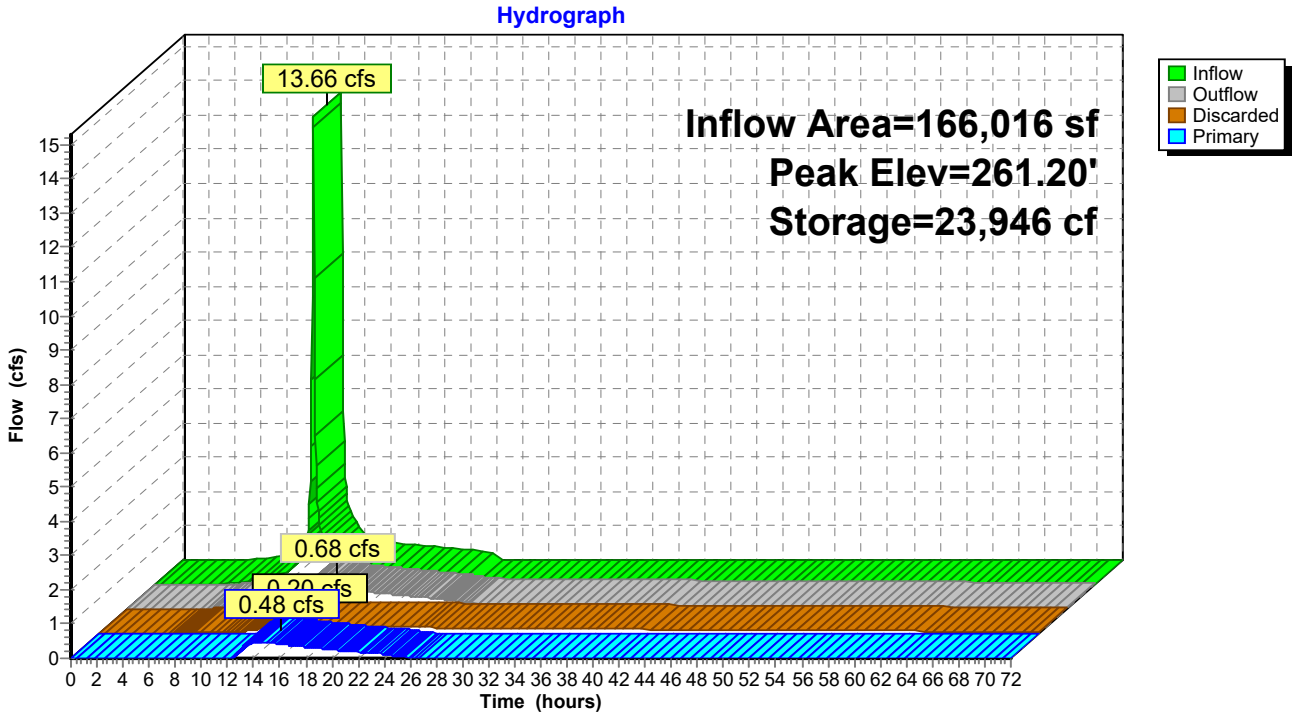
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
259.00	8,546	0	0
260.00	10,596	9,571	9,571
261.00	12,850	11,723	21,294
262.00	14,969	13,910	35,204
263.00	17,649	16,309	51,513

Device	Routing	Invert	Outlet Devices
#1	Primary	255.40'	**15.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 255.40' / 255.00' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	260.80'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	262.00'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	259.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 258.00'

Discarded OutFlow Max=0.20 cfs @ 15.02 hrs HW=261.20' (Free Discharge)
↑└**4=Exfiltration** (Controls 0.20 cfs)

Primary OutFlow Max=0.48 cfs @ 15.02 hrs HW=261.20' (Free Discharge)
↑└**1=Culvert** (Passes 0.48 cfs of 13.45 cfs potential flow)
↑├**2=Orifice/Grate** (Orifice Controls 0.48 cfs @ 2.16 fps)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 18P: POND 4A



Summary for Pond 19P: RG-2

Inflow Area = 1,640 sf, 0.00% Impervious, Inflow Depth = 2.04" for 10-yr event
Inflow = 0.11 cfs @ 12.05 hrs, Volume= 278 cf
Outflow = 0.01 cfs @ 14.81 hrs, Volume= 278 cf, Atten= 95%, Lag= 165.6 min
Primary = 0.01 cfs @ 14.81 hrs, Volume= 278 cf
Routed to Pond 18P : POND 4A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 274.25' @ 14.81 hrs Surf.Area= 455 sf Storage= 106 cf

Plug-Flow detention time= 226.5 min calculated for 278 cf (100% of inflow)
Center-of-Mass det. time= 226.3 min (1,106.0 - 879.8)

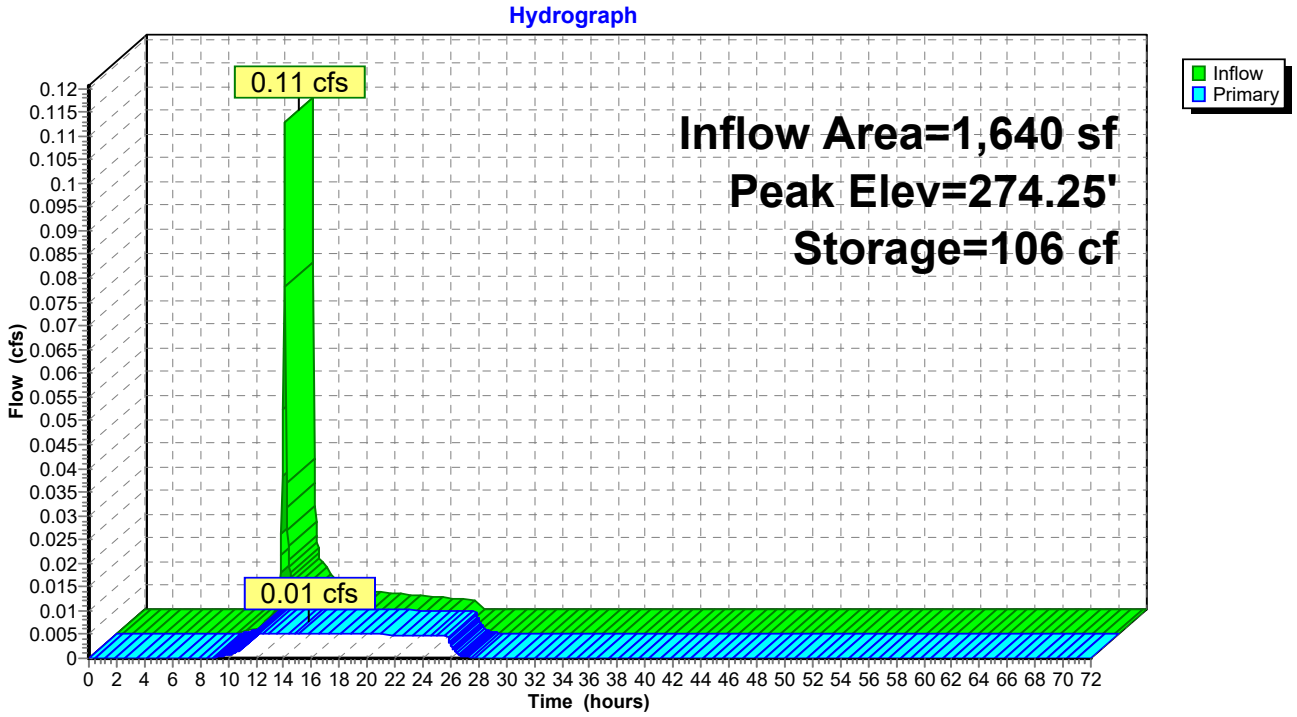
Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	1,334 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	395	78.0	0	0	395
275.00	658	97.0	521	521	674
276.00	979	116.0	813	1,334	1,013

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	**15.0" Round Culvert** L= 58.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.70' S= 0.0138 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	274.50'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.01 cfs @ 14.81 hrs HW=274.25' (Free Discharge)
└**1=Culvert** (Passes 0.01 cfs of 6.27 cfs potential flow)
└**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Pond 19P: RG-2

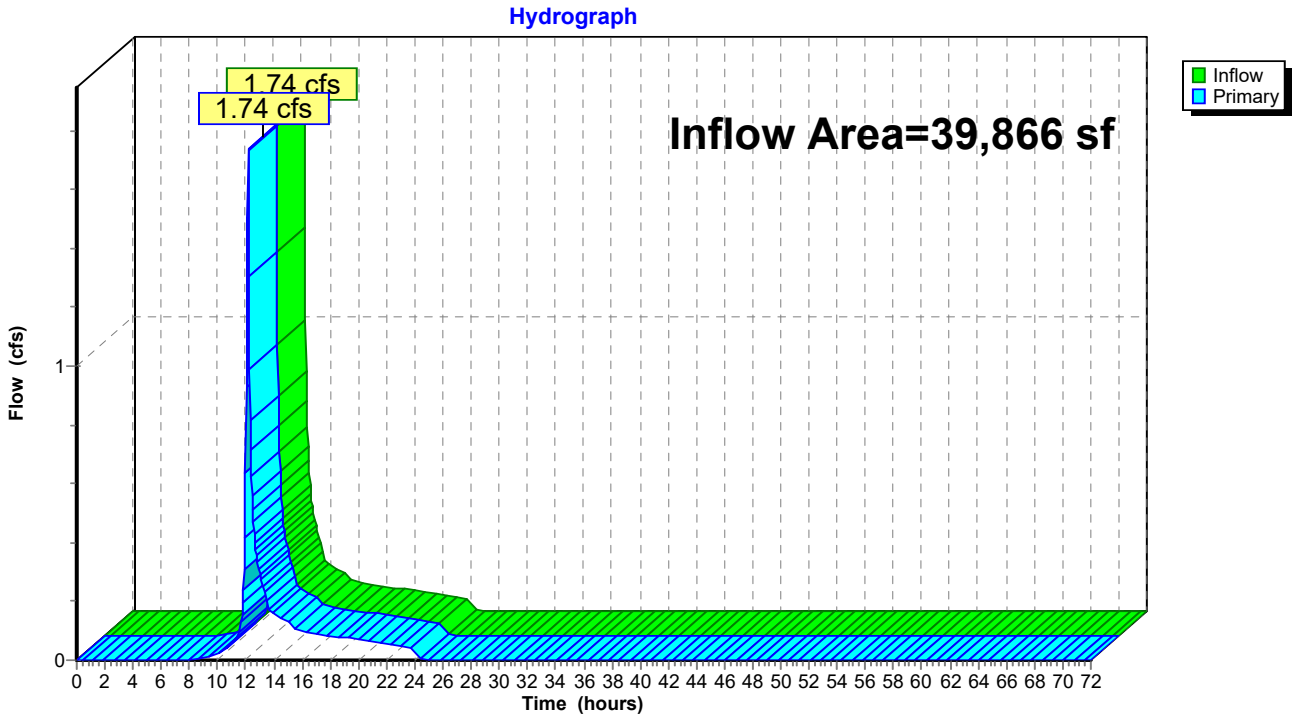

Hydrograph
0.11 cfs
0.01 cfs
Inflow Area=1,640 sf
Peak Elev=274.25'
Storage=106 cf
Inflow
Primary
Flow (cfs)
0 0.005 0.01 0.015 0.02 0.025 0.03 0.035 0.04 0.045 0.05 0.055 0.06 0.065 0.07 0.075 0.08 0.085 0.09 0.095 0.1 0.105 0.11 0.115 0.12
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72

Summary for Link 10L: DP-1 (EXISTING 18" RCP)

Inflow Area = 39,866 sf, 14.88% Impervious, Inflow Depth = 2.06" for 10-yr event
Inflow = 1.74 cfs @ 12.14 hrs, Volume= 6,851 cf
Primary = 1.74 cfs @ 12.14 hrs, Volume= 6,851 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 10L: DP-1 (EXISTING 18" RCP)

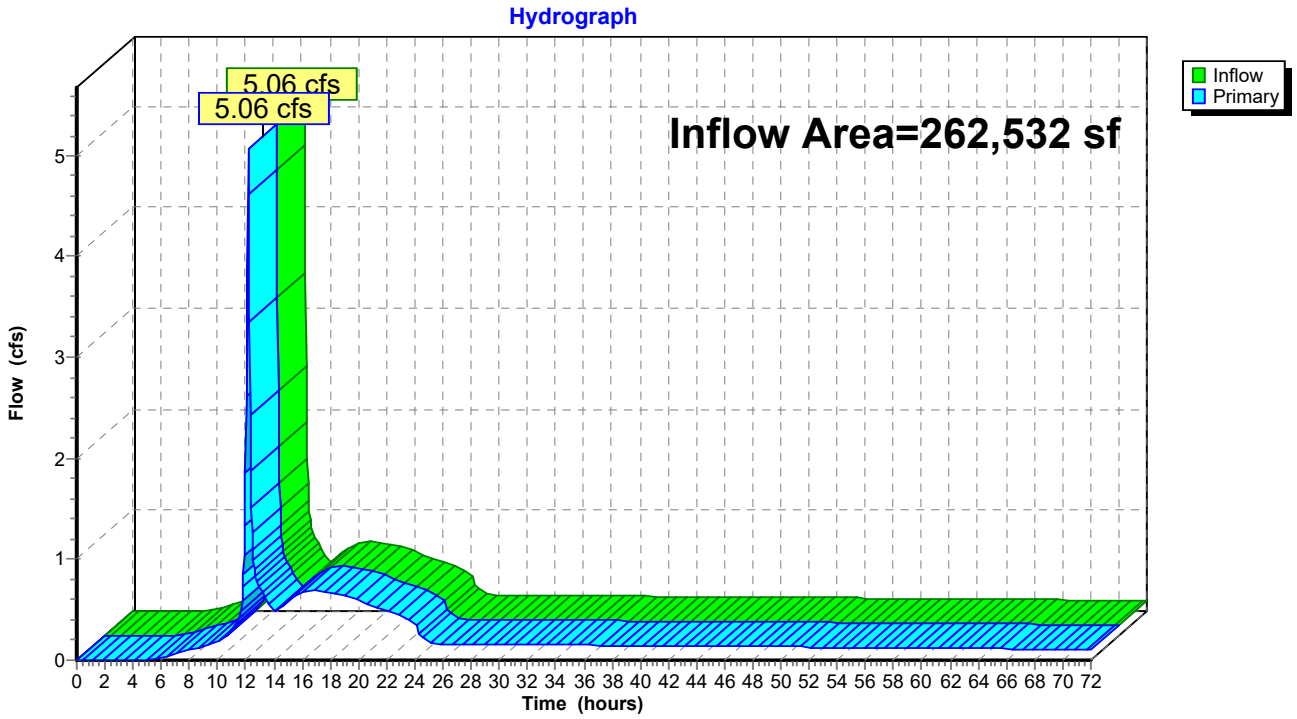


Summary for Link 11L: DP-2 (EXISTING WETLANDS)

Inflow Area = 262,532 sf, 29.97% Impervious, Inflow Depth > 2.62" for 10-yr event
Inflow = 5.06 cfs @ 12.16 hrs, Volume= 57,218 cf
Primary = 5.06 cfs @ 12.16 hrs, Volume= 57,218 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 11L: DP-2 (EXISTING WETLANDS)

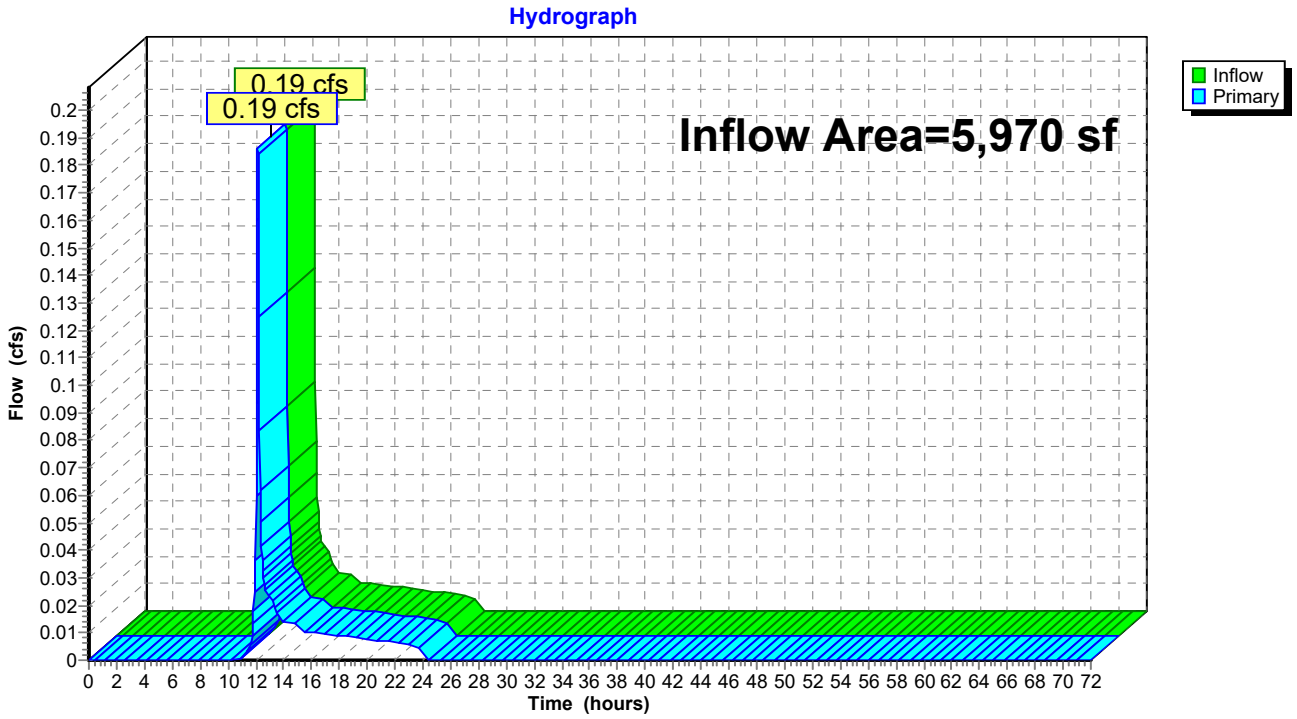


Summary for Link 12L: DP-3 (NORTHERN PROPERTY LINE)

Inflow Area = 5,970 sf, 0.00% Impervious, Inflow Depth = 1.23" for 10-yr event
Inflow = 0.19 cfs @ 12.14 hrs, Volume= 612 cf
Primary = 0.19 cfs @ 12.14 hrs, Volume= 612 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 12L: DP-3 (NORTHERN PROPERTY LINE)

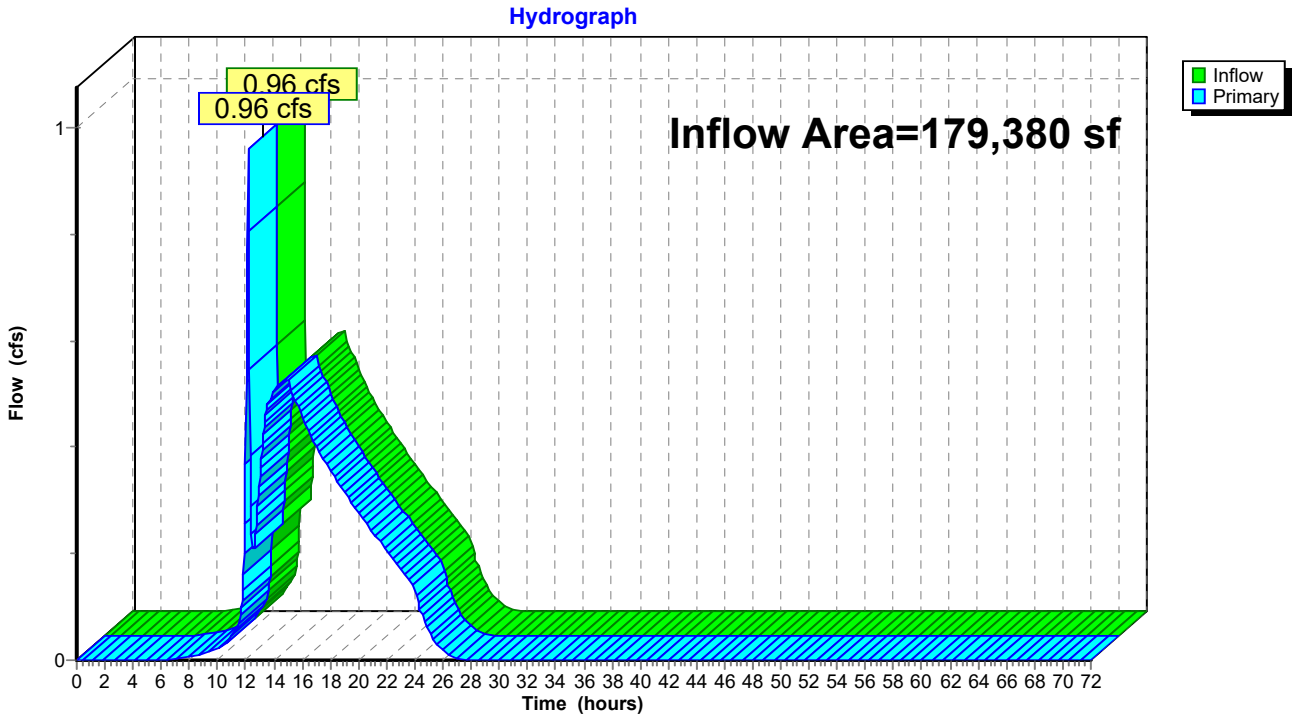


Summary for Link 13L: DP-4 (SOUTHERN PROPERTY LINE)

Inflow Area = 179,380 sf, 36.84% Impervious, Inflow Depth = 1.06" for 10-yr event
Inflow = 0.96 cfs @ 12.15 hrs, Volume= 15,881 cf
Primary = 0.96 cfs @ 12.15 hrs, Volume= 15,881 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 13L: DP-4 (SOUTHERN PROPERTY LINE)



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment4S: PDA-12 Runoff Area=14,885 sf 4.20% Impervious Runoff Depth=2.92"
Tc=6.0 min CN=70 Runoff=1.20 cfs 3,628 cf

Subcatchment7S: PDA-22 Runoff Area=68,140 sf 0.00% Impervious Runoff Depth=2.92"
Flow Length=330' Tc=9.1 min CN=70 Runoff=4.86 cfs 16,607 cf

Subcatchment9S: PDA-42 Runoff Area=13,364 sf 0.00% Impervious Runoff Depth=3.71"
Flow Length=190' Tc=8.1 min CN=78 Runoff=1.26 cfs 4,134 cf

Subcatchment14S: PDA-31 Runoff Area=5,970 sf 0.00% Impervious Runoff Depth=1.85"
Tc=6.0 min CN=58 Runoff=0.29 cfs 921 cf

Subcatchment16S: PDA-43 Runoff Area=16,462 sf 46.51% Impervious Runoff Depth=4.13"
Tc=6.0 min CN=82 Runoff=1.84 cfs 5,659 cf

Subcatchment17S: PDA-41 Runoff Area=147,914 sf 39.50% Impervious Runoff Depth=4.13"
Tc=6.0 min CN=82 Runoff=16.49 cfs 50,849 cf

Subcatchment18S: PDA-44 Runoff Area=1,640 sf 0.00% Impervious Runoff Depth=2.83"
Tc=0.0 min CN=69 Runoff=0.15 cfs 387 cf

Subcatchment19S: PDA-11 Runoff Area=14,783 sf 25.78% Impervious Runoff Depth=3.51"
Tc=6.0 min CN=76 Runoff=1.43 cfs 4,324 cf

Subcatchment20S: PDA-13 Runoff Area=10,198 sf 14.68% Impervious Runoff Depth=3.21"
Tc=6.0 min CN=73 Runoff=0.91 cfs 2,731 cf

Subcatchment23S: PDA-21 Runoff Area=174,242 sf 45.16% Impervious Runoff Depth=4.13"
Tc=6.0 min CN=82 Runoff=19.42 cfs 59,900 cf

Subcatchment24S: PDA23 Runoff Area=20,150 sf 0.00% Impervious Runoff Depth=3.71"
Flow Length=369' Tc=8.2 min CN=78 Runoff=1.90 cfs 6,233 cf

Pond 13P: POND 2A Peak Elev=263.93' Storage=32,636 cf Inflow=19.42 cfs 59,900 cf
Outflow=1.18 cfs 54,122 cf

Pond 14P: POND 1A Peak Elev=271.09' Storage=1,359 cf Inflow=1.43 cfs 4,324 cf
Discarded=0.01 cfs 1,061 cf Primary=0.55 cfs 3,263 cf Outflow=0.56 cfs 4,324 cf

Pond 15P: RG-1 Peak Elev=274.90' Storage=1,233 cf Inflow=1.84 cfs 5,659 cf
Outflow=1.35 cfs 5,659 cf

Pond 18P: POND 4A Peak Elev=261.53' Storage=28,402 cf Inflow=17.67 cfs 56,896 cf
Discarded=0.23 cfs 30,553 cf Primary=1.06 cfs 24,622 cf Outflow=1.29 cfs 55,175 cf

Pond 19P: RG-2 Peak Elev=274.39' Storage=170 cf Inflow=0.15 cfs 387 cf
Outflow=0.01 cfs 387 cf

Link 10L: DP-1 (EXISTING 18" RCP) Inflow=2.55 cfs 9,621 cf
Primary=2.55 cfs 9,621 cf

Link 11L: DP-2 (EXISTING WETLANDS) Inflow=6.90 cfs 76,961 cf
Primary=6.90 cfs 76,961 cf

Link 12L: DP-3 (NORTHERN PROPERTY LINE) Inflow=0.29 cfs 921 cf
Primary=0.29 cfs 921 cf

Link 13L: DP-4 (SOUTHERN PROPERTY LINE) Inflow=1.30 cfs 28,755 cf
Primary=1.30 cfs 28,755 cf

Total Runoff Area = 487,748 sf Runoff Volume = 155,373 cf Average Runoff Depth = 3.82"
69.10% Pervious = 337,052 sf 30.90% Impervious = 150,696 sf

Summary for Subcatchment 4S: PDA-12

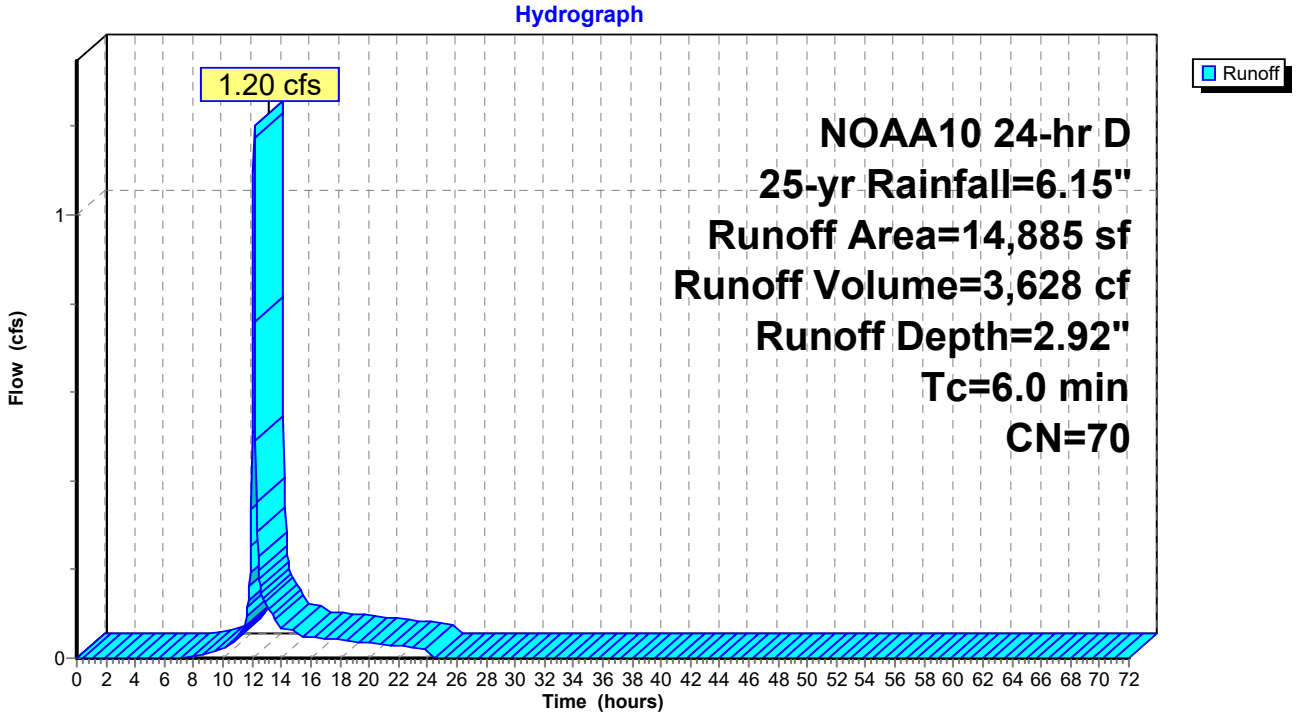
Runoff = 1.20 cfs @ 12.13 hrs, Volume= 3,628 cf, Depth= 2.92"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
14,260	69	50-75% Grass cover, Fair, HSG B
625	98	Paved parking, HSG D
14,885	70	Weighted Average
14,260		95.80% Pervious Area
625		4.20% Impervious Area

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

Subcatchment 4S: PDA-12



Summary for Subcatchment 7S: PDA-22

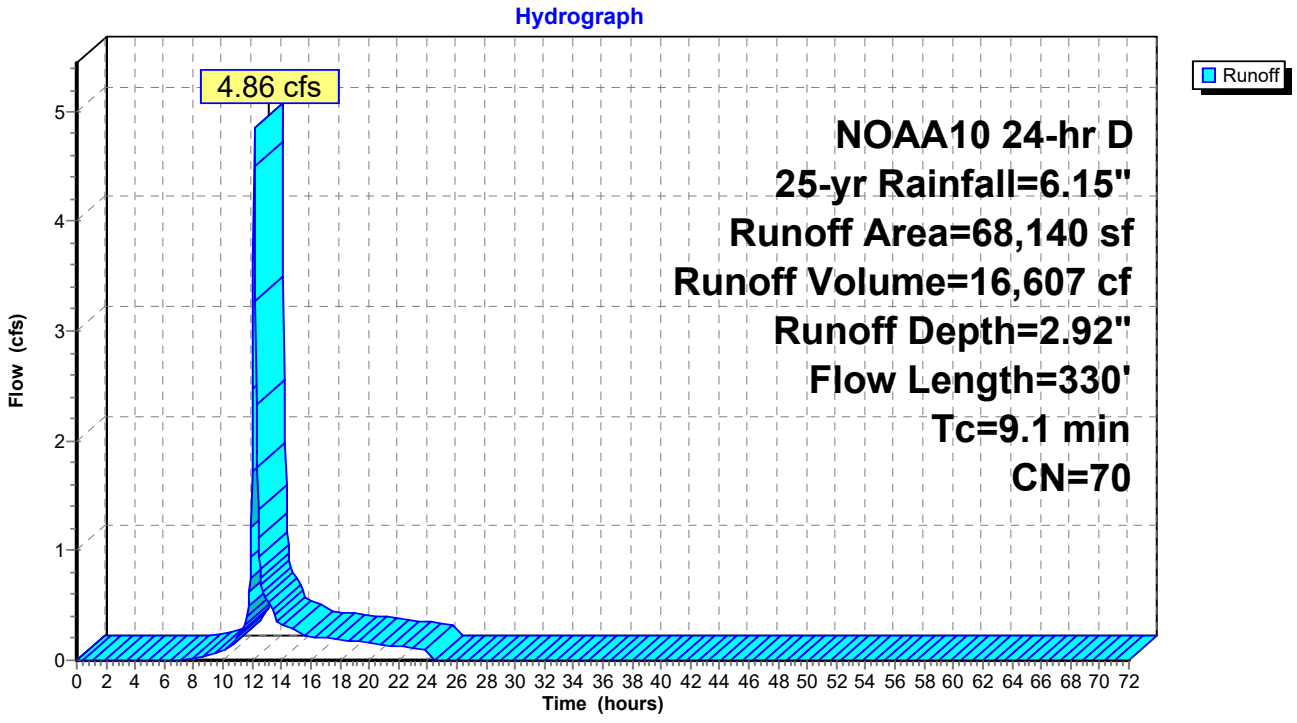
Runoff = 4.86 cfs @ 12.16 hrs, Volume= 16,607 cf, Depth= 2.92"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
33,890	60	Woods, Fair, HSG B
27,311	79	Woods, Fair, HSG D
6,939	84	50-75% Grass cover, Fair, HSG D
68,140	70	Weighted Average
68,140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	45	0.1500	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.46"
4.2	285	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.1	330	Total			

Subcatchment 7S: PDA-22



Summary for Subcatchment 9S: PDA-42

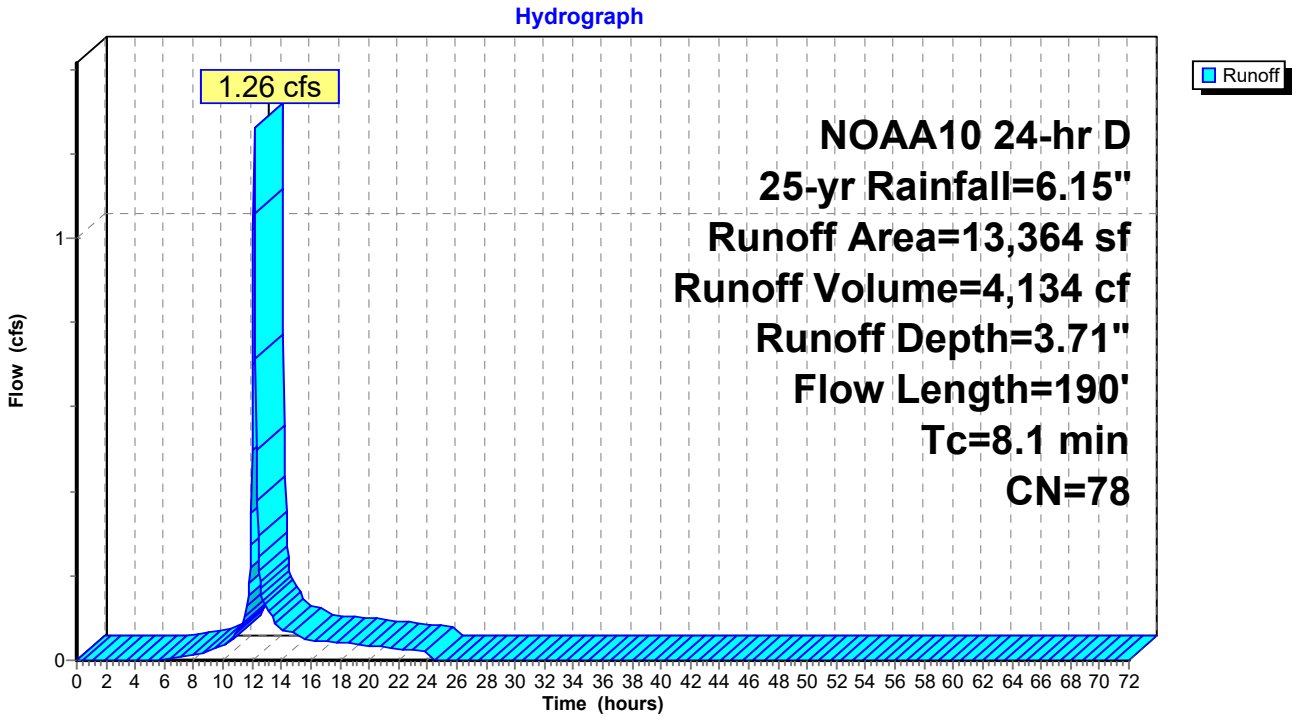
Runoff = 1.26 cfs @ 12.15 hrs, Volume= 4,134 cf, Depth= 3.71"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
2,571	69	50-75% Grass cover, Fair, HSG B
7,293	79	Woods, Fair, HSG D
3,500	84	50-75% Grass cover, Fair, HSG D
13,364	78	Weighted Average
13,364		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.0800	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.46"
1.3	140	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.1	190	Total			

Subcatchment 9S: PDA-42



Summary for Subcatchment 14S: PDA-31

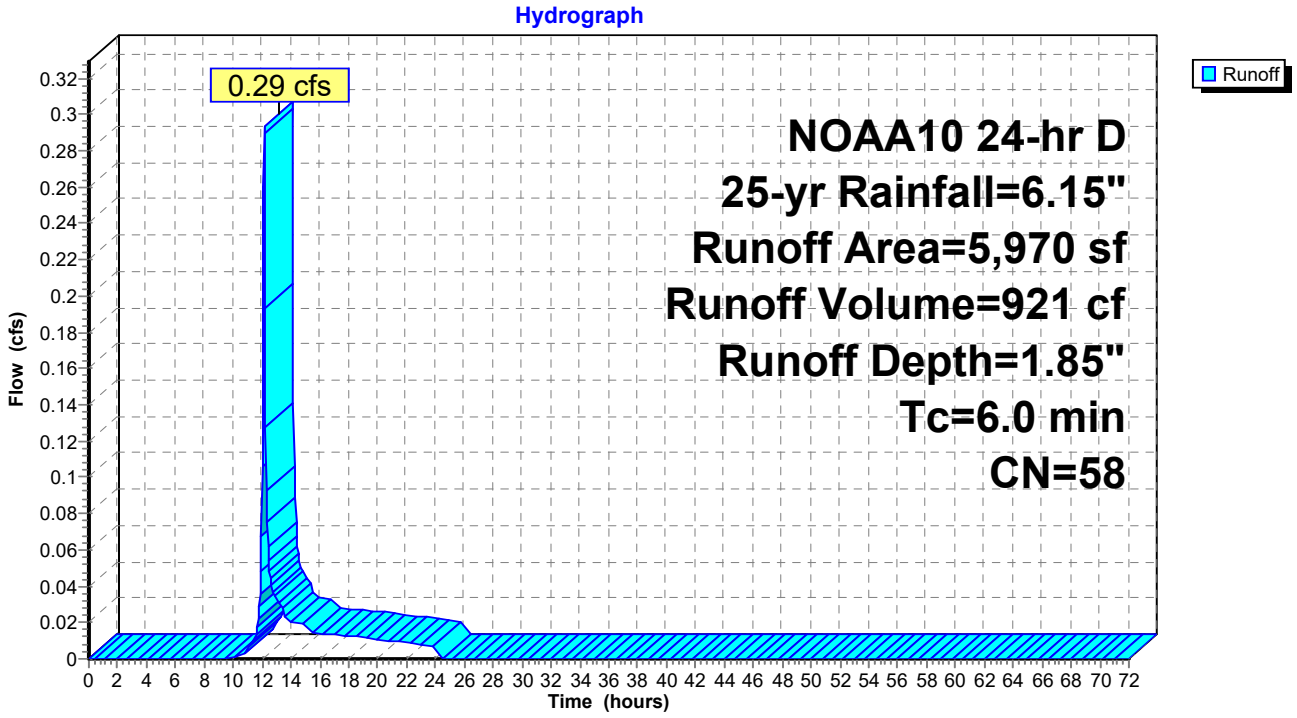
Runoff = 0.29 cfs @ 12.14 hrs, Volume= 921 cf, Depth= 1.85"
Routed to Link 12L : DP-3 (NORTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
5,970	58	Woods/grass comb., Good, HSG B
5,970		100.00% Pervious Area

