

STORMWATER MANAGEMENT, GROUNDWATER RECHARGE AND WATER QUALITY ANALYSIS

For

William Cummings

Proposed Residential Subdivision

**Block 80.03, Lots 21 & 10
2 & 10 Ridge Road
Township of West Orange
Essex County, New Jersey**

Prepared by:



**1904 Main Street
Lake Como, NJ 07719
(732) 974-0198**

A handwritten signature in dark ink, appearing to read 'Robert P. Freud', is written over a horizontal line.

**Robert P. Freud, P.E., P.P.
NJ Professional Engineer License #41938**

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- Drainage Area Maps

I. SITE DESCRIPTION

The subject site is located at 2 & 10 Ridge Road in the Township of West Orange, Essex County, New Jersey. The site is identified as Block 80.03, Lot 21 & 10 on the Township of West Orange Tax Map Sheet #32. The subject site is currently undeveloped with overgrown wooded areas. The existing conditions of the site have been verified by the ALTA/NSPS Land Title Survey as prepared by Dynamic Survey, LLC, dated 05/11/2022.

The scope of the study includes the proposed which consists of subdividing into four total lots and developing each parcel with four new single-family houses with a prototypical footprint size of 40'x60' totaling approximately 9,600 SF with accompanying driveways.

II. DESIGN OVERVIEW

This report has been prepared to define and analyze the stormwater drainage conditions that would occur as a result of the development of the subject site into four subdivided lots with four new single-family residential houses on Block 80.03, Lots 21 & 10 in the Township of West Orange, Essex County, New Jersey. The scope of the study includes the proposed which consists of subdividing into four total lots and developing each parcel with four new single-family houses with assumed footprint sizes totaling approximately 9,600 SF (2,400 SF each) with accompanying driveways as well as stormwater management facilities as shown on the accompanying engineering drawings.

Based upon the fact that the proposed development will result in more than one (1) acre of land disturbance, this project is classified as a “major development”. Therefore, the proposed development has been designed to meet the stormwater runoff quantity, quality, and groundwater recharge standards, set forth by the Township of West Orange Land Use Ordinance and NJAC 7:8.

Accordingly, the following items are addressed within this report:

- Groundwater recharge standards (7:8-5.4)
- Stormwater runoff quality standards (7:8-5.5)
- Stormwater runoff quantity standards (7:8-5.6)
- Calculation of stormwater runoff and groundwater recharge (7:8-5.7)

A hydrological evaluation is provided for the NJDEP Water Quality, 2, 10, 25, and 100-year storm events utilizing the Urban Hydrology for Small Watershed TR55 method.

The Township of West Orange and NJAC 7:8 flow reduction requirements are as follows:

2-year:	50% reduction
10-year:	25% reduction
25-year:	Maintain existing flow (no reduction requirement)
100-year:	20% reduction

It is the intention of the design of this facility to comply with the Stormwater Management Best Management Practices Manual.

III. EXISTING DRAINAGE CONDITIONS

The area to be analyzed consists of approximately 5.95 acres and is comprised of impervious, brush and wooded areas. Currently, the majority of stormwater runoff generated by the subject site drains to Mount Pleasant Avenue at the south-east corner of the site through overland flow.

The subject site has been evaluated with the following drainage sub-watershed areas as depicted on the Existing Drainage Area Map included within the Appendix of this report.

Study Area 1: This area consists of the entire site to be disturbed, which includes impervious, brush and wooded areas. As noted above, under existing conditions, stormwater runoff generated by this area is ultimately tributary to Mount Pleasant Avenue via overland flow.

Study Area 1 (Undisturbed): This area consists of portions of the site that are to remain undisturbed, which include brush and wooded areas. As noted above, under existing conditions, stormwater runoff generated by this area is ultimately tributary to Mount Pleasant Avenue via overland flow.

SOIL TYPE	SOIL TYPE NAME	HYDROLOGIC SOIL GROUP
BogCc	Boonton loam, 8 to 15 percent slopes, extremely stony	C
HanBc	Haledon silt loam, 0 to 8 percent slopes, extremely stony	C
YaobBc	Yalesville – Boonton – Holyoke complex, 0 to 8 percent slopes, extremely stony	C
USBONB [1]	Urban land, Boonton substratum – Boonton complex, 0 to 8 percent slopes	

[1] No soil group was provided by NRCS, therefore B rating was assumed for existing conditions while D rating soils were assumed for proposed conditions.

IV. PROPOSED SITE CONDITIONS

As noted above, the proposed development includes the development of four new single-family residential houses with assumed footprint sizes totaling approximately 9,600 SF (2,400 SF each) with accompanying driveways. Additional site improvements include constructing stormwater management facilities for each subdivided lot. The stormwater management system includes four (4) aboveground small-scale bioretention basins also known as rain gardens to detain stormwater runoff generated by the development in order to meet the stormwater management requirements set forth by the Township of West Orange and NJAC 7:8.

The proposed site conditions have been evaluated using the following drainage sub-watershed areas as depicted on the Proposed Drainage Area Map included within the Appendix of this report.

Study Area 1 Undetained: This area consists of a small portion of the northern-most and easterly portions of the subject area which includes brush, wooded areas and open grass cover for which stormwater runoff is undetained. Stormwater runoff from portions of this area flows via overland flow to the east and other portions to the northwest, ultimately tributary to Mount Pleasant Avenue located east of the site.

Study Area Basin A: This area consists primarily of the stormwater runoff associated with the development of improvements associated with the proposed Lot 1 located at the south-west portion of the tract, which includes the proposed single-family residential house, driveway, brush and wooded

areas as well as open grass/lawn cover. Stormwater runoff from this area will flow overland to the proposed bioretention basin located at the west side of the proposed lot. Stormwater runoff associated with the proposed single-family house will be routed directly to the basin via roof leader conveyance. Stormwater runoff generated within this area is ultimately tributary to Mount Pleasant Avenue located at the east of the site.

Study Area Basin B: This area consists primarily of the stormwater runoff associated with the development of improvements associated with the proposed Lot 2 located at the south-west portion of the tract, which includes the proposed single-family residential house, driveway, brush and wooded areas as well as open grass/lawn cover. Stormwater runoff from this area will flow overland to the proposed bioretention basin located at the west side of the proposed lot. Stormwater runoff associated with the proposed single-family house will be routed directly to the basin via roof leader conveyance. Stormwater runoff generated within this area is ultimately tributary to Mount Pleasant Avenue located at the east of the site.

Study Area Basin C: This area consists primarily of the stormwater runoff associated with the development of improvements associated with the proposed Lot 3 located at the north-west portion of the tract, which includes the proposed single-family residential house, driveway, brush and wooded areas as well as open grass/lawn cover. Stormwater runoff from this area will flow overland to the proposed bioretention basin located at the west side of the proposed lot. Stormwater runoff associated with the proposed single-family house will be routed directly to the basin via roof leader conveyance. Stormwater runoff generated within this area is ultimately tributary to Mount Pleasant Avenue located at the east of the site.

Study Area Basin D: This area consists primarily of the stormwater runoff associated with the development of improvements associated with the proposed Lot 4 located at the north-west portion of the tract, which includes the proposed single-family residential house, driveway, brush and wooded areas as well as open grass/lawn cover. Stormwater runoff from this area will flow overland to the proposed bioretention basin located at the west side of the proposed lot. Stormwater runoff associated with the proposed single-family house will be routed directly to the basin via roof leader conveyance. Stormwater runoff generated within this area is ultimately tributary to Mount Pleasant Avenue located at the east of the site.