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

Subcatchment 14S: PDA-31



Summary for Subcatchment 16S: PDA-43

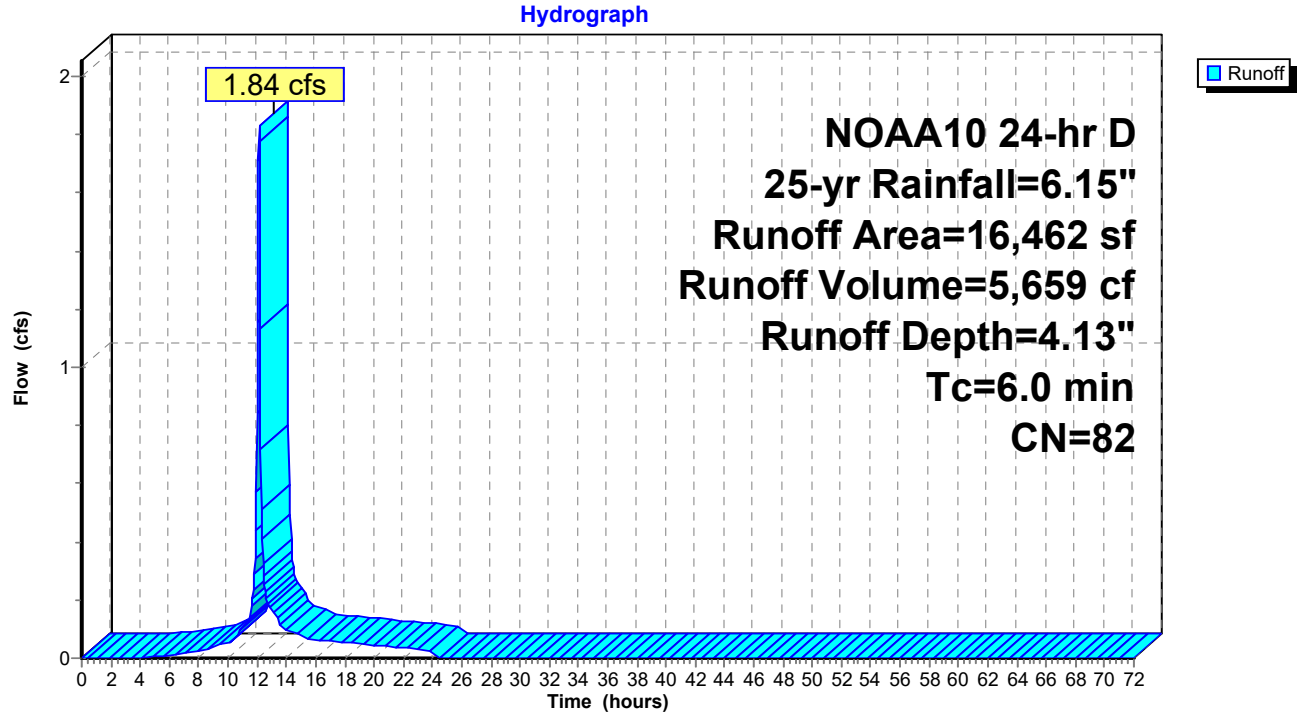
Runoff = 1.84 cfs @ 12.13 hrs, Volume= 5,659 cf, Depth= 4.13"
Routed to Pond 15P : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
7,656	98	Roofs, HSG D
8,806	69	50-75% Grass cover, Fair, HSG B
16,462	82	Weighted Average
8,806		53.49% Pervious Area
7,656		46.51% Impervious Area

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

Subcatchment 16S: PDA-43



Summary for Subcatchment 17S: PDA-41

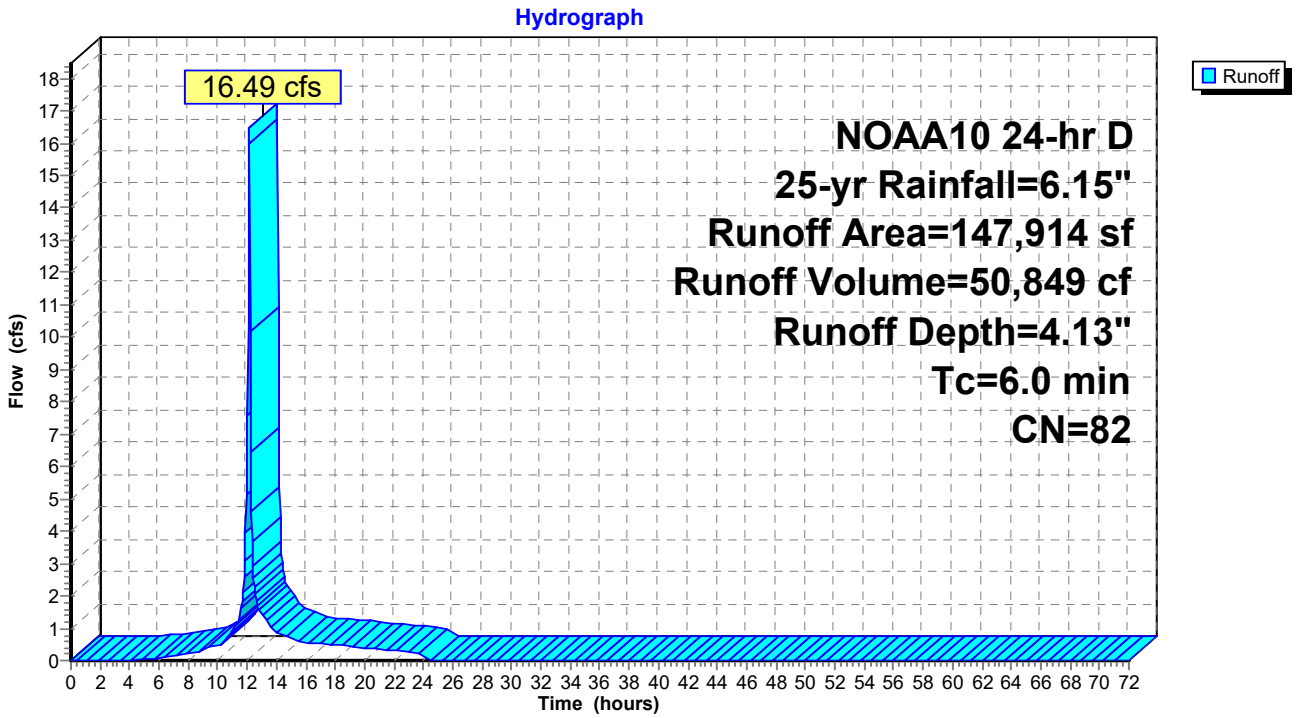
Runoff = 16.49 cfs @ 12.13 hrs, Volume= 50,849 cf, Depth= 4.13"
Routed to Pond 18P : POND 4A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
58,419	98	Paved parking, HSG D
60,483	69	50-75% Grass cover, Fair, HSG B
29,012	79	Woods, Fair, HSG D
147,914	82	Weighted Average
89,495		60.50% Pervious Area
58,419		39.50% Impervious Area

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

Subcatchment 17S: PDA-41



Summary for Subcatchment 18S: PDA-44

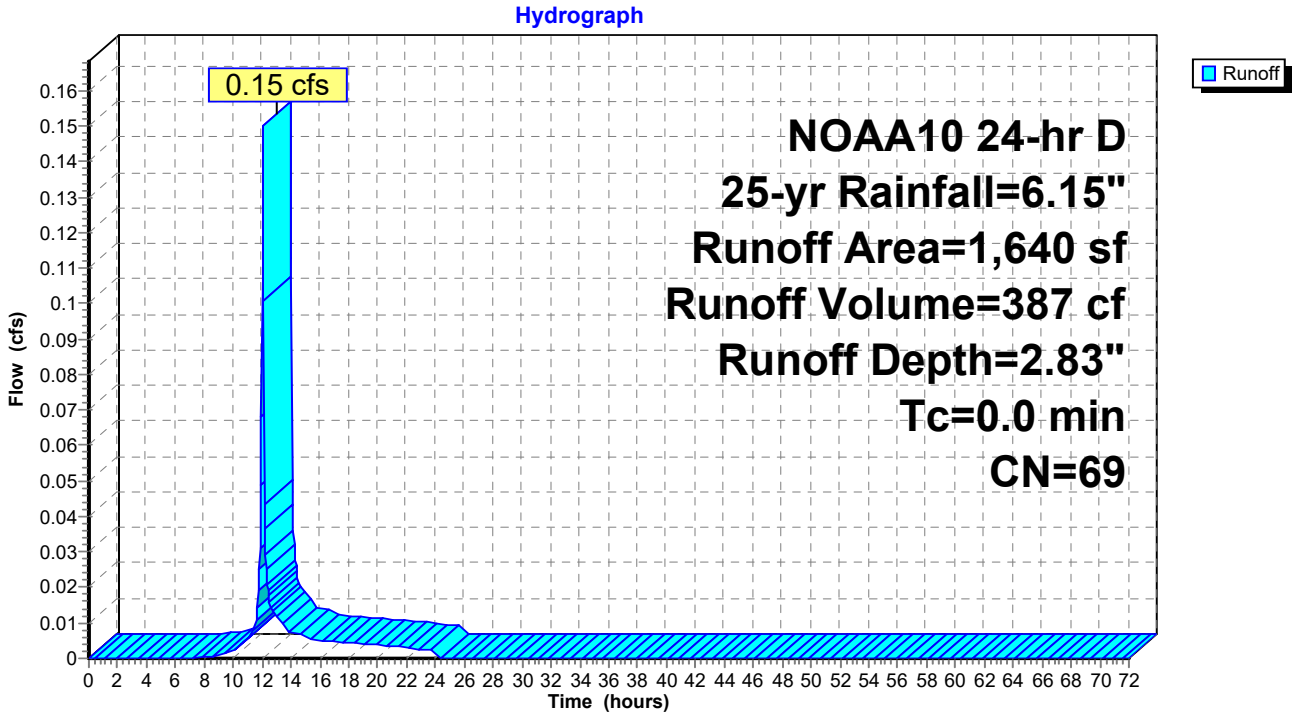
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.15 cfs @ 12.05 hrs, Volume= 387 cf, Depth= 2.83"
Routed to Pond 19P : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
1,640	69	50-75% Grass cover, Fair, HSG B
1,640		100.00% Pervious Area

Subcatchment 18S: PDA-44



Summary for Subcatchment 19S: PDA-11

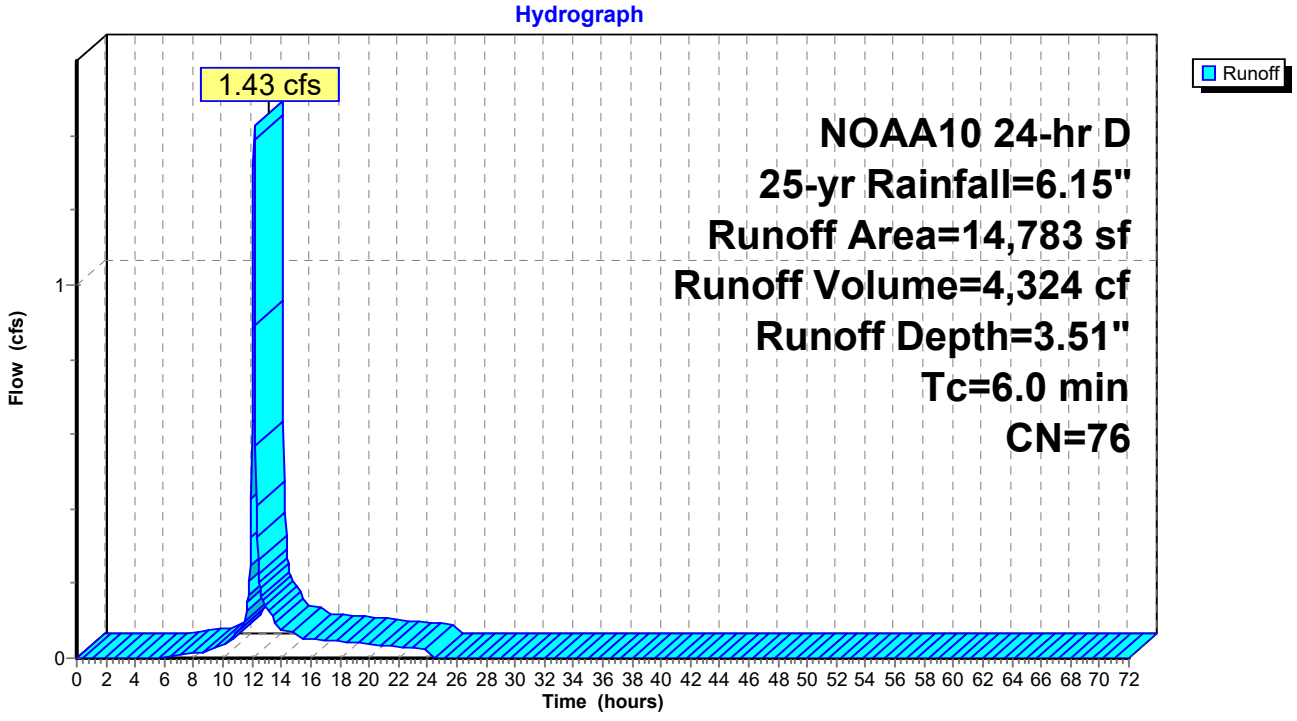
Runoff = 1.43 cfs @ 12.13 hrs, Volume= 4,324 cf, Depth= 3.51"
Routed to Pond 14P : POND 1A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
3,811	98	Roofs, HSG D
10,972	69	50-75% Grass cover, Fair, HSG B
14,783	76	Weighted Average
10,972		74.22% Pervious Area
3,811		25.78% Impervious Area

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

Subcatchment 19S: PDA-11



Summary for Subcatchment 20S: PDA-13

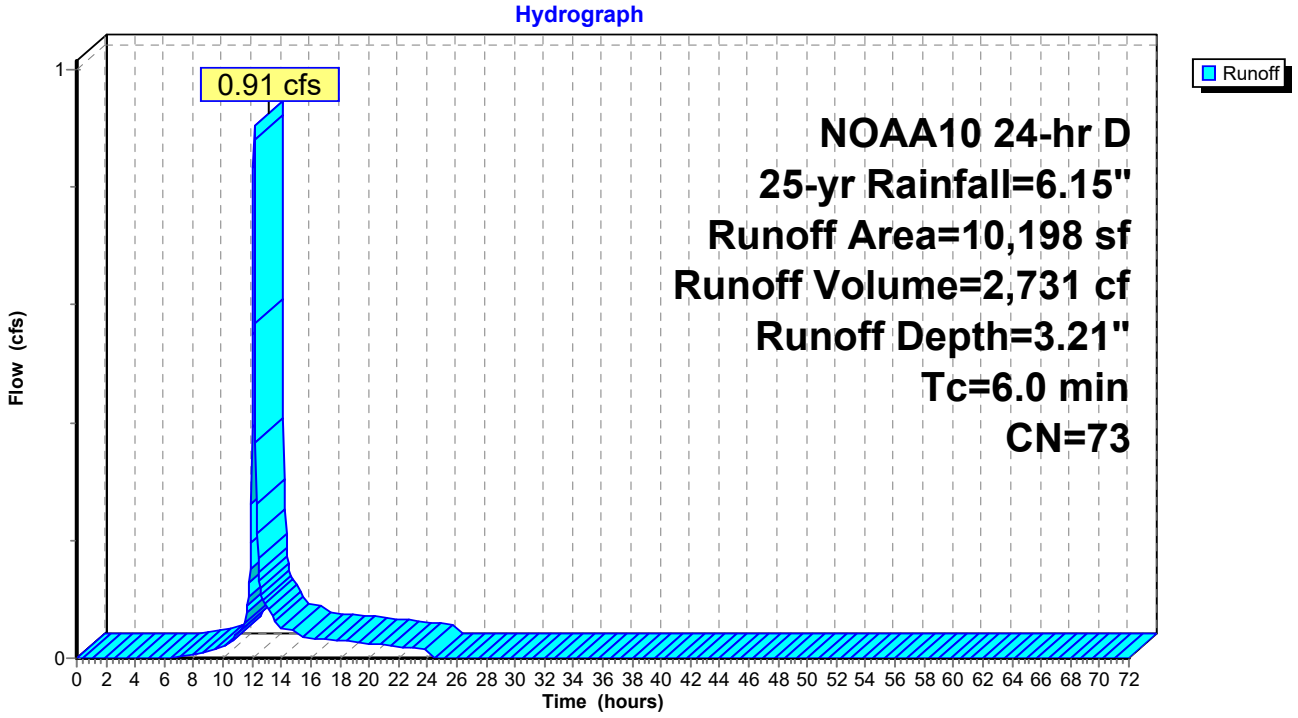
Runoff = 0.91 cfs @ 12.13 hrs, Volume= 2,731 cf, Depth= 3.21"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
8,701	69	50-75% Grass cover, Fair, HSG B
1,497	98	Paved parking, HSG D
10,198	73	Weighted Average
8,701		85.32% Pervious Area
1,497		14.68% Impervious Area

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

Subcatchment 20S: PDA-13



Summary for Subcatchment 23S: PDA-21

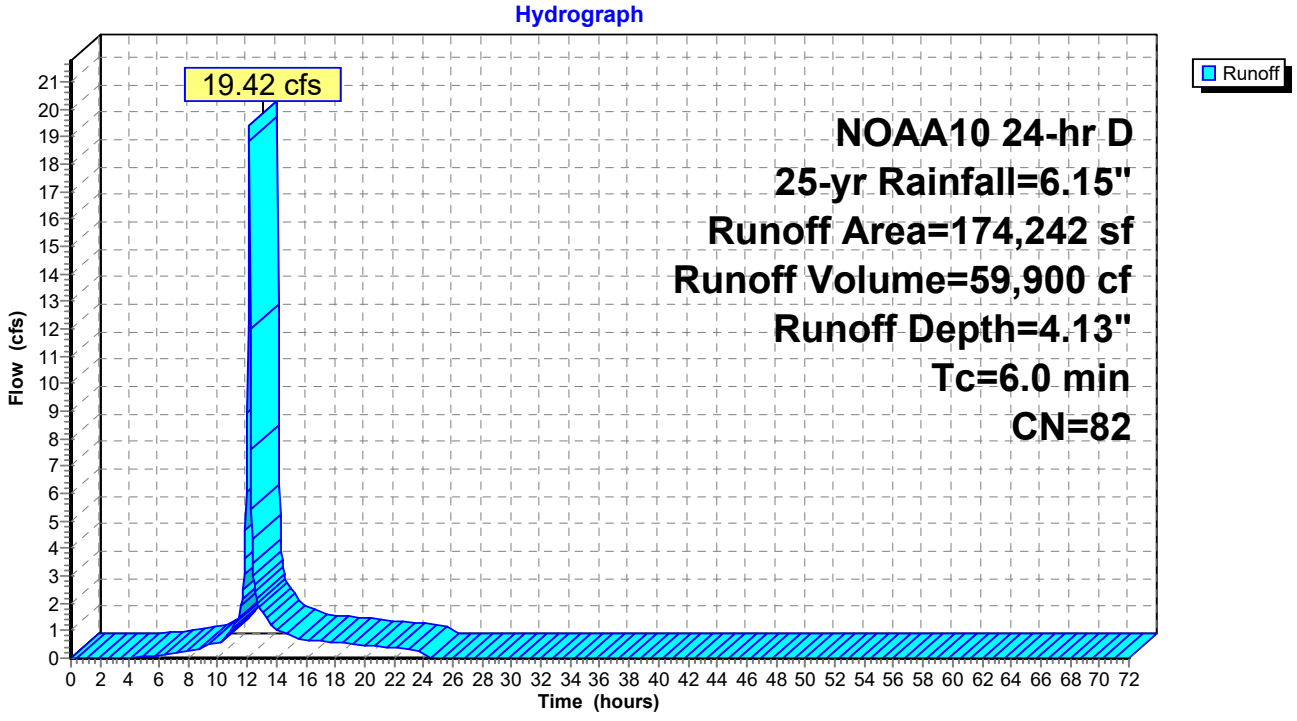
Runoff = 19.42 cfs @ 12.13 hrs, Volume= 59,900 cf, Depth= 4.13"
Routed to Pond 13P : POND 2A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
78,688	98	Paved parking, HSG D
95,554	69	50-75% Grass cover, Fair, HSG B
174,242	82	Weighted Average
95,554		54.84% Pervious Area
78,688		45.16% Impervious Area

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

Subcatchment 23S: PDA-21



Summary for Subcatchment 24S: PDA23

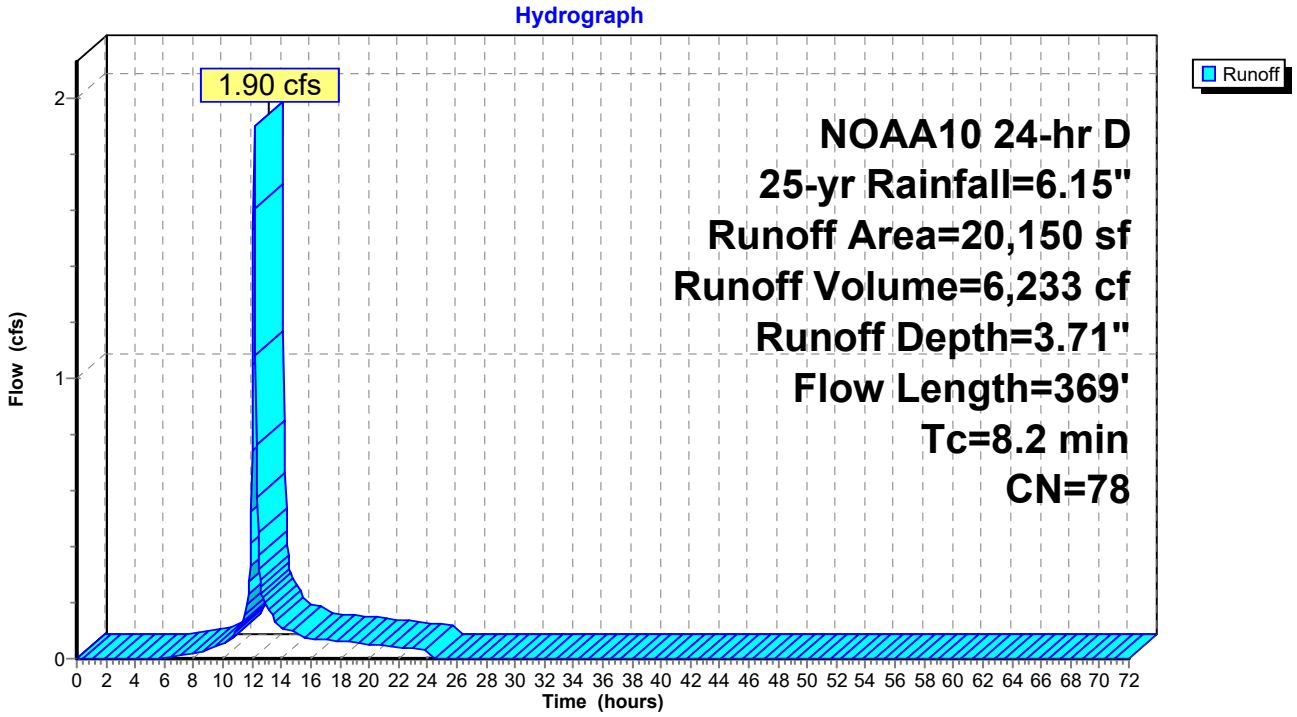
Runoff = 1.90 cfs @ 12.15 hrs, Volume= 6,233 cf, Depth= 3.71"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 25-yr Rainfall=6.15"

Area (sf)	CN	Description
4,687	60	Woods, Fair, HSG B
15,463	83	Woods, Poor, HSG D
20,150	78	Weighted Average
20,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	14	0.0357	0.07		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
4.8	355	0.0620	1.24		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
8.2	369	Total			

Subcatchment 24S: PDA23



Summary for Pond 13P: POND 2A

Inflow Area = 174,242 sf, 45.16% Impervious, Inflow Depth = 4.13" for 25-yr event
Inflow = 19.42 cfs @ 12.13 hrs, Volume= 59,900 cf
Outflow = 1.18 cfs @ 13.58 hrs, Volume= 54,122 cf, Atten= 94%, Lag= 86.9 min
Primary = 1.18 cfs @ 13.58 hrs, Volume= 54,122 cf
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 263.93' @ 13.58 hrs Surf.Area= 14,565 sf Storage= 32,636 cf

Plug-Flow detention time= 987.2 min calculated for 54,122 cf (90% of inflow)
Center-of-Mass det. time= 936.2 min (1,765.1 - 829.0)

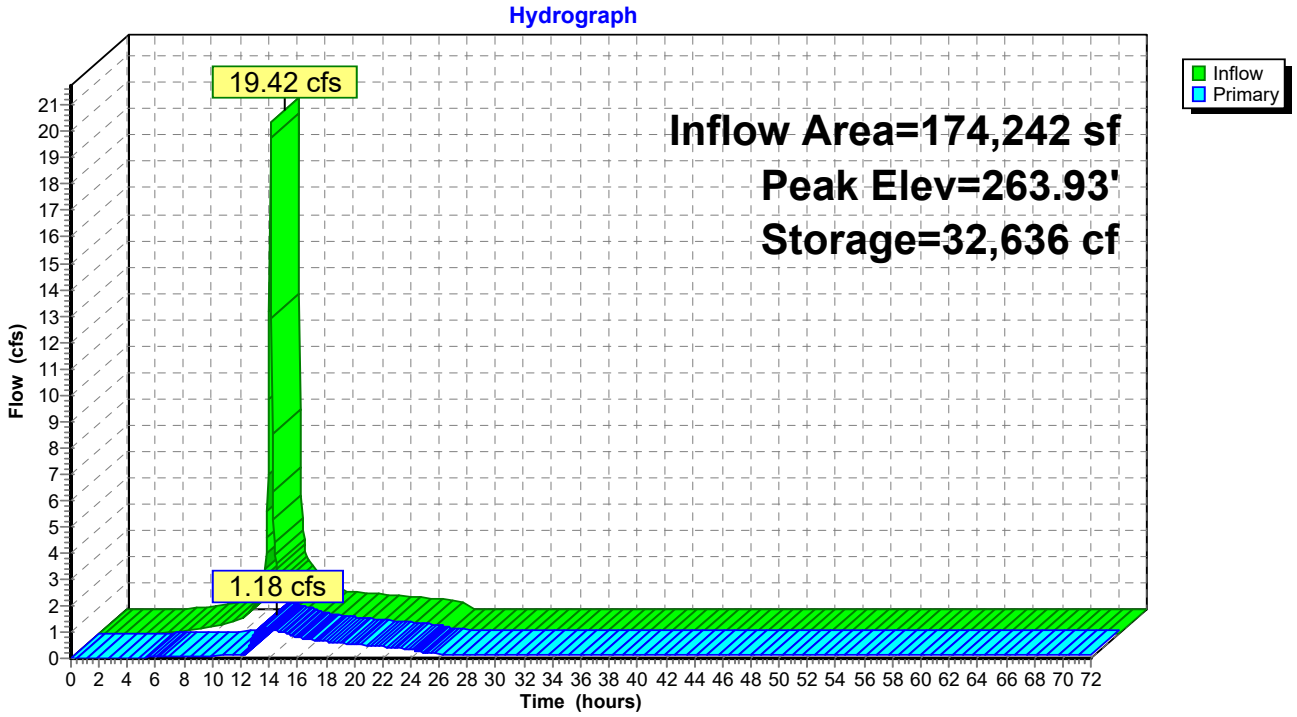
Volume	Invert	Avail.Storage	Storage Description
#1	261.00'	49,547 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
261.00	7,809	0	0
262.00	9,940	8,875	8,875
263.00	12,454	11,197	20,072
264.00	14,724	13,589	33,661
265.00	17,049	15,887	49,547

Device	Routing	Invert	Outlet Devices
#1	Primary	258.60'	**15.0" Round Culvert** L= 32.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 258.60' / 258.25' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	264.50'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	263.60'	**20.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	261.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=1.18 cfs @ 13.58 hrs HW=263.93' (Free Discharge)
└**1=Culvert** (Passes 1.18 cfs of 12.82 cfs potential flow)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  ├**3=Orifice/Grate** (Orifice Controls 1.01 cfs @ 1.84 fps)
  └**4=Exfiltration** (Exfiltration Controls 0.17 cfs)

Pond 13P: POND 2A



Summary for Pond 14P: POND 1A

Inflow Area = 14,783 sf, 25.78% Impervious, Inflow Depth = 3.51" for 25-yr event
Inflow = 1.43 cfs @ 12.13 hrs, Volume= 4,324 cf
Outflow = 0.56 cfs @ 12.26 hrs, Volume= 4,324 cf, Atten= 61%, Lag= 7.8 min
Discarded = 0.01 cfs @ 12.26 hrs, Volume= 1,061 cf
Primary = 0.55 cfs @ 12.26 hrs, Volume= 3,263 cf
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 271.09' @ 12.26 hrs Surf.Area= 1,651 sf Storage= 1,359 cf

Plug-Flow detention time= 221.1 min calculated for 4,321 cf (100% of inflow)
Center-of-Mass det. time= 222.1 min (1,071.8 - 849.7)

Volume	Invert	Avail.Storage	Storage Description
#1	270.00'	3,233 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

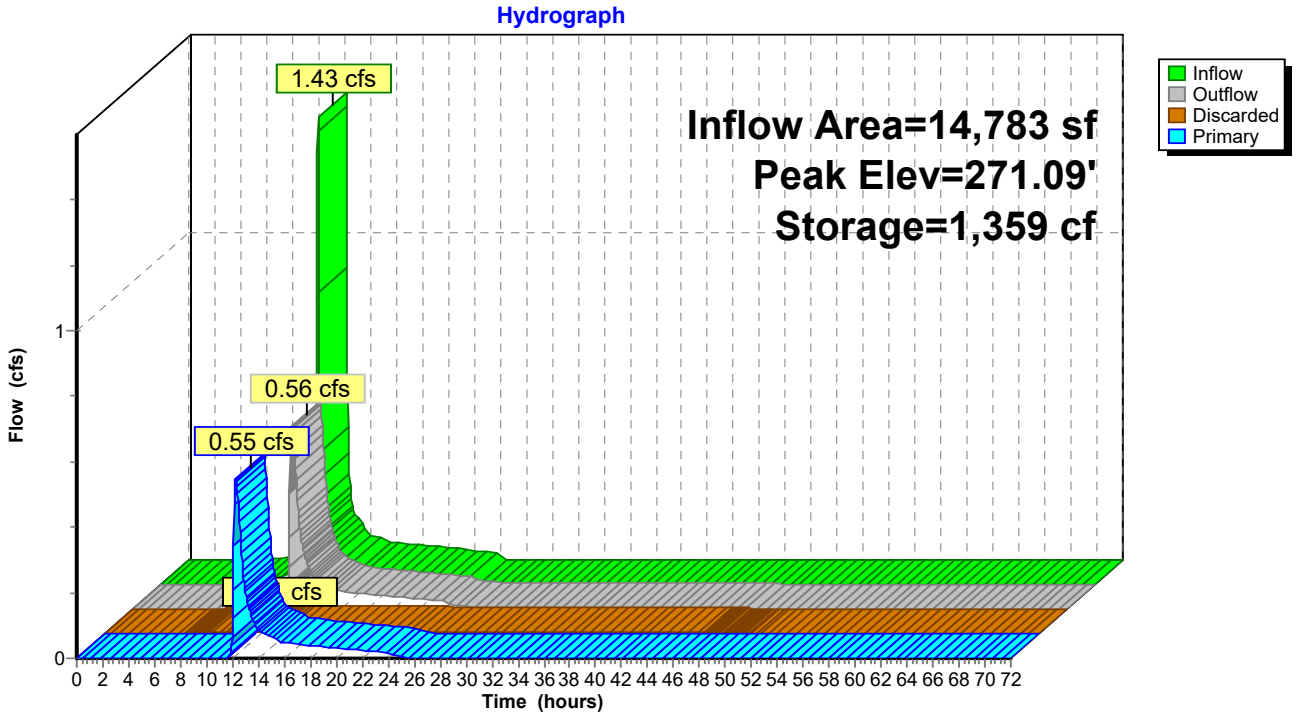
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
270.00	892	175.0	0	0	892
271.00	1,583	241.0	1,221	1,221	3,087
272.00	2,473	323.0	2,012	3,233	6,778

Device	Routing	Invert	Outlet Devices
#1	Primary	269.60'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 269.60' / 269.00' S= 0.0120 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	270.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	271.80'	**36.0" W x 24.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	270.00'	**0.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 255.00'

Discarded OutFlow Max=0.01 cfs @ 12.26 hrs HW=271.08' (Free Discharge)
└**4=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.55 cfs @ 12.26 hrs HW=271.08' (Free Discharge)
└**1=Culvert** (Passes 0.55 cfs of 5.47 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.55 cfs @ 2.78 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 14P: POND 1A



Summary for Pond 15P: RG-1

Inflow Area = 16,462 sf, 46.51% Impervious, Inflow Depth = 4.13" for 25-yr event
Inflow = 1.84 cfs @ 12.13 hrs, Volume= 5,659 cf
Outflow = 1.35 cfs @ 12.19 hrs, Volume= 5,659 cf, Atten= 26%, Lag= 3.7 min
Primary = 1.35 cfs @ 12.19 hrs, Volume= 5,659 cf
Routed to Pond 18P : POND 4A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 274.90' @ 12.19 hrs Surf.Area= 1,723 sf Storage= 1,233 cf

Plug-Flow detention time= 141.4 min calculated for 5,655 cf (100% of inflow)
Center-of-Mass det. time= 141.9 min (970.8 - 829.0)

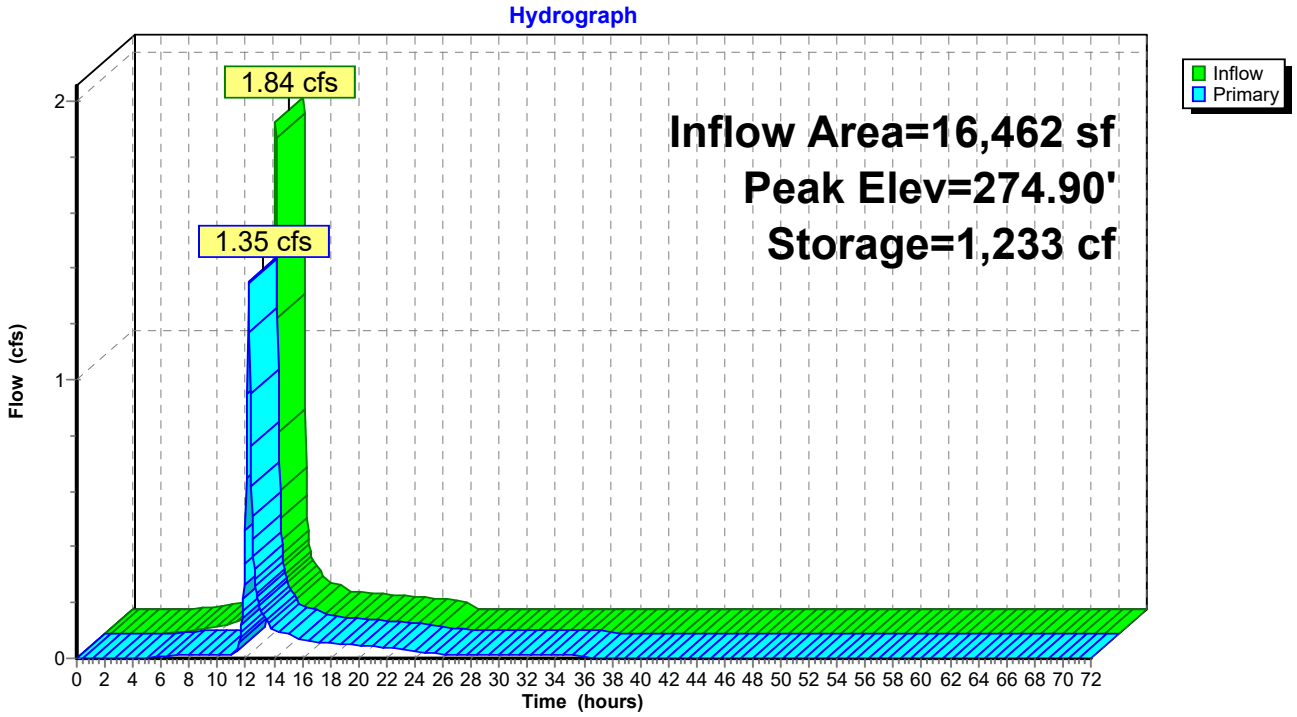
Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	3,629 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	1,058	203.0	0	0	1,058
275.00	1,811	247.0	1,418	1,418	2,650
276.00	2,637	281.0	2,211	3,629	4,102

Device	Routing	Invert	Outlet Devices
#1	Primary	271.60'	**15.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 271.60' / 270.60' S= 0.0118 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	274.50'	**20.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=1.33 cfs @ 12.19 hrs HW=274.89' (Free Discharge)
└**1=Culvert** (Passes 1.33 cfs of 9.62 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 1.31 cfs @ 2.01 fps)
└**3=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond 15P: RG-1


Hydrograph
1.84 cfs
1.35 cfs
Inflow Area=16,462 sf
Peak Elev=274.90'
Storage=1,233 cf
Inflow
Primary
Flow (cfs)
0
1
2
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond 18P: POND 4A

Inflow Area = 166,016 sf, 39.80% Impervious, Inflow Depth = 4.11" for 25-yr event
Inflow = 17.67 cfs @ 12.13 hrs, Volume= 56,896 cf
Outflow = 1.29 cfs @ 13.48 hrs, Volume= 55,175 cf, Atten= 93%, Lag= 80.8 min
Discarded = 0.23 cfs @ 13.48 hrs, Volume= 30,553 cf
Primary = 1.06 cfs @ 13.48 hrs, Volume= 24,622 cf
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 261.53' @ 13.48 hrs Surf.Area= 13,973 sf Storage= 28,402 cf

Plug-Flow detention time= 765.1 min calculated for 55,137 cf (97% of inflow)
Center-of-Mass det. time= 744.0 min (1,589.7 - 845.7)

Volume	Invert	Avail.Storage	Storage Description
#1	259.00'	51,513 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