V. DESIGN METHODOLOGY

The intention of the design of the proposed stormwater management facilities for this development is to provide measures as required to address the applicable aspects of the Township of West Orange Land Use Ordinance and NJAC 7:8. In order to prepare the stormwater management design for the subject site, extensive initial investigation of the property and topography was performed. On-site review of the tract was initially performed by Dynamic Engineering Consultants, PC to verify existing site conditions and land cover characteristics. Dynamic Survey, LLC was contracted to prepare the ALTA/NSPS Land Title Survey with topography to depict the existing site conditions. Furthermore, Dynamic Earth, LLC performed test pits within the site to establish the seasonal high-water table and soil permeability rates. It should be noted that additional soils testing is required and will be performed within the vicinity of the proposed small-scale bioretention basins as per the requirements set forth in NJAC 7:8 and the NJDEP BMP Manual to confirm the feasibility of the basin design.

Based on our review of the existing site conditions and survey, the Drainage Area Maps for the existing and proposed site conditions as defined within this report were established. A grading plan was developed for the proposed site improvements with consideration to the existing drainage patterns. The plan was designed to ensure runoff from the proposed development could be directed to stormwater management facilities in order to address the applicable sections of the Township of West Orange Land Development Ordinance and NJAC 7:8.

The rainfall data utilized for the analysis of the existing and proposed drainage conditions is based upon the New Jersey 24 Hour Rainfall Frequency Data for Essex County as published by the USDA NRCS utilizing the NOAA Region D rainfall distribution.

Under proposed conditions, the stormwater runoff from the subject site and surrounding areas is conveyed by overland flow for collection by the proposed aboveground small-scale bioretention basins with underdrains. The proposed basins are designed to detain and infiltrate the entirety of the water quality storm event through the planted vegetation in the soil bed to the underdrains and be released at a controlled rate through outlet control structures in order to satisfy the stormwater runoff quality and runoff peak rate reductions (quantity requirement) set forth by the Township of West Orange and NJAC 7:8.

The overall stormwater management design for the subject site has been evaluated by Dynamic Engineering Consultants to ensure that the overall development satisfies the standards set forth in the Township of West Orange Land Use Ordinance and NJAC 7:8.

VI. STORMWATER MANAGEMENT SYSTEM DESIGN & GREEN INFRASTRUCTURE COMPLIANCE

As detailed above, in order to meet the stormwater runoff quantity and quality requirements for the proposed development, the stormwater management system design includes four (4) proposed aboveground small-scale bioretention basins with underdrains. The proposed development is not subject to groundwater recharge requirements – More information will be detailed in the following sections of this report.

The stormwater management design utilizes four (4) small scale bioretention systems with underdrains. The systems will accept runoff via overland flow and direct roof leader conveyance. The collected stormwater runoff will infiltrate through the planted vegetation in the soil bed to the underdrain and be released at a controlled rate through outlet control structures in order to satisfy the stormwater quality and runoff peak rate reductions (quantity requirement). The basins will provide 80% TSS removal to satisfy the stormwater management quality requirements. The stormwater runoff from yard areas and impervious surfaces will be conveyed to the basins via overland flow, roofs to be directly piped to each basin, and discharged at a controlled rate using outlet control structures. In accordance with the New Jersey Stormwater Best Management Practices Manual, the following design considerations have been satisfied:

- Bottom of gravel layer must be a minimum of one (1) foot above Seasonal High-Water Table
- System must fully drain volume within 72 hours
- Bottom of system must be as level as possible
- Construction of system must be done to avoid compaction of sub-grade soils
- Minimum design permeability rate of 0.5 Inches/hour
- System must be designed to safely convey overflow volume
- System may not be used where there is risk of basement flooding, etc.

Green Infrastructure Design Standards Compliance – Small Scale Bioretention Basins					
BMP Criteria	Requirement	Basin A	Basin B	Basin C	Basin D
Max. Contributory Drainage Area [1]	2.5 Ac	1.130 Ac	0.96 Ac	1.380 Ac	1.33 Ac
Max. Drain Time	72 Hrs	27.00 Hrs	27.15 Hrs	27.05 Hrs	26.30 Hrs
Min. Subsoil Design Permeability Rate	0.5 in/hr	0.5 in/hr (Additional soils testing is required)	0.5 in/hr (Additional soils testing is required)	0.5 in/hr (Additional soils testing is required)	0.5 in/hr (Additional soils testing is required)
Min. Separation between SHWT & BMP Bottom	1.0 FT with underdrain	Additional soils testing is required	Additional soils testing is required	Additional soils testing is required	Additional soils testing is required

[1] Does not include area of BMP

VII. RUNOFF RATES

The following is a comparison of the existing and proposed conditions runoff rates:

Existing and Proposed Conditions Peak Runoff Rates Results Summary (Total)

	EXISTING DISTURBED RUNOFF RATE	EXISTING UNDISTURBED RUNOFF RATE	NJAC 7:8 REQUIRED REDUCTION	NJAC 7:8 ALLOWABLE RUNOFF RATE	PROPOSED RUNOFF RATE
2 Year	3.12 cfs	1.96 cfs	50%	3.52 cfs	2.55 cfs
10 Year	7.36 cfs	4.72 cfs	25%	10.24 cfs	6.28 cfs
25 Year	10.60 cfs	6.83 cfs	Meet or reduce existing	17.43 cfs	8.25 cfs
100 Year	16.79 cfs	10.87 cfs	20%	24.30 cfs	11.51 cfs

VIII. WATER QUALITY

As noted previously in this report, the proposed aboveground small-scale bioretention basins have been designed to retain and infiltrate the entire volume of the NJDEP Water Quality event for infiltration through the planted vegetation in the soil bed. In addition, the aboveground small-scale bioretention basins have been designed to comply with the standards set forth by the NJ Stormwater Best Management Practices Manual thereby providing a TSS removal rate of 80% for the site thereby satisfying the water quality aspect of NJAC 7:8.

IX. GROUNDWATER RECHARGE

As previously noted, on-site review of the tract was initially performed by Dynamic Engineering Consultants, PC to verify existing site conditions and land cover characteristics. Furthermore, Dynamic Earth, LLC performed test pits within the site to establish the seasonal high-water table and soil permeability rates. Due to the shallow water table depth and low permeability rates observed, as per Chapter 12 of the New Jersey Best Practices Manual, the soil shall be considered a D rated soil due to the characteristics observed via soils testing. Therefore, as per NJAC 7:8-5.4 Groundwater Recharge Standards, groundwater recharge requirements are not applicable to the proposed development.

X. STANDARDS FOR OFF-SITE STABILITY

This project has been designed to satisfy the Off-Site Stability standards set forth in the Standards for Soil Erosion and Sediment Control in New Jersey.

Conditions Where Practices Applies

For purposes of analysis, two areas of concern shall be addressed: (1) at the point of discharge and (2) downstream of the discharge point (which may require a watershed-based analysis). Technical criteria for demonstrating off-site stability include consideration of proximity to a defined waterway, site topography (slope), soil texture, vegetative cover and other factors. Where the potential for erosive forces from stormwater runoff exceeds the threshold of acceptability as defined below, the plan shall provide for the construction of a stabilized channel, installation of a conduit to a stable condition or other types of hydraulic improvements to the channel. Additional

design criteria or restrictions from the New Jersey Department of Environmental Protection or the New Jersey Pinelands Commission may also apply.

Compliance with this Standard will be provided for both areas of concern: (1) at the point of discharge and (2) downstream of the discharge point.

Design Criteria

This Standard involves two areas of analysis: (1) at the point(s) of storm sewer discharge and (2) beyond the site boundaries, typically a receiving channel or waterway. Stability documentation for each area is outlined in detail below. Generally, the analyses involve the manipulation of peak rates of discharge for the 2 and 10 year, 24-hour storm events such that peak flow rate values and velocities are below established thresholds. Discharges shall be located in areas with low gradient topography and covered in perennial erosion resistant vegetation as noted in table 21-1 below.

The proposed discharges have been designed to be located in areas with low gradient topography to the greatest extent feasible due to the exceptional topographic and physical features uniquely affecting the property, and will be covered in perennial erosion resistant vegetation as noted in table 21-1.

Special consideration shall be given to the use of infiltration for peak flow modifications as follows:

POINT OF DISCHARGE STABILITY ANALYSIS

When infiltration practices are proposed, an alternate analysis (failure analysis) must be provided which ignores infiltration (no dead storage volume available, no static or dynamic infiltration loss rates in the routing calculations, etc.) and demonstrates that no erosion will occur at the point of discharge if infiltration fails to function. Flow rates based solely upon basin inlet and outlet hydraulics must be used in comparison to Table 21-1 (below) to document a stable outlet.

No infiltration is proposed as part of the proposed development to reduce flow rates.

Downstream (Off-Site) Stability Analysis

Infiltration may be used to meet peak flow reduction requirements (outlined below) for the purposes of documenting stability of the downstream receiving channel, provided that the complete loss of infiltration function does not result in an increase in peak flow values above the predevelopment levels.

No infiltration is proposed as part of the proposed development to reduce flow rates.

Point of Discharge - Methods for Achieving Stability

1. No well-defined waterway below the point of discharge:

There is no well-defined waterway below the point of discharge; therefore, this method will be used.

Stability can be achieved by one of the following alternatives:

A. Retain pre-existing runoff characteristics. Do not increase the amount and rate of runoff for the development and do not concentrate flows.

Due to the increase in impervious surfaces for the proposed development, this alternative is not feasible; therefore, alternative “b” will be utilized as described below.

B. Where there is no well-defined channel, no sandy condition, no trees or brush to substantially concentrate the flows and it can be reasonably assumed that the flow will disperse over a broad area. The combinations of slopes and soils in table 21-1 and the following criteria are considered stable for flows of 10 cfs or less for a 25 year, 24 hr design storm.

Table 21-1 Non-Erosive Velocities for Point Discharges

Maximum Stable Slope for Point Discharges for Various Soils	
Soil Type	Perennial, Natural Vegetation
	Maximum Slope (%)
Sands	1.8
Sandy loam	2.0
Silt loam, loam	2.5
Sandy clay loam	3.5
Clay loam	5.0
Graded loam to gravel	8.0

Discharge from each proposed stormwater basin will disperse over a broad area. It should be noted that existing downstream surface is vegetated and no sandy surface conditions were observed. The existing vegetation will not substantially concentrate flows.

Stability Criteria (in conjunction with table 21-1)

- i. *The maximum discharge rate shall be 10 cfs or less for the twenty-five (25) year storm.*

The discharge rate for the proposed outfall does not exceed 10 cfs for the 25-year storm.

- ii. *Multiple outlets may be utilized to reduce individual outlet flow rates to levels below the thresholds noted above. Outlets should be spaced no closer than 50 ft horizontally to avoid re-mixing of flows.*

Not applicable as the outlets are below the threshold noted above.

- iii. *Flow over the outlet area shall be less than 0.5 cfs/ft. Designers shall not design excessive widths which will cause flows to concentrate.*

The proposed flows do not exceed 0.5 cfs/ft. As noted above, the peak 25-year peak flow from any of the four (4) proposed basins is 2.18 CFS. As such, the flow over the outlet area is 0.23 cfs/ft.

- iv. *Conduit outlet protection shall be provided in accordance with that Standard and may include: flat aprons, preformed scour holes, impact basins, stilling wells, plunge pools, etc. Level spreaders are not an acceptable design.*

The velocities existing the proposed flared end sections are within the allowable velocity in Table 12-1 of 5.0 fps as detailed below. The highest proposed velocity rate is 4.94 fps.

TABLE 12-1 ALLOWABLE VELOCITIES FOR VARIOUS SOILS

SOIL TEXTURE	ALLOWABLE VELOCITY (ft./sec.)
Sand	1.8
Sandy loam	2.5
Silt loam (also high lime clay), loam	3.0
Sandy clay loam	3.5
Clay loam	4.0
Clay, fine gravel, graded loam to gravel	5.0
Cobbles	5.5
Shale (non-weathered)	6.0

- v. *Topography shows broad uniform outlet area where flows will not concentrate.*

The topography downstream of the point of discharge is broad and generally uniform and flows will not concentrate.

- vi. *Discharge locations shall contain perennial, erosion resistant vegetation.*

The discharge location contains perennial, erosion resistant vegetation.

- vii. *Peak discharge velocities (in the last pipe section) do not exceed 2 fps for the 10-year storm.*

The maximum peak 10-year flow from any of the four (4) proposed basins has been minimized. Conduit outlet protection is provided for each of the discharge points as noted above.

- viii. *The maximum length of slope below the outlet(s) is 100 feet.*

The proposed basin discharge is tributary to the downstream area and therefore this criterion is satisfied.

Downstream of the Point of Discharge (Off-Site Stability Analysis)

In addition to ensuring erosion does not occur at the point of discharge, areas downstream and beyond the immediate area of site development may be damaged due to erosive forces resulting from extended duration of hydrograph peak flows. An unintended consequence of the practice of detaining and slowly releasing stormwater is the ability for peak flows to be sustained for longer periods of time, offering an opportunity for upstream discharges to coincide with project site discharges. The resulting combined discharge may be equal to or even exceed that of the pre-development condition.

To limit the potential for such an occurrence the designer may choose either of two approaches for downstream stability protection:

- 1. Examine hydraulic characteristics of the receiving stream channel considering upstream discharge in combination with site discharge to assess channel stability. The scope and scale of the analysis shall be appropriate to the scale of the project and the post development peak discharge rate and volume. Of particular concern are hydraulic control points, (culverts, bridges, etc.), bends in streams and sudden changes in channel cross sections downstream of the discharge point. The following may be utilized to assess stability:*

The proposed design utilizes approach 2 as described below.

- 2. In lieu of performing a comprehensive watershed analysis, design a detention facility that reduces peak flows to the following levels. Infiltration may be used to meet these criteria:*
2-year storm – 50% of the predevelopment peak
10-year storm – 75% of the predevelopment peak

Reductions in peak flows are to be compared to pre-developed drainage area points of discharge in the event that drainage is re-directed in the post developed condition. Reductions are only required of the developed or modified portions of the project site.

As documented in the subsections above, the proposed peak flows meet the above reductions, thereby achieving off-site stability.

XI. CONCLUSION

The proposed development has been designed with provisions for the safe and efficient control of stormwater runoff in a manner that will not adversely impact the existing drainage patterns, adjacent roadways, or adjacent parcels. In addition, the proposed development satisfies the runoff quantity, quality and groundwater recharge requirements set forth by the Township of West Orange Land Use Ordinance and NJAC 7:8 through the use of the proposed aboveground small-scale bioretention basins with underdrains. With this stated, it is evident that the proposed development will not have a negative impact on the existing drainage conditions, water quality or groundwater recharge on-site or within the vicinity of the subject site.

APPENDIX

NRCS WEB SOIL SURVEY



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Essex County, New Jersey**



March 29, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

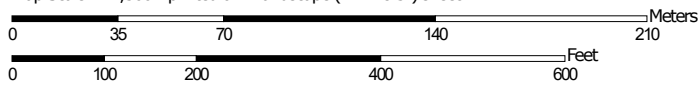
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Map Scale: 1:2,500 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

Custom Soil Resource Report

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.