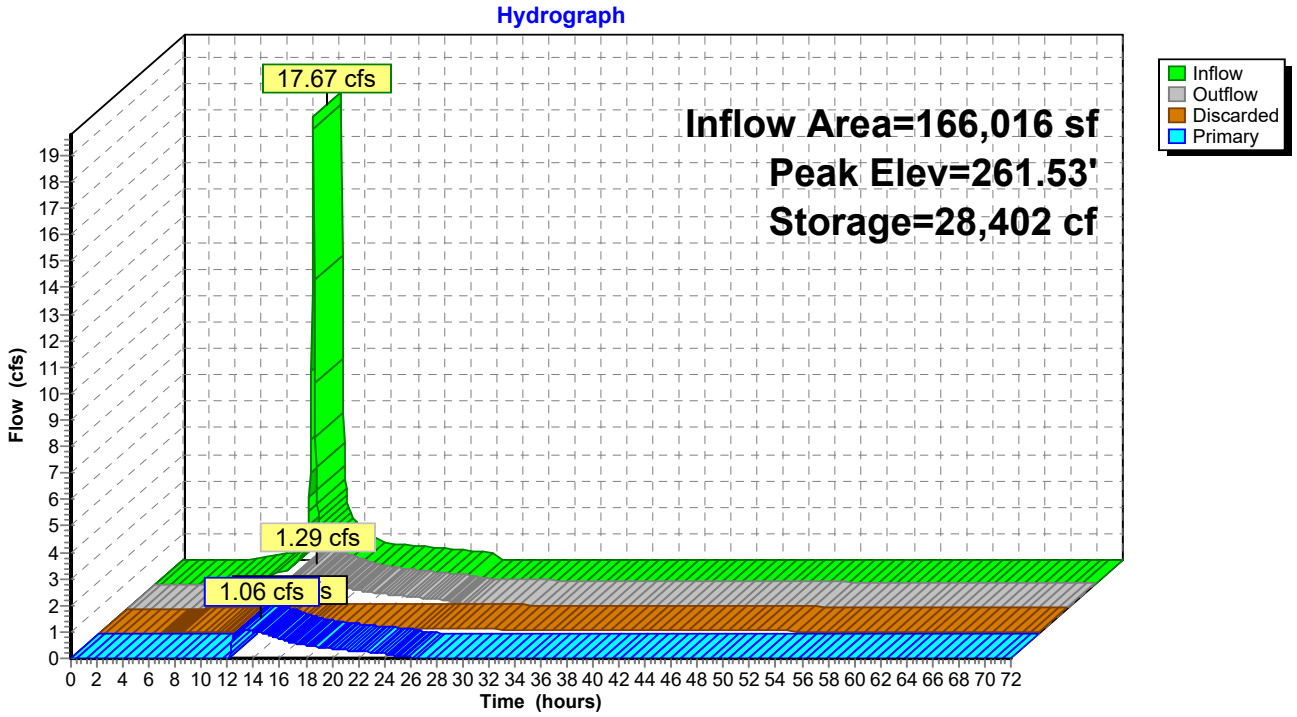
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
259.00	8,546	0	0
260.00	10,596	9,571	9,571
261.00	12,850	11,723	21,294
262.00	14,969	13,910	35,204
263.00	17,649	16,309	51,513

Device	Routing	Invert	Outlet Devices
#1	Primary	255.40'	**15.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 255.40' / 255.00' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	260.80'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	262.00'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	259.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 258.00'

Discarded OutFlow Max=0.23 cfs @ 13.48 hrs HW=261.53' (Free Discharge)
└**4=Exfiltration** (Controls 0.23 cfs)

Primary OutFlow Max=1.06 cfs @ 13.48 hrs HW=261.53' (Free Discharge)
└**1=Culvert** (Passes 1.06 cfs of 13.86 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 1.06 cfs @ 3.03 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 18P: POND 4A



Summary for Pond 19P: RG-2

Inflow Area = 1,640 sf, 0.00% Impervious, Inflow Depth = 2.83" for 25-yr event
Inflow = 0.15 cfs @ 12.05 hrs, Volume= 387 cf
Outflow = 0.01 cfs @ 15.03 hrs, Volume= 387 cf, Atten= 96%, Lag= 179.1 min
Primary = 0.01 cfs @ 15.03 hrs, Volume= 387 cf
Routed to Pond 18P : POND 4A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 274.39' @ 15.03 hrs Surf.Area= 489 sf Storage= 170 cf

Plug-Flow detention time= 342.5 min calculated for 387 cf (100% of inflow)
Center-of-Mass det. time= 342.6 min (1,209.3 - 866.7)

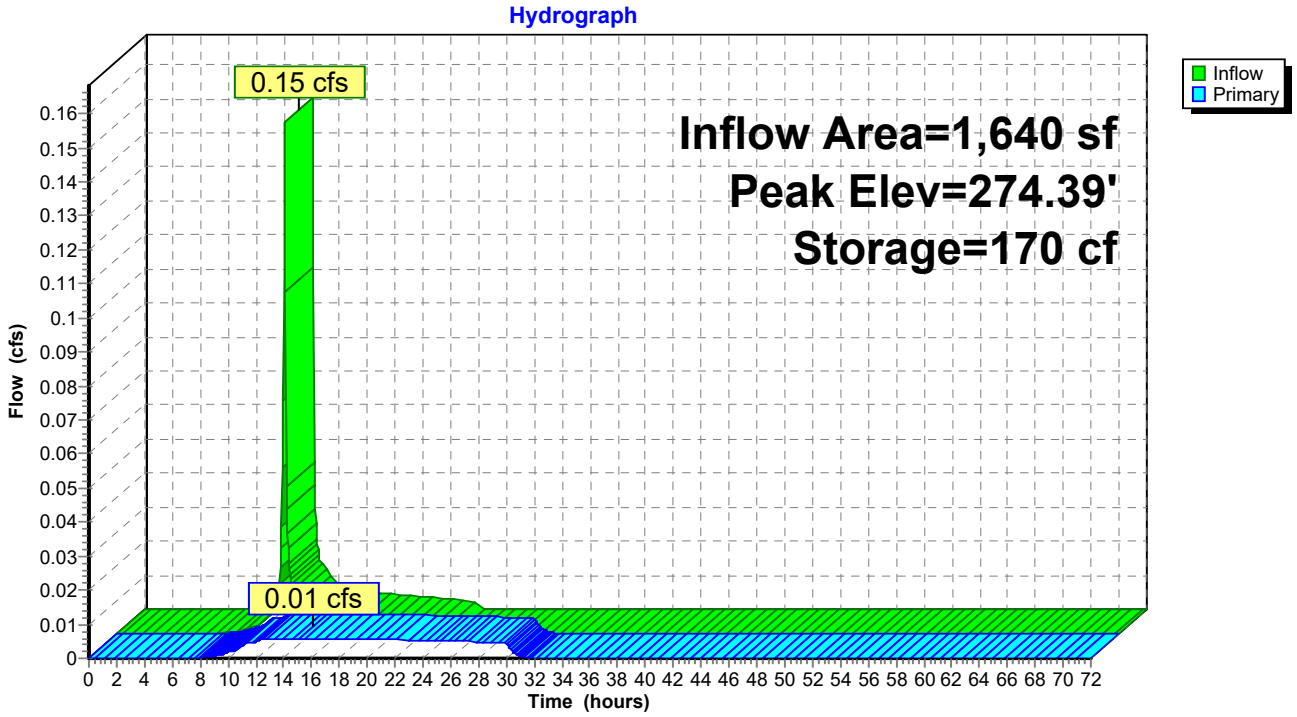
Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	1,334 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	395	78.0	0	0	395
275.00	658	97.0	521	521	674
276.00	979	116.0	813	1,334	1,013

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	**15.0" Round Culvert** L= 58.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.70' S= 0.0138 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	274.50'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.01 cfs @ 15.03 hrs HW=274.39' (Free Discharge)
└**1=Culvert** (Passes 0.01 cfs of 6.63 cfs potential flow)
└**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Pond 19P: RG-2

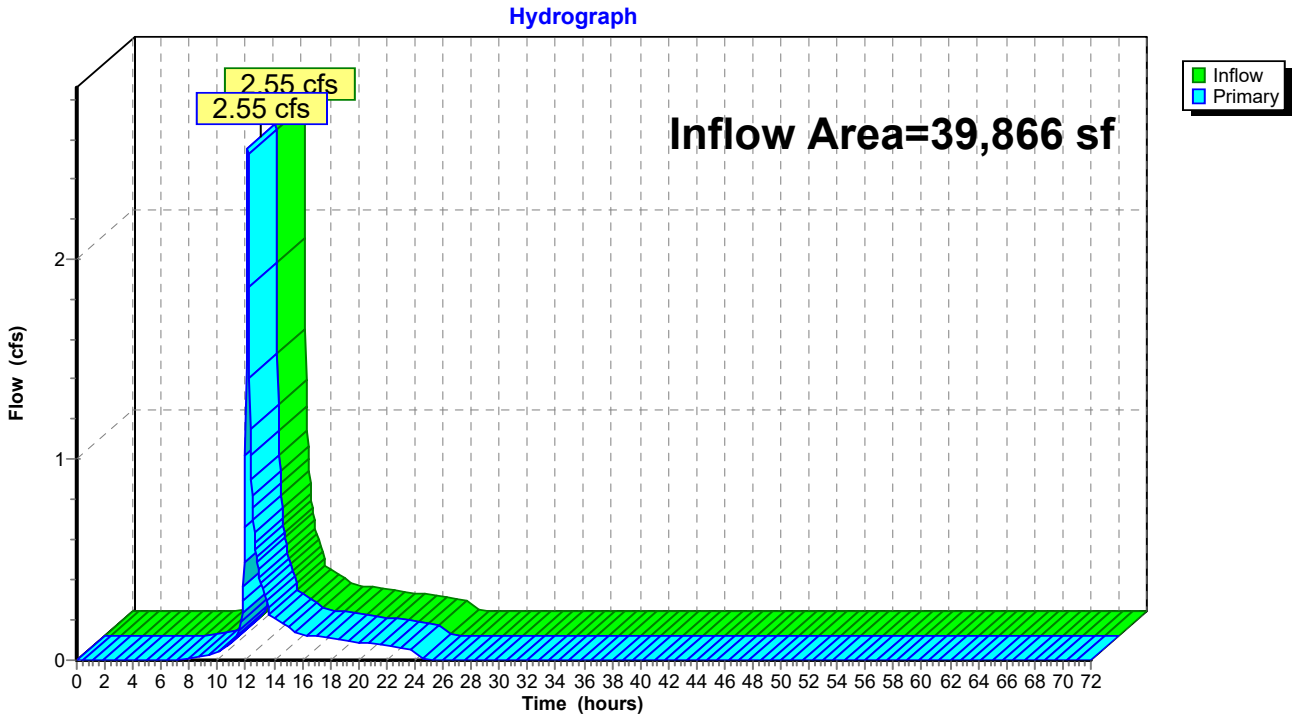

Hydrograph
Inflow
Primary
0.15 cfs
0.01 cfs
Inflow Area=1,640 sf
Peak Elev=274.39'
Storage=170 cf
Flow (cfs)
0 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.1 0.11 0.12 0.13 0.14 0.15 0.16
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72

Summary for Link 10L: DP-1 (EXISTING 18" RCP)

Inflow Area = 39,866 sf, 14.88% Impervious, Inflow Depth = 2.90" for 25-yr event
Inflow = 2.55 cfs @ 12.14 hrs, Volume= 9,621 cf
Primary = 2.55 cfs @ 12.14 hrs, Volume= 9,621 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 10L: DP-1 (EXISTING 18" RCP)

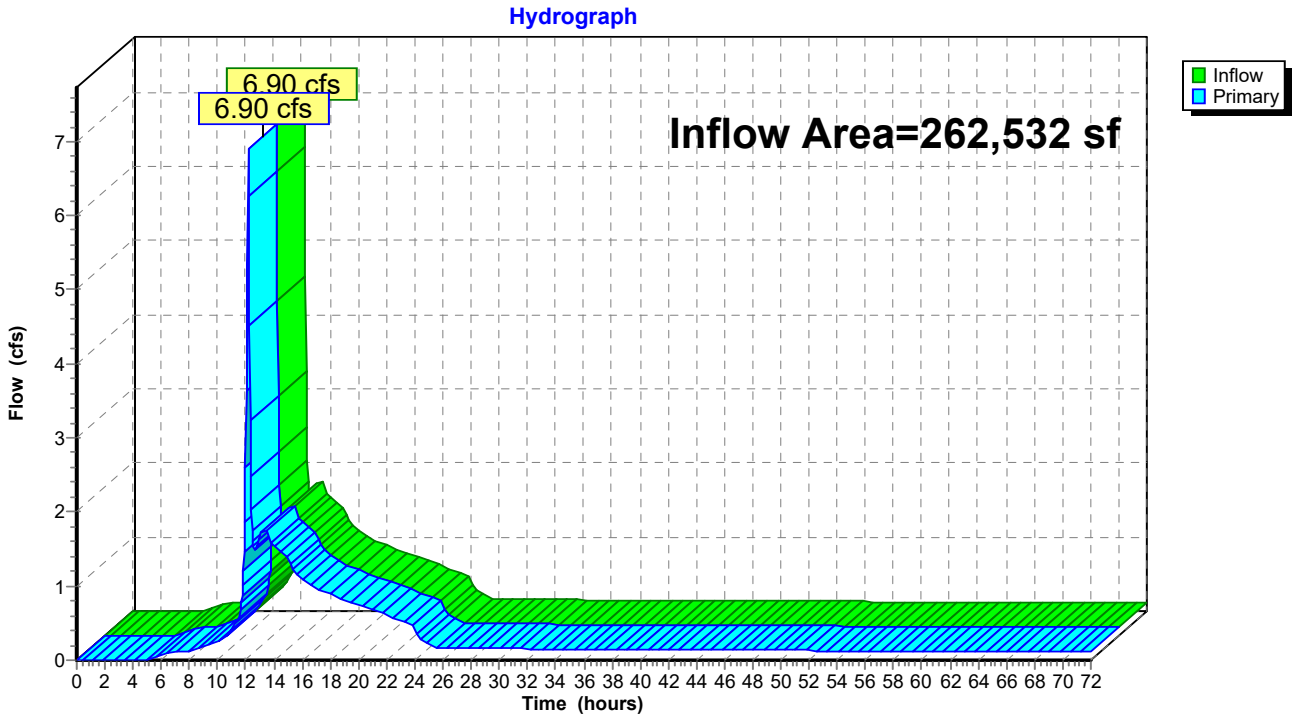


Summary for Link 11L: DP-2 (EXISTING WETLANDS)

Inflow Area = 262,532 sf, 29.97% Impervious, Inflow Depth > 3.52" for 25-yr event
Inflow = 6.90 cfs @ 12.16 hrs, Volume= 76,961 cf
Primary = 6.90 cfs @ 12.16 hrs, Volume= 76,961 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 11L: DP-2 (EXISTING WETLANDS)

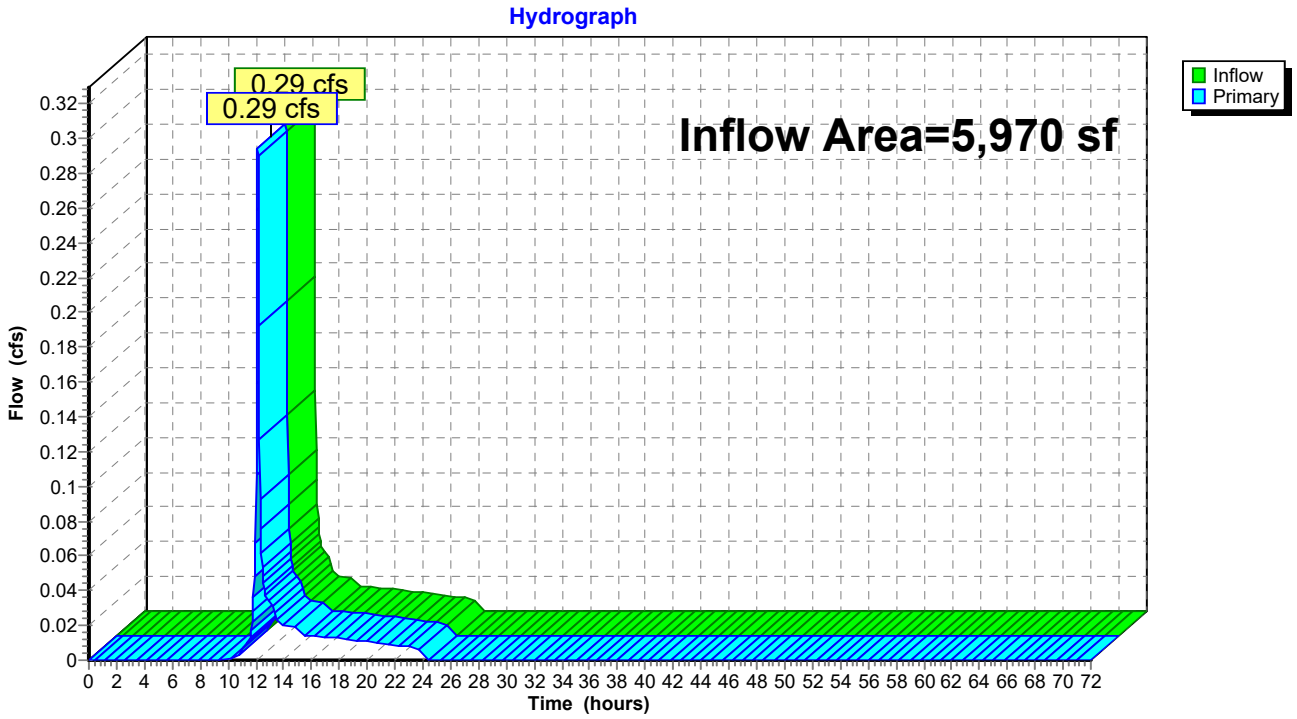


Summary for Link 12L: DP-3 (NORTHERN PROPERTY LINE)

Inflow Area = 5,970 sf, 0.00% Impervious, Inflow Depth = 1.85" for 25-yr event
Inflow = 0.29 cfs @ 12.14 hrs, Volume= 921 cf
Primary = 0.29 cfs @ 12.14 hrs, Volume= 921 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 12L: DP-3 (NORTHERN PROPERTY LINE)

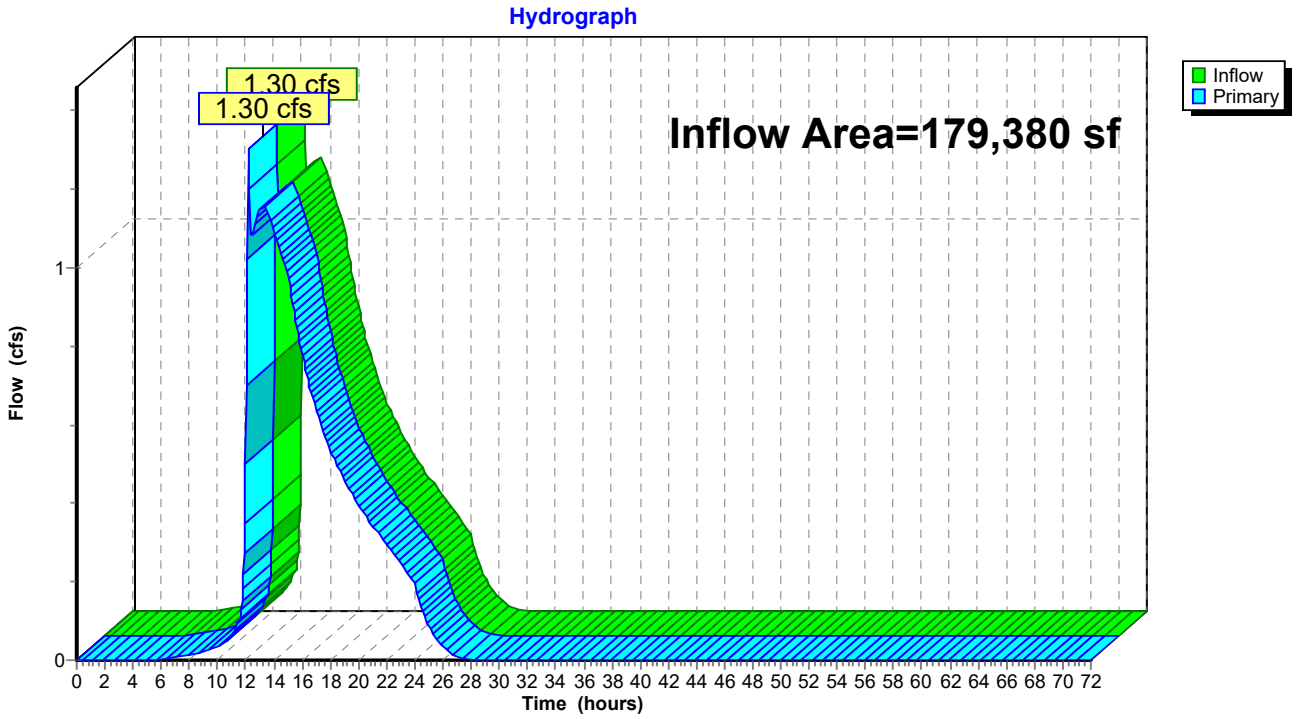


Summary for Link 13L: DP-4 (SOUTHERN PROPERTY LINE)

Inflow Area = 179,380 sf, 36.84% Impervious, Inflow Depth = 1.92" for 25-yr event
Inflow = 1.30 cfs @ 12.17 hrs, Volume= 28,755 cf
Primary = 1.30 cfs @ 12.17 hrs, Volume= 28,755 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 13L: DP-4 (SOUTHERN PROPERTY LINE)



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment4S: PDA-12 Runoff Area=14,885 sf 4.20% Impervious Runoff Depth=3.55"
Tc=6.0 min CN=70 Runoff=1.46 cfs 4,406 cf

Subcatchment7S: PDA-22 Runoff Area=68,140 sf 0.00% Impervious Runoff Depth=3.55"
Flow Length=330' Tc=9.1 min CN=70 Runoff=5.91 cfs 20,170 cf

Subcatchment9S: PDA-42 Runoff Area=13,364 sf 0.00% Impervious Runoff Depth=4.40"
Flow Length=190' Tc=8.1 min CN=78 Runoff=1.49 cfs 4,903 cf

Subcatchment14S: PDA-31 Runoff Area=5,970 sf 0.00% Impervious Runoff Depth=2.36"
Tc=6.0 min CN=58 Runoff=0.38 cfs 1,172 cf

Subcatchment16S: PDA-43 Runoff Area=16,462 sf 46.51% Impervious Runoff Depth=4.84"
Tc=6.0 min CN=82 Runoff=2.14 cfs 6,641 cf

Subcatchment17S: PDA-41 Runoff Area=147,914 sf 39.50% Impervious Runoff Depth=4.84"
Tc=6.0 min CN=82 Runoff=19.20 cfs 59,674 cf

Subcatchment18S: PDA-44 Runoff Area=1,640 sf 0.00% Impervious Runoff Depth=3.45"
Tc=0.0 min CN=69 Runoff=0.18 cfs 471 cf

Subcatchment19S: PDA-11 Runoff Area=14,783 sf 25.78% Impervious Runoff Depth=4.19"
Tc=6.0 min CN=76 Runoff=1.69 cfs 5,157 cf

Subcatchment20S: PDA-13 Runoff Area=10,198 sf 14.68% Impervious Runoff Depth=3.87"
Tc=6.0 min CN=73 Runoff=1.09 cfs 3,286 cf

Subcatchment23S: PDA-21 Runoff Area=174,242 sf 45.16% Impervious Runoff Depth=4.84"
Tc=6.0 min CN=82 Runoff=22.62 cfs 70,296 cf

Subcatchment24S: PDA23 Runoff Area=20,150 sf 0.00% Impervious Runoff Depth=4.40"
Flow Length=369' Tc=8.2 min CN=78 Runoff=2.24 cfs 7,392 cf

Pond 13P: POND 2A Peak Elev=264.09' Storage=34,992 cf Inflow=22.62 cfs 70,296 cf
Outflow=2.00 cfs 64,449 cf

Pond 14P: POND 1A Peak Elev=271.21' Storage=1,571 cf Inflow=1.69 cfs 5,157 cf
Discarded=0.01 cfs 1,086 cf Primary=0.64 cfs 4,071 cf Outflow=0.65 cfs 5,157 cf

Pond 15P: RG-1 Peak Elev=274.94' Storage=1,315 cf Inflow=2.14 cfs 6,641 cf
Outflow=1.59 cfs 6,641 cf

Pond 18P: POND 4A Peak Elev=261.84' Storage=32,850 cf Inflow=20.61 cfs 66,787 cf
Discarded=0.25 cfs 31,409 cf Primary=1.41 cfs 33,575 cf Outflow=1.67 cfs 64,984 cf

Pond 19P: RG-2 Peak Elev=274.49' Storage=222 cf Inflow=0.18 cfs 471 cf
Outflow=0.01 cfs 471 cf

Link 10L: DP-1 (EXISTING 18" RCP) Inflow=3.09 cfs 11,763 cf
Primary=3.09 cfs 11,763 cf

Link 11L: DP-2 (EXISTING WETLANDS) Inflow=8.32 cfs 92,011 cf
Primary=8.32 cfs 92,011 cf

Link 12L: DP-3 (NORTHERN PROPERTY LINE) Inflow=0.38 cfs 1,172 cf
Primary=0.38 cfs 1,172 cf

Link 13L: DP-4 (SOUTHERN PROPERTY LINE) Inflow=2.12 cfs 38,478 cf
Primary=2.12 cfs 38,478 cf

Total Runoff Area = 487,748 sf Runoff Volume = 183,567 cf Average Runoff Depth = 4.52"
69.10% Pervious = 337,052 sf 30.90% Impervious = 150,696 sf

Summary for Subcatchment 4S: PDA-12

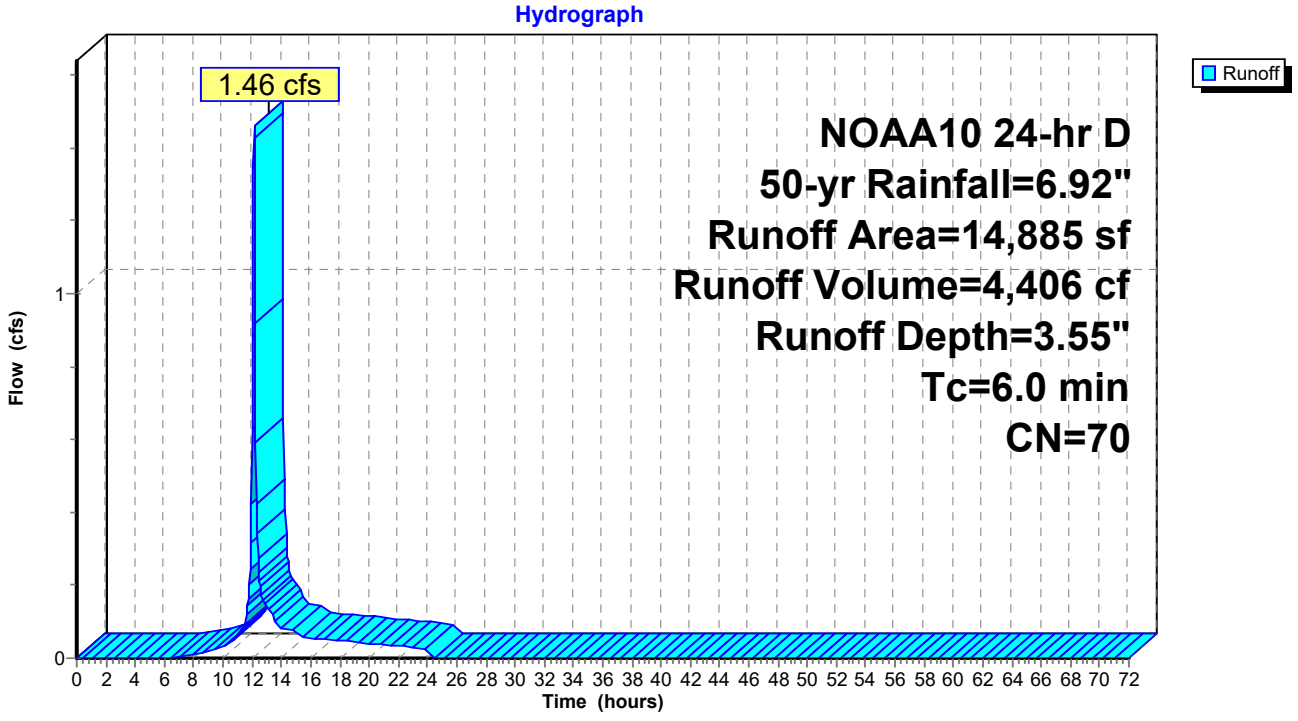
Runoff = 1.46 cfs @ 12.13 hrs, Volume= 4,406 cf, Depth= 3.55"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
14,260	69	50-75% Grass cover, Fair, HSG B
625	98	Paved parking, HSG D
14,885	70	Weighted Average
14,260		95.80% Pervious Area
625		4.20% Impervious Area

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

Subcatchment 4S: PDA-12



Summary for Subcatchment 7S: PDA-22

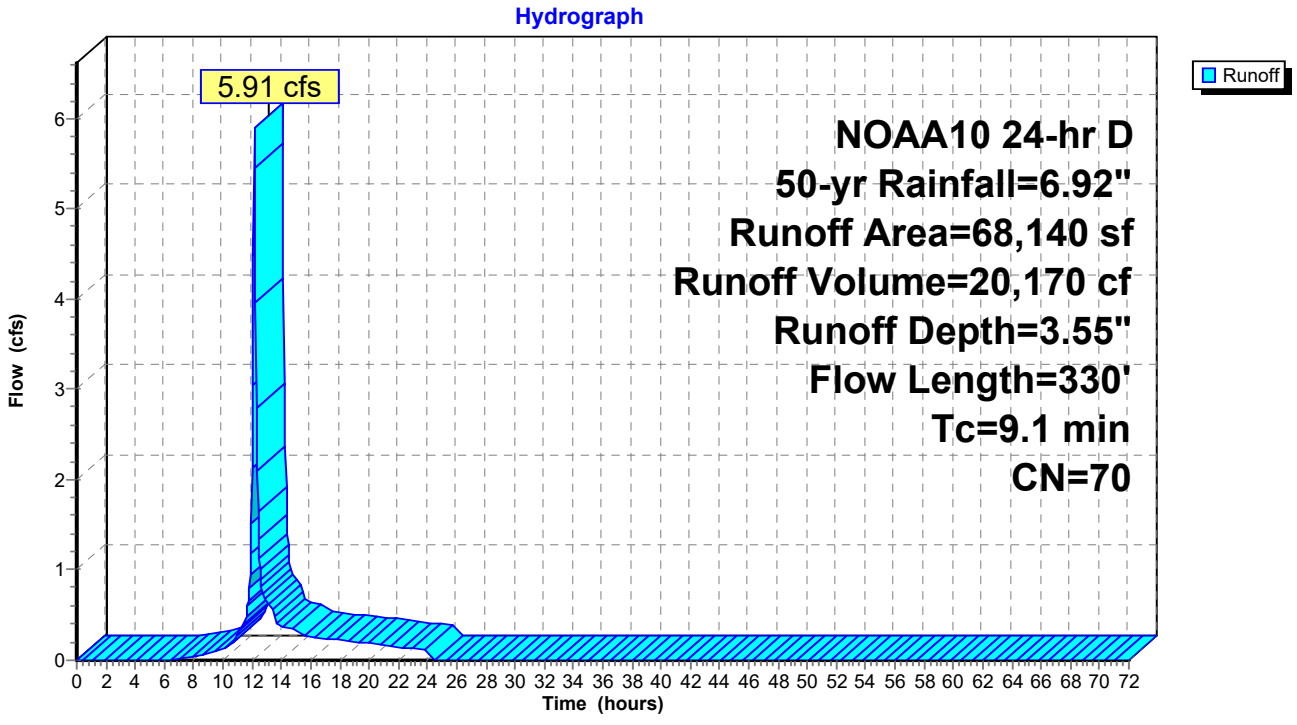
Runoff = 5.91 cfs @ 12.16 hrs, Volume= 20,170 cf, Depth= 3.55"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
33,890	60	Woods, Fair, HSG B
27,311	79	Woods, Fair, HSG D
6,939	84	50-75% Grass cover, Fair, HSG D
68,140	70	Weighted Average
68,140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	45	0.1500	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.46"
4.2	285	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.1	330	Total			

Subcatchment 7S: PDA-22



Summary for Subcatchment 9S: PDA-42

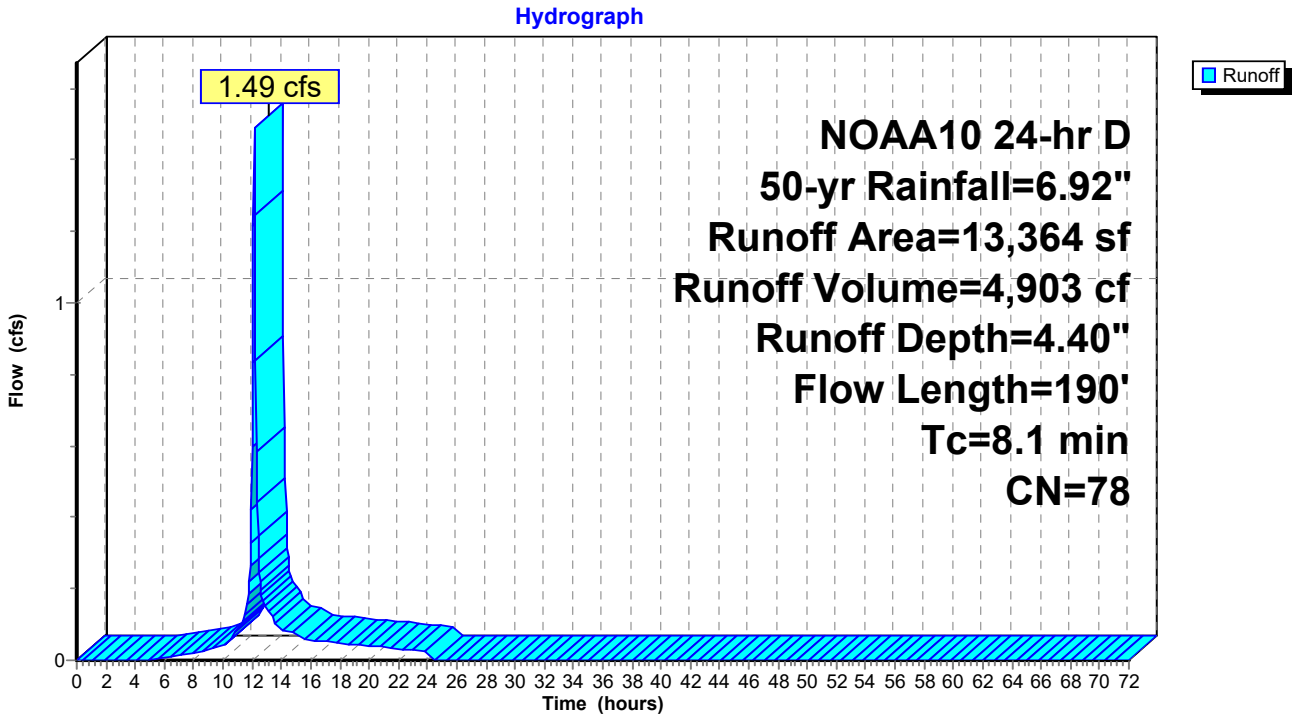
Runoff = 1.49 cfs @ 12.15 hrs, Volume= 4,903 cf, Depth= 4.40"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
2,571	69	50-75% Grass cover, Fair, HSG B
7,293	79	Woods, Fair, HSG D
3,500	84	50-75% Grass cover, Fair, HSG D
13,364	78	Weighted Average
13,364		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.0800	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.46"
1.3	140	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.1	190	Total			

Subcatchment 9S: PDA-42



Summary for Subcatchment 14S: PDA-31

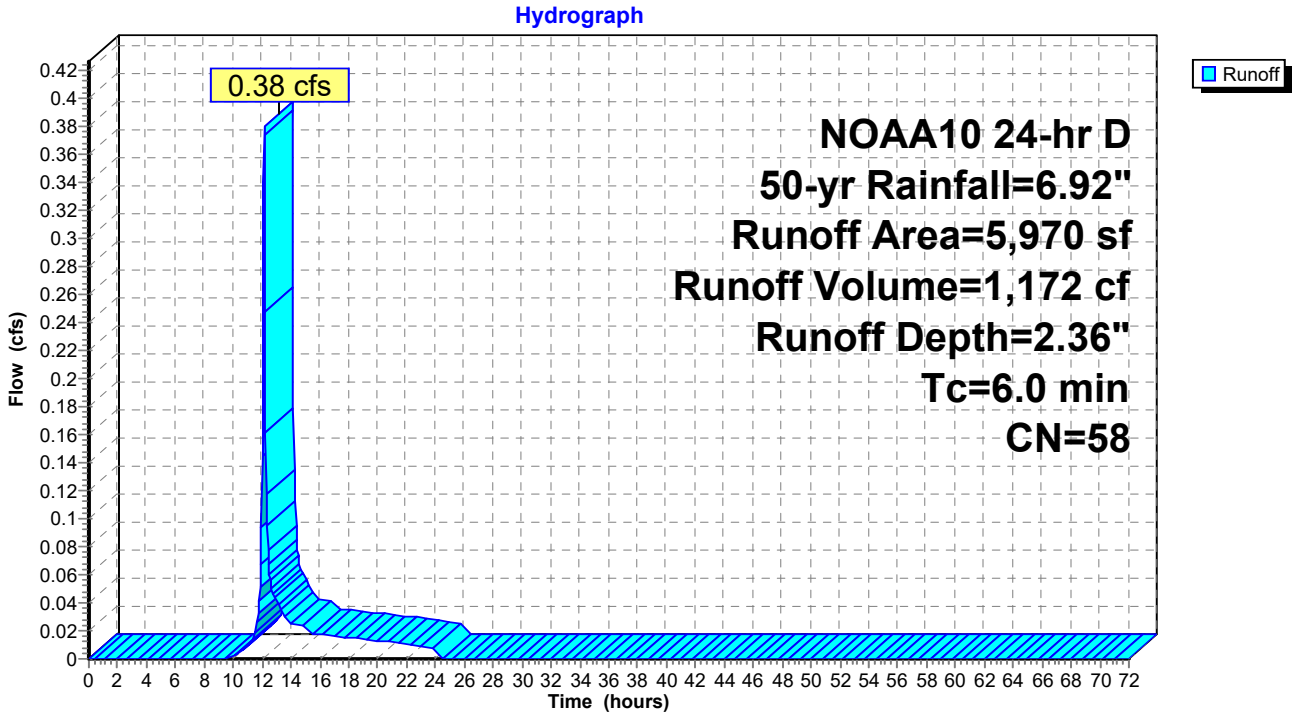
Runoff = 0.38 cfs @ 12.14 hrs, Volume= 1,172 cf, Depth= 2.36"
Routed to Link 12L : DP-3 (NORTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
5,970	58	Woods/grass comb., Good, HSG B
5,970		100.00% Pervious Area

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

Subcatchment 14S: PDA-31



Summary for Subcatchment 16S: PDA-43

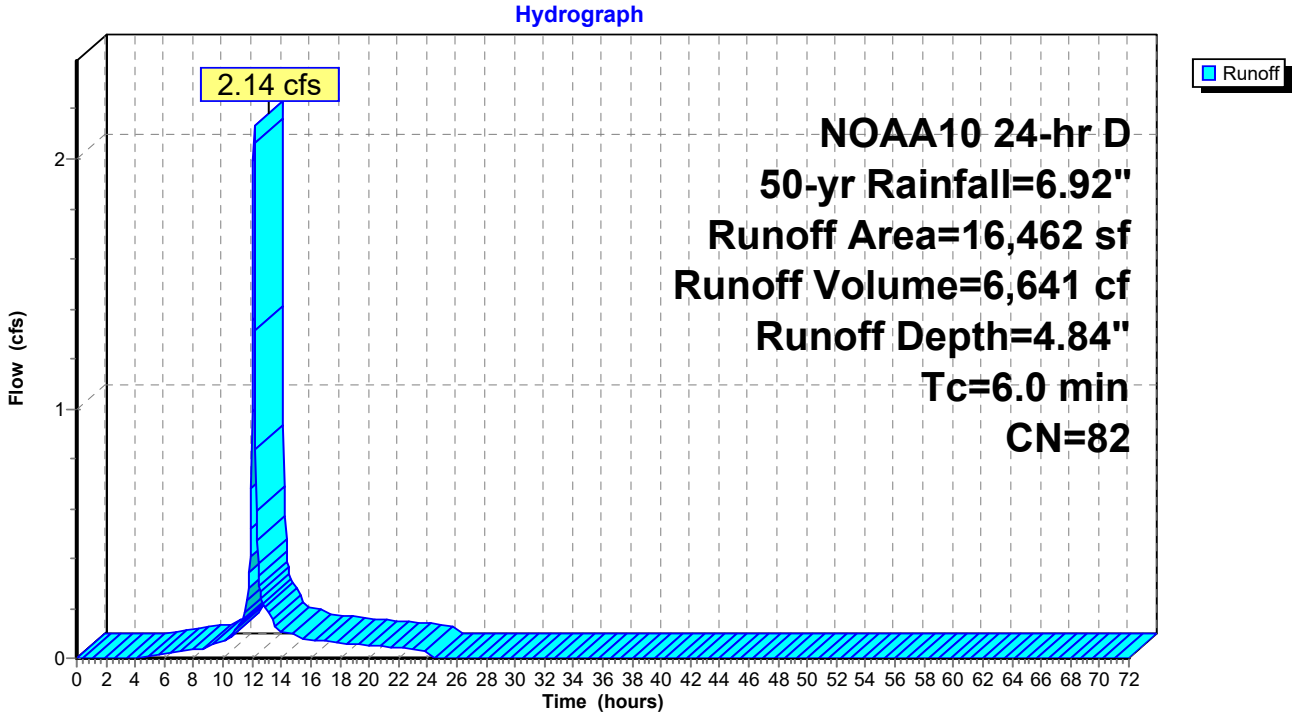
Runoff = 2.14 cfs @ 12.13 hrs, Volume= 6,641 cf, Depth= 4.84"
Routed to Pond 15P : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
7,656	98	Roofs, HSG D
8,806	69	50-75% Grass cover, Fair, HSG B
16,462	82	Weighted Average
8,806		53.49% Pervious Area
7,656		46.51% Impervious Area

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

Subcatchment 16S: PDA-43



Summary for Subcatchment 17S: PDA-41

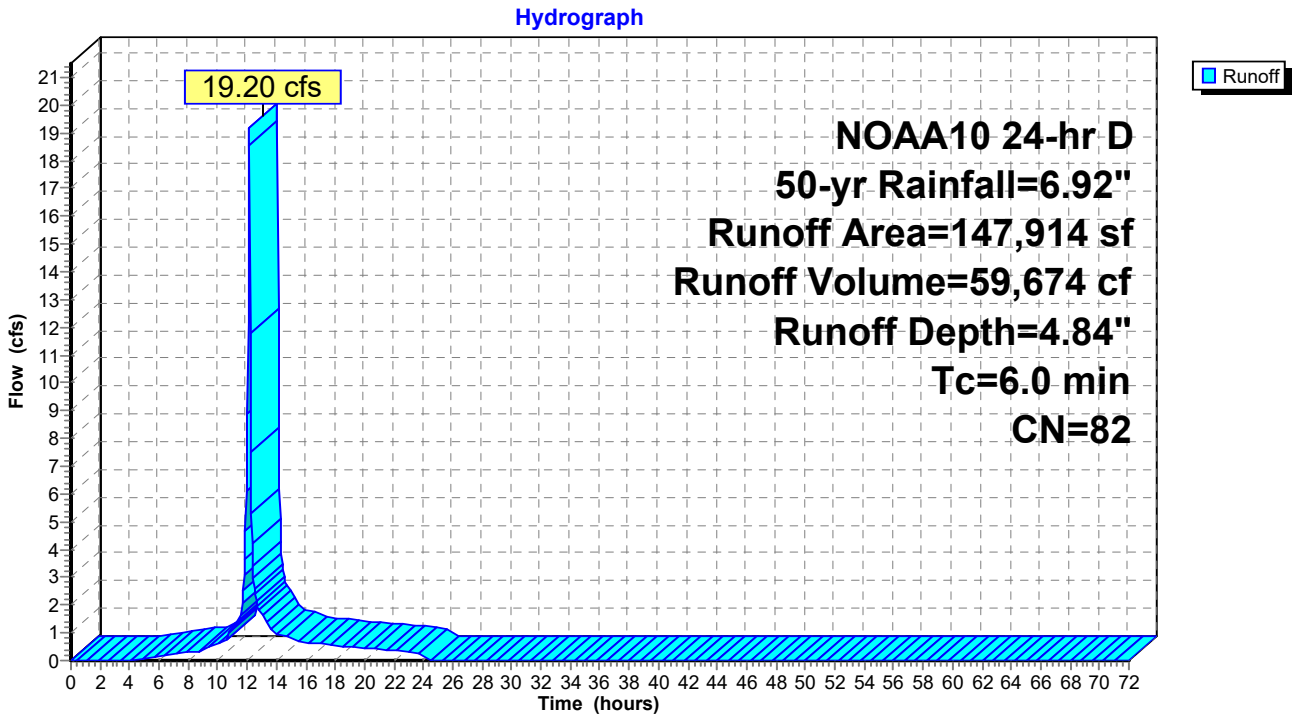
Runoff = 19.20 cfs @ 12.13 hrs, Volume= 59,674 cf, Depth= 4.84"
Routed to Pond 18P : POND 4A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
58,419	98	Paved parking, HSG D
60,483	69	50-75% Grass cover, Fair, HSG B
29,012	79	Woods, Fair, HSG D
147,914	82	Weighted Average
89,495		60.50% Pervious Area
58,419		39.50% Impervious Area

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

Subcatchment 17S: PDA-41



Summary for Subcatchment 18S: PDA-44

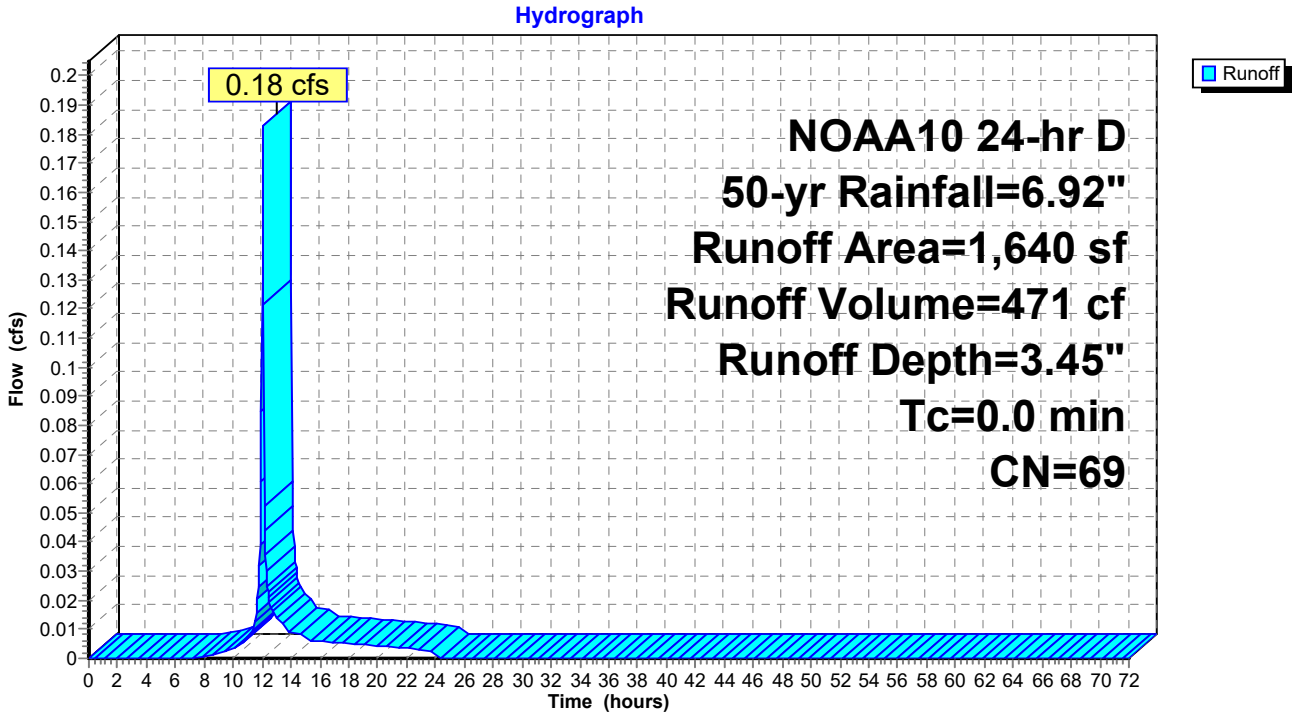
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.18 cfs @ 12.05 hrs, Volume= 471 cf, Depth= 3.45"
Routed to Pond 19P : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
1,640	69	50-75% Grass cover, Fair, HSG B
1,640		100.00% Pervious Area

Subcatchment 18S: PDA-44



Summary for Subcatchment 19S: PDA-11

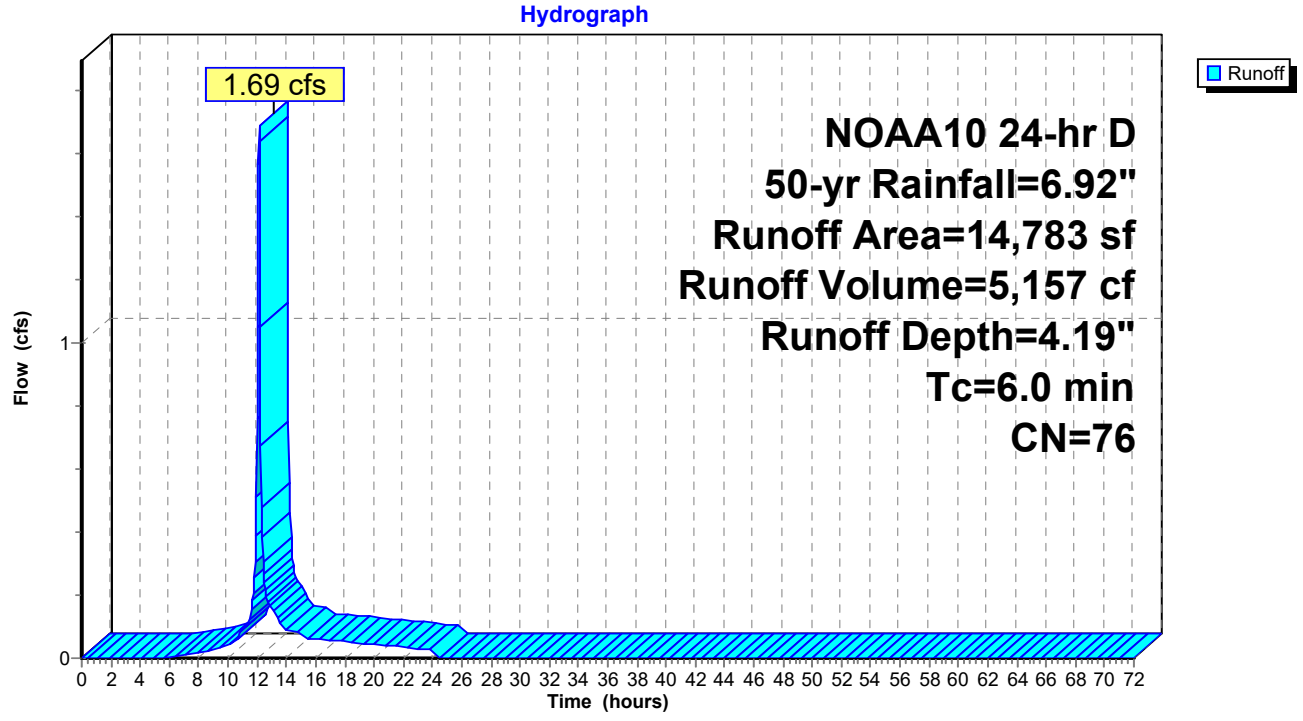
Runoff = 1.69 cfs @ 12.13 hrs, Volume= 5,157 cf, Depth= 4.19"
Routed to Pond 14P : POND 1A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
3,811	98	Roofs, HSG D
10,972	69	50-75% Grass cover, Fair, HSG B
14,783	76	Weighted Average
10,972		74.22% Pervious Area
3,811		25.78% Impervious Area

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

Subcatchment 19S: PDA-11



Summary for Subcatchment 20S: PDA-13

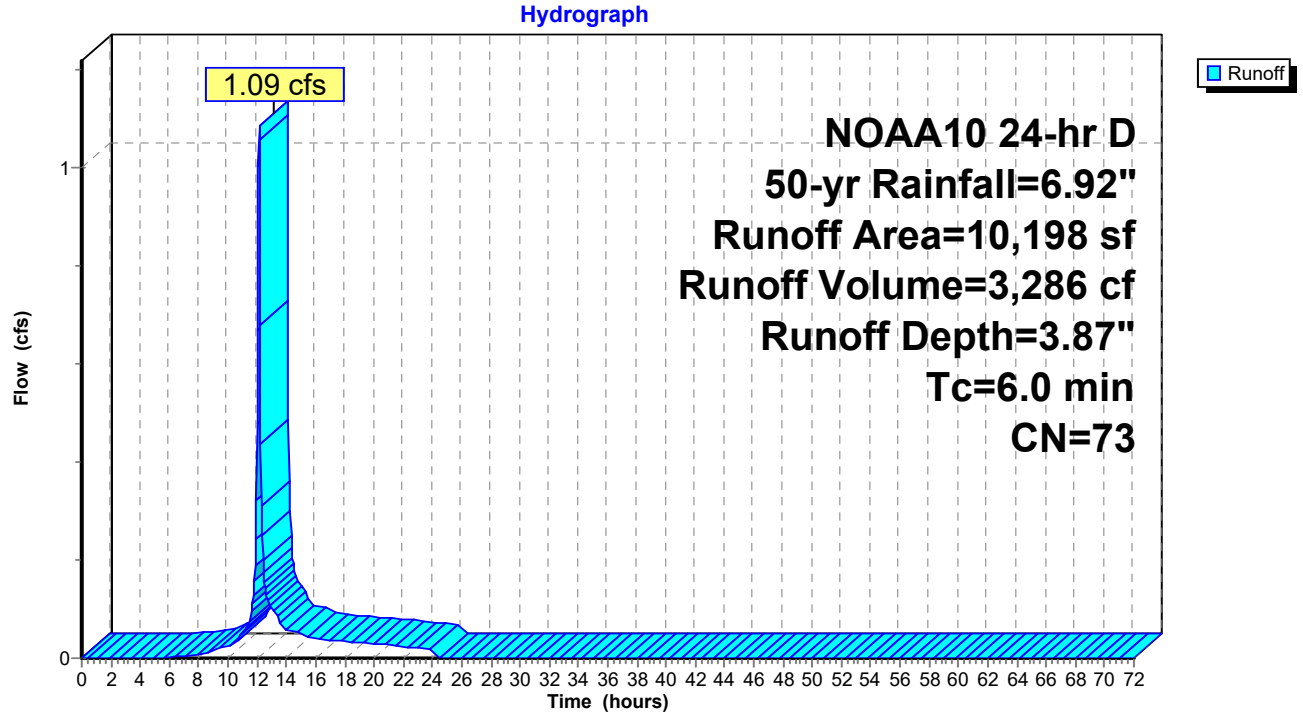
Runoff = 1.09 cfs @ 12.13 hrs, Volume= 3,286 cf, Depth= 3.87"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
8,701	69	50-75% Grass cover, Fair, HSG B
1,497	98	Paved parking, HSG D
10,198	73	Weighted Average
8,701		85.32% Pervious Area
1,497		14.68% Impervious Area

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

Subcatchment 20S: PDA-13



Summary for Subcatchment 23S: PDA-21

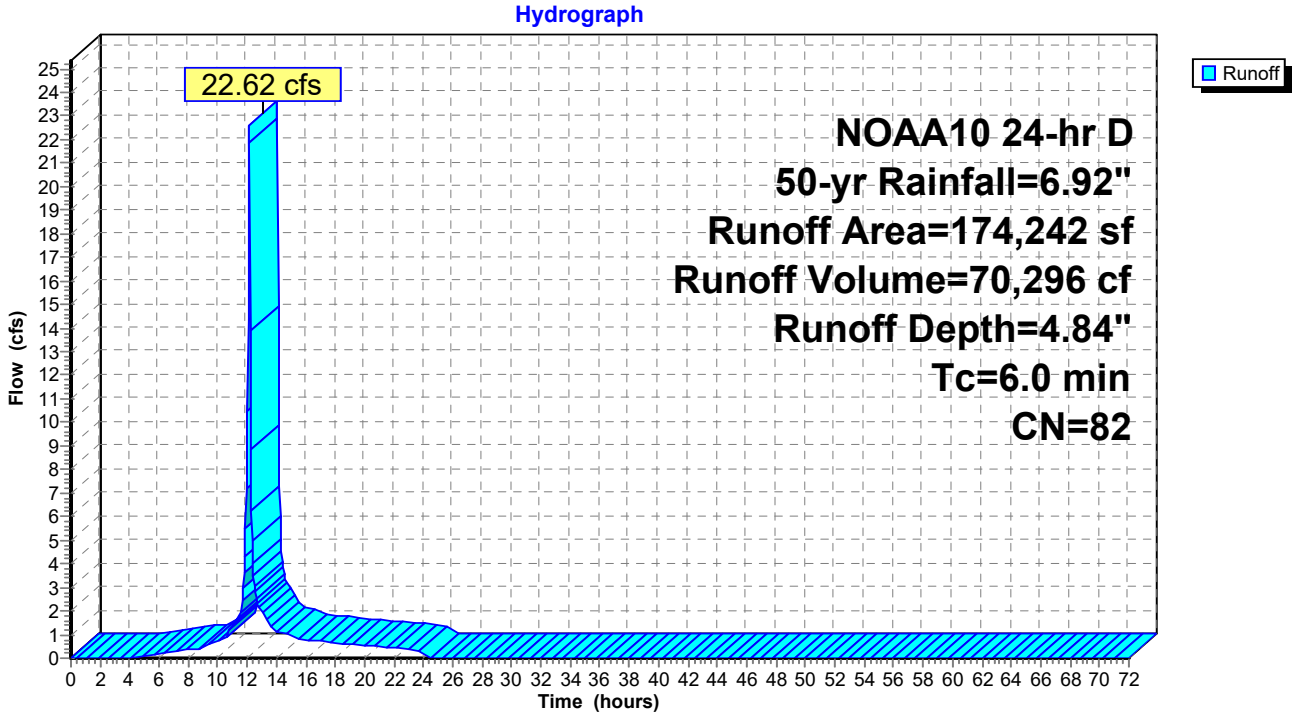
Runoff = 22.62 cfs @ 12.13 hrs, Volume= 70,296 cf, Depth= 4.84"
Routed to Pond 13P : POND 2A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
78,688	98	Paved parking, HSG D
95,554	69	50-75% Grass cover, Fair, HSG B
174,242	82	Weighted Average
95,554		54.84% Pervious Area
78,688		45.16% Impervious Area

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

Subcatchment 23S: PDA-21



Summary for Subcatchment 24S: PDA23

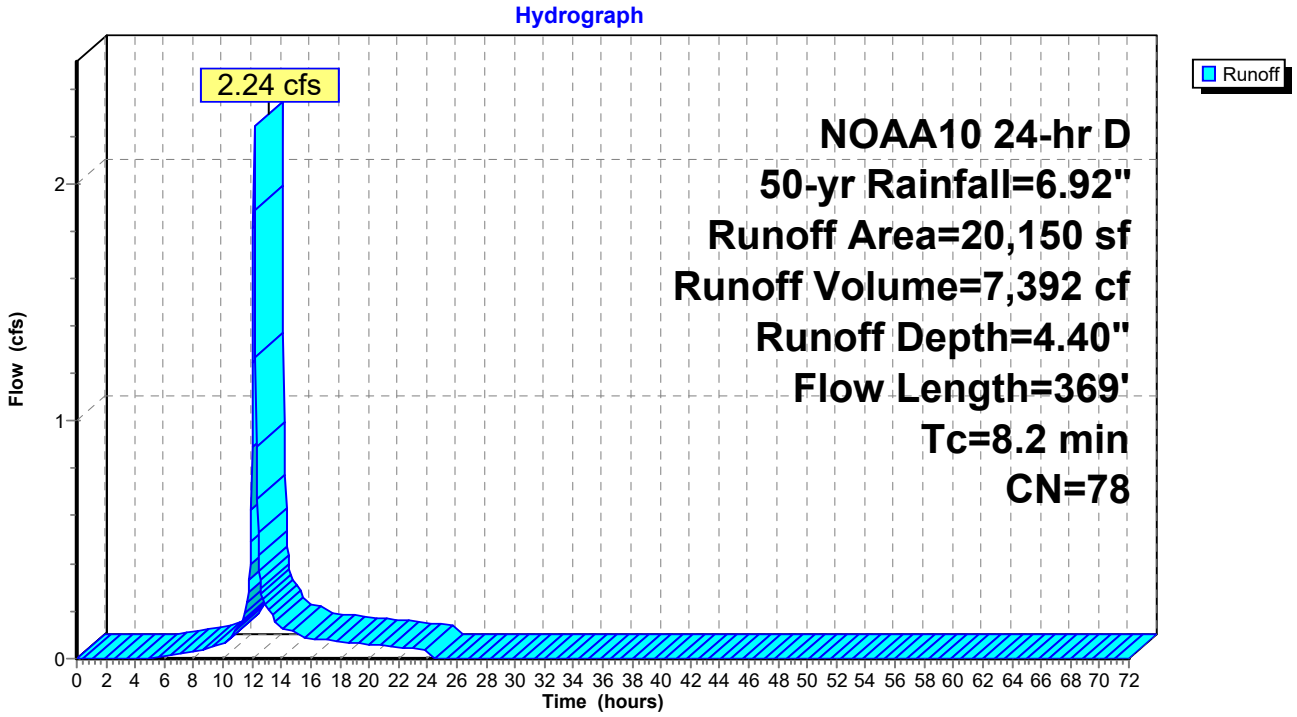
Runoff = 2.24 cfs @ 12.15 hrs, Volume= 7,392 cf, Depth= 4.40"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 50-yr Rainfall=6.92"

Area (sf)	CN	Description
4,687	60	Woods, Fair, HSG B
15,463	83	Woods, Poor, HSG D
20,150	78	Weighted Average
20,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	14	0.0357	0.07		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
4.8	355	0.0620	1.24		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
8.2	369	Total			

Subcatchment 24S: PDA23



Summary for Pond 13P: POND 2A

Inflow Area = 174,242 sf, 45.16% Impervious, Inflow Depth = 4.84" for 50-yr event
Inflow = 22.62 cfs @ 12.13 hrs, Volume= 70,296 cf
Outflow = 2.00 cfs @ 12.98 hrs, Volume= 64,449 cf, Atten= 91%, Lag= 51.2 min
Primary = 2.00 cfs @ 12.98 hrs, Volume= 64,449 cf
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 264.09' @ 12.98 hrs Surf.Area= 14,933 sf Storage= 34,992 cf

Plug-Flow detention time= 846.7 min calculated for 64,449 cf (92% of inflow)
Center-of-Mass det. time= 801.6 min (1,624.3 - 822.7)

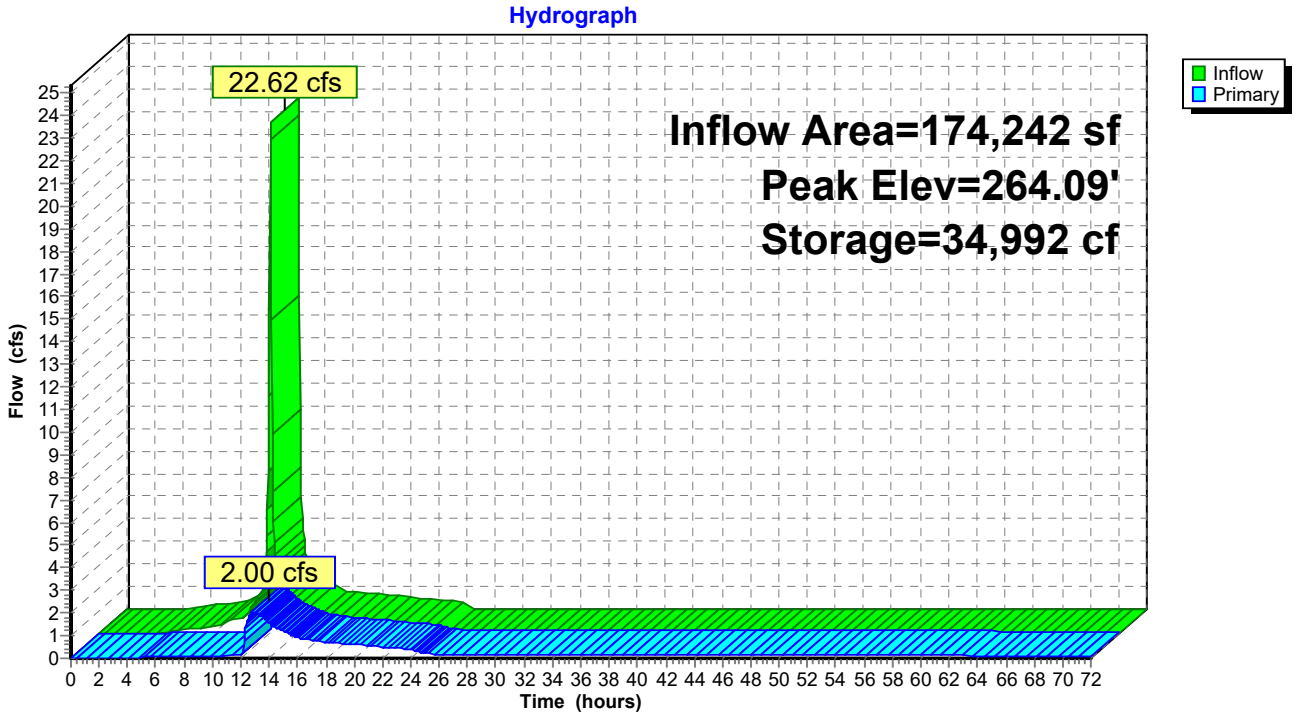
Volume	Invert	Avail.Storage	Storage Description
#1	261.00'	49,547 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
261.00	7,809	0	0
262.00	9,940	8,875	8,875
263.00	12,454	11,197	20,072
264.00	14,724	13,589	33,661
265.00	17,049	15,887	49,547

Device	Routing	Invert	Outlet Devices
#1	Primary	258.60'	**15.0" Round Culvert** L= 32.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 258.60' / 258.25' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	264.50'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	263.60'	**20.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	261.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=2.01 cfs @ 12.98 hrs HW=264.09' (Free Discharge)
└**1=Culvert** (Passes 2.01 cfs of 13.03 cfs potential flow)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  ├**3=Orifice/Grate** (Orifice Controls 1.83 cfs @ 2.25 fps)
  └**4=Exfiltration** (Exfiltration Controls 0.17 cfs)

Pond 13P: POND 2A



Summary for Pond 14P: POND 1A

Inflow Area = 14,783 sf, 25.78% Impervious, Inflow Depth = 4.19" for 50-yr event
Inflow = 1.69 cfs @ 12.13 hrs, Volume= 5,157 cf
Outflow = 0.65 cfs @ 12.26 hrs, Volume= 5,157 cf, Atten= 62%, Lag= 7.9 min
Discarded = 0.01 cfs @ 12.26 hrs, Volume= 1,086 cf
Primary = 0.64 cfs @ 12.26 hrs, Volume= 4,071 cf
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 271.21' @ 12.26 hrs Surf.Area= 1,753 sf Storage= 1,571 cf

Plug-Flow detention time= 193.7 min calculated for 5,153 cf (100% of inflow)
Center-of-Mass det. time= 194.7 min (1,037.4 - 842.7)

Volume	Invert	Avail.Storage	Storage Description
#1	270.00'	3,233 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

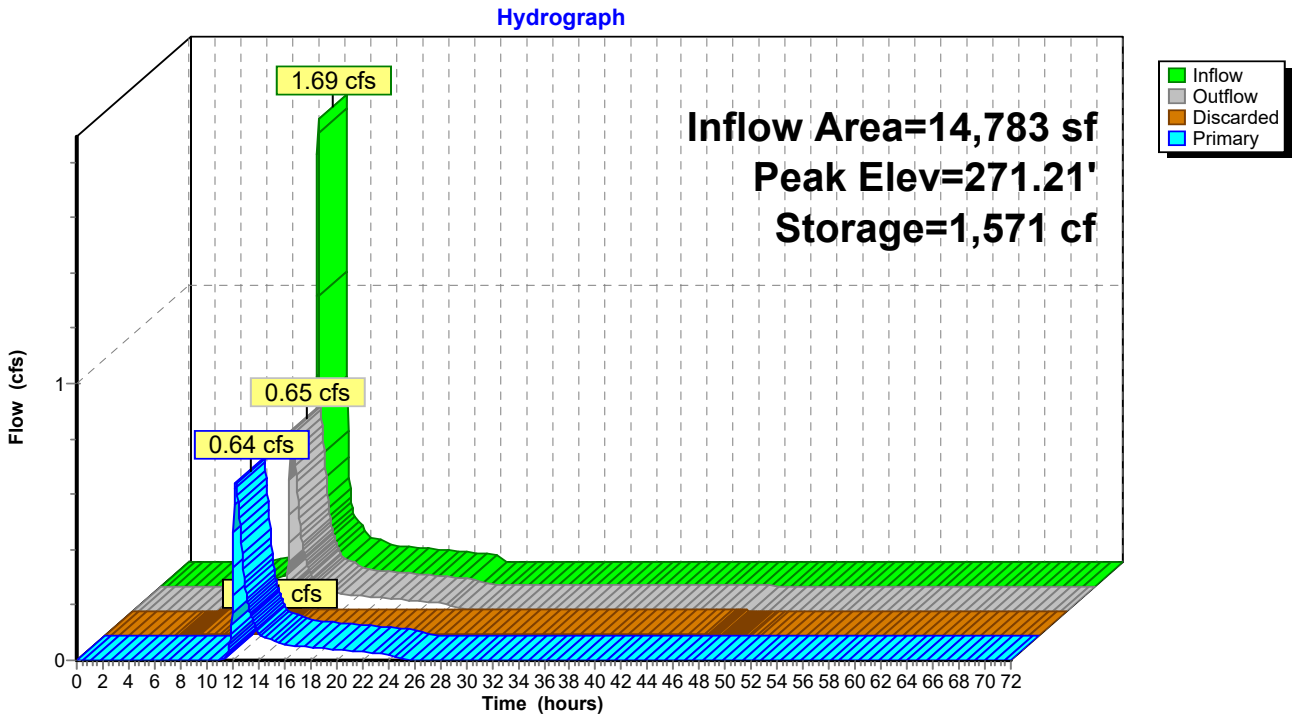
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
270.00	892	175.0	0	0	892
271.00	1,583	241.0	1,221	1,221	3,087
272.00	2,473	323.0	2,012	3,233	6,778

Device	Routing	Invert	Outlet Devices
#1	Primary	269.60'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 269.60' / 269.00' S= 0.0120 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	270.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	271.80'	**36.0" W x 24.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	270.00'	**0.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 255.00'

Discarded OutFlow Max=0.01 cfs @ 12.26 hrs HW=271.21' (Free Discharge)
└**4=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.64 cfs @ 12.26 hrs HW=271.21' (Free Discharge)
└**1=Culvert** (Passes 0.64 cfs of 5.86 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.64 cfs @ 3.25 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 14P: POND 1A



Summary for Pond 15P: RG-1

Inflow Area = 16,462 sf, 46.51% Impervious, Inflow Depth = 4.84" for 50-yr event
Inflow = 2.14 cfs @ 12.13 hrs, Volume= 6,641 cf
Outflow = 1.59 cfs @ 12.19 hrs, Volume= 6,641 cf, Atten= 25%, Lag= 3.5 min
Primary = 1.59 cfs @ 12.19 hrs, Volume= 6,641 cf
Routed to Pond 18P : POND 4A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 274.94' @ 12.19 hrs Surf.Area= 1,762 sf Storage= 1,315 cf

Plug-Flow detention time= 125.7 min calculated for 6,637 cf (100% of inflow)
Center-of-Mass det. time= 126.2 min (948.9 - 822.7)

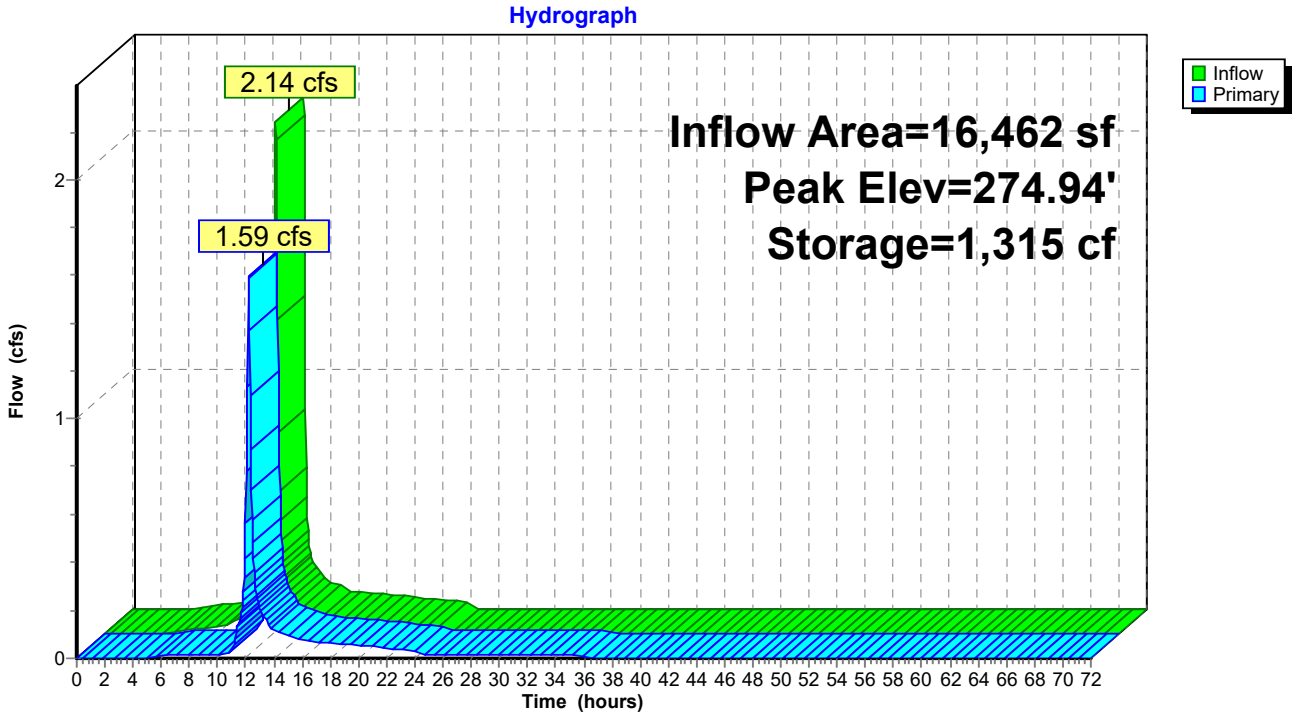
Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	3,629 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	1,058	203.0	0	0	1,058
275.00	1,811	247.0	1,418	1,418	2,650
276.00	2,637	281.0	2,211	3,629	4,102

Device	Routing	Invert	Outlet Devices
#1	Primary	271.60'	**15.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 271.60' / 270.60' S= 0.0118 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	274.50'	**20.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=1.57 cfs @ 12.19 hrs HW=274.94' (Free Discharge)
└**1=Culvert** (Passes 1.57 cfs of 9.69 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 1.55 cfs @ 2.12 fps)
└**3=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond 15P: RG-1


Hydrograph
2.14 cfs
1.59 cfs
Inflow Area=16,462 sf
Peak Elev=274.94'
Storage=1,315 cf
Inflow
Primary
Flow (cfs)
0
1
2
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond 18P: POND 4A

Inflow Area = 166,016 sf, 39.80% Impervious, Inflow Depth = 4.83" for 50-yr event
Inflow = 20.61 cfs @ 12.13 hrs, Volume= 66,787 cf
Outflow = 1.67 cfs @ 13.27 hrs, Volume= 64,984 cf, Atten= 92%, Lag= 68.0 min
Discarded = 0.25 cfs @ 13.27 hrs, Volume= 31,409 cf
Primary = 1.41 cfs @ 13.27 hrs, Volume= 33,575 cf
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 261.84' @ 13.27 hrs Surf.Area= 14,632 sf Storage= 32,850 cf

Plug-Flow detention time= 680.9 min calculated for 64,984 cf (97% of inflow)
Center-of-Mass det. time= 660.3 min (1,498.8 - 838.5)

Volume	Invert	Avail.Storage	Storage Description
#1	259.00'	51,513 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

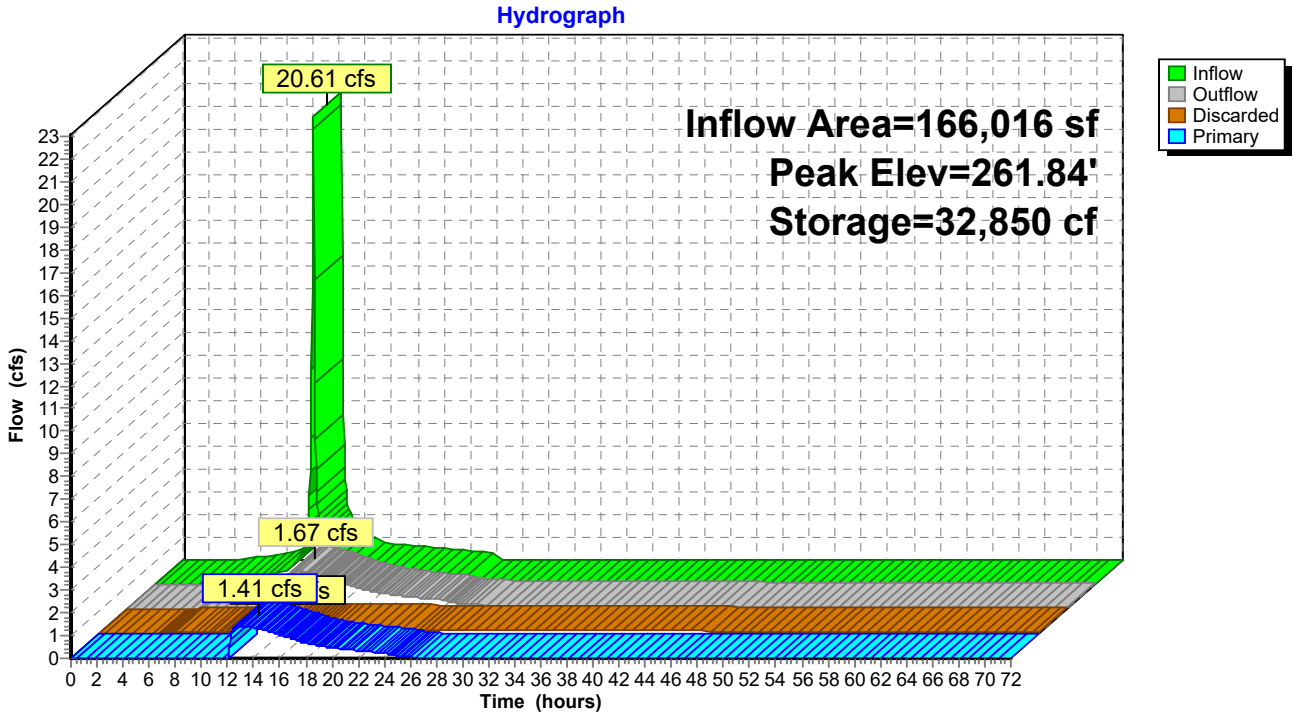
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
259.00	8,546	0	0
260.00	10,596	9,571	9,571
261.00	12,850	11,723	21,294
262.00	14,969	13,910	35,204
263.00	17,649	16,309	51,513