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

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

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

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

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

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

Soil Survey Area: Essex County, New Jersey
Survey Area Data: Version 17, Aug 30, 2021

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

Date(s) aerial images were photographed: May 9, 2020—Oct 15, 2020

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
BogCc	Boonton loam, 8 to 15 percent slopes, extremely stony	1.1	6.9%
BowrB	Boonton - Urban land, Boonton substratum complex, red sandstone lowland, 0 to 8 percent slopes	1.1	7.0%
HanBc	Haledon silt loam, 0 to 8 percent slopes, extremely stony	3.7	23.8%
USBONB	Urban land, Boonton substratum - Boonton complex, 0 to 8 percent slopes	0.7	4.3%
YaobBc	Yalesville - Boonton - Holyoke complex, 0 to 8 percent slopes, extremely stony	7.8	49.6%
YaohEh	Yalesville - Holyoke complex, 35 to 60 percent slopes, very rocky	1.3	8.4%
Totals for Area of Interest		15.8	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.

Essex County, New Jersey

BogCc—Boonton loam, 8 to 15 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: b120

Elevation: 50 to 500 feet

Mean annual precipitation: 30 to 64 inches

Mean annual air temperature: 46 to 79 degrees F

Frost-free period: 131 to 178 days

Farmland classification: Not prime farmland

Map Unit Composition

Boonton, extremely stony, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Boonton, Extremely Stony

Setting

Landform: Ground moraines

Landform position (three-dimensional): Upper third of mountainflank, center third of mountainflank

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Coarse-loamy basal till derived from basalt

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material

Oa - 1 to 3 inches: highly decomposed plant material

A - 3 to 5 inches: loam

BA - 5 to 8 inches: silt loam

BE - 8 to 17 inches: silt loam

Bt - 17 to 30 inches: silt loam

Btx1 - 30 to 40 inches: gravelly fine sandy loam

Btx2 - 40 to 47 inches: fine sandy loam

CBt1 - 47 to 58 inches: loamy sand

CBt2 - 58 to 72 inches: loamy sand

Properties and qualities

Slope: 8 to 15 percent

Surface area covered with cobbles, stones or boulders: 10.0 percent

Depth to restrictive feature: 20 to 36 inches to fragipan

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 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 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Custom Soil Resource Report

Hydrologic Soil Group: C

Ecological site: F144AY037MA - Moist Dense Till Uplands

Hydric soil rating: No

Minor Components

Boonton, moderately well drained, extremely stony

Percent of map unit: 10 percent

Landform: Ground moraines

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Head slope, side slope

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Haledon, extremely stony

Percent of map unit: 5 percent

Landform: Ground moraines

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Head slope, side slope

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

BowrB—Boonton - Urban land, Boonton substratum complex, red sandstone lowland, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: w8p8

Elevation: 20 to 560 feet

Mean annual precipitation: 30 to 64 inches

Mean annual air temperature: 46 to 79 degrees F

Frost-free period: 131 to 178 days

Farmland classification: Not prime farmland

Map Unit Composition

Boonton, red sandstone lowland, and similar soils: 50 percent

Urban land, boonton red sandstone lowland substratum: 40 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Boonton, Red Sandstone Lowland

Setting

Landform: Ground moraines

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Coarse-loamy till derived from sandstone and shale

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material

Custom Soil Resource Report

A - 1 to 3 inches: silt loam
BE - 3 to 10 inches: loam
Bw - 10 to 27 inches: gravelly loam
Bx1 - 27 to 40 inches: gravelly fine sandy loam
Bx2 - 40 to 67 inches: gravelly fine sandy loam
BCx - 67 to 83 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 36 inches to fragipan
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 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 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144AY037MA - Moist Dense Till Uplands
Hydric soil rating: No

Description of Urban Land, Boonton Red Sandstone Lowland Substratum

Setting

Landform: Ground moraines
Landform position (three-dimensional): Lower third of mountainflank
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Surface covered by pavement, concrete, buildings, and other structures underlain by disturbed and natural soil material

Typical profile

H1 - 0 to 12 inches: material
H2 - 12 to 67 inches: gravelly loam
2CB - 67 to 83 inches: gravelly sandy loam

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Minor Components

Udorthents, boonton red sandstone lowland substratum

Percent of map unit: 10 percent
Landform: Ground moraines
Landform position (three-dimensional): Lower third of mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

HanBc—Haledon silt loam, 0 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: b12k
Elevation: 50 to 500 feet
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Haledon, Extremely Stony

Setting

Landform: Ground moraines
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Coarse-loamy basal till derived from basalt

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
Ap - 2 to 8 inches: silt loam
Bt - 8 to 15 inches: silt loam
Btg - 15 to 22 inches: silt loam
2Bt1 - 22 to 27 inches: loam
2Bt2 - 27 to 30 inches: loam
BCtx - 30 to 60 inches: gravelly fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 10.0 percent
Depth to restrictive feature: 24 to 36 inches to fragipan
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 7 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C

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Ecological site: F144AY037MA - Moist Dense Till Uplands

Hydric soil rating: No

Minor Components

Boonton, moderately well drained, extremely stony

Percent of map unit: 10 percent

Landform: Ground moraines

Landform position (three-dimensional): Upper third of mountainflank, center third of mountainflank

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Hasbrouck, extremely stony

Percent of map unit: 5 percent

Landform: Depressions

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

USBONB—Urban land, Boonton substratum - Boonton complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: w9c1

Elevation: 0 to 520 feet

Mean annual precipitation: 30 to 64 inches

Mean annual air temperature: 46 to 79 degrees F

Frost-free period: 131 to 213 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land, boonton substratum: 60 percent

Boonton and similar soils: 30 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land, Boonton Substratum

Setting

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Asphalt over supraglacial meltout till

Typical profile

M - 0 to 12 inches: material

Custom Soil Resource Report

2^AC - 12 to 47 inches: gravelly sandy loam

3CBt1 - 47 to 58 inches: loamy sand

3CBt2 - 58 to 72 inches: loamy sand

Properties and qualities

Slope: 0 to 8 percent

Depth to restrictive feature: 0 inches to manufactured layer

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)

Calcium carbonate, maximum content: 10 percent

Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydric soil rating: Unranked

Description of Boonton

Setting

Landform: Ground moraines

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Upper third of mountainflank, center third of mountainflank

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Red coarse-loamy till derived from sedimentary rock

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material

A - 2 to 4 inches: loam

Bt - 4 to 28 inches: sandy loam

Btx - 28 to 51 inches: sandy loam

BC - 51 to 72 inches: sandy loam

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: 20 to 39 inches to fragipan

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Very low to low (0.00 to 0.01 in/hr)

Depth to water table: About 28 to 59 inches

Frequency of flooding: None

Frequency of ponding: None

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: B

Ecological site: F144AY037MA - Moist Dense Till Uplands

Hydric soil rating: No

Minor Components

Udorthents, boonton substratum

Percent of map unit: 10 percent

Landform: Ground moraines

Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Lower third of mountainflank, upper third of mountainflank, center third of mountainflank

Down-slope shape: Convex

Across-slope shape: Convex, linear

Hydric soil rating: No

YaobBc—Yalesville - Boonton - Holyoke complex, 0 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: w9dx

Elevation: 50 to 690 feet

Mean annual precipitation: 30 to 64 inches

Mean annual air temperature: 46 to 79 degrees F

Frost-free period: 131 to 178 days

Farmland classification: Not prime farmland

Map Unit Composition

Yalesville, extremely stony, and similar soils: 40 percent

Boonton, extremely stony, and similar soils: 35 percent

Holyoke, extremely stony, and similar soils: 25 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Yalesville, Extremely Stony

Setting

Landform: Ground moraines

Landform position (three-dimensional): Mountaintop

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Coarse-loamy till derived from basalt

Typical profile

Oa - 0 to 1 inches: highly decomposed plant material

A - 1 to 5 inches: loam

Bw1 - 5 to 19 inches: fine sandy loam

Bw2 - 19 to 31 inches: fine sandy loam

BC - 31 to 32 inches: fine sandy loam

R - 32 to 80 inches: bedrock

Properties and qualities

Slope: 0 to 8 percent

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Surface area covered with cobbles, stones or boulders: 10.0 percent
Depth to restrictive feature: 20 to 39 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
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: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F145XY013CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Boonton, Extremely Stony

Setting

Landform: Ground moraines
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Upper third of mountainflank, center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-loamy basal till derived from basalt

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
Oa - 1 to 3 inches: highly decomposed plant material
A - 3 to 5 inches: loam
BA - 5 to 8 inches: gravelly loam
BE - 8 to 17 inches: silt loam
Bt - 17 to 30 inches: silt loam
Btx1 - 30 to 40 inches: gravelly fine sandy loam
Btx2 - 40 to 47 inches: fine sandy loam
CBt1 - 47 to 58 inches: loamy sand
CBt2 - 58 to 72 inches: loamy sand

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 10.0 percent
Depth to restrictive feature: 20 to 36 inches to fragipan
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 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 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s

Custom Soil Resource Report

Hydrologic Soil Group: C

Ecological site: F144AY037MA - Moist Dense Till Uplands

Hydric soil rating: No

Description of Holyoke, Extremely Stony

Setting

Landform: Ground moraines, hills, ridges

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Mountaintop

Down-slope shape: Convex, linear

Across-slope shape: Linear, convex

Parent material: Loamy till derived from basalt

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material

Oa - 1 to 3 inches: highly decomposed plant material

A - 3 to 5 inches: loam

Bw1 - 5 to 14 inches: loam

Bw2 - 14 to 18 inches: loam

R - 18 to 80 inches: bedrock

Properties and qualities

Slope: 0 to 8 percent

Surface area covered with cobbles, stones or boulders: 10.0 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock

Drainage class: Well drained

Runoff class: High

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: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: D

Ecological site: F145XY011CT - Well Drained Shallow Till Uplands

Hydric soil rating: No

YaohEh—Yalesville - Holyoke complex, 35 to 60 percent slopes, very rocky

Map Unit Setting

National map unit symbol: w9g0

Elevation: 50 to 660 feet

Mean annual precipitation: 30 to 64 inches

Custom Soil Resource Report

Mean annual air temperature: 46 to 79 degrees F

Frost-free period: 131 to 178 days

Farmland classification: Not prime farmland

Map Unit Composition

Yalesville, very rocky, and similar soils: 50 percent

Holyoke, very rocky, and similar soils: 30 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Yalesville, Very Rocky

Setting

Landform: Ground moraines

Landform position (three-dimensional): Mountaintop

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Coarse-loamy till derived from basalt

Typical profile

Oa - 0 to 1 inches: highly decomposed plant material

A - 1 to 5 inches: loam

Bw1 - 5 to 19 inches: fine sandy loam

Bw2 - 19 to 31 inches: fine sandy loam

BC - 31 to 32 inches: fine sandy loam

R - 32 to 80 inches: bedrock

Properties and qualities

Slope: 35 to 60 percent

Surface area covered with cobbles, stones or boulders: 10.0 percent

Depth to restrictive feature: 20 to 39 inches to lithic bedrock

Drainage class: Well drained

Runoff class: High

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: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C

Ecological site: F145XY013CT - Well Drained Till Uplands

Hydric soil rating: No

Description of Holyoke, Very Rocky

Setting

Landform: Ground moraines, hills, ridges

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Mountaintop

Down-slope shape: Convex, linear

Across-slope shape: Linear, convex

Parent material: Loamy till derived from basalt

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
Oa - 1 to 3 inches: highly decomposed plant material
A - 3 to 5 inches: loam
Bw1 - 5 to 14 inches: loam
Bw2 - 14 to 18 inches: loam
R - 18 to 80 inches: bedrock

Properties and qualities

Slope: 35 to 60 percent
Surface area covered with cobbles, stones or boulders: 10.0 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
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: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F145XY011CT - Well Drained Shallow Till Uplands
Hydric soil rating: No

Minor Components

Rock outcrop

Percent of map unit: 10 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: Unranked

Boonton, very rocky

Percent of map unit: 10 percent
Landform: Ground moraines
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Upper third of mountainflank, center third
of mountainflank
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

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

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

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

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

Custom Soil Resource Report

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

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

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

Custom Soil Resource Report Map—Hydrologic Soil Group



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

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

Soil Rating Lines

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

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Essex County, New Jersey
 Survey Area Data: Version 17, Aug 30, 2021

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

Date(s) aerial images were photographed: May 9, 2020—Oct 15, 2020

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.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BogCc	Boonton loam, 8 to 15 percent slopes, extremely stony	C	1.1	6.9%
BowrB	Boonton - Urban land, Boonton substratum complex, red sandstone lowland, 0 to 8 percent slopes	C	1.1	7.0%
HanBc	Haledon silt loam, 0 to 8 percent slopes, extremely stony	C	3.7	23.8%
USBONB	Urban land, Boonton substratum - Boonton complex, 0 to 8 percent slopes		0.7	4.3%
YaobBc	Yalesville - Boonton - Holyoke complex, 0 to 8 percent slopes, extremely stony	C	7.8	49.6%
YaohEh	Yalesville - Holyoke complex, 35 to 60 percent slopes, very rocky	C	1.3	8.4%
Totals for Area of Interest			15.8	100.0%

Rating Options—Hydrologic Soil Group*Aggregation Method: Dominant Condition**Component Percent Cutoff: None Specified**Tie-break Rule: Higher*

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

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United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

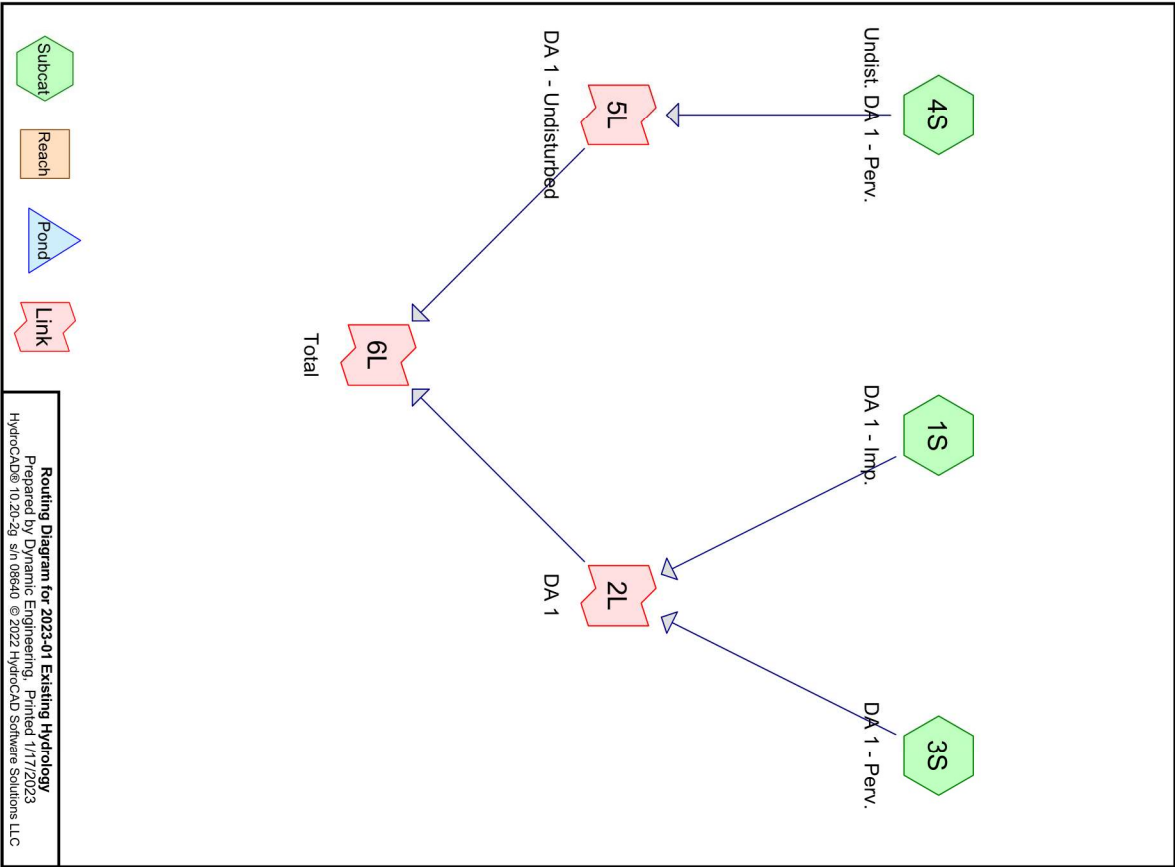
United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