Device	Routing	Invert	Outlet Devices
#1	Primary	255.40'	**15.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 255.40' / 255.00' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	260.80'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	262.00'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	259.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 258.00'

Discarded OutFlow Max=0.25 cfs @ 13.27 hrs HW=261.84' (Free Discharge)
└**4=Exfiltration** (Controls 0.25 cfs)

Primary OutFlow Max=1.41 cfs @ 13.27 hrs HW=261.84' (Free Discharge)
└**1=Culvert** (Passes 1.41 cfs of 14.25 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 1.41 cfs @ 4.05 fps)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 18P: POND 4A



Summary for Pond 19P: RG-2

Inflow Area = 1,640 sf, 0.00% Impervious, Inflow Depth = 3.45" for 50-yr event
Inflow = 0.18 cfs @ 12.05 hrs, Volume= 471 cf
Outflow = 0.01 cfs @ 16.02 hrs, Volume= 471 cf, Atten= 97%, Lag= 238.4 min
Primary = 0.01 cfs @ 16.02 hrs, Volume= 471 cf
Routed to Pond 18P : POND 4A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 274.49' @ 16.02 hrs Surf.Area= 515 sf Storage= 222 cf

Plug-Flow detention time= 424.3 min calculated for 471 cf (100% of inflow)
Center-of-Mass det. time= 424.0 min (1,282.8 - 858.8)

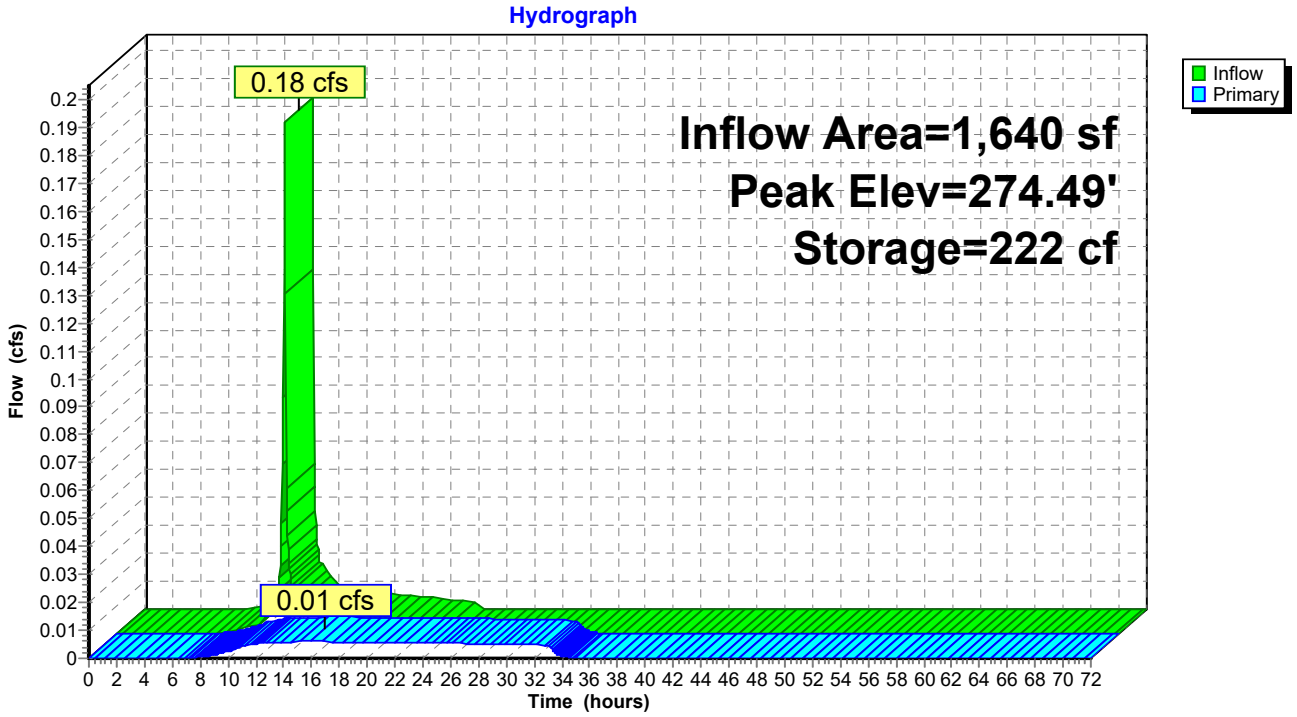
Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	1,334 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	395	78.0	0	0	395
275.00	658	97.0	521	521	674
276.00	979	116.0	813	1,334	1,013

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	**15.0" Round Culvert** L= 58.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.70' S= 0.0138 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	274.50'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.01 cfs @ 16.02 hrs HW=274.49' (Free Discharge)
└**1=Culvert** (Passes 0.01 cfs of 6.90 cfs potential flow)
└**2=Orifice/Grate** (Controls 0.00 cfs)
└**3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Pond 19P: RG-2

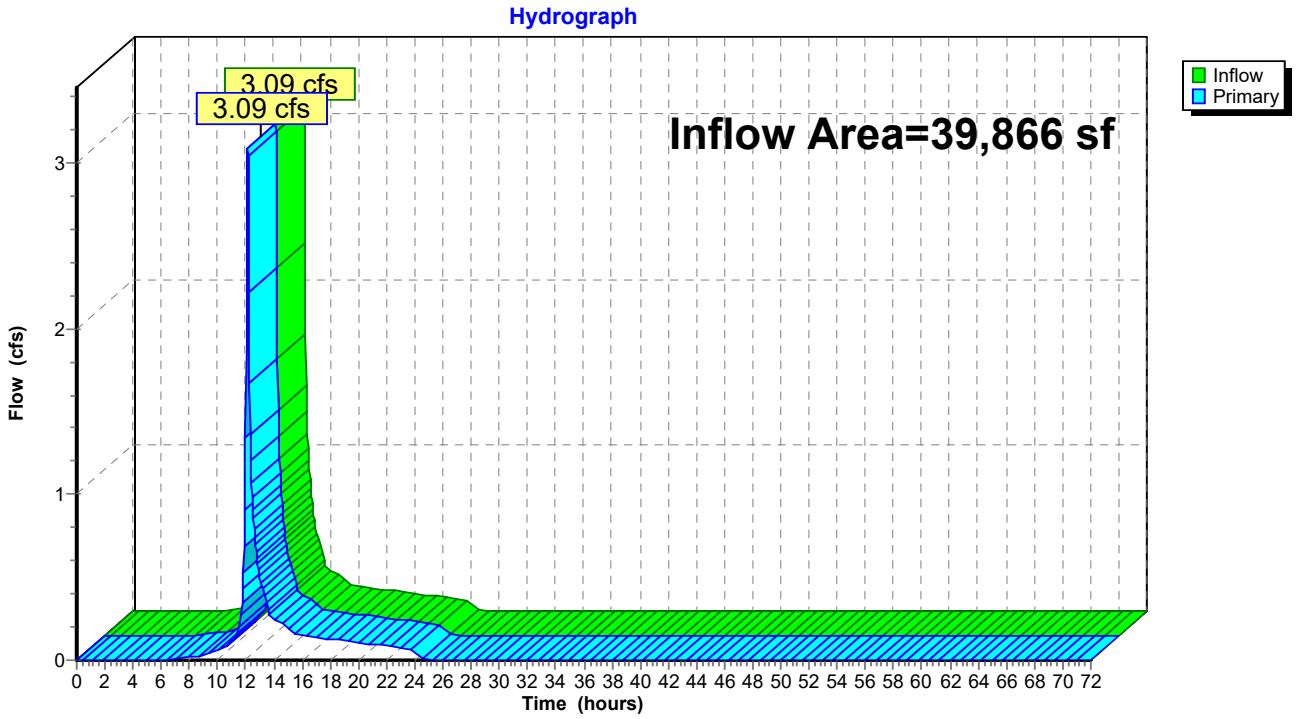

Hydrograph
0.18 cfs
0.01 cfs
Inflow Area=1,640 sf
Peak Elev=274.49'
Storage=222 cf
Inflow
Primary
Flow (cfs)
Time (hours)
0 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.1 0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19 0.2
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72

Summary for Link 10L: DP-1 (EXISTING 18" RCP)

Inflow Area = 39,866 sf, 14.88% Impervious, Inflow Depth = 3.54" for 50-yr event
Inflow = 3.09 cfs @ 12.14 hrs, Volume= 11,763 cf
Primary = 3.09 cfs @ 12.14 hrs, Volume= 11,763 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 10L: DP-1 (EXISTING 18" RCP)

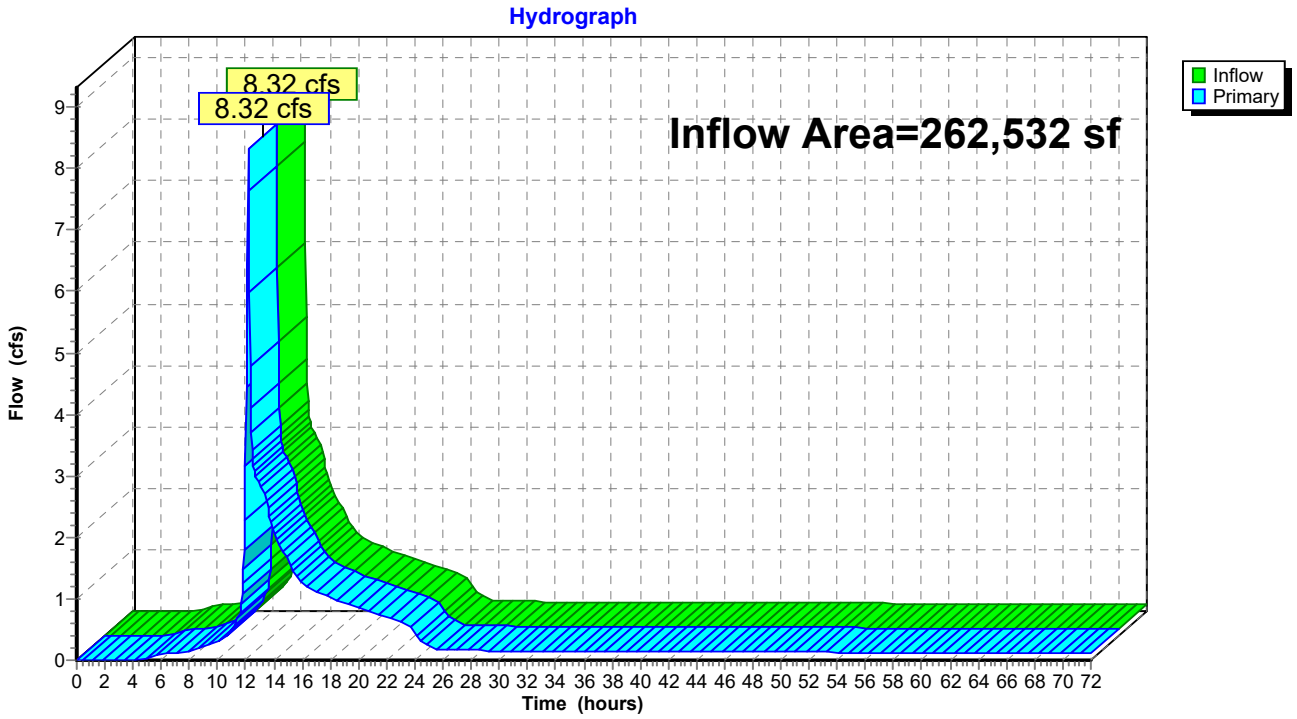


Summary for Link 11L: DP-2 (EXISTING WETLANDS)

Inflow Area = 262,532 sf, 29.97% Impervious, Inflow Depth > 4.21" for 50-yr event
Inflow = 8.32 cfs @ 12.16 hrs, Volume= 92,011 cf
Primary = 8.32 cfs @ 12.16 hrs, Volume= 92,011 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 11L: DP-2 (EXISTING WETLANDS)

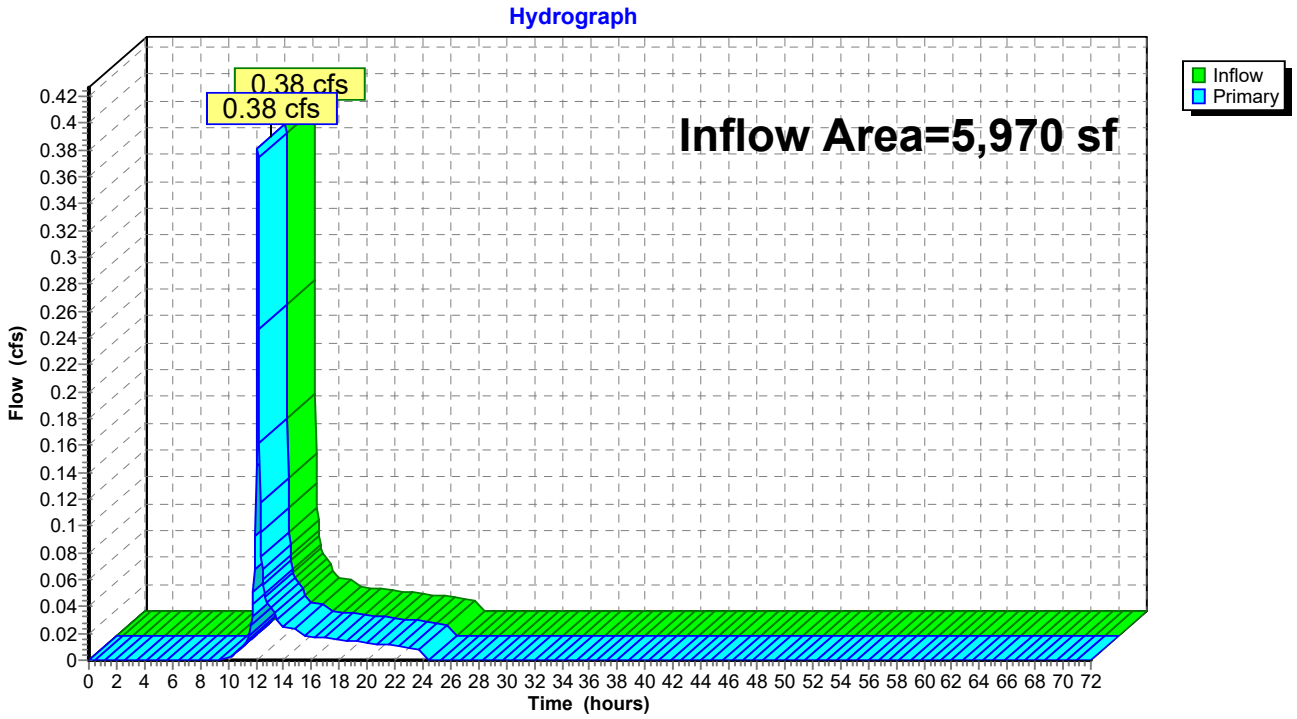


Summary for Link 12L: DP-3 (NORTHERN PROPERTY LINE)

Inflow Area = 5,970 sf, 0.00% Impervious, Inflow Depth = 2.36" for 50-yr event
Inflow = 0.38 cfs @ 12.14 hrs, Volume= 1,172 cf
Primary = 0.38 cfs @ 12.14 hrs, Volume= 1,172 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 12L: DP-3 (NORTHERN PROPERTY LINE)

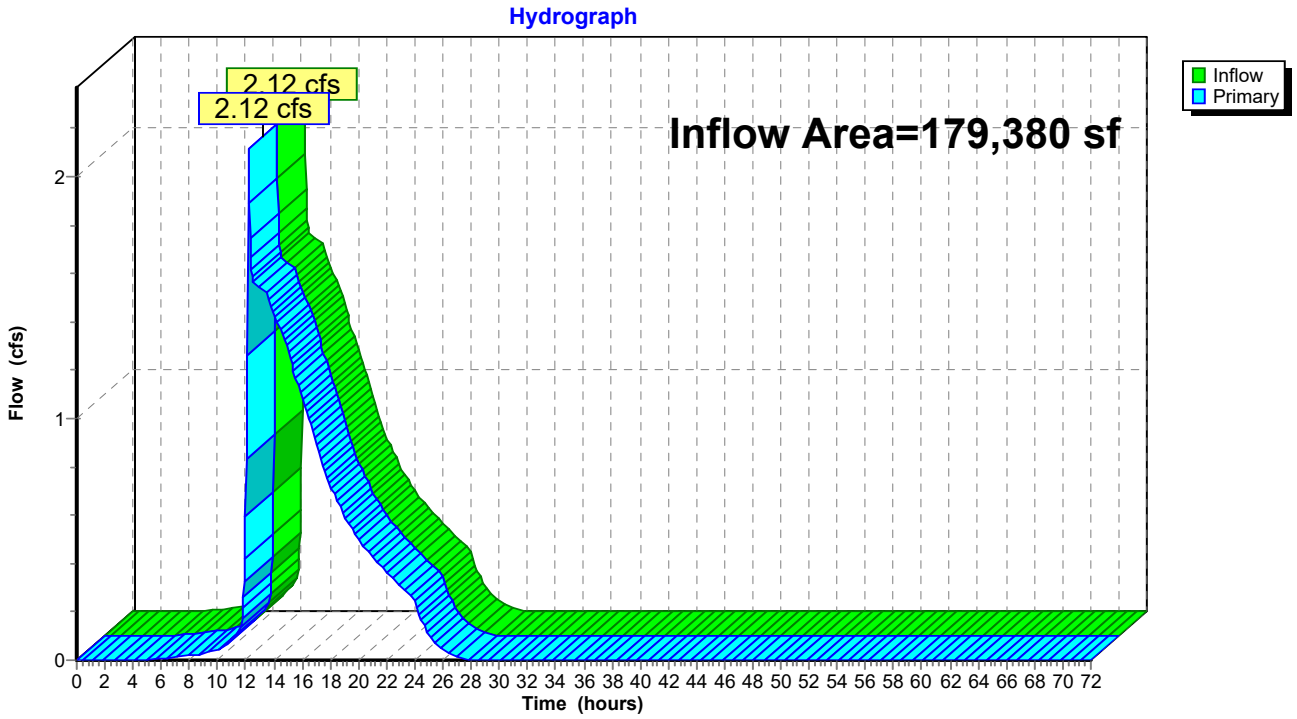


Summary for Link 13L: DP-4 (SOUTHERN PROPERTY LINE)

Inflow Area = 179,380 sf, 36.84% Impervious, Inflow Depth = 2.57" for 50-yr event
Inflow = 2.12 cfs @ 12.20 hrs, Volume= 38,478 cf
Primary = 2.12 cfs @ 12.20 hrs, Volume= 38,478 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 13L: DP-4 (SOUTHERN PROPERTY LINE)



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment4S: PDA-12 Runoff Area=14,885 sf 4.20% Impervious Runoff Depth=4.24"
Tc=6.0 min CN=70 Runoff=1.74 cfs 5,261 cf

Subcatchment7S: PDA-22 Runoff Area=68,140 sf 0.00% Impervious Runoff Depth=4.24"
Flow Length=330' Tc=9.1 min CN=70 Runoff=7.05 cfs 24,086 cf

Subcatchment9S: PDA-42 Runoff Area=13,364 sf 0.00% Impervious Runoff Depth=5.15"
Flow Length=190' Tc=8.1 min CN=78 Runoff=1.73 cfs 5,737 cf

Subcatchment14S: PDA-31 Runoff Area=5,970 sf 0.00% Impervious Runoff Depth=2.93"
Tc=6.0 min CN=58 Runoff=0.48 cfs 1,455 cf

Subcatchment16S: PDA-43 Runoff Area=16,462 sf 46.51% Impervious Runoff Depth=5.61"
Tc=6.0 min CN=82 Runoff=2.46 cfs 7,700 cf

Subcatchment17S: PDA-41 Runoff Area=147,914 sf 39.50% Impervious Runoff Depth=5.61"
Tc=6.0 min CN=82 Runoff=22.09 cfs 69,190 cf

Subcatchment18S: PDA-44 Runoff Area=1,640 sf 0.00% Impervious Runoff Depth=4.13"
Tc=0.0 min CN=69 Runoff=0.22 cfs 564 cf

Subcatchment19S: PDA-11 Runoff Area=14,783 sf 25.78% Impervious Runoff Depth=4.92"
Tc=6.0 min CN=76 Runoff=1.98 cfs 6,063 cf

Subcatchment20S: PDA-13 Runoff Area=10,198 sf 14.68% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=73 Runoff=1.28 cfs 3,892 cf

Subcatchment23S: PDA-21 Runoff Area=174,242 sf 45.16% Impervious Runoff Depth=5.61"
Tc=6.0 min CN=82 Runoff=26.02 cfs 81,506 cf

Subcatchment24S: PDA23 Runoff Area=20,150 sf 0.00% Impervious Runoff Depth=5.15"
Flow Length=369' Tc=8.2 min CN=78 Runoff=2.61 cfs 8,650 cf

Pond 13P: POND 2A Peak Elev=264.36' Storage=39,165 cf Inflow=26.02 cfs 81,506 cf
Outflow=3.03 cfs 75,600 cf

Pond 14P: POND 1A Peak Elev=271.33' Storage=1,783 cf Inflow=1.98 cfs 6,063 cf
Discarded=0.01 cfs 1,109 cf Primary=0.72 cfs 4,954 cf Outflow=0.73 cfs 6,063 cf

Pond 15P: RG-1 Peak Elev=274.99' Storage=1,399 cf Inflow=2.46 cfs 7,700 cf
Outflow=1.85 cfs 7,700 cf

Pond 18P: POND 4A Peak Elev=262.11' Storage=36,802 cf Inflow=23.73 cfs 77,455 cf
Discarded=0.27 cfs 32,185 cf Primary=2.72 cfs 43,409 cf Outflow=2.99 cfs 75,594 cf

Pond 19P: RG-2 Peak Elev=274.50' Storage=229 cf Inflow=0.22 cfs 564 cf
Outflow=0.02 cfs 564 cf

Link 10L: DP-1 (EXISTING 18" RCP) Inflow=3.63 cfs 14,108 cf
Primary=3.63 cfs 14,108 cf

Link 11L: DP-2 (EXISTING WETLANDS) Inflow=10.72 cfs 108,335 cf
Primary=10.72 cfs 108,335 cf

Link 12L: DP-3 (NORTHERN PROPERTY LINE) Inflow=0.48 cfs 1,455 cf
Primary=0.48 cfs 1,455 cf

Link 13L: DP-4 (SOUTHERN PROPERTY LINE) Inflow=2.96 cfs 49,146 cf
Primary=2.96 cfs 49,146 cf

Total Runoff Area = 487,748 sf Runoff Volume = 214,106 cf Average Runoff Depth = 5.27"
69.10% Pervious = 337,052 sf 30.90% Impervious = 150,696 sf

Summary for Subcatchment 4S: PDA-12

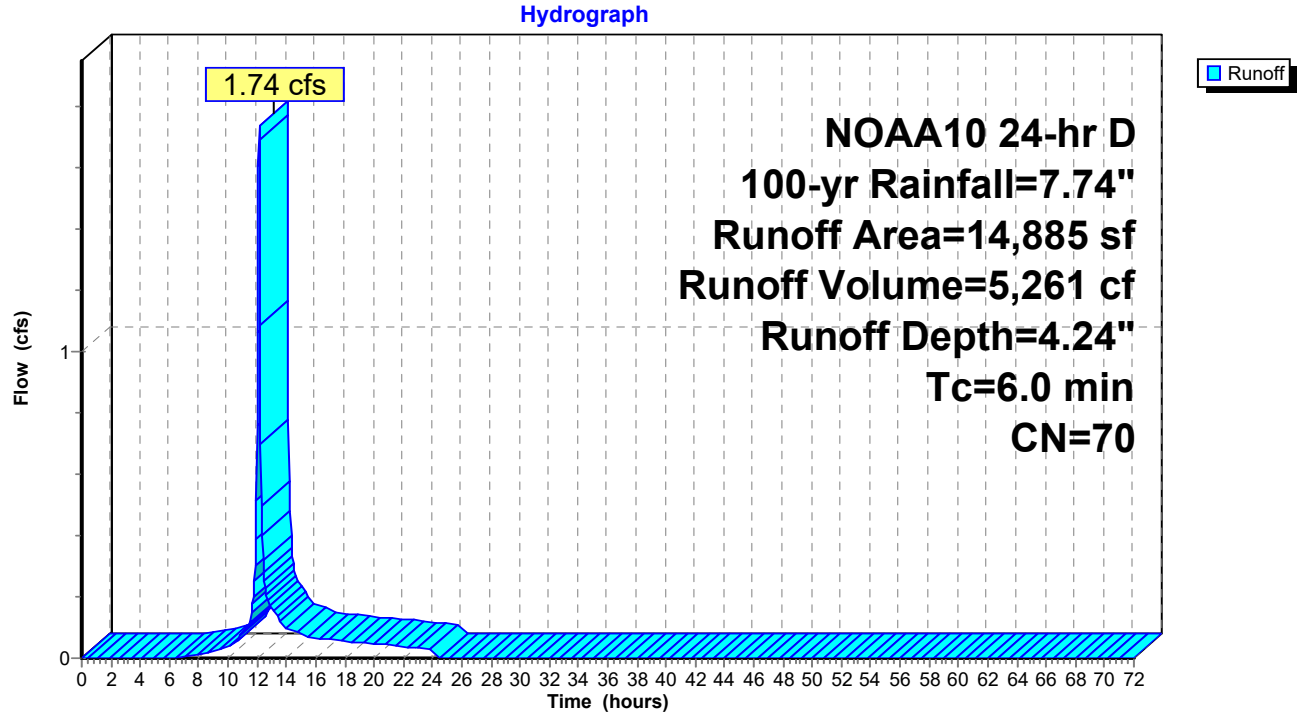
Runoff = 1.74 cfs @ 12.13 hrs, Volume= 5,261 cf, Depth= 4.24"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
14,260	69	50-75% Grass cover, Fair, HSG B
625	98	Paved parking, HSG D
14,885	70	Weighted Average
14,260		95.80% Pervious Area
625		4.20% Impervious Area

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

Subcatchment 4S: PDA-12



Summary for Subcatchment 7S: PDA-22

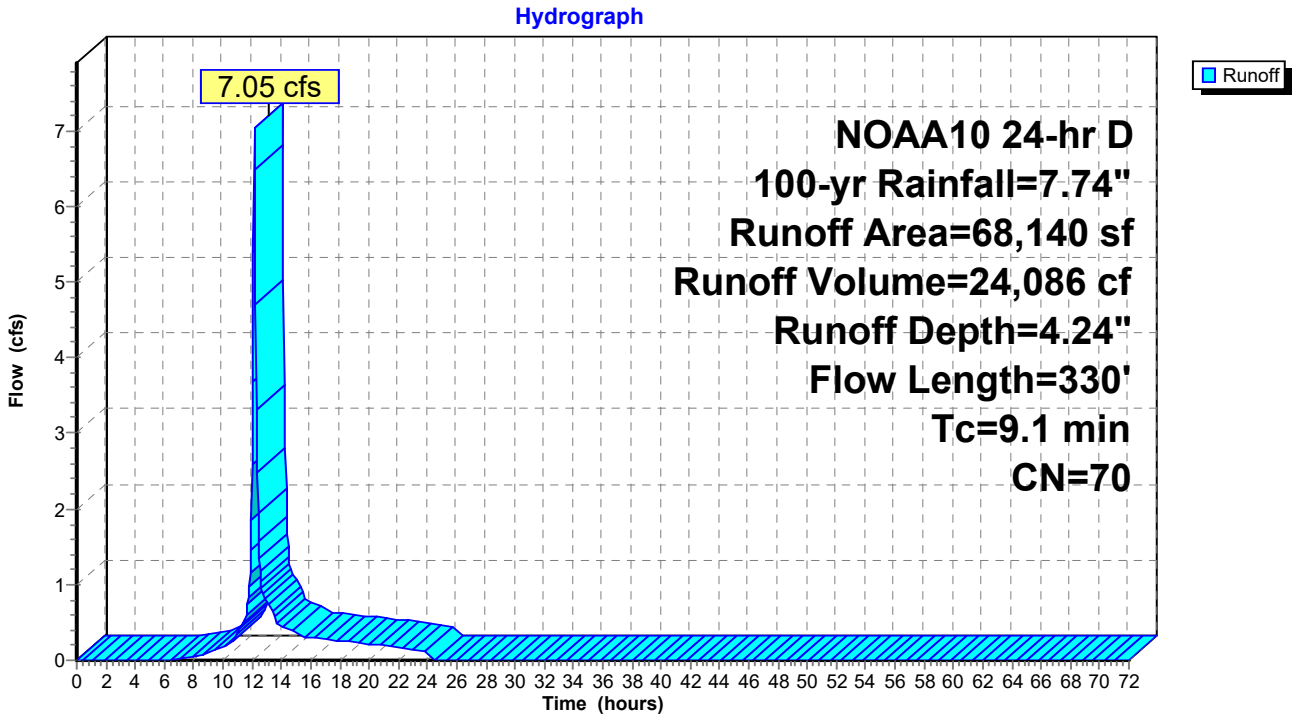
Runoff = 7.05 cfs @ 12.16 hrs, Volume= 24,086 cf, Depth= 4.24"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
33,890	60	Woods, Fair, HSG B
27,311	79	Woods, Fair, HSG D
6,939	84	50-75% Grass cover, Fair, HSG D
68,140	70	Weighted Average
68,140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	45	0.1500	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.46"
4.2	285	0.0500	1.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
9.1	330	Total			

Subcatchment 7S: PDA-22



Summary for Subcatchment 9S: PDA-42

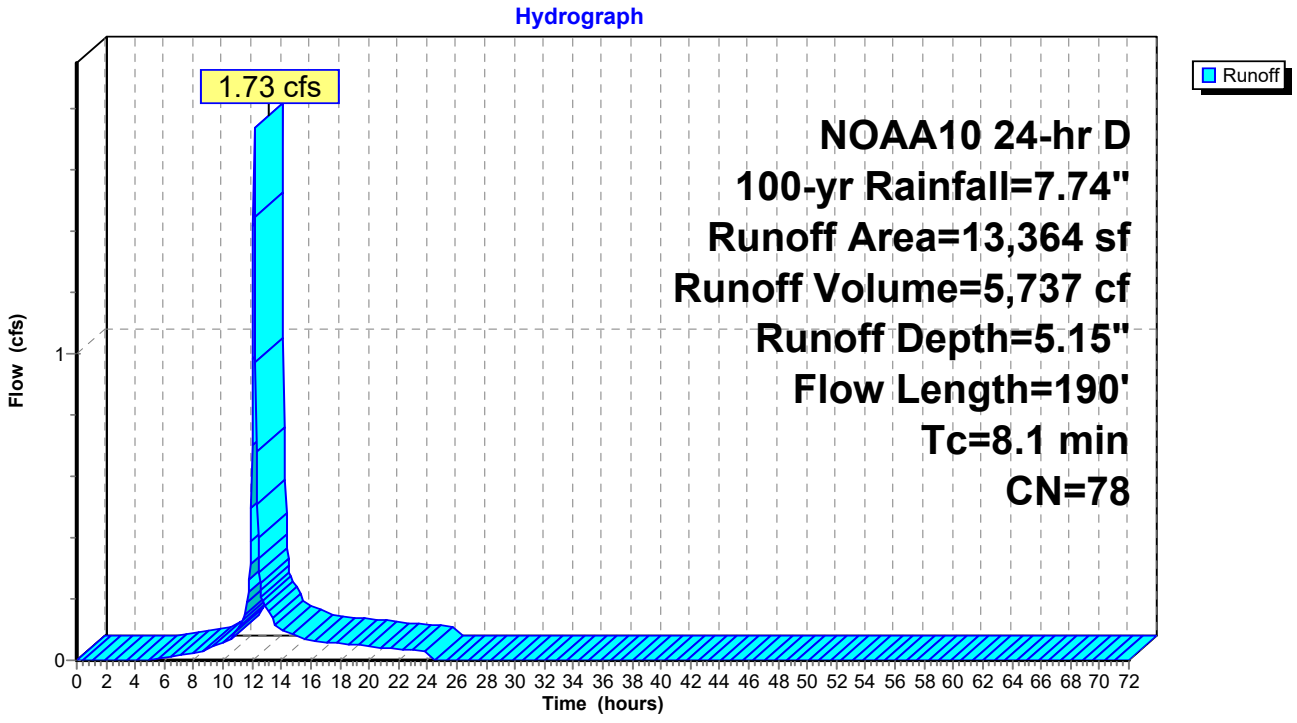
Runoff = 1.73 cfs @ 12.15 hrs, Volume= 5,737 cf, Depth= 5.15"
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
2,571	69	50-75% Grass cover, Fair, HSG B
7,293	79	Woods, Fair, HSG D
3,500	84	50-75% Grass cover, Fair, HSG D
13,364	78	Weighted Average
13,364		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.0800	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.46"
1.3	140	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
8.1	190	Total			

Subcatchment 9S: PDA-42



Summary for Subcatchment 14S: PDA-31

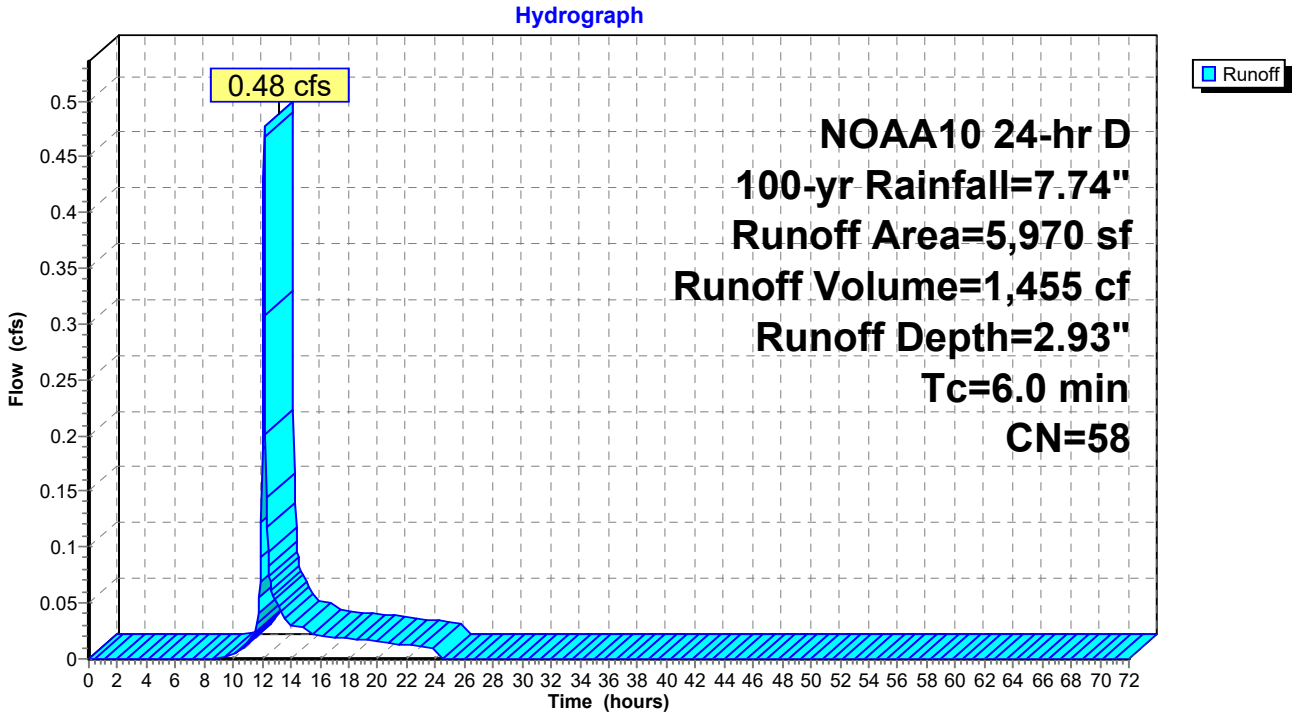
Runoff = 0.48 cfs @ 12.13 hrs, Volume= 1,455 cf, Depth= 2.93"
Routed to Link 12L : DP-3 (NORTHERN PROPERTY LINE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
5,970	58	Woods/grass comb., Good, HSG B
5,970		100.00% Pervious Area

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

Subcatchment 14S: PDA-31



Summary for Subcatchment 16S: PDA-43

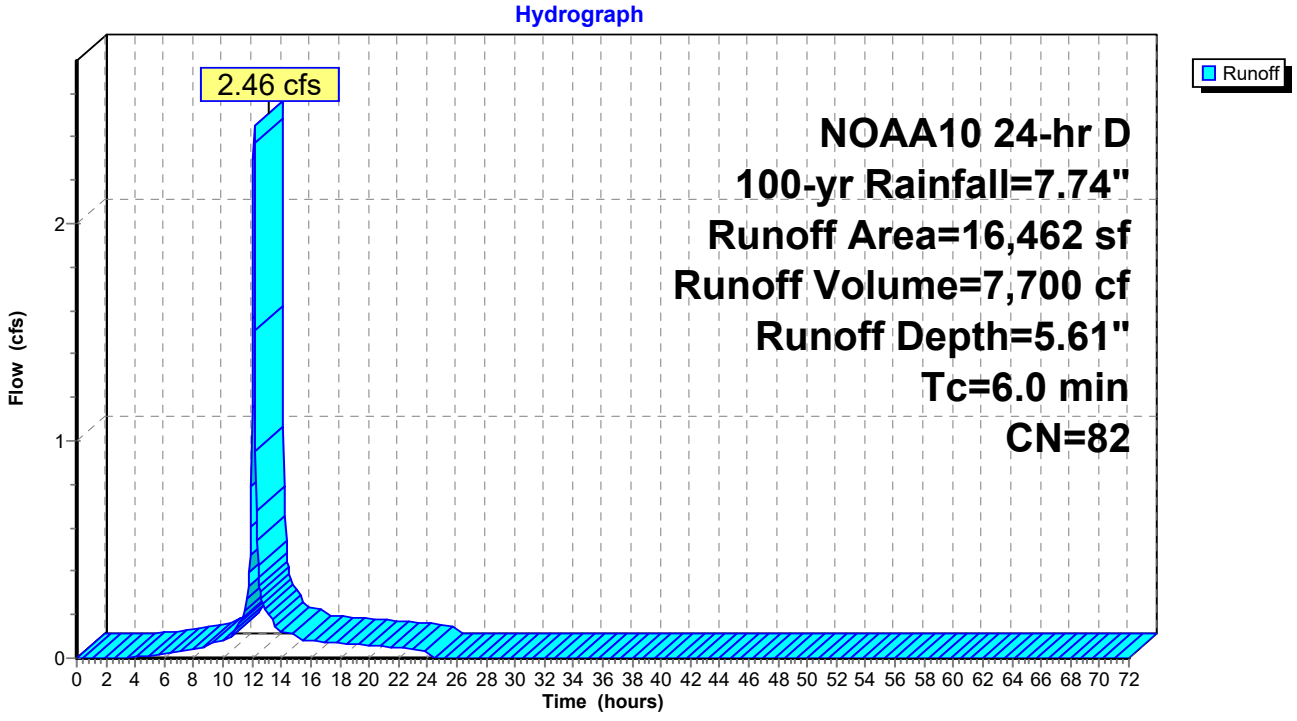
Runoff = 2.46 cfs @ 12.13 hrs, Volume= 7,700 cf, Depth= 5.61"
Routed to Pond 15P : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
7,656	98	Roofs, HSG D
8,806	69	50-75% Grass cover, Fair, HSG B
16,462	82	Weighted Average
8,806		53.49% Pervious Area
7,656		46.51% Impervious Area