**HYDROGRAPH SUMMARY REPORTS
EXISTING AND PROPOSED CONDITIONS
2, 10, 25, & 100-YEAR**

Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 6606 NJ Essex-D
Rainfall events imported from "NRCS-Rain.txt" for 6606 NJ Essex-D



2023-01 Existing Hydrology

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NOAA 24-hr	D	Default	24.00	1	3.44	2
2	10-Year	NOAA 24-hr	D	Default	24.00	1	5.22	2
3	25-Year	NOAA 24-hr	D	Default	24.00	1	6.44	2
4	100-Year	NOAA 24-hr	D	Default	24.00	1	8.66	2

2023-01 Existing Hydrology

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.150	74	>75% Grass cover, Good, HSG C (4S)
0.010	98	Unconnected pavement, HSG B (1S)
0.060	98	Unconnected pavement, HSG C (1S)
0.020	55	Woods, Good, HSG B (4S)
5.710	70	Woods, Good, HSG C (3S, 4S)
5.950	70	TOTAL AREA

2023-01 Existing Hydrology

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.030	HSG B	1S, 4S
5.920	HSG C	1S, 3S, 4S
0.000	HSG D	
0.000	Other	
5.950	TOTAL AREA	

2023-01 Existing Hydrology

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.150	0.000	0.000	0.150	>75% Grass cover, Good	4S
0.000	0.010	0.060	0.000	0.000	0.070	Unconnected pavement	1S
0.000	0.020	5.710	0.000	0.000	5.730	Woods, Good	3S, 4S
0.000	0.030	5.920	0.000	0.000	5.950	TOTAL AREA	

2023-01 Existing Hydrology

Notes Listing (all nodes)

Line#	Node Number	Notes
1	Project	Rainfall events imported from "NRCS-Rain.txt" for 6606 NJ Essex-D
2		Rainfall events imported from "NRCS-Rain.txt" for 6606 NJ Essex-D

2023-01 Existing Hydrology

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

Subcatchment 1S: DA 1 - Imp.

Runoff Area=0.070 ac 100.00% Impervious Runoff Depth=3.21"
Flow Length=451' Tc=12.5 min CN=98 Runoff=0.18 cfs 0.019 af

Subcatchment 3S: DA 1 - Perv.

Runoff Area=3.530 ac 0.00% Impervious Runoff Depth=0.97"
Flow Length=451' Tc=12.5 min CN=70 Runoff=2.94 cfs 0.286 af

Subcatchment 4S: Undist. DA 1 - Perv.

Runoff Area=2.350 ac 0.00% Impervious Runoff Depth=0.97"
Flow Length=451' Tc=12.5 min CN=70 Runoff=1.96 cfs 0.190 af

Link 2L: DA 1

Inflow=3.12 cfs 0.304 af
Primary=3.12 cfs 0.304 af

Link 5L: DA 1 - Undisturbed

Inflow=1.96 cfs 0.190 af
Primary=1.96 cfs 0.190 af

Link 6L: Total

Inflow=5.08 cfs 0.495 af
Primary=5.08 cfs 0.495 af

Total Runoff Area = 5.950 ac Runoff Volume = 0.495 af Average Runoff Depth = 1.00"
96.82% Pervious = 5.880 ac 1.18% Impervious = 0.070 ac

2023-01 Existing Hydrology

NOAA 24-hr D 2-Year Rainfall=3.44"

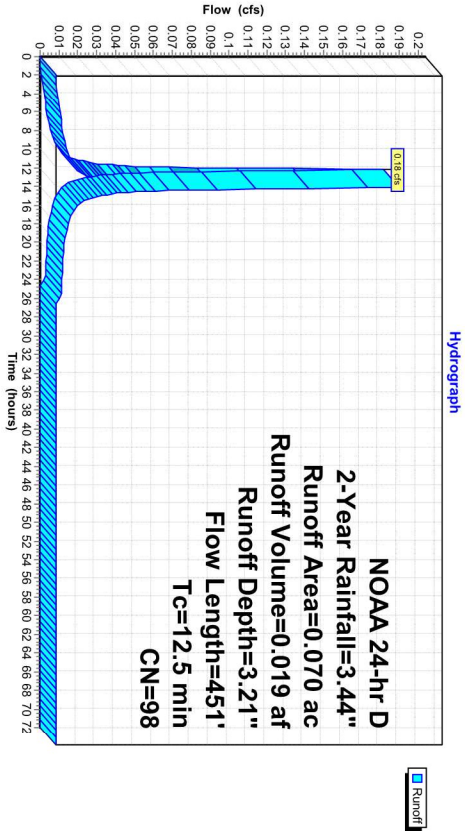
Summary for Subcatchment 1S: DA 1 - Imp.

Runoff = 0.18 cfs @ 12.20 hrs, Volume= 0.019 af, Depth= 3.21"
Routed to Link 2L : DA 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description		
0.060	98	Unconnected pavement, HSG C		
0.010	98	Unconnected pavement, HSG B		
0.070	98	Weighted Average		
0.070		100.00% Impervious Area		
0.070		100.00% Unconnected		
Tc Length (min)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05	Sheet Flow, Sheet Flow - Wooded Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spless flow length
0.3	84	0.0950	4.96	Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
3.2	342	0.0120	1.76	Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps

Subcatchment 1S: DA 1 - Imp.



2023-01 Existing Hydrology

NOAA 24-hr D 2-Year Rainfall=3.44"

Hydrograph for Subcatchment 1S: DA 1 - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	3.21	0.00
1.00	0.04	0.00	0.00	53.00	3.44	3.21	0.00
2.00	0.08	0.01	0.00	54.00	3.44	3.21	0.00
3.00	0.13	0.03	0.00	55.00	3.44	3.21	0.00
4.00	0.18	0.06	0.00	56.00	3.44	3.21	0.00
5.00	0.24	0.09	0.00	57.00	3.44	3.21	0.00
6.00	0.29	0.14	0.00	58.00	3.44	3.21	0.00
7.00	0.36	0.20	0.00	59.00	3.44	3.21	0.00
8.00	0.45	0.27	0.01	60.00	3.44	3.21	0.00
9.00	0.55	0.36	0.01	61.00	3.44	3.21	0.00
10.00	0.68	0.49	0.01	62.00	3.44	3.21	0.00
11.00	0.89	0.69	0.02	63.00	3.44	3.21	0.00
12.00	1.65	1.43	0.08	64.00	3.44	3.21	0.00
13.00	2.55	2.32	0.03	65.00	3.44	3.21	0.00
14.00	2.76	2.53	0.01	66.00	3.44	3.21	0.00
15.00	2.89	2.66	0.01	67.00	3.44	3.21	0.00
16.00	2.99	2.76	0.01	68.00	3.44	3.21	0.00
17.00	3.08	2.85	0.01	69.00	3.44	3.21	0.00
18.00	3.15	2.91	0.00	70.00	3.44	3.21	0.00
19.00	3.20	2.97	0.00	71.00	3.44	3.21	0.00
20.00	3.26	3.03	0.00	72.00	3.44	3.21	0.00
21.00	3.31	3.08	0.00				
22.00	3.36	3.12	0.00				
23.00	3.40	3.17	0.00				
24.00	3.44	3.21	0.00				
25.00	3.44	3.21	0.00				
26.00	3.44	3.21	0.00				
27.00	3.44	3.21	0.00				
28.00	3.44	3.21	0.00				
29.00	3.44	3.21	0.00				
30.00	3.44	3.21	0.00				
31.00	3.44	3.21	0.00				
32.00	3.44	3.21	0.00				
33.00	3.44	3.21	0.00				
34.00	3.44	3.21	0.00				
35.00	3.44	3.21	0.00				
36.00	3.44	3.21	0.00				
37.00	3.44	3.21	0.00				
38.00	3.44	3.21	0.00				
39.00	3.44	3.21	0.00				
40.00	3.44	3.21	0.00				
41.00	3.44	3.21	0.00				
42.00	3.44	3.21	0.00				
43.00	3.44	3.21	0.00				
44.00	3.44	3.21	0.00				
45.00	3.44	3.21	0.00				
46.00	3.44	3.21	0.00				
47.00	3.44	3.21	0.00				
48.00	3.44	3.21	0.00				
49.00	3.44	3.21	0.00				
50.00	3.44	3.21	0.00				
51.00	3.44	3.21	0.00				

2023-01 Existing Hydrology

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NOAA 24-hr D 2-Year Rainfall=3.44"

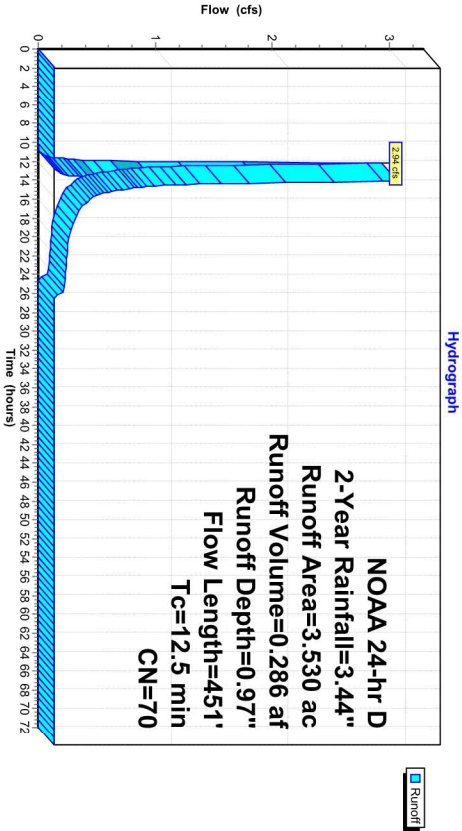
Summary for Subcatchment 3S: DA 1 - Perv.

Runoff = 2.94 cfs @ 12.22 hrs, Volume= 0.286 af, Depth= 0.97"
Routed to Link 2L : DA 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description			
3.530	70	Woods, Good, HSG C			
3.530		100.00% Pervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Wooded Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.3	84	0.0950	4.96		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
3.2	342	0.0120	1.76		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
12.5	451	Total			

Subcatchment 3S: DA 1 - Perv.



2023-01 Existing Hydrology

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NOAA 24-hr D 2-Year Rainfall=3.44"

Hydrograph for Subcatchment 3S: DA 1 - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	0.97	0.00
1.00	0.04	0.00	0.00	53.00	3.44	0.97	0.00
2.00	0.08	0.00	0.00	54.00	3.44	0.97	0.00
3.00	0.13	0.00	0.00	55.00	3.44	0.97	0.00
4.00	0.18	0.00	0.00	56.00	3.44	0.97	0.00
5.00	0.24	0.00	0.00	57.00	3.44	0.97	0.00
6.00	0.29	0.00	0.00	58.00	3.44	0.97	0.00
7.00	0.36	0.00	0.00	59.00	3.44	0.97	0.00
8.00	0.45	0.00	0.00	60.00	3.44	0.97	0.00
9.00	0.55	0.00	0.00	61.00	3.44	0.97	0.00
10.00	0.68	0.00	0.00	62.00	3.44	0.97	0.00
11.00	0.89	0.00	0.00	63.00	3.44	0.97	0.00
12.00	1.65	0.12	0.85	64.00	3.44	0.97	0.00
13.00	2.55	0.48	0.63	65.00	3.44	0.97	0.00
14.00	2.76	0.58	0.32	66.00	3.44	0.97	0.00
15.00	2.89	0.66	0.23	67.00	3.44	0.97	0.00
16.00	2.99	0.71	0.19	68.00	3.44	0.97	0.00
17.00	3.08	0.76	0.16	69.00	3.44	0.97	0.00
18.00	3.15	0.80	0.13	70.00	3.44	0.97	0.00
19.00	3.20	0.83	0.12	71.00	3.44	0.97	0.00
20.00	3.26	0.86	0.11	72.00	3.44	0.97	0.00
21.00	3.31	0.89	0.11				
22.00	3.36	0.92	0.10				
23.00	3.40	0.95	0.09				
24.00	3.44	0.97	0.08				
25.00	3.44	0.97	0.00				
26.00	3.44	0.97	0.00				
27.00	3.44	0.97	0.00				
28.00	3.44	0.97	0.00				
29.00	3.44	0.97	0.00				
30.00	3.44	0.97	0.00				
31.00	3.44	0.97	0.00				
32.00	3.44	0.97	0.00				
33.00	3.44	0.97	0.00				
34.00	3.44	0.97	0.00				
35.00	3.44	0.97	0.00				
36.00	3.44	0.97	0.00				
37.00	3.44	0.97	0.00				
38.00	3.44	0.97	0.00				
39.00	3.44	0.97	0.00				
40.00	3.44	0.97	0.00				
41.00	3.44	0.97	0.00				
42.00	3.44	0.97	0.00				
43.00	3.44	0.97	0.00				
44.00	3.44	0.97	0.00				
45.00	3.44	0.97	0.00				
46.00	3.44	0.97	0.00				
47.00	3.44	0.97	0.00				
48.00	3.44	0.97	0.00				
49.00	3.44	0.97	0.00				
50.00	3.44	0.97	0.00				
51.00	3.44	0.97	0.00				

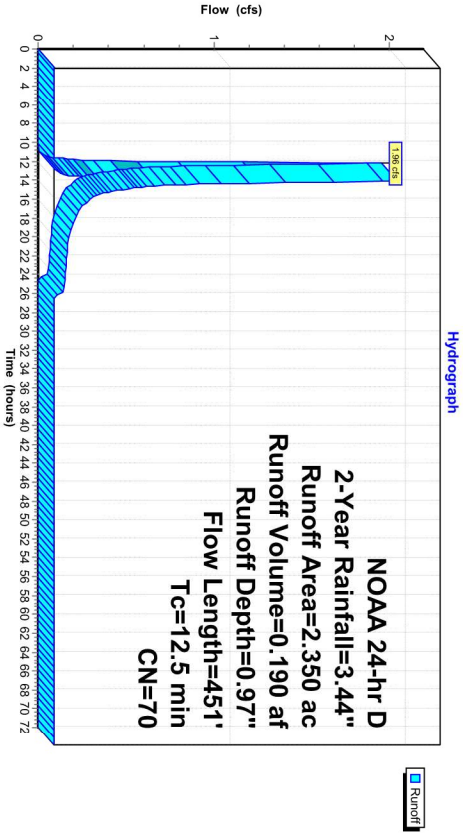
Summary for Subcatchment 4S: Undist. DA 1 - Perv.