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

Subcatchment 16S: PDA-43



Summary for Subcatchment 17S: PDA-41

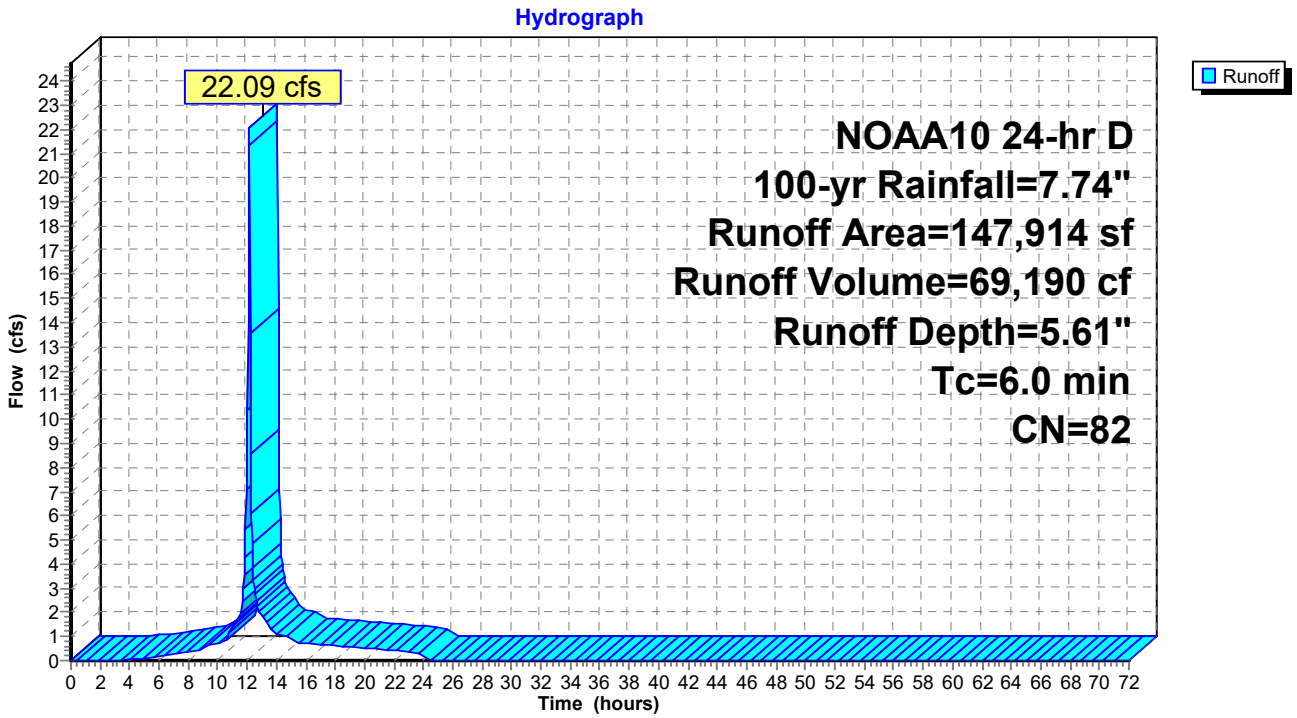
Runoff = 22.09 cfs @ 12.13 hrs, Volume= 69,190 cf, Depth= 5.61"
Routed to Pond 18P : POND 4A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
58,419	98	Paved parking, HSG D
60,483	69	50-75% Grass cover, Fair, HSG B
29,012	79	Woods, Fair, HSG D
147,914	82	Weighted Average
89,495		60.50% Pervious Area
58,419		39.50% Impervious Area

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

Subcatchment 17S: PDA-41



Summary for Subcatchment 18S: PDA-44

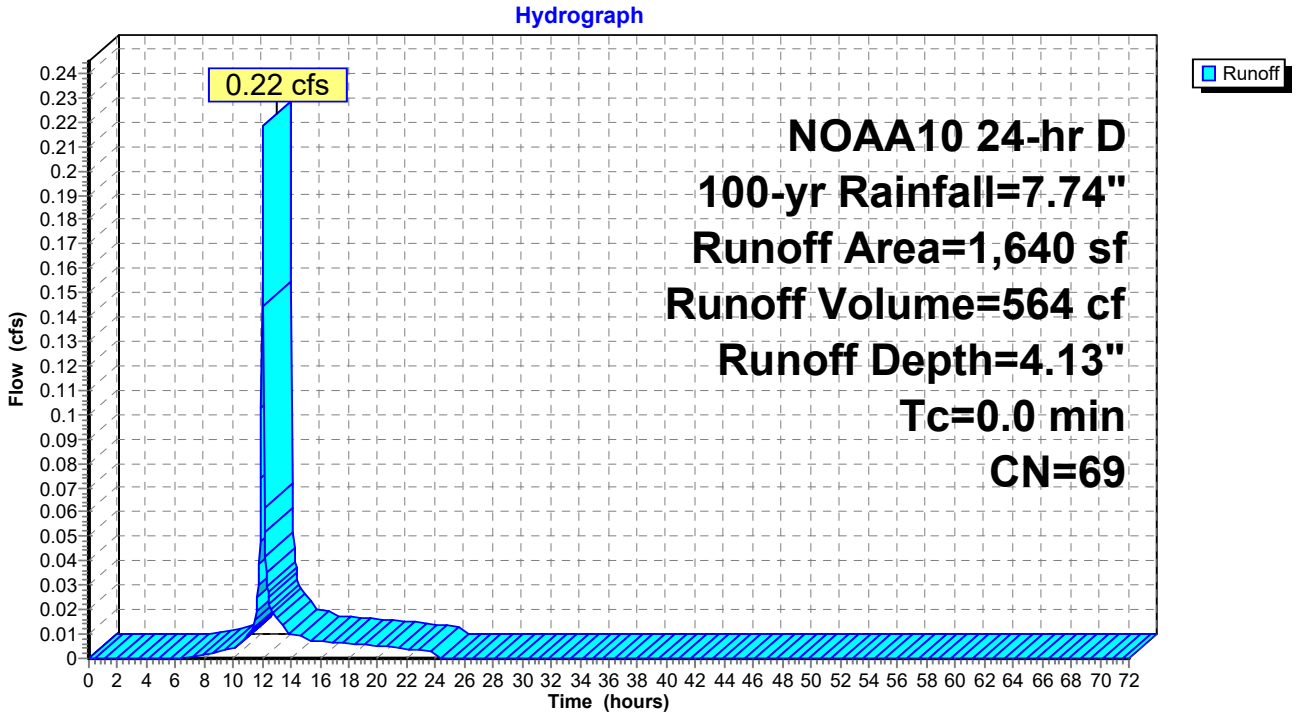
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.22 cfs @ 12.05 hrs, Volume= 564 cf, Depth= 4.13"
Routed to Pond 19P : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
1,640	69	50-75% Grass cover, Fair, HSG B
1,640		100.00% Pervious Area

Subcatchment 18S: PDA-44



Summary for Subcatchment 19S: PDA-11

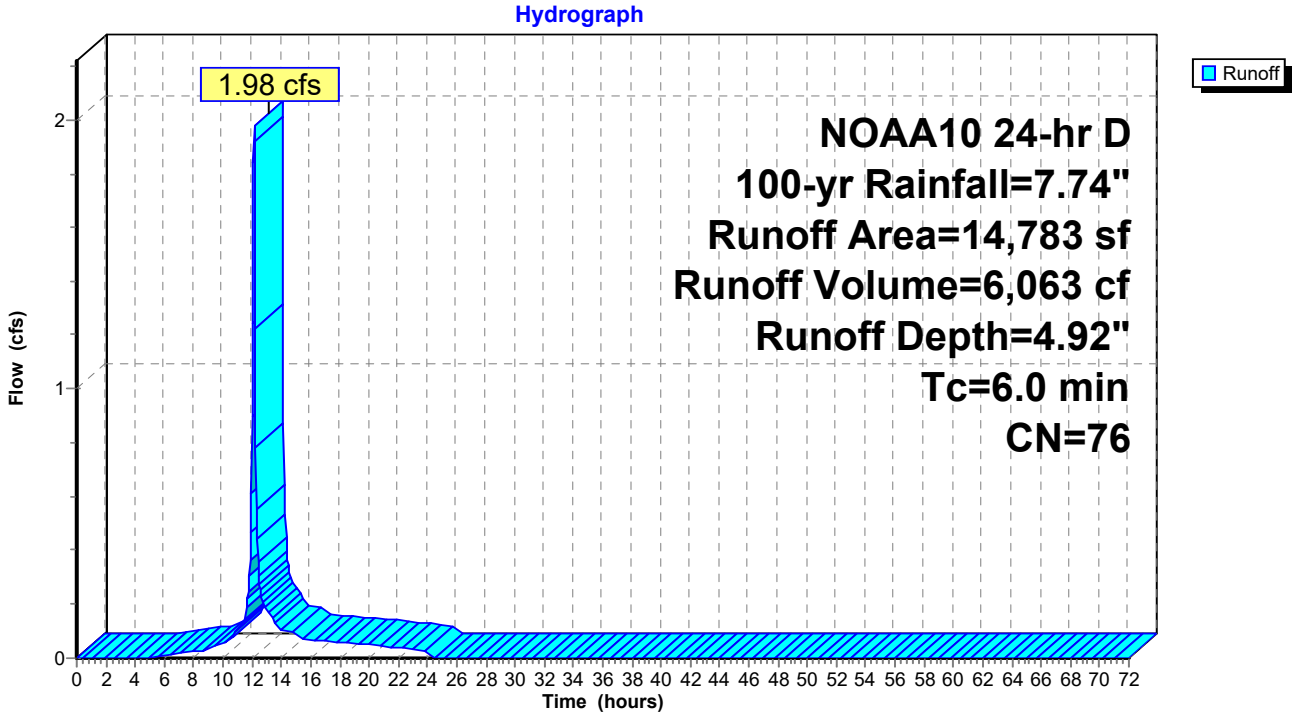
Runoff = 1.98 cfs @ 12.13 hrs, Volume= 6,063 cf, Depth= 4.92"
Routed to Pond 14P : POND 1A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
3,811	98	Roofs, HSG D
10,972	69	50-75% Grass cover, Fair, HSG B
14,783	76	Weighted Average
10,972		74.22% Pervious Area
3,811		25.78% Impervious Area

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

Subcatchment 19S: PDA-11



Summary for Subcatchment 20S: PDA-13

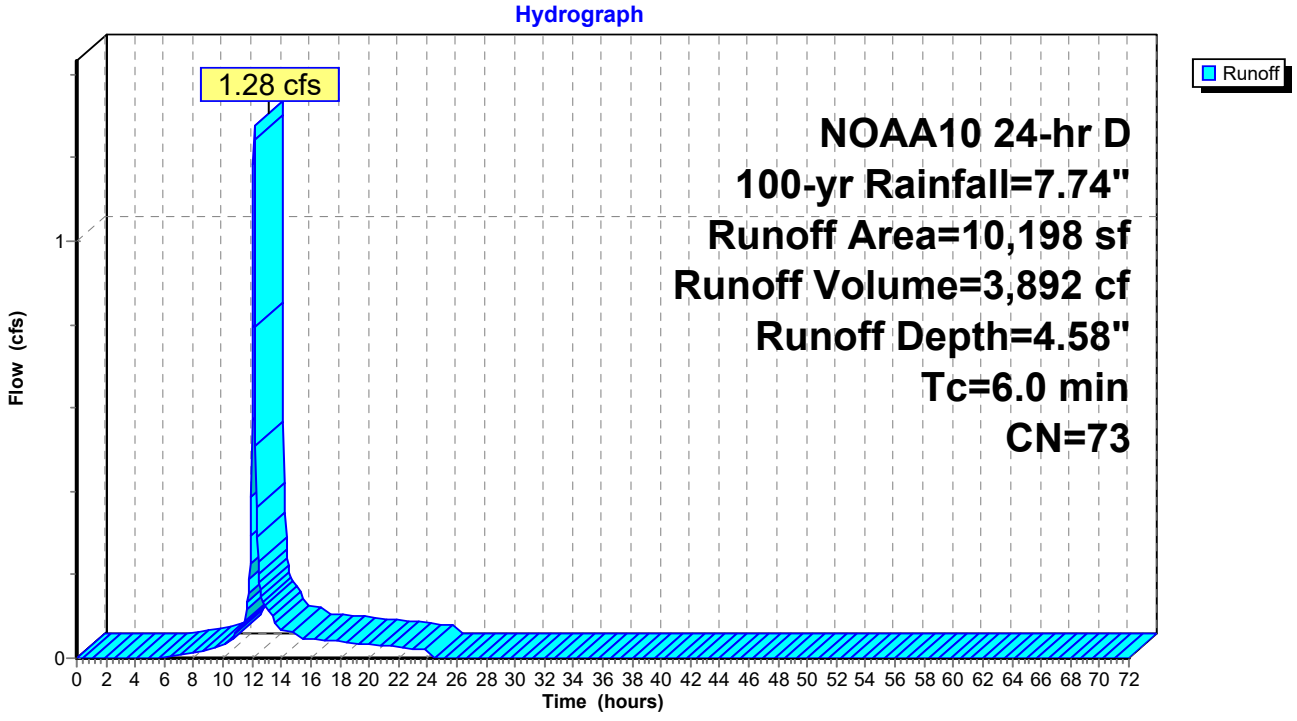
Runoff = 1.28 cfs @ 12.13 hrs, Volume= 3,892 cf, Depth= 4.58"
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
8,701	69	50-75% Grass cover, Fair, HSG B
1,497	98	Paved parking, HSG D
10,198	73	Weighted Average
8,701		85.32% Pervious Area
1,497		14.68% Impervious Area

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

Subcatchment 20S: PDA-13



Summary for Subcatchment 23S: PDA-21

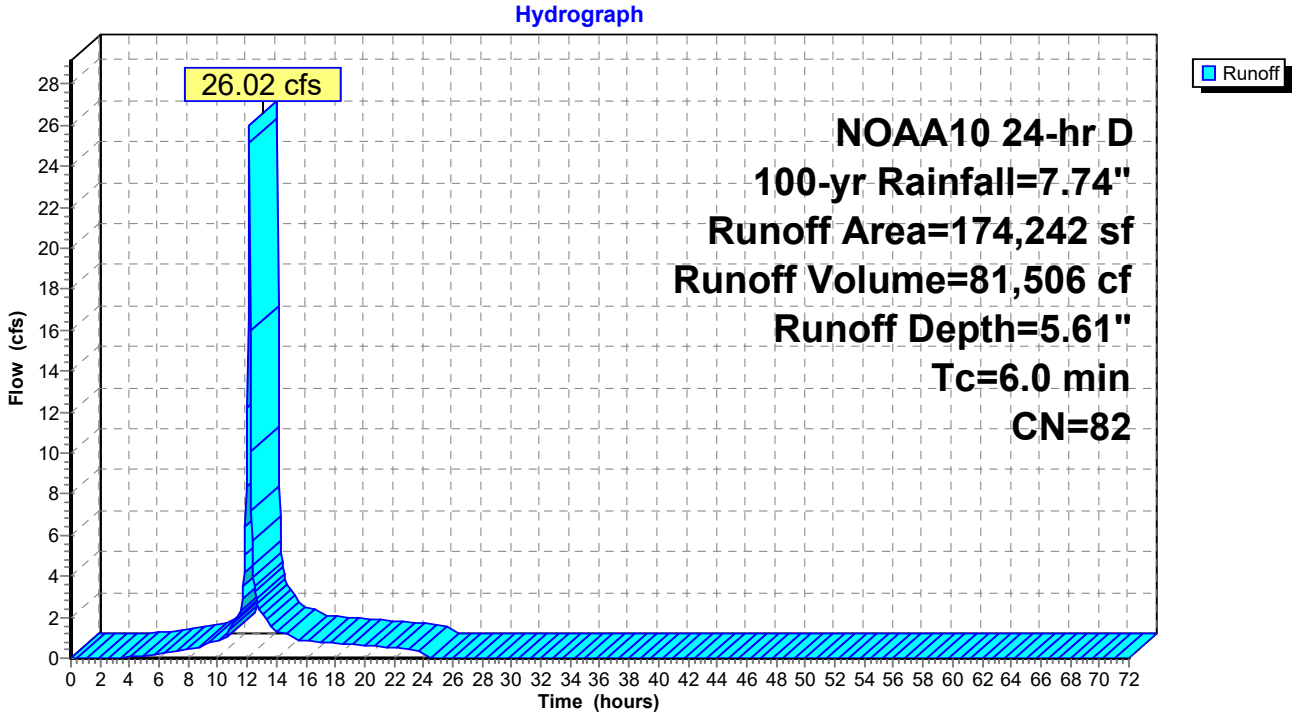
Runoff = 26.02 cfs @ 12.13 hrs, Volume= 81,506 cf, Depth= 5.61"
Routed to Pond 13P : POND 2A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
78,688	98	Paved parking, HSG D
95,554	69	50-75% Grass cover, Fair, HSG B
174,242	82	Weighted Average
95,554		54.84% Pervious Area
78,688		45.16% Impervious Area

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

Subcatchment 23S: PDA-21



Summary for Subcatchment 24S: PDA23

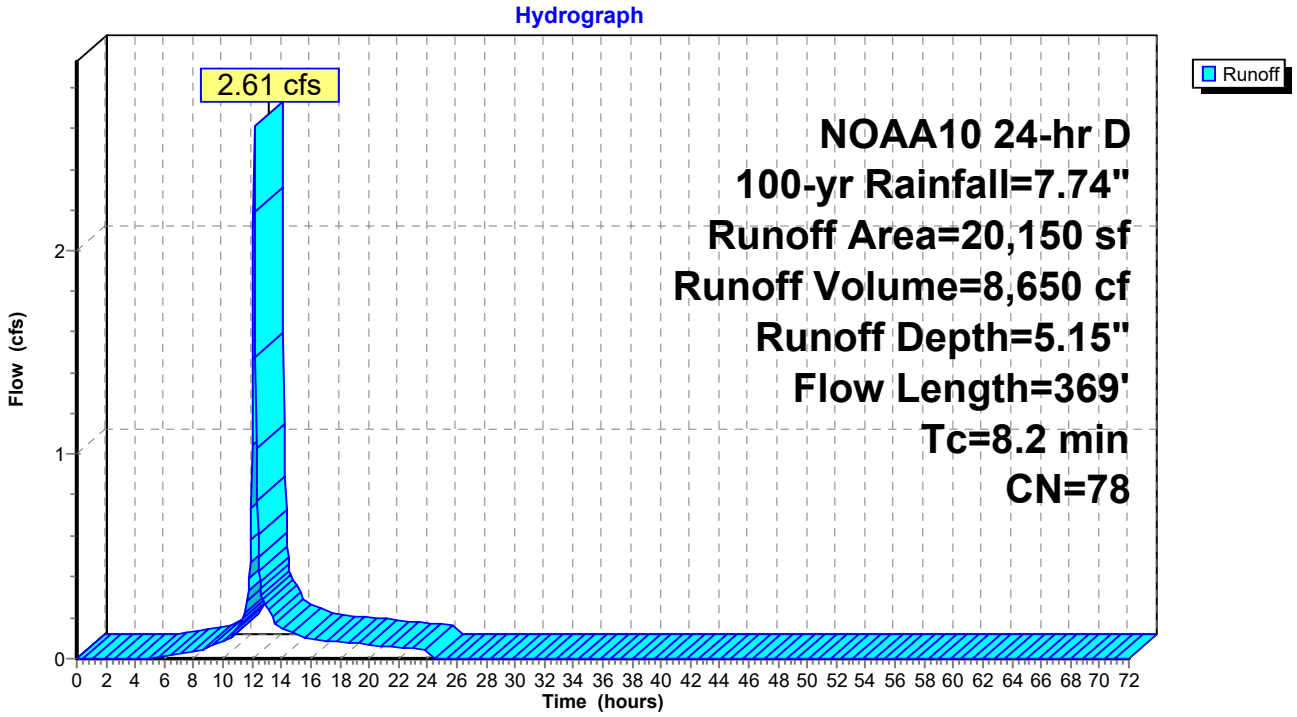
Runoff = 2.61 cfs @ 12.15 hrs, Volume= 8,650 cf, Depth= 5.15"
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA10 24-hr D 100-yr Rainfall=7.74"

Area (sf)	CN	Description
4,687	60	Woods, Fair, HSG B
15,463	83	Woods, Poor, HSG D
20,150	78	Weighted Average
20,150		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	14	0.0357	0.07		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.46"
4.8	355	0.0620	1.24		**Shallow Concentrated Flow, Shallow Conc.** Woodland Kv= 5.0 fps
8.2	369	Total			

Subcatchment 24S: PDA23



Summary for Pond 13P: POND 2A

Inflow Area = 174,242 sf, 45.16% Impervious, Inflow Depth = 5.61" for 100-yr event
Inflow = 26.02 cfs @ 12.13 hrs, Volume= 81,506 cf
Outflow = 3.03 cfs @ 12.58 hrs, Volume= 75,600 cf, Atten= 88%, Lag= 27.0 min
Primary = 3.03 cfs @ 12.58 hrs, Volume= 75,600 cf
Routed to Link 11L : DP-2 (EXISTING WETLANDS)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 264.36' @ 12.58 hrs Surf.Area= 15,569 sf Storage= 39,165 cf

Plug-Flow detention time= 738.4 min calculated for 75,600 cf (93% of inflow)
Center-of-Mass det. time= 698.2 min (1,515.2 - 817.0)

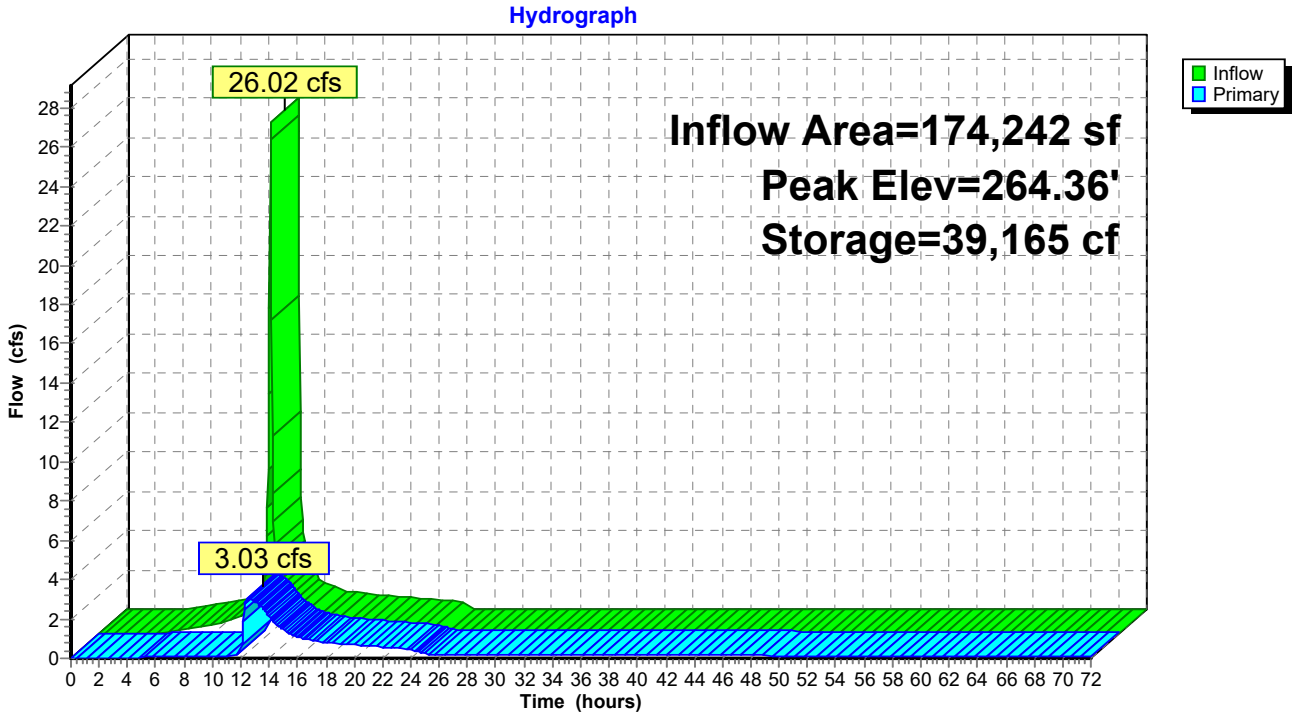
Volume	Invert	Avail.Storage	Storage Description
#1	261.00'	49,547 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
261.00	7,809	0	0
262.00	9,940	8,875	8,875
263.00	12,454	11,197	20,072
264.00	14,724	13,589	33,661
265.00	17,049	15,887	49,547

Device	Routing	Invert	Outlet Devices
#1	Primary	258.60'	**15.0" Round Culvert** L= 32.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 258.60' / 258.25' S= 0.0109 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	264.50'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	263.60'	**20.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	261.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=3.02 cfs @ 12.58 hrs HW=264.36' (Free Discharge)
└**1=Culvert** (Passes 3.02 cfs of 13.39 cfs potential flow)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  ├**3=Orifice/Grate** (Orifice Controls 2.84 cfs @ 3.41 fps)
  └**4=Exfiltration** (Exfiltration Controls 0.18 cfs)

Pond 13P: POND 2A



Summary for Pond 14P: POND 1A

Inflow Area = 14,783 sf, 25.78% Impervious, Inflow Depth = 4.92" for 100-yr event
Inflow = 1.98 cfs @ 12.13 hrs, Volume= 6,063 cf
Outflow = 0.73 cfs @ 12.27 hrs, Volume= 6,063 cf, Atten= 63%, Lag= 8.2 min
Discarded = 0.01 cfs @ 12.27 hrs, Volume= 1,109 cf
Primary = 0.72 cfs @ 12.27 hrs, Volume= 4,954 cf
Routed to Link 10L : DP-1 (EXISTING 18" RCP)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 271.33' @ 12.27 hrs Surf.Area= 1,853 sf Storage= 1,783 cf

Plug-Flow detention time= 172.4 min calculated for 6,059 cf (100% of inflow)
Center-of-Mass det. time= 173.4 min (1,009.8 - 836.3)

Volume	Invert	Avail.Storage	Storage Description
#1	270.00'	3,233 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

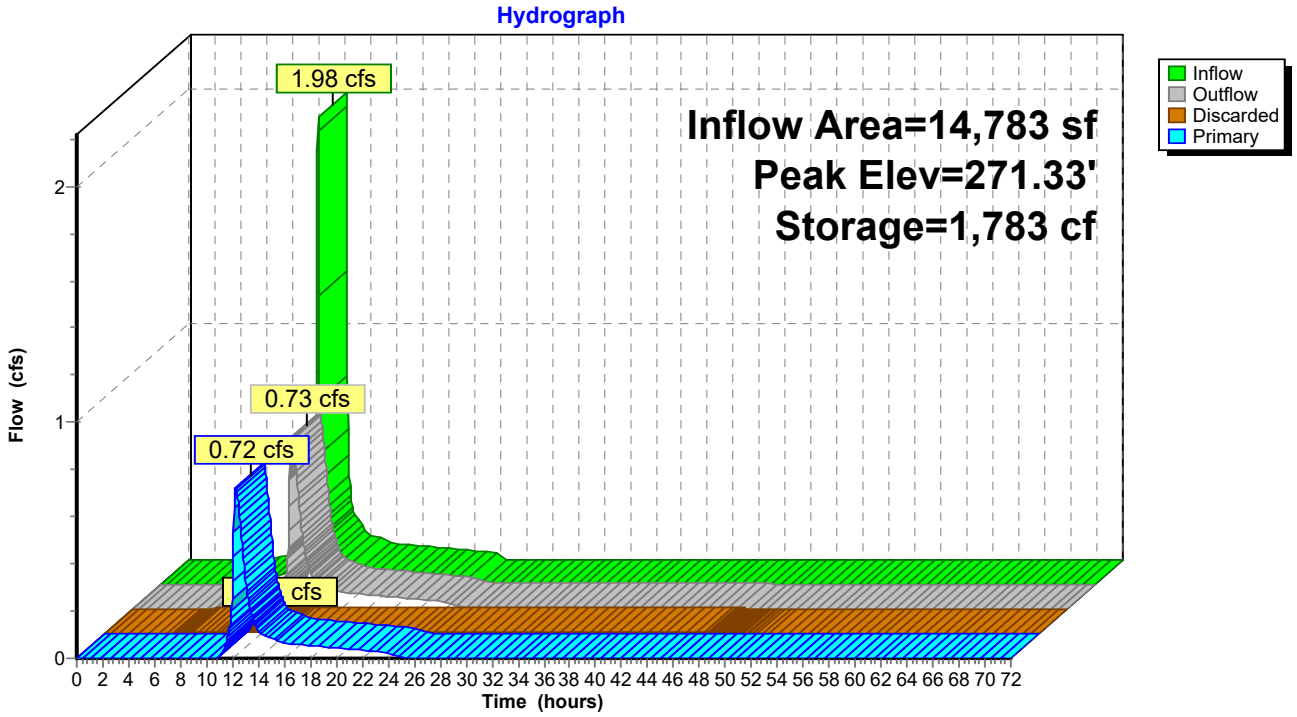
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
270.00	892	175.0	0	0	892
271.00	1,583	241.0	1,221	1,221	3,087
272.00	2,473	323.0	2,012	3,233	6,778

Device	Routing	Invert	Outlet Devices
#1	Primary	269.60'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 269.60' / 269.00' S= 0.0120 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	270.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	271.80'	**36.0" W x 24.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	270.00'	**0.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 255.00'

Discarded OutFlow Max=0.01 cfs @ 12.27 hrs HW=271.32' (Free Discharge)
└**4=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.72 cfs @ 12.27 hrs HW=271.32' (Free Discharge)
└**1=Culvert** (Passes 0.72 cfs of 6.19 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.72 cfs @ 3.65 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Pond 14P: POND 1A



Summary for Pond 15P: RG-1

Inflow Area = 16,462 sf, 46.51% Impervious, Inflow Depth = 5.61" for 100-yr event
Inflow = 2.46 cfs @ 12.13 hrs, Volume= 7,700 cf
Outflow = 1.85 cfs @ 12.19 hrs, Volume= 7,700 cf, Atten= 25%, Lag= 3.4 min
Primary = 1.85 cfs @ 12.19 hrs, Volume= 7,700 cf
Routed to Pond 18P : POND 4A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 274.99' @ 12.19 hrs Surf.Area= 1,802 sf Storage= 1,399 cf

Plug-Flow detention time= 113.9 min calculated for 7,700 cf (100% of inflow)
Center-of-Mass det. time= 113.5 min (930.5 - 817.0)

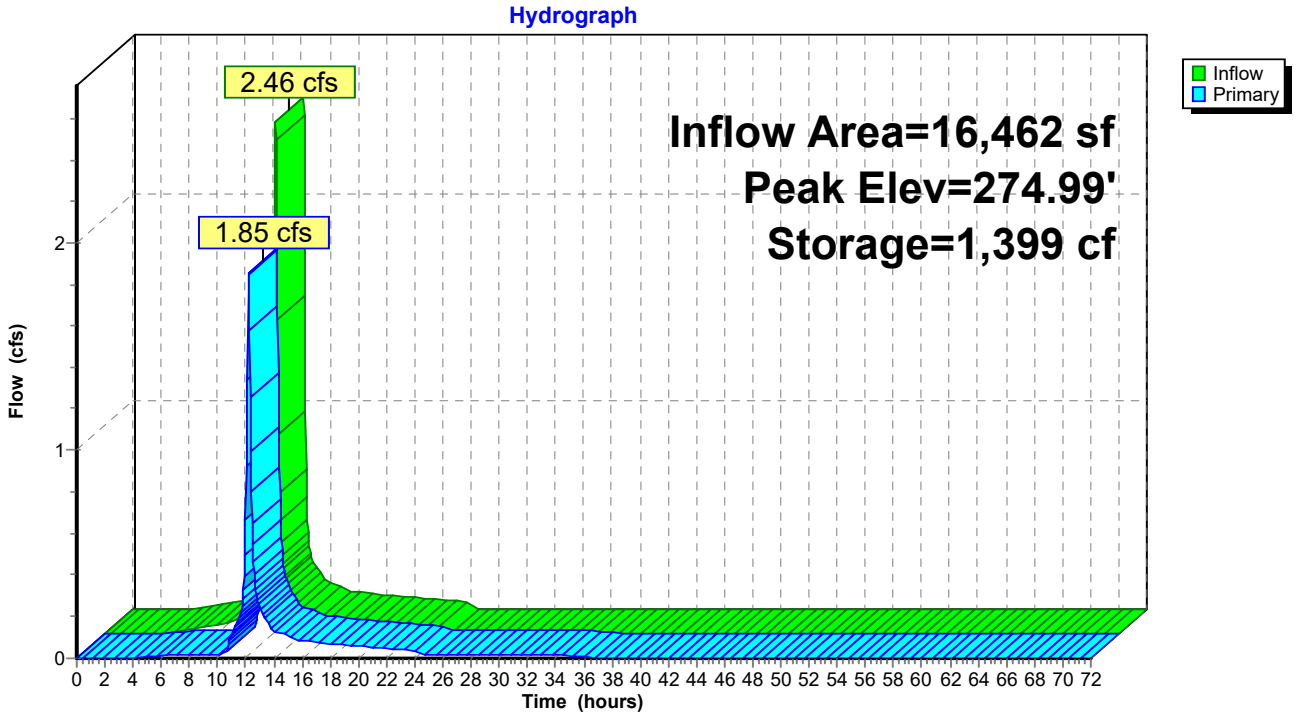
Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	3,629 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	1,058	203.0	0	0	1,058
275.00	1,811	247.0	1,418	1,418	2,650
276.00	2,637	281.0	2,211	3,629	4,102

Device	Routing	Invert	Outlet Devices
#1	Primary	271.60'	**15.0" Round Culvert** L= 85.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 271.60' / 270.60' S= 0.0118 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	274.50'	**20.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=1.82 cfs @ 12.19 hrs HW=274.98' (Free Discharge)
└**1=Culvert** (Passes 1.82 cfs of 9.76 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 1.80 cfs @ 2.23 fps)
└**3=Exfiltration** (Exfiltration Controls 0.02 cfs)

Pond 15P: RG-1


Hydrograph
2.46 cfs
1.85 cfs
Inflow Area=16,462 sf
Peak Elev=274.99'
Storage=1,399 cf
Inflow
Primary
Flow (cfs)
0
1
2
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72
Time (hours)

Summary for Pond 18P: POND 4A

Inflow Area = 166,016 sf, 39.80% Impervious, Inflow Depth = 5.60" for 100-yr event
Inflow = 23.73 cfs @ 12.13 hrs, Volume= 77,455 cf
Outflow = 2.99 cfs @ 12.58 hrs, Volume= 75,594 cf, Atten= 87%, Lag= 27.1 min
Discarded = 0.27 cfs @ 12.58 hrs, Volume= 32,185 cf
Primary = 2.72 cfs @ 12.58 hrs, Volume= 43,409 cf
Routed to Link 13L : DP-4 (SOUTHERN PROPERTY LINE)

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 262.11' @ 12.58 hrs Surf.Area= 15,252 sf Storage= 36,802 cf

Plug-Flow detention time= 607.7 min calculated for 75,541 cf (98% of inflow)
Center-of-Mass det. time= 590.8 min (1,422.2 - 831.4)

Volume	Invert	Avail.Storage	Storage Description
#1	259.00'	51,513 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

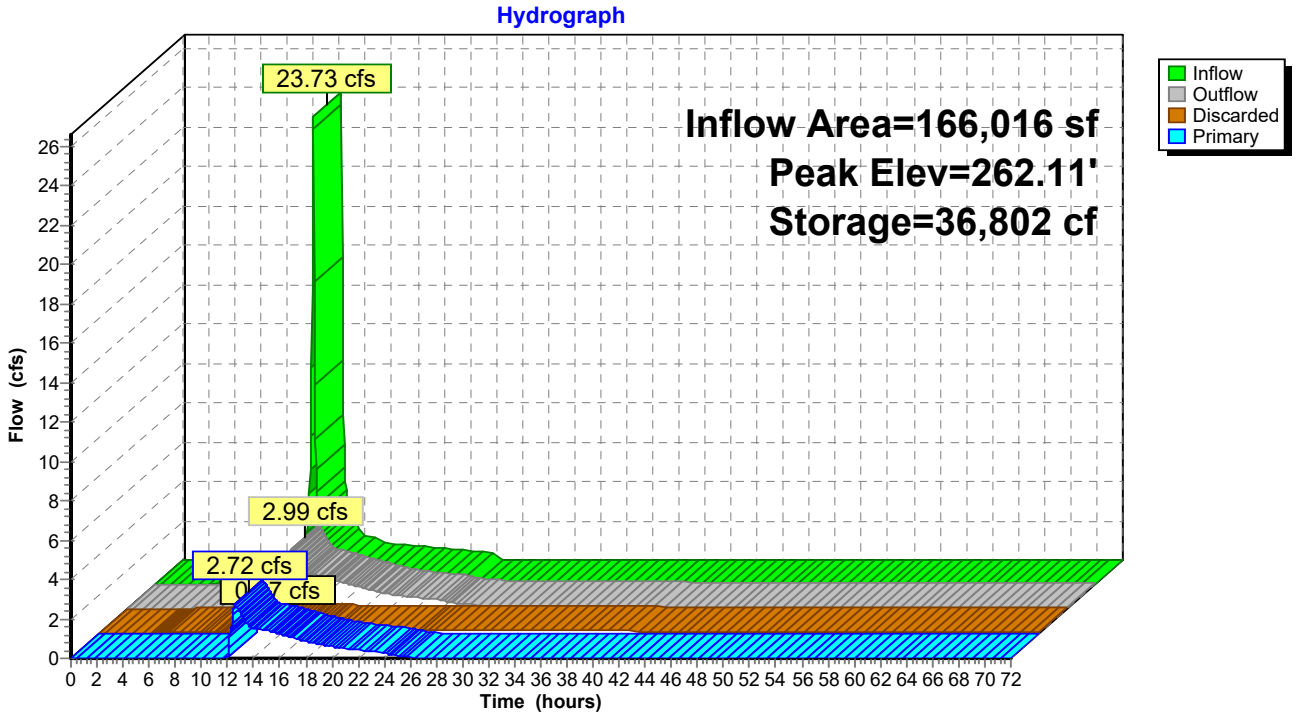
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
259.00	8,546	0	0
260.00	10,596	9,571	9,571
261.00	12,850	11,723	21,294
262.00	14,969	13,910	35,204
263.00	17,649	16,309	51,513

Device	Routing	Invert	Outlet Devices
#1	Primary	255.40'	**15.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 255.40' / 255.00' S= 0.0114 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	260.80'	**8.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	262.00'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Discarded	259.00'	**0.250 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 258.00'

Discarded OutFlow Max=0.27 cfs @ 12.58 hrs HW=262.11' (Free Discharge)
└**4=Exfiltration** (Controls 0.27 cfs)

Primary OutFlow Max=2.70 cfs @ 12.58 hrs HW=262.11' (Free Discharge)
└**1=Culvert** (Passes 2.70 cfs of 14.57 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 1.66 cfs @ 4.75 fps)
  └**3=Orifice/Grate** (Weir Controls 1.04 cfs @ 1.06 fps)

Pond 18P: POND 4A



Summary for Pond 19P: RG-2

Inflow Area = 1,640 sf, 0.00% Impervious, Inflow Depth = 4.13" for 100-yr event
Inflow = 0.22 cfs @ 12.05 hrs, Volume= 564 cf
Outflow = 0.02 cfs @ 12.80 hrs, Volume= 564 cf, Atten= 91%, Lag= 45.1 min
Primary = 0.02 cfs @ 12.80 hrs, Volume= 564 cf
Routed to Pond 18P : POND 4A

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 274.50' @ 12.80 hrs Surf.Area= 519 sf Storage= 229 cf

Plug-Flow detention time= 393.4 min calculated for 564 cf (100% of inflow)
Center-of-Mass det. time= 393.7 min (1,245.3 - 851.7)

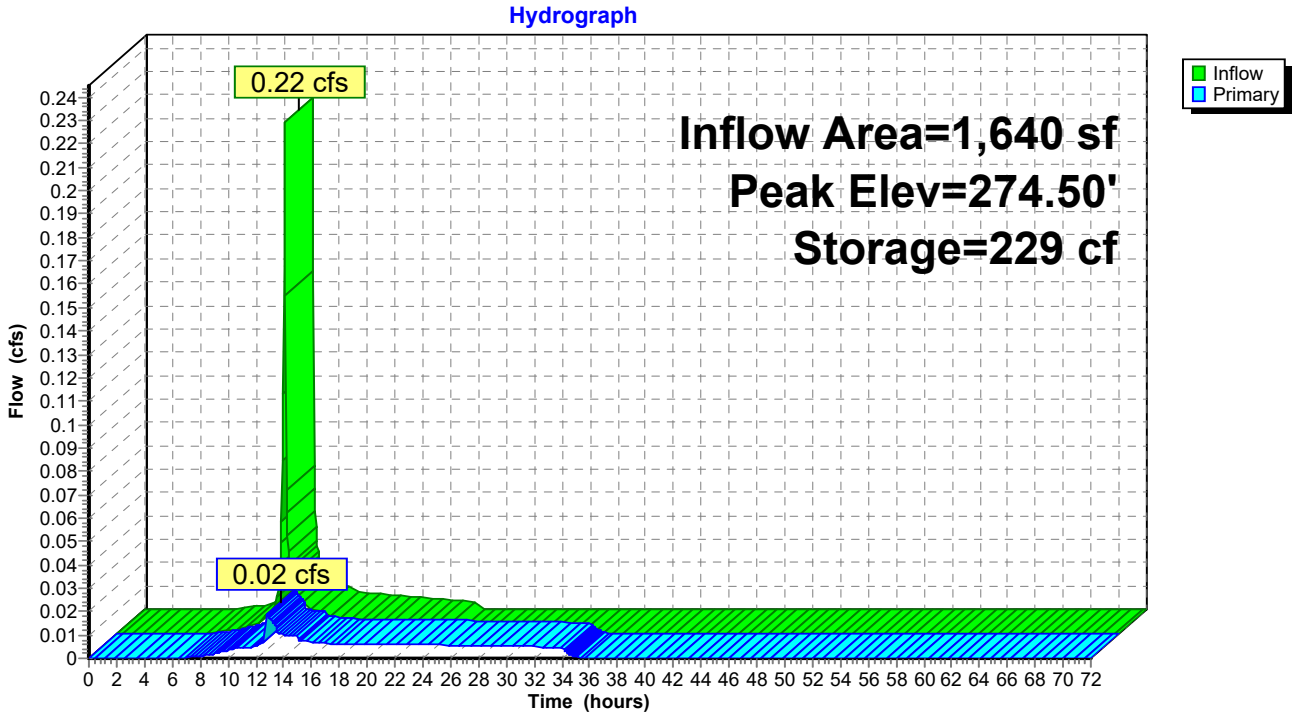
Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	1,334 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	395	78.0	0	0	395
275.00	658	97.0	521	521	674
276.00	979	116.0	813	1,334	1,013

Device	Routing	Invert	Outlet Devices
#1	Primary	272.50'	**15.0" Round Culvert** L= 58.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 272.50' / 271.70' S= 0.0138 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	274.50'	**20.0" x 36.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	274.00'	**0.500 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.01 cfs @ 12.80 hrs HW=274.50' (Free Discharge)
└**1=Culvert** (Passes 0.01 cfs of 6.94 cfs potential flow)
└**2=Orifice/Grate** (Weir Controls 0.00 cfs @ 0.18 fps)
└**3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Pond 19P: RG-2

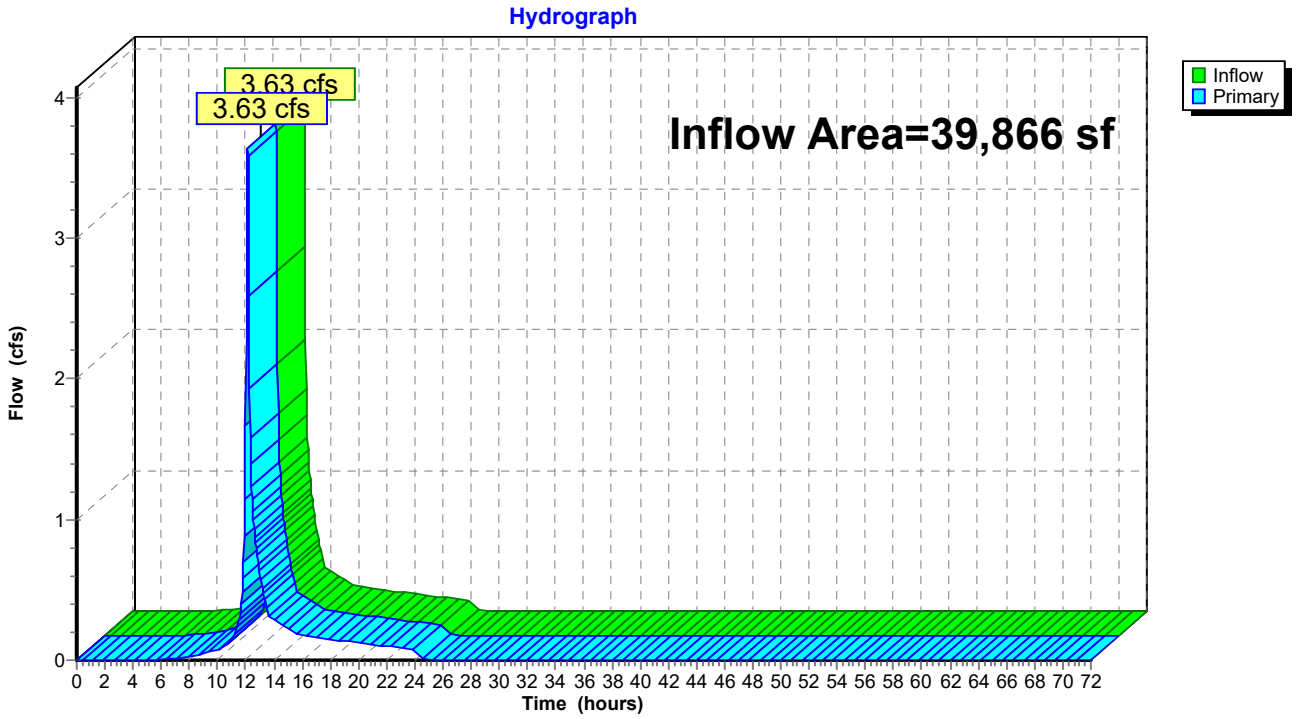

Hydrograph
Inflow
Primary
0.22 cfs
0.02 cfs
Inflow Area=1,640 sf
Peak Elev=274.50'
Storage=229 cf
Flow (cfs)
Time (hours)

Summary for Link 10L: DP-1 (EXISTING 18" RCP)

Inflow Area = 39,866 sf, 14.88% Impervious, Inflow Depth = 4.25" for 100-yr event
Inflow = 3.63 cfs @ 12.14 hrs, Volume= 14,108 cf
Primary = 3.63 cfs @ 12.14 hrs, Volume= 14,108 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 10L: DP-1 (EXISTING 18" RCP)

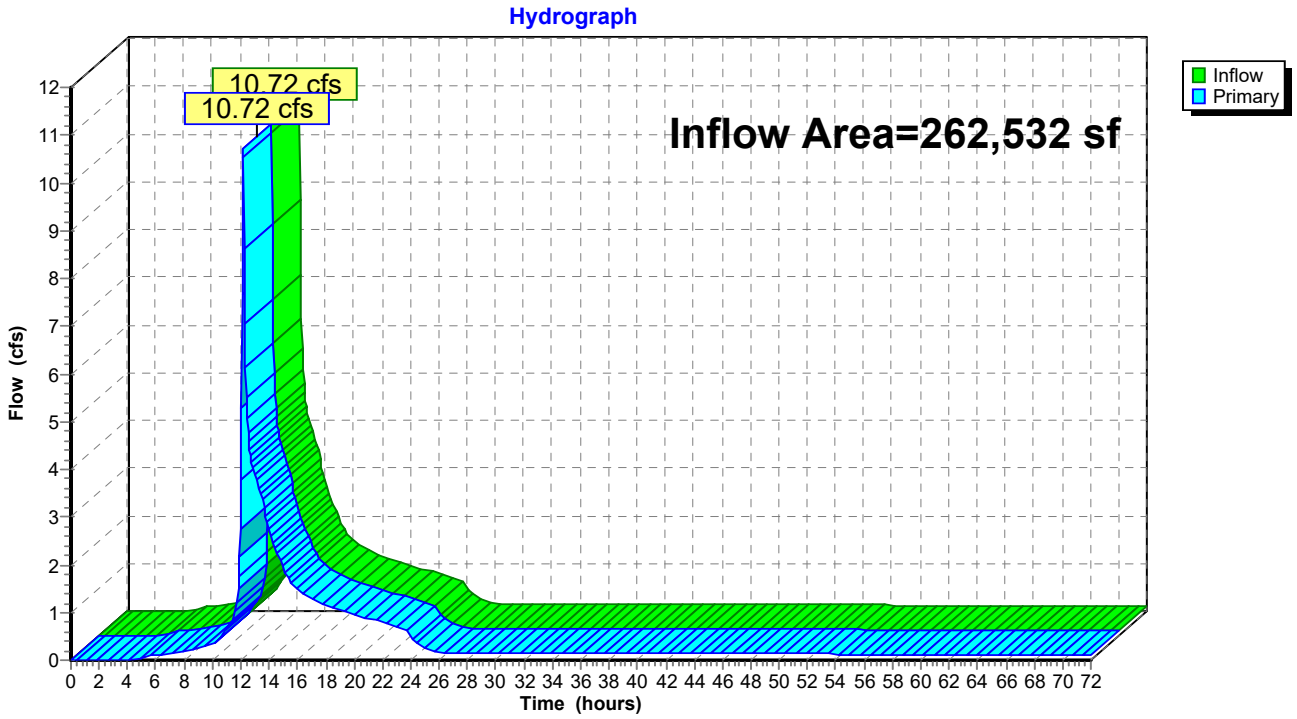


Summary for Link 11L: DP-2 (EXISTING WETLANDS)

Inflow Area = 262,532 sf, 29.97% Impervious, Inflow Depth > 4.95" for 100-yr event
Inflow = 10.72 cfs @ 12.18 hrs, Volume= 108,335 cf
Primary = 10.72 cfs @ 12.18 hrs, Volume= 108,335 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 11L: DP-2 (EXISTING WETLANDS)

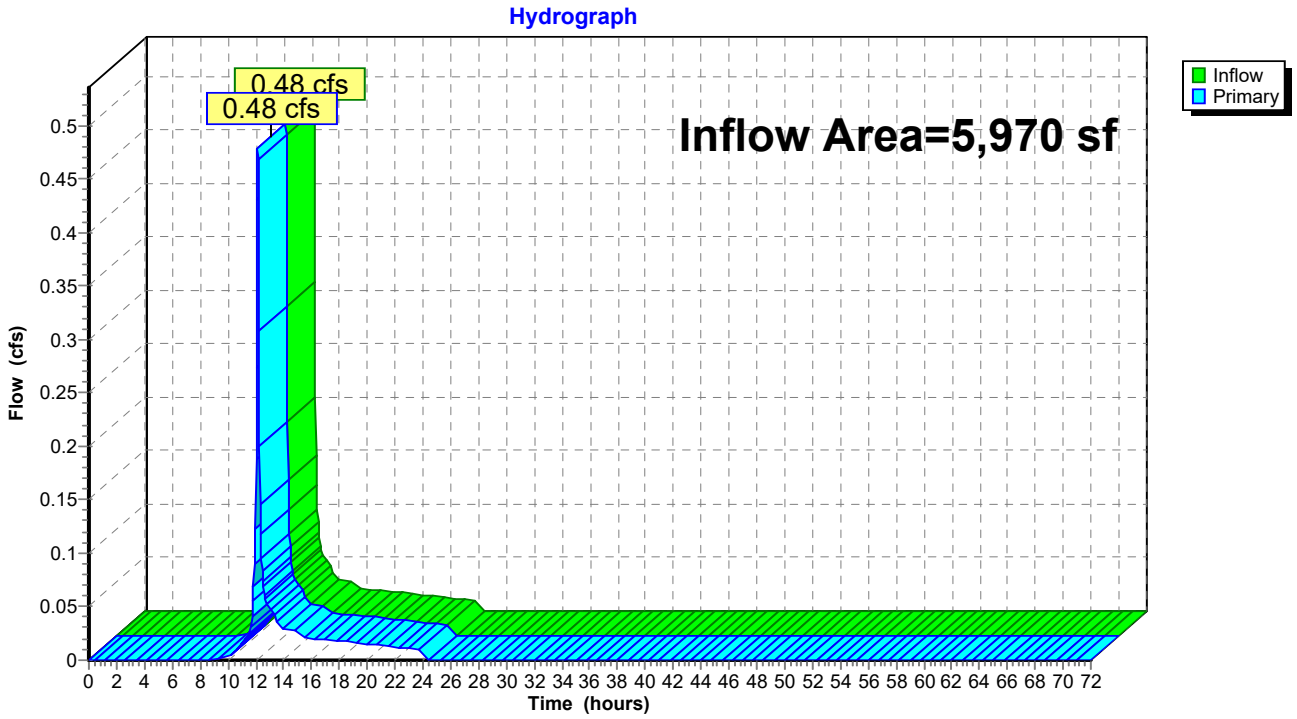


Summary for Link 12L: DP-3 (NORTHERN PROPERTY LINE)

Inflow Area = 5,970 sf, 0.00% Impervious, Inflow Depth = 2.93" for 100-yr event
Inflow = 0.48 cfs @ 12.13 hrs, Volume= 1,455 cf
Primary = 0.48 cfs @ 12.13 hrs, Volume= 1,455 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 12L: DP-3 (NORTHERN PROPERTY LINE)

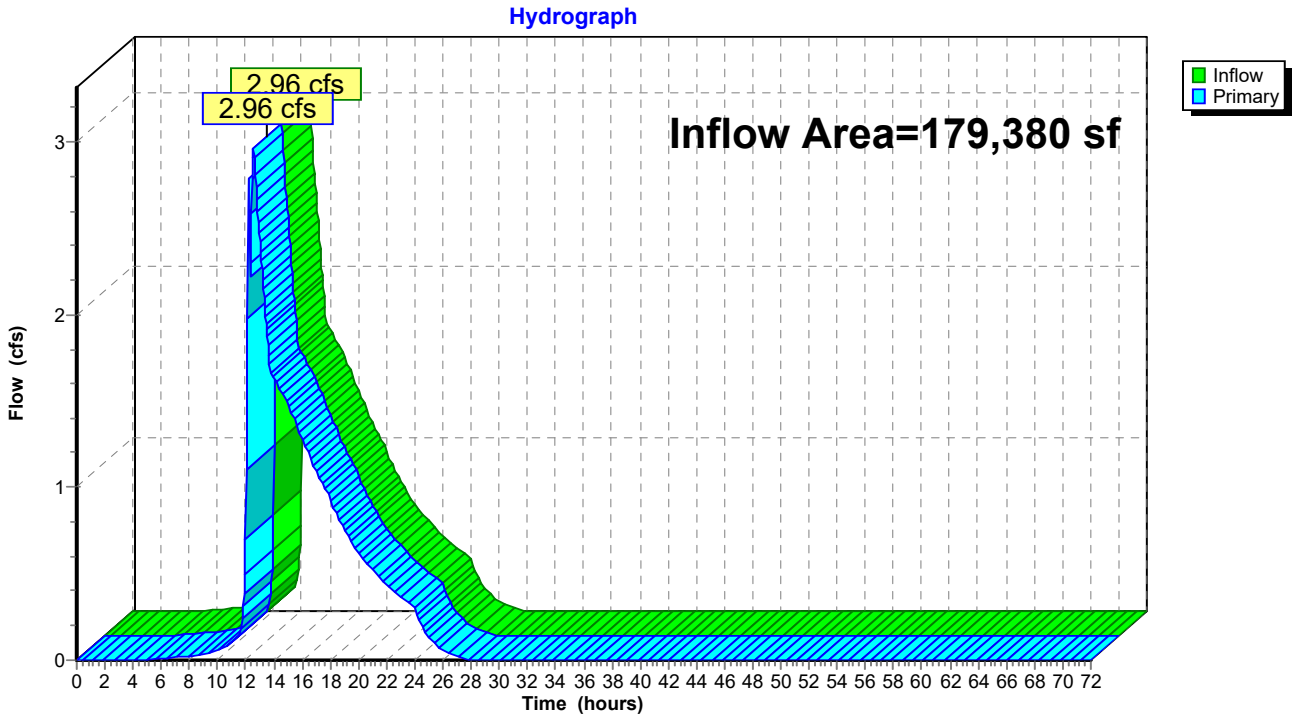


Summary for Link 13L: DP-4 (SOUTHERN PROPERTY LINE)

Inflow Area = 179,380 sf, 36.84% Impervious, Inflow Depth = 3.29" for 100-yr event
Inflow = 2.96 cfs @ 12.56 hrs, Volume= 49,146 cf
Primary = 2.96 cfs @ 12.56 hrs, Volume= 49,146 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 13L: DP-4 (SOUTHERN PROPERTY LINE)



APPENDIX E

CONVEYANCE MODELING RESULTS

FlexTable: Catch Basin Table

ID	Label	Elevation (Ground) (ft)	Set Rim to Ground Elevation?	Elevation (Rim) (ft)	Elevation (Invert) (ft)	Length (ft)	Width (ft)	Inlet Type	Capture Efficiency (Calculated) (%)	Flow (Captured) (cfs)	Hydraulic Grade Line (In) (ft)	Spread / Top Width (ft)	Notes
169	CB-410	276.10	True	276.10	271.00	4.00	3.00	Catalog Inlet	100.0	0.10	272.95	1.0	TYPE "C"
170	CB-409	276.00	True	276.00	270.60	4.00	3.00	Catalog Inlet	100.0	0.14	272.64	1.3	TYPE "C"
172	CB-406	275.16	True	275.16	268.00	4.00	3.00	Catalog Inlet	100.0	1.11	271.88	2.6	TYPE "C"
173	CB-407	275.00	True	275.00	269.00	4.00	3.00	Catalog Inlet	100.0	0.87	272.26	2.4	TYPE "C"
174	CB-404	277.17	True	277.17	264.50	4.00	3.00	Catalog Inlet	56.2	1.04	267.95	7.4	TYPE "C"
175	CB-405	277.47	True	277.47	269.30	4.00	3.00	Catalog Inlet	48.7	1.49	271.98	9.0	TYPE "C"
176	CB-402	269.73	True	269.73	261.70	4.00	3.00	Catalog Inlet	53.0	1.28	265.22	7.6	TYPE "C-L"
177	CB-403	270.41	True	270.41	264.90	4.00	3.00	Catalog Inlet	51.2	1.39	267.19	7.9	TYPE "C-L"
178	CB-401	265.79	True	265.79	259.40	6.53	3.00	Catalog Inlet	100.0	4.10	263.88	5.8	TYPE "C"
179	CB-400	266.00	True	266.00	258.18	6.53	3.00	Catalog Inlet	100.0	4.47	263.53	6.4	TYPE "C"
180	CB-208	267.10	True	267.10	262.20	4.00	4.72	Catalog Inlet	100.0	3.65	266.48	17.1	TYPE "C-L"
181	CB-201	266.88	True	266.88	261.90	4.00	3.00	Catalog Inlet	54.5	1.11	266.12	8.4	TYPE "C"
182	CB-200	266.82	True	266.82	261.50	4.00	3.00	Catalog Inlet	51.0	1.33	265.63	9.5	TYPE "C"
183	CB-202	269.52	True	269.52	262.48	4.00	3.00	Catalog Inlet	52.3	1.25	266.74	9.0	TYPE "C"
184	CB-203	270.00	True	270.00	264.40	4.00	3.00	Catalog Inlet	54.6	1.11	267.21	8.5	TYPE "C"
185	CB-205	272.34	True	272.34	267.04	4.00	3.00	Catalog Inlet	56.7	1.00	269.63	8.1	TYPE "C-L"
186	CB-204	272.18	True	272.18	266.30	4.00	3.00	Catalog Inlet	54.0	1.15	269.31	8.6	TYPE "C-L"
187	CB-207	275.14	True	275.14	270.00	4.00	3.00	Catalog Inlet	62.8	0.74	272.22	6.7	TYPE "C"
188	CB-206	275.00	True	275.00	268.40	4.00	3.00	Catalog Inlet	60.9	0.83	271.00	7.5	TYPE "C"
293	CB-412	262.00	True	262.00	260.00	4.00	4.72	Catalog Inlet	100.0	2.35	260.61	13.3	

FlexTable: Catchment Table

ID	Label	Outflow Element	Runoff Coefficient (Rational)	Time of Concentration (min)	Flow (Total Out) (cfs)
131	BLDG 10	CB-405	0.900	5.000	0.70
132	BLDG 11	CB-405	0.900	5.000	0.86
133	BLDG 12	MH-401	0.900	5.000	0.70
134	BLDG 13	MH-401	0.900	5.000	0.70
135	BLDG 14	CB-208	0.900	5.000	0.70
136	BLDG 15	CB-208	0.900	5.000	0.70
137	BLDG 16	MH-203 (STORM)	0.900	5.000	0.87
138	BLDG 17	MH-203 (STORM)	0.900	5.000	0.69
148	CB-201	CB-201	0.900	5.000	1.11
149	CB-202	CB-202	0.900	5.000	1.41
150	CB-203	CB-203	0.900	5.000	1.27
151	CB-204	CB-204	0.900	5.000	1.59
152	CB-205	CB-205	0.900	5.000	1.33
153	CB-206	CB-206	0.900	5.000	1.36
154	CB-207	CB-207	0.900	5.000	1.18
155	CB-208	CB-208	0.300	5.000	2.25
157	CB-401	CB-401	0.900	5.000	1.85
158	CB-402	CB-402	0.900	5.000	1.60
159	CB-403	CB-403	0.900	5.000	1.14
160	CB-404	CB-404	0.900	5.000	1.85
161	CB-405	CB-405	0.900	5.000	1.51
162	CB-406	CB-406	0.900	5.000	1.11
163	CB-407	CB-407	0.900	5.000	0.87
165	CB-410	CB-410	0.900	5.000	0.10
191	CB-200	CB-200	0.900	5.000	1.48
192	CB-400	CB-400	0.900	5.000	2.05
227	CB-409	CB-409	0.900	5.000	0.14
277	BLDG 3	CB-412	0.900	5.000	0.69
278	BLDG 4	CB-412	0.900	5.000	0.86
284	CB-412	CB-412	0.300	5.000	0.81

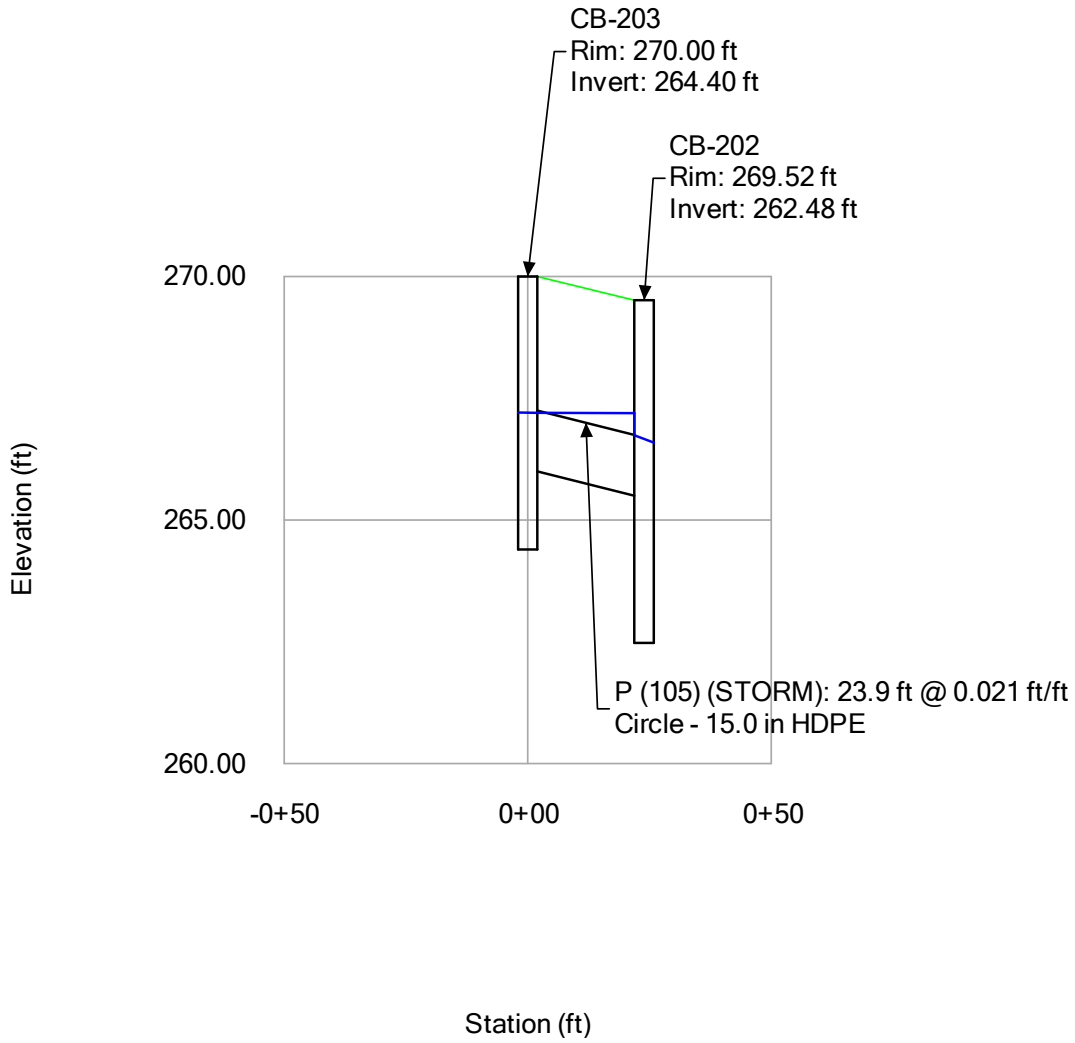
FlexTable: Conduit Table

ID	Label	Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Length (User Defined) (ft)	Slope (Calculated) (ft/ft)	Section Type	Diameter (in)	Manning's n	Flow (cfs)	Velocity (ft/s)	Depth (Out) (ft)	Capacity (Full Flow) (cfs)	Flow / Capacity (Design) (%)
66	P (81) (STORM)	CB-406	270.60	CB-404	268.40	215.6	0.010	Circle	15.0	0.013	4.23	5.66	0.73	6.53	64.9
67	P (82) (STORM)	CB-404	266.60	CB-402	264.50	188.5	0.011	Circle	18.0	0.013	6.46	6.51	1.14	11.09	58.2
68	P (96) (STORM)	CB-405	271.30	CB-404	271.00	25.7	0.012	Circle	15.0	0.013	1.49	4.52	0.39	6.98	21.4
69	P (47) (STORM)	CB-410	272.80	CB-409	272.50	25.2	0.012	Circle	15.0	0.013	0.10	2.02	0.20	7.05	1.4
70	P (7) (STORM)	CB-409	272.40	CB-411	271.70	60.0	0.012	Circle	15.0	0.013	0.23	2.63	0.89	6.98	3.3
71	P (48) (STORM)	CB-408	272.50	CB-411	271.70	59.0	0.014	Circle	15.0	0.013	0.15	2.42	0.89	7.52	2.0
72	P (7) (1) (STORM)	CB-411	271.60	CB-406	270.70	85.0	0.011	Circle	15.0	0.013	2.36	4.95	1.52	6.65	35.5
73	P (40) (STORM)	CB-407	271.35	CB-406	271.00	32.9	0.011	Circle	15.0	0.013	0.87	3.75	1.25	6.67	13.0
74	P (95) (STORM)	CB-207	271.80	CB-206	271.50	27.3	0.011	Circle	15.0	0.013	0.74	3.62	0.28	6.77	11.0
75	P (86) (STORM)	CB-206	270.40	CB-204	268.40	187.3	0.011	Circle	15.0	0.013	1.56	4.43	1.21	6.68	23.3
77	P (94) (STORM)	CB-205	269.00	CB-204	268.70	21.7	0.014	Circle	15.0	0.013	1.00	4.29	0.91	7.59	13.2
78	P (87) (STORM)	CB-204	268.30	MH-203 (STORM)	267.40	81.1	0.011	Circle	15.0	0.013	3.54	5.60	0.64	6.81	51.9
79	P (88) (STORM)	MH-203 (STORM)	266.50	CB-202	265.50	91.5	0.011	Circle	15.0	0.013	4.95	6.01	1.55	6.75	73.3
80	P (97) (STORM)	CB-403	266.60	CB-402	266.30	25.5	0.012	Circle	15.0	0.013	1.39	4.45	0.38	7.01	19.9
81	P (105) (STORM)	CB-203	266.00	CB-202	265.50	23.9	0.021	Circle	15.0	0.013	1.11	5.12	1.69	9.34	11.9
82	P (83) (STORM)	CB-402	263.60	MH-401	262.40	89.2	0.013	Circle	18.0	0.013	8.68	7.48	1.73	12.18	71.3
83	P (102) (STORM)	CB-202	265.40	MH-200 (STORM)	264.80	52.8	0.011	Circle	18.0	0.013	7.05	6.69	0.87	11.19	62.9
84	P (100) (STORM)	MH-200 (STORM)	262.70	HDS-200 (STORM)	262.50	13.4	0.015	Circle	30.0	0.013	12.56	8.49	1.63	50.13	25.1
86	P (100) (STORM)	MH-201 (STORM)	263.30	MH-200 (STORM)	262.70	70.9	0.008	Circle	18.0	0.013	5.86	5.73	1.75	9.67	60.6
87	P (99) (STORM)	CB-200	263.75	MH-201 (STORM)	263.30	69.7	0.006	Circle	15.0	0.013	5.94	4.84	1.42	5.19	114.4
88	P (84) (STORM)	MH-401	262.30	CB-401	262.00	28.0	0.011	Circle	24.0	0.013	9.82	7.13	2.11	23.42	41.9
89	P (98) (STORM)	CB-201	263.90	CB-200	263.75	24.3	0.006	Circle	15.0	0.013	4.67	3.81	2.11	5.00	93.4
90	P (106) (STORM)	CB-208	264.20	CB-201	263.90	58.0	0.005	Circle	15.0	0.013	3.65	2.97	2.36	4.65	78.5
91	P (103) (STORM)	CB-401	262.00	CB-400	261.70	22.0	0.014	Circle	24.0	0.013	13.34	8.43	2.04	26.42	50.5
94	P (104) (STORM)	HDS-400 (STORM)	260.90	FES-400 (STORM)	260.50	30.0	0.013	Circle	30.0	0.013	17.05	8.86	1.12	47.36	36.0
230	P (101) (STORM)	HDS-200 (STORM)	262.50	FES-200	262.25	27.1	0.009	Circle	30.0	0.013	12.54	7.13	1.01	39.39	31.8
273	P (92) (STORM)	CB-400	261.60	HDS-400 (STORM)	260.90	61.4	0.011	Circle	30.0	0.013	17.18	8.38	2.43	43.79	39.2
312	P(112) (STORM)	CB-412	260.00	FES-401	259.20		0.011	Circle	15.0	0.013	2.35	5.04	0.51	6.81	34.5

25 YEAR STORM EVENT

Profile Report

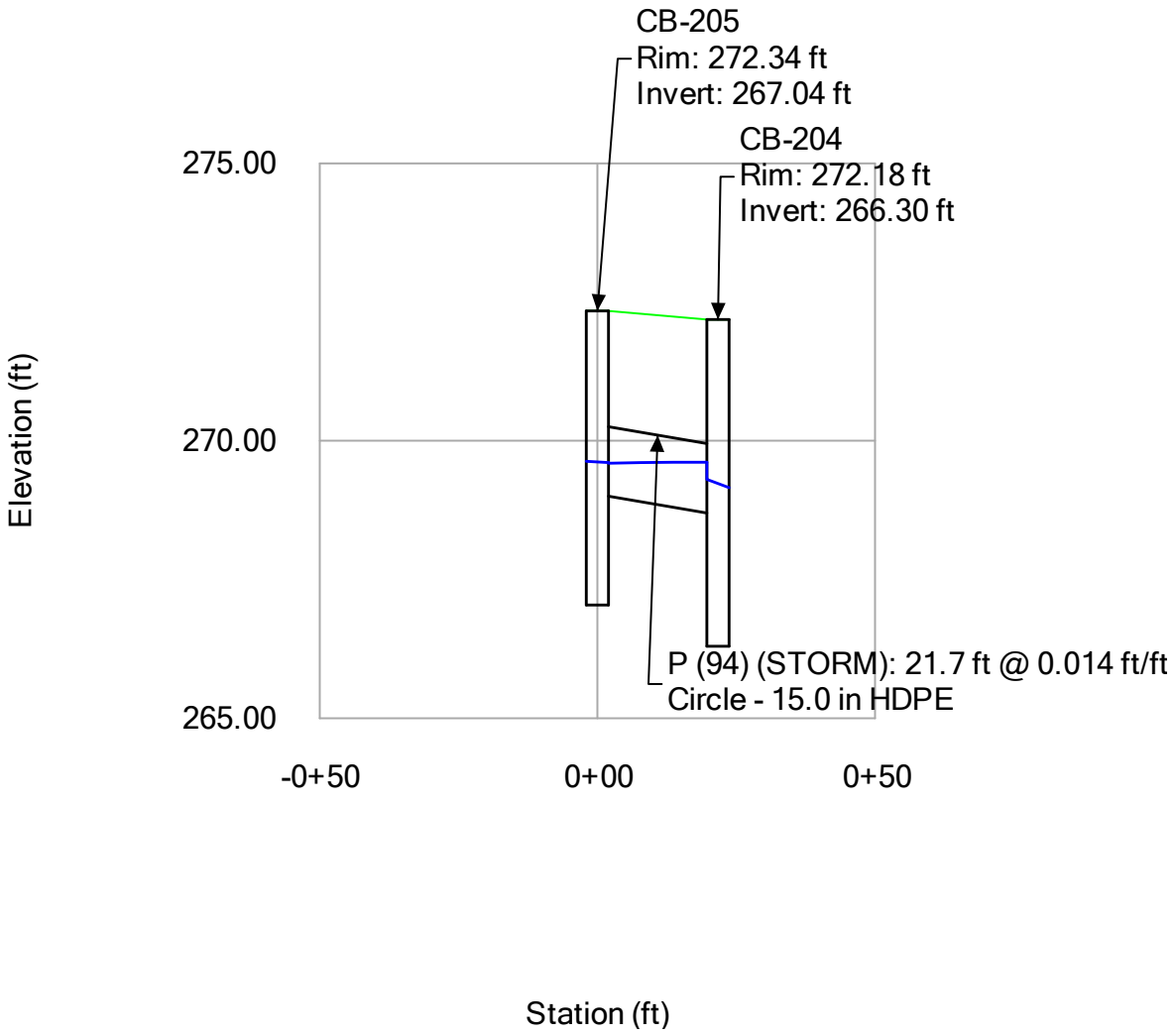
Engineering Profile - CB-203 TO CB-202 (C-DAT-StormCAD-2026-05-13.stsw)



25 YEAR STORM EVENT

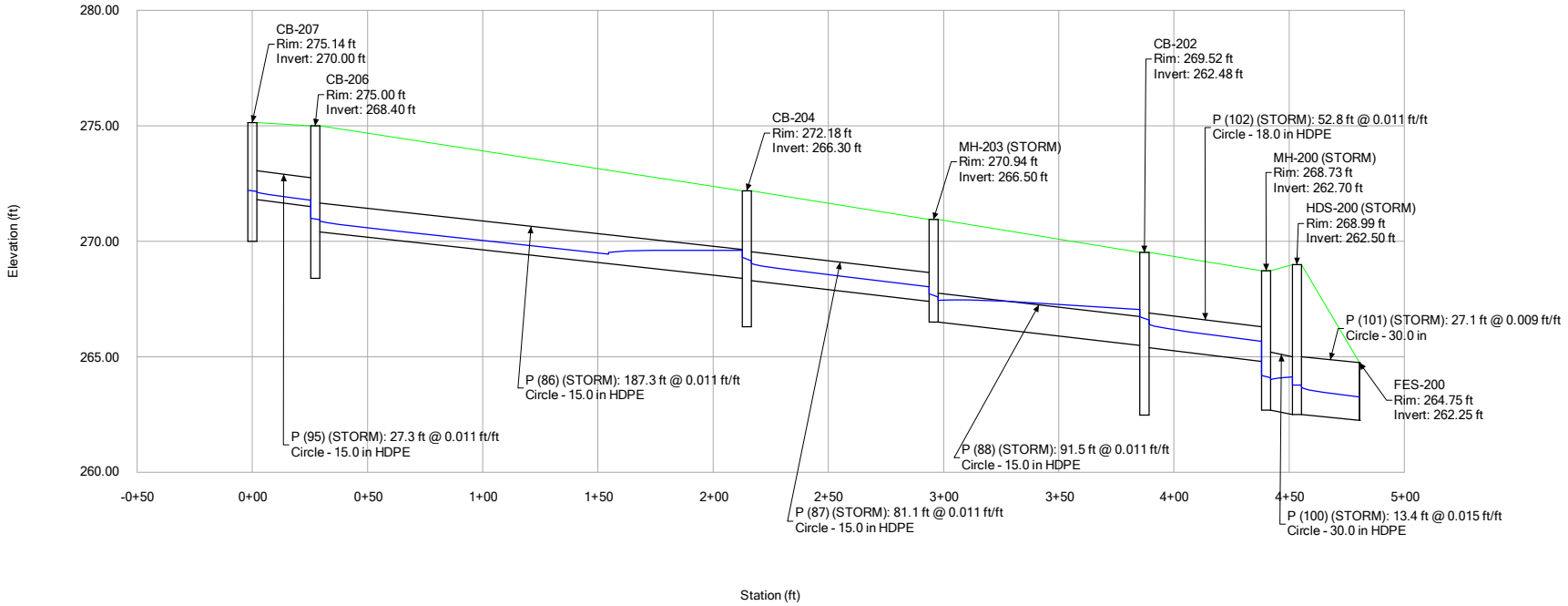
Profile Report

Engineering Profile - CB-205 TO CB-204 (C-DAT-StormCAD-2026-05-13.stsw)



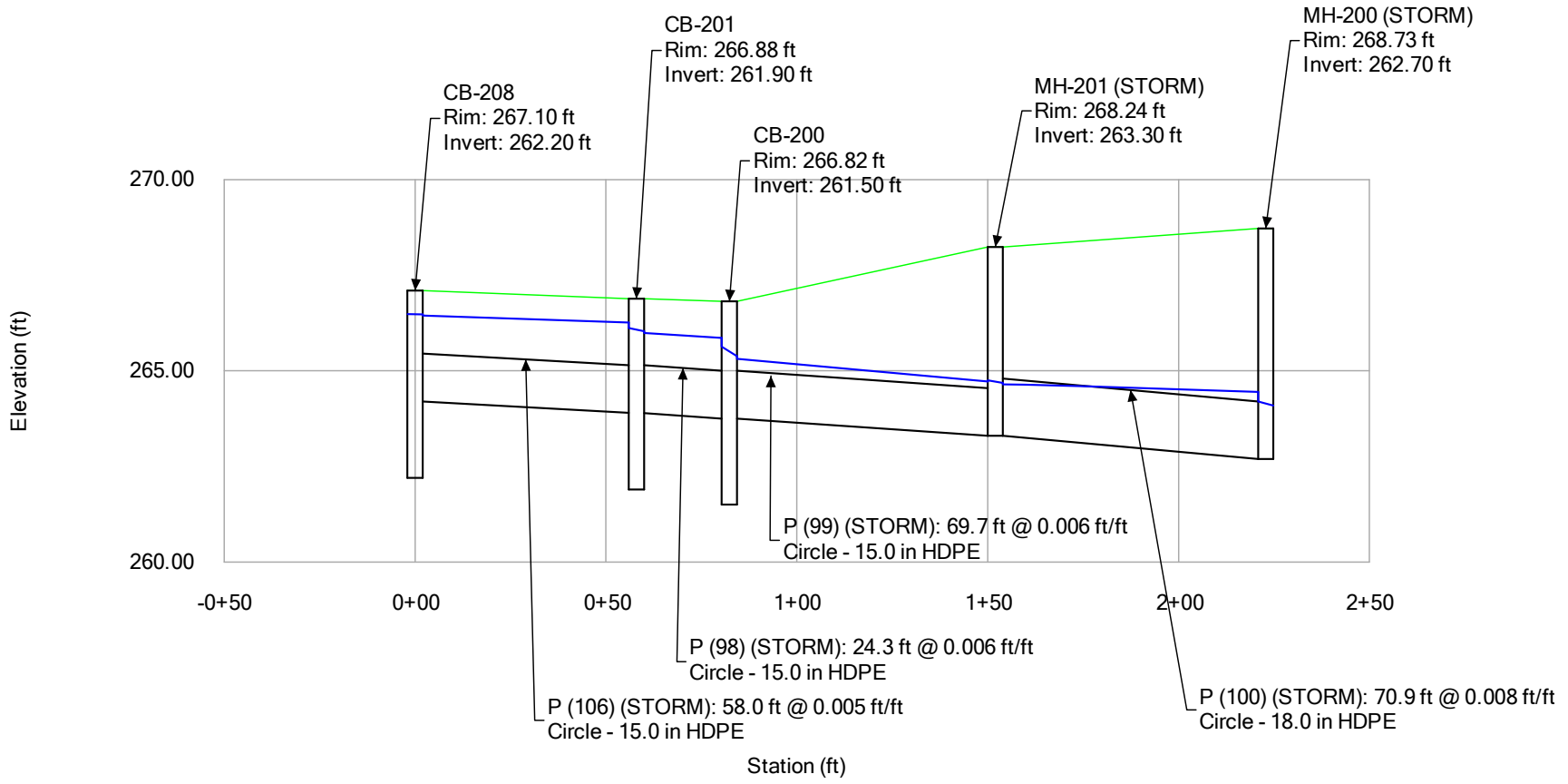
25 YEAR STORM EVENT

Profile Report
Engineering Profile - CB-207 TO FES-200 (C-DAT-StormCAD-2026-05-13.stsw)



25 YEAR STORM EVENT

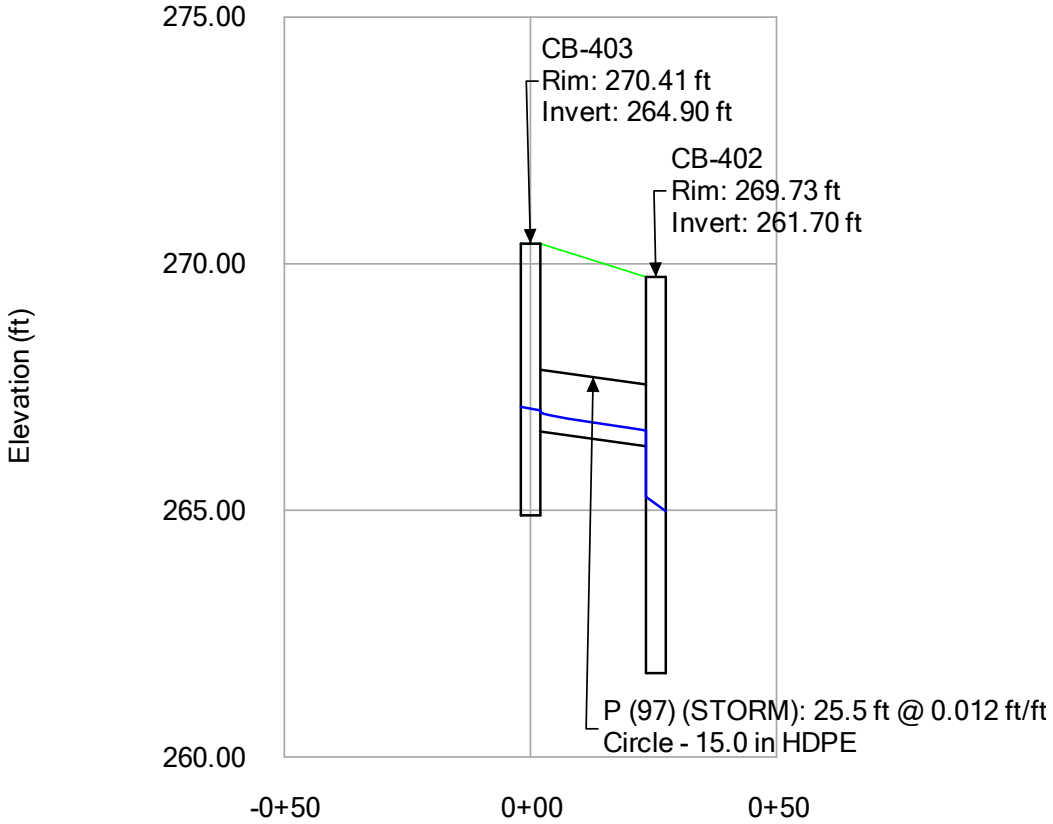
Profile Report
Engineering Profile - CB-208 TO MH-200 (C-DAT-StormCAD-2026-05-13.stsw)



25 YEAR STORM EVENT

Profile Report

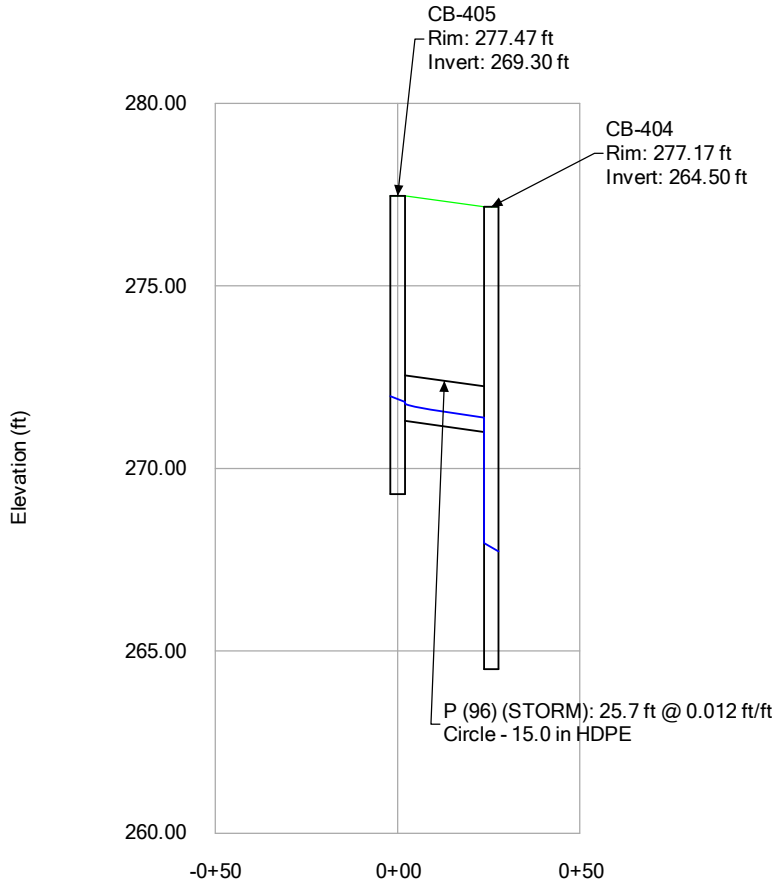
Engineering Profile - CB-403 TO CB-402 (C-DAT-StormCAD-2026-05-13.stsw)



25 YEAR STORM EVENT

Profile Report

Engineering Profile - CB-405 TO CB-404 (C-DAT-StormCAD-2026-05-13.stsw)



25 YEAR STORM EVENT

Profile Report

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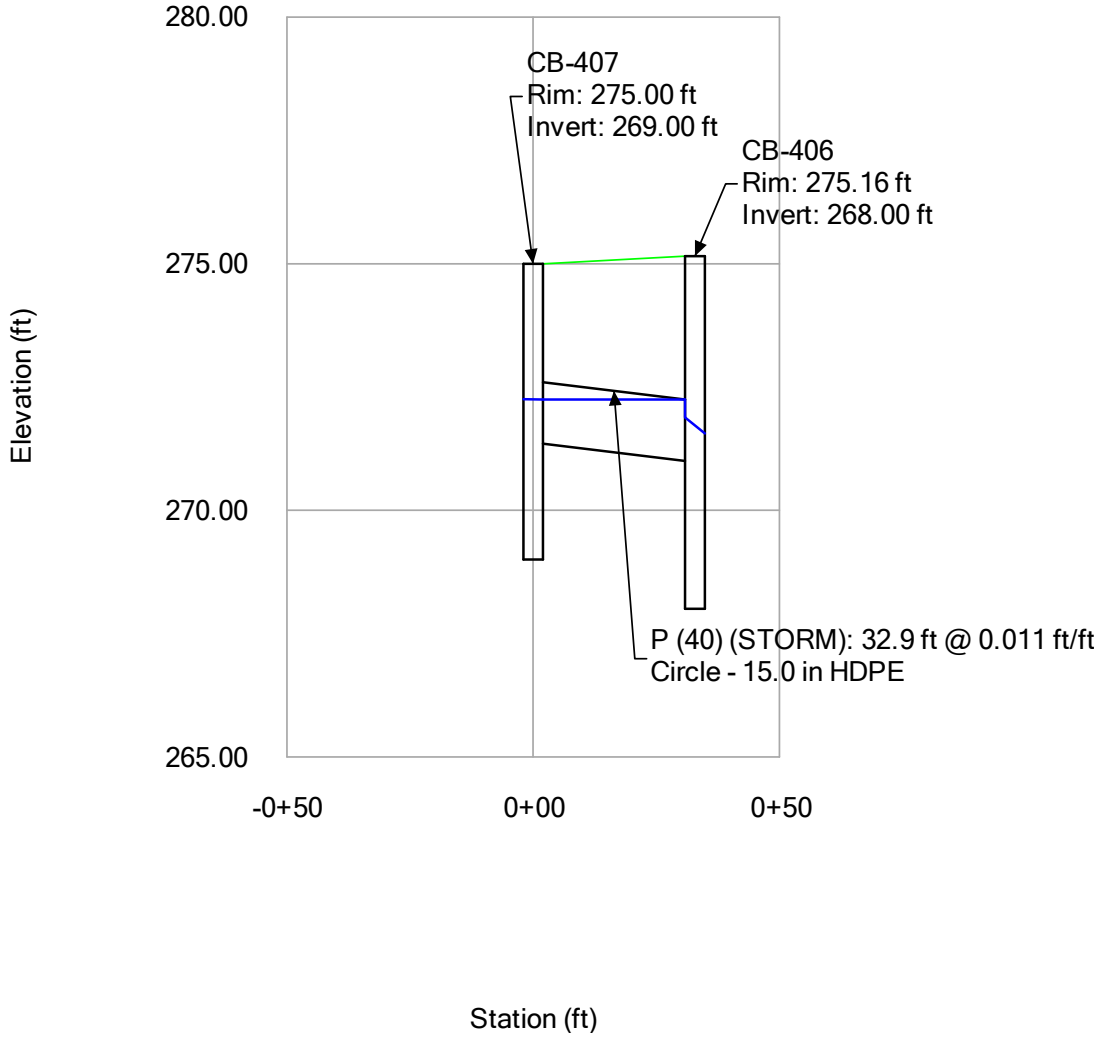

25 YEAR STORM EVENT

Profile Report

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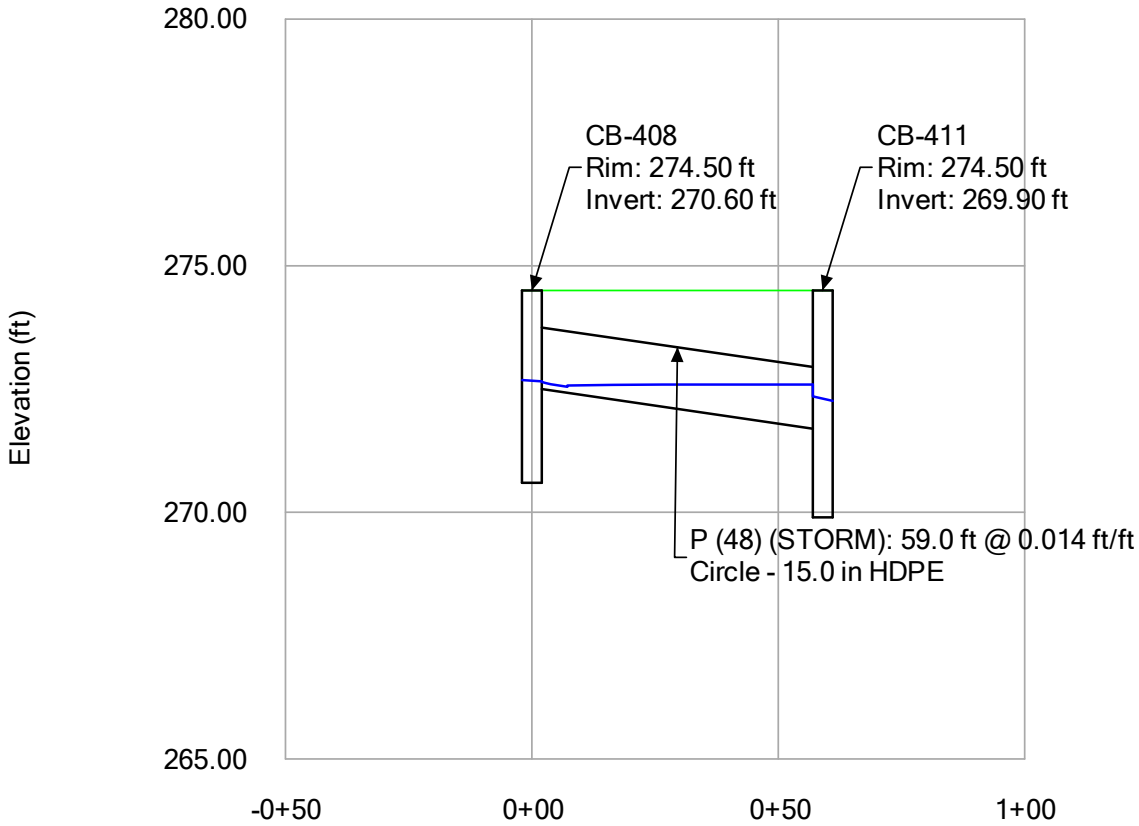
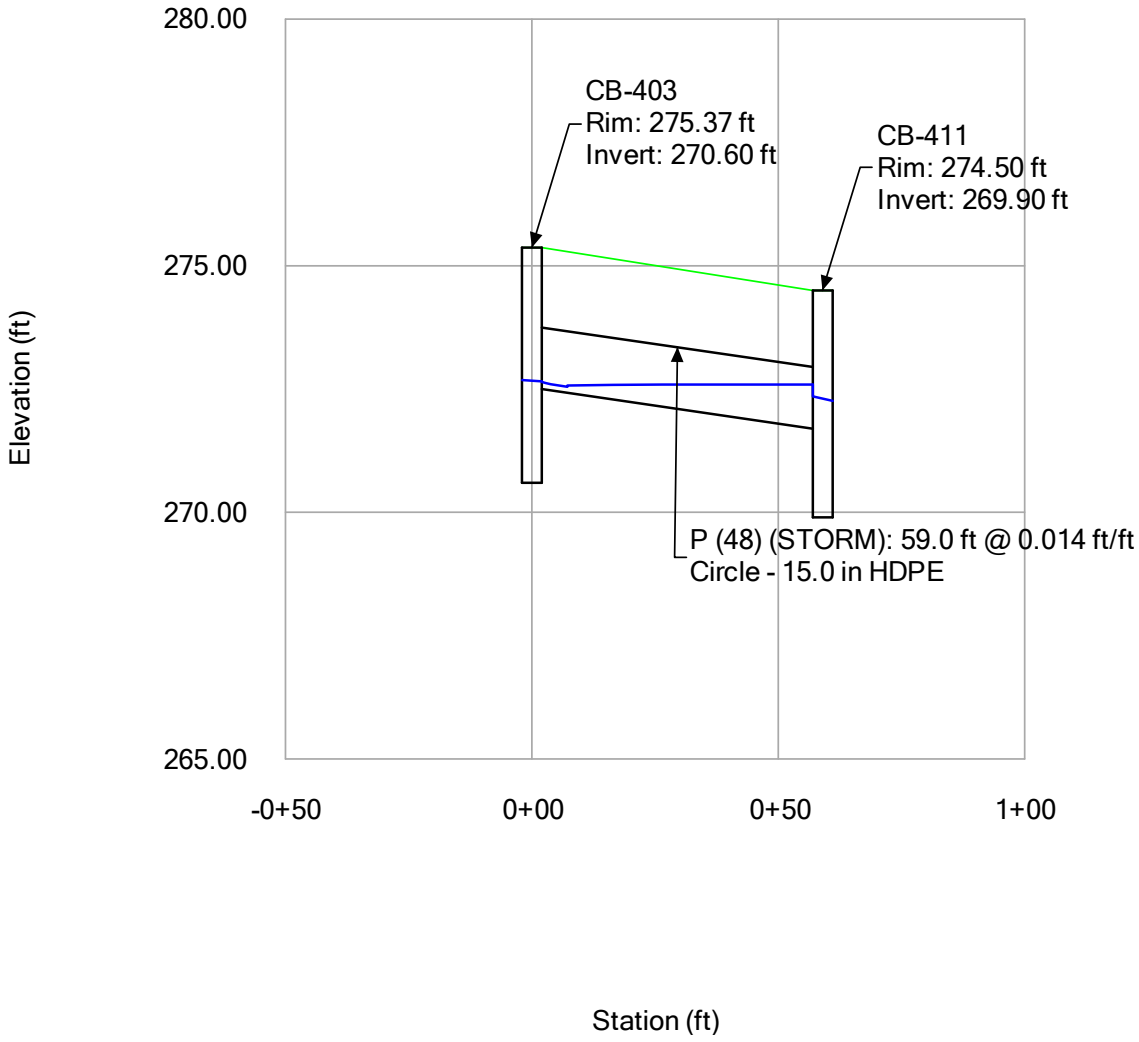


25 YEAR STORM EVENT

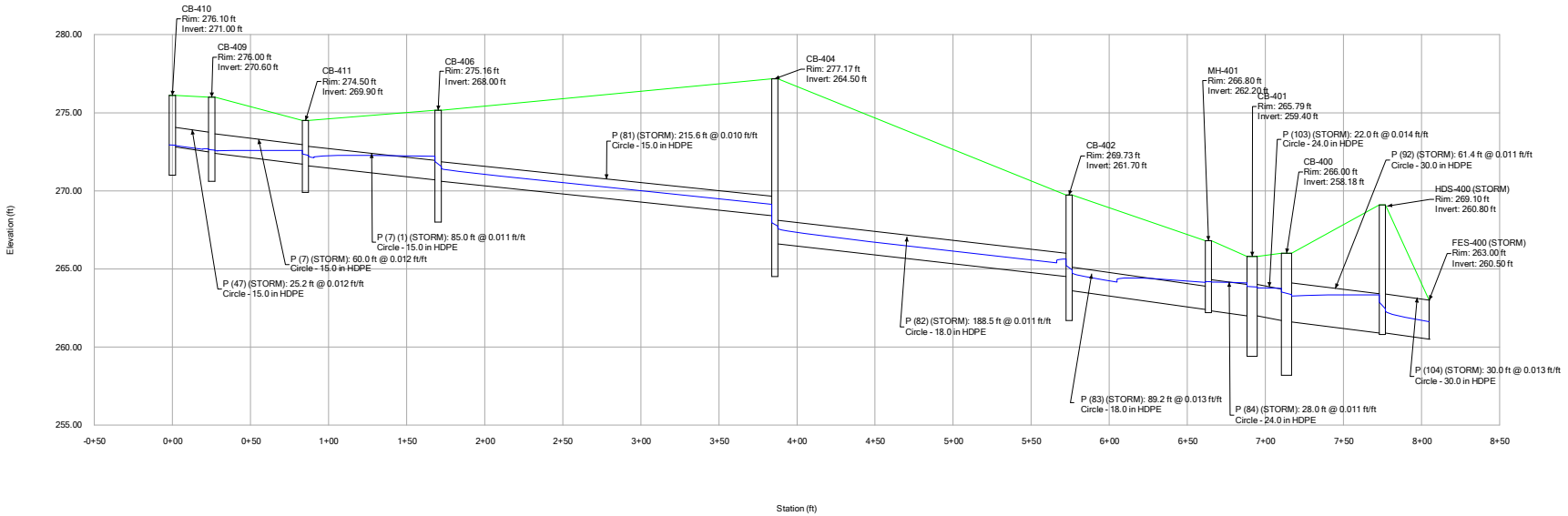
Profile Report

Engineering Profile - CB-408 TO OCS-4B (C-DAT-StormCAD-2026-05-13.stsw)



25 YEAR STORM EVENT

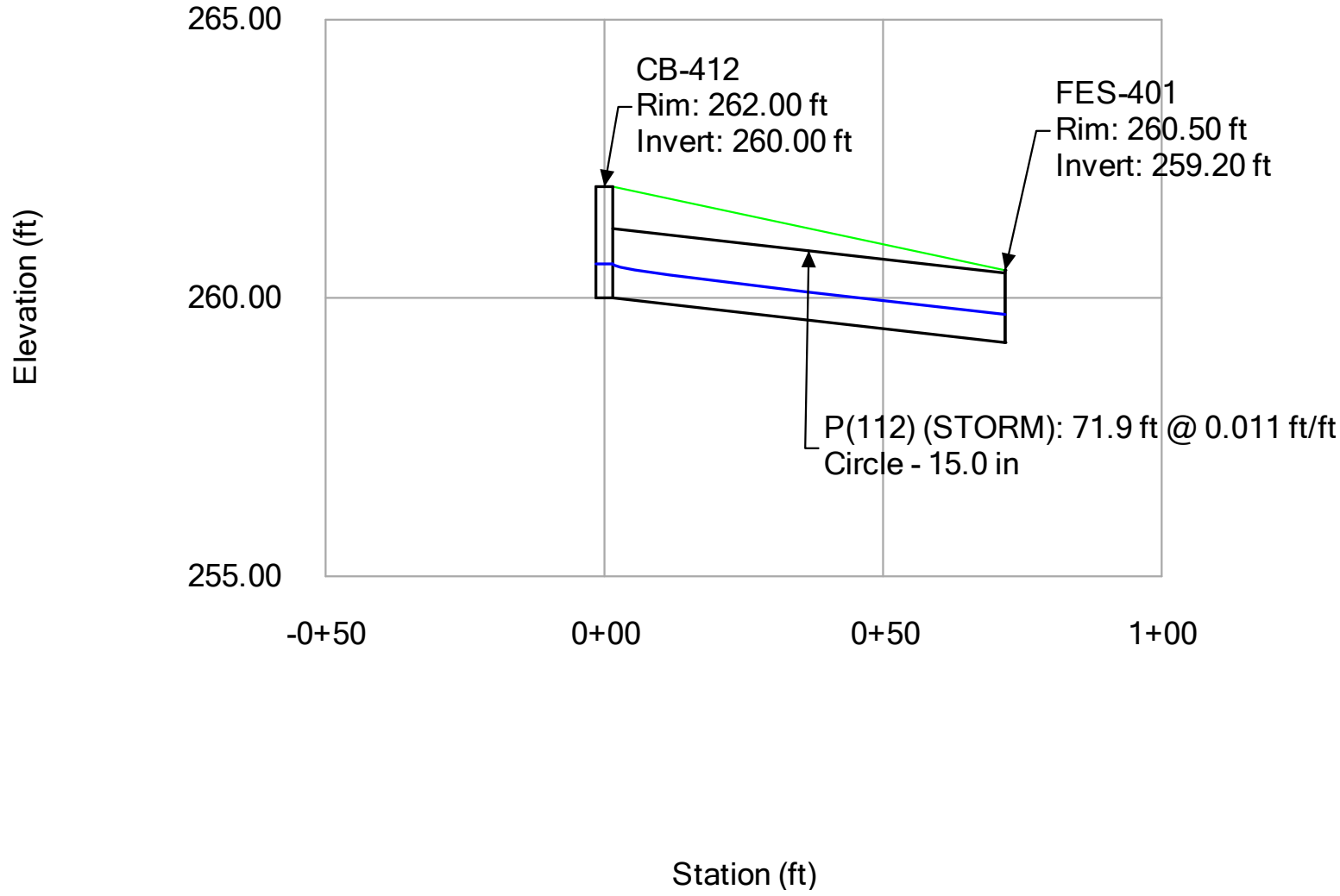
Profile Report
Engineering Profile - CB-410 TO FES-400 (C-DAT-StormCAD-2026-05-13.stsw)



25 YEAR STORM EVENT

Profile Report

Engineering Profile - CB-412 to FES-401 (C-DAT-StormCAD-2026-05-13.stsw)



APPENDIX F

WATER QUALITY CALCULATIONS

Water Quality Calculations

Standard 1 - Determine Water Quality Volume

From CT 2024 Stormwater Quality Manual:

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

$$R = 0.05 + 0.009(I)$$

WQV = water quality volume (ft^3)
R = volumetric runoff coefficient
I = post- development impervious area (percent) after application of non-structural LID site planning and design strategies and before application of structural stormwater BMPs
A = post-development total drainage area of site or design point (square feet)

Area ID	Drainage Area	Total Area		Impervious Area		Impervious Cover	Volumetric Runoff Coefficient	Water Quality Volume (WQV) Required	Water Quality Volume Provided
		ac	ft^2	ac	ft^2	%	R	ft^3	ft^3
	PDA-11	0.384	16,713	0.035	1,541	9.11	0.132	239	593
	PDA-12	0.341	14,855	0.014	625	4.11	0.087	140	0
	PDA-13	0.200	8,701	0.034	1,497	17.00	0.203	191	0
	PDA-21	3.940	171,629	1.746	76,075	44.31	0.449	8,348	0
	PDA-41	3.331	145,098	1.286	56,021	38.61	0.397	6,240	17,540
	PDA-43	0.459	19,991	0.176	7,656	38.34	0.395	855	0

Notes: The provided Water Quality Volumes for the Detention Systems were derived from the Stage Volume tables in HydroCAD as the volume below the first orifice elevation for each system.

Total WQV Required =	16,015	CF
Total WQV Provided =	18,133	CF

Standard 1 - Determine Water Quality Flow

From CT 2024 Stormwater Quality Manual:

$$CN = \frac{1000}{\left[10 + 5P + 10Q - 10(Q^2 + 1.25QP)^{\frac{1}{2}}\right]}$$

$$Q = \frac{\left[WQV(cubic\ feet) \times [12(inches/foot)] \times \left[\left(\frac{1\ acre}{43{,}560\ square\ feet}\right)\right]\right]}{DrainageArea(acres)}$$

$$WQF = (q_u)(A)(Q)$$

CN = Runoff Curve Number
P = design preciptation, inches, (1.3" for 100% of the WQV and 0.65 inches for 50% of the WQV)
Q = runoff depth (in watershed inches)
T_c = time of concentration
I_a = Initial abstraction, inches, from Table 4-1, Chapter 4, TR-55
q_u = unit peak discharge,
WQF = water quality flow (cfs)
WQV= design Water Quality Volume (100% or 50% of the WQV)

Hydrodynamic Separator	Total Area			Imp Area		Imp Cover	R	WQV	Q	P	CN	T_c		I_a	I_a/P	q_u *	WQF
	ft^2	ac	mi^2	ft^2	ac	%	-	acre-feet	in	in	-	mins	hours	in	-	$cfs/mi^2/in$	cfs
HDS-200	168,859	3.876	0.0061	76,075	1.746	45.05	0.455	0.147	0.46	1.30	88	5.0	0.08	0.273	0.21	640	1.78
HDS-400	87,389	2.006	0.0031	63,677	1.462	72.88	0.706	0.118	0.71	1.30	93	5.0	0.08	0.151	0.116154	640	1.42

APPENDIX G

TEST PIT DATA

CLA Engineers, Inc.

Civil • Structural • Survey • Geotechnical

317 MAIN STREET • NORWICH, CT 06360 • (860) 886-1966 • (860) 886-9165 FAX

March 30, 2026

EG Home, LLC, Attn. Christopher Oliveira
3 Pomperaug Office Park, Suite 105 Southbury, CT 06488

Re: Geotechnical Evaluation of Existing Conditions
1947 Center Groton Rd, Ledyard, CT 06339

CLA Job# 8460

At your request our office has prepared this letter based on our observation of the test pits at the above mentioned address and associated infiltration testing. The primary purpose of our review was to determine the geotechnical characteristics of the site as an exploratory measure in preparation for development of the site.

On 2026-03-24 and 25, our office visually witnessed test pits excavated in areas of the proposed development as directed by the client's representative on site. Infiltration testing was performed on the 25th.

The site building consists of shallow bedrock/ledge on the east side near Center Groton Road, including some sedimentary deposits atop gneiss and/or schist. The soils on the site generally consist of topsoil over a brown sand and gravel atop gray sand and gravel. The brown material was predominantly over 10% fines. In most areas of the site, the grey material also had more than 10% fines, with isolated areas where the material had been washed clean of those fines by the past action of water.

Test pits and infiltration results are appended. If you have any questions, or require any additional information, please do not hesitate to contact our office.

Sincerely,

CLA Engineers, Inc.

Asa Bender, P.E.
Geo-Structural Engineer

Test Pit 1

Location: Center-line (CL) of road, ±15’ west of asphalt at Center Groton Road.
10 to 14” of clean fill: Fine to coarse sand, some fine to coarse gravel, trace fines, some roots, little cobbles
Bedrock/ledge: Schist with overlying tillite
Groundwater: None detected (None)

Test Pit 2

Location: CL of road, ±25’ west of asphalt at Center Groton Road.
9 to 16” of poor fill: Fine to coarse sand, little fine to coarse gravel, little fines, mixed organic loam, some roots, little cobbles
Bedrock/ledge: Schist with overlying tillite
Groundwater: None

Test Pit 3

Location: CL of road, ±100’ west of asphalt at Center Groton Road.
9” topsoil
16” subsoil
(mixing)
26” brown sand: Fine to coarse sand, little fine to coarse gravel, little fines, trace cobbles
60” glacial till: Fine to coarse sand, some fine to coarse gravel, little fines, little cobbles
Bedrock/ledge: Schist with overlying tillite
Groundwater: 32” after 30m

Test Pit 4

Location: CL of road, ±120’ west of asphalt at Center Groton Road.
6” topsoil
36” subsoil
44” brown sand: Fine to coarse sand, little fine to coarse gravel, little fines, trace cobbles
80” glacial till: Fine to coarse sand, some fine to coarse gravel, little fines, little cobbles
Bedrock/ledge: Schist with overlying tillite
Groundwater: 12” after 5m (adjacent surficial water)

Test Pit 5

Location: Building 12
5” topsoil
22” subsoil (varies)
80” brown sand: Fine to coarse sand, little fine to coarse gravel, little fines, trace cobbles
Bedrock/ledge: Schist / gneiss
Groundwater: 14”

Test Pit 6

Location: CL of road, ±150' west of asphalt at Center Groton Road.
4" topsoil
18" subsoil

40" brown sand:	Fine to coarse sand, some fine to coarse gravel, little fines, trace cobbles
86" glacial till:	Fine to coarse sand, fine to coarse gravel, little fines, little cobbles
Groundwater:	44"

Test Pit 7

Location: Building 13
5" topsoil
10" subsoil

22" brown sand:	Fine to coarse sand, some fine to coarse gravel, little fines, trace cobbles
74" glacial till:	Fine to coarse sand, fine to coarse gravel, little fines, little cobbles
80" decomp. ledge:	Fine to coarse sand, fine to coarse gravel, little fines, and cobbles
Groundwater:	None

Test Pit 8

Location: Building 17
4" topsoil
17" subsoil, mixed organic loam

28" brown sand:	Fine to coarse sand, little fine to coarse gravel, little fines, trace cobbles
82" glacial till:	Fine to coarse sand, fine to coarse gravel, little fines, little cobbles
Groundwater:	22"

Test Pit 9

Location: CL of road #8 west of asphalt at Center Groton Road.
8" topsoil
23" subsoil

80" brown sand:	Fine to coarse sand, little fine to coarse gravel, little fines, trace cobbles
74" glacial till:	Fine to coarse sand, fine to coarse gravel, trace fines, trace/little cobbles
Groundwater:	65" (redox at 56")

Test Pit 10

Location: Detention Basis Center – Southwest corner of the site
12 topsoil
±20" subsoil, staining fades into brown sand below

47" brown sand:	Fine to coarse sand, little fine to coarse gravel, little fines, trace cobbles
88" glacial till:	Fine to coarse sand, little fine to coarse gravel, little fines, trace/little cobbles
Groundwater:	None (redox at 47")
Permeability:	0.5 in/hr or 1 ft/day

Test Pit 11

Location: CL of road #11
4" topsoil
18" subsoil/mixed organic loam
49" brown sand: Fine to coarse sand, some fine to coarse gravel, little fines, trace cobbles
97" glacial till: Fine to coarse sand, fine to coarse gravel, trace fines, trace cobbles
Groundwater: None

Test Pit 12

Location: Detention basin between buildings 7 and 8
3" topsoil
10" subsoil
38" brown sand: Fine to coarse sand, some fine to coarse gravel, little fines, trace cobbles
65" glacial till: Fine to coarse sand, some fine to coarse gravel, little fines, trace cobbles
Groundwater: 54"
Permeability: 0.084 in/hr or 0.168 ft/day

Test Pit 13

Location: 42' northwest of "Road Centerline 15" stake
3" topsoil
11" subsoil
26" brown sand: Fine to coarse sand, little fine to coarse gravel, little fines, trace cobbles
75" glacial till: Fine to coarse sand, fine to coarse gravel, trace fines, trace cobbles
Groundwater: None

Test Pit 14

Location: road centerline 15
2" topsoil
9" subsoil
36" brown sand: Fine to coarse sand, little fine to coarse gravel, little fines, trace cobbles (Mixing)
65" glacial till: Fine to coarse sand, fine to coarse gravel, little fines, trace cobbles
Groundwater: 26"

Test Pit 15

Location: Building 18
2" topsoil
8" subsoil, mixed organic loam
22" brown sand: Fine to coarse sand, little fine to coarse gravel, little fines, trace cobbles
74" glacial till: Fine to coarse sand, fine to coarse gravel, little fines, trace cobbles
Groundwater: 17"

Test Pit 16

Location: Road centerline 19
2" topsoil fill

40" fill:	Fine to coarse sand, fine to coarse gravel, trace fines
56" brown sand:	Fine to coarse sand, little fine to coarse gravel, little fines, trace cobbles
87" glacial till:	Fine to coarse sand, fine to coarse gravel, little fines, trace cobbles
Groundwater:	51"

Test Pit 17

Location: Centerline of building 11
6" topsoil fill

58" unsuitable fill:	Fine to coarse sand, fine to coarse gravel, trace to little fines, some rubbish/debris including cans, fabric, glass, plastic, organic loam
68" brown sand:	Fine to coarse sand, little fine to coarse gravel, little fines, trace cobbles
Groundwater:	None

Test Pit 18

Location: Building 2
4" topsoil fill
15" subsoil

30" brown sand:	Fine to coarse sand, little fine to coarse gravel, little fines, trace cobbles
86" glacial till:	Fine to coarse sand, fine to coarse gravel, trace fines, trace cobbles
Groundwater:	78"

Test Pit 20

Location: Detention basin near northeast corner of property
(Permeability only)

Permeability:	2.5 in/hr or 5 ft/day