Runoff = 1.96 cfs @ 12.22 hrs, Volume= 0.190 af, Depth= 0.97"
Routed to Link 5L : DA 1 - Undisturbed

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description			
0.150	74	>75% Grass cover, Good, HSG C			
2.180	70	Woods, Good, HSG C			
0.020	55	Woods, Good, HSG B			
2.350	70	Weighted Average			
100.00% Pervious Area					
Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spless flow length
0.3	84	0.0950	4.96		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
3.2	342	0.0120	1.76		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps

Subcatchment 4S: Undist. DA 1 - Perv.



Hydrograph for Subcatchment 4S: Undist. DA 1 - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	0.97	0.00
1.00	0.04	0.00	0.00	53.00	3.44	0.97	0.00
2.00	0.08	0.00	0.00	54.00	3.44	0.97	0.00
3.00	0.13	0.00	0.00	55.00	3.44	0.97	0.00
4.00	0.18	0.00	0.00	56.00	3.44	0.97	0.00
5.00	0.24	0.00	0.00	57.00	3.44	0.97	0.00
6.00	0.29	0.00	0.00	58.00	3.44	0.97	0.00
7.00	0.36	0.00	0.00	59.00	3.44	0.97	0.00
8.00	0.45	0.00	0.00	60.00	3.44	0.97	0.00
9.00	0.55	0.00	0.00	61.00	3.44	0.97	0.00
10.00	0.68	0.00	0.00	62.00	3.44	0.97	0.00
11.00	0.89	0.00	0.00	63.00	3.44	0.97	0.00
12.00	1.65	0.12	0.56	64.00	3.44	0.97	0.00
13.00	2.55	0.48	0.42	65.00	3.44	0.97	0.00
14.00	2.76	0.58	0.21	66.00	3.44	0.97	0.00
15.00	2.89	0.66	0.15	67.00	3.44	0.97	0.00
16.00	2.99	0.71	0.12	68.00	3.44	0.97	0.00
17.00	3.08	0.76	0.11	69.00	3.44	0.97	0.00
18.00	3.15	0.80	0.09	70.00	3.44	0.97	0.00
19.00	3.20	0.83	0.08	71.00	3.44	0.97	0.00
20.00	3.26	0.86	0.07	72.00	3.44	0.97	0.00
21.00	3.31	0.89	0.07				
22.00	3.36	0.92	0.07				
23.00	3.40	0.95	0.06				
24.00	3.44	0.97	0.06				
25.00	3.44	0.97	0.00				
26.00	3.44	0.97	0.00				
27.00	3.44	0.97	0.00				
28.00	3.44	0.97	0.00				
29.00	3.44	0.97	0.00				
30.00	3.44	0.97	0.00				
31.00	3.44	0.97	0.00				
32.00	3.44	0.97	0.00				
33.00	3.44	0.97	0.00				
34.00	3.44	0.97	0.00				
35.00	3.44	0.97	0.00				
36.00	3.44	0.97	0.00				
37.00	3.44	0.97	0.00				
38.00	3.44	0.97	0.00				
39.00	3.44	0.97	0.00				
40.00	3.44	0.97	0.00				
41.00	3.44	0.97	0.00				
42.00	3.44	0.97	0.00				
43.00	3.44	0.97	0.00				
44.00	3.44	0.97	0.00				
45.00	3.44	0.97	0.00				
46.00	3.44	0.97	0.00				
47.00	3.44	0.97	0.00				
48.00	3.44	0.97	0.00				
49.00	3.44	0.97	0.00				
50.00	3.44	0.97	0.00				
51.00	3.44	0.97	0.00				

2023-01 Existing Hydrology

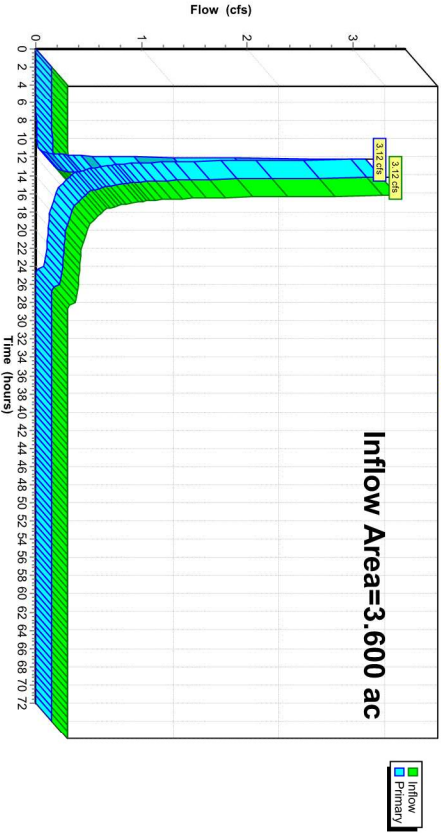
Summary for Link 2L: DA 1

Inflow Area = 3.600 ac, 1.94% Impervious, Inflow Depth = 1.01" for 2-Year event;
Inflow = 3.12 cfs @ 12.22 hrs, Volume= 0.304 af
Primary = 3.12 cfs @ 12.22 hrs, Volume= 0.304 af, Atten= 0%, Lag= 0.0 min
Routed to Link 6L: Total

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 2L: DA 1

Hydrograph



2023-01 Existing Hydrology

Hydrograph for Link 2L: DA 1

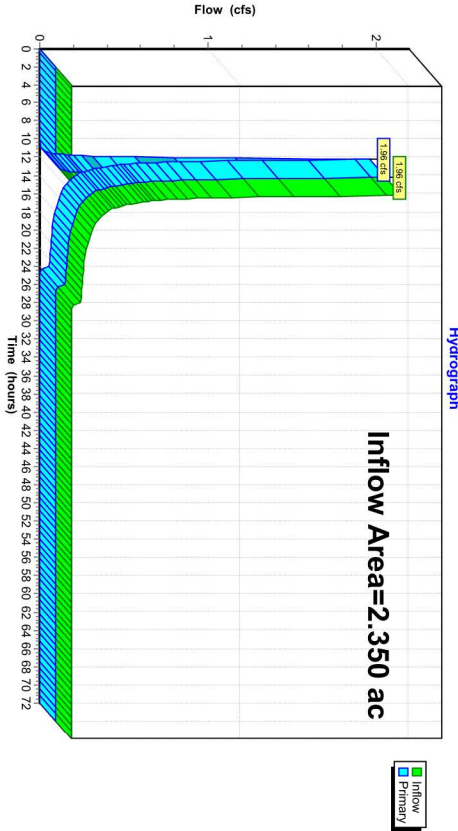
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.01	0.00	0.01	60.00	0.00	0.00	0.00
9.00	0.01	0.00	0.01	61.00	0.00	0.00	0.00
10.00	0.01	0.00	0.01	62.00	0.00	0.00	0.00
11.00	0.02	0.00	0.02	63.00	0.00	0.00	0.00
12.00	0.93	0.00	0.93	64.00	0.00	0.00	0.00
13.00	0.66	0.00	0.66	65.00	0.00	0.00	0.00
14.00	0.33	0.00	0.33	66.00	0.00	0.00	0.00
15.00	0.24	0.00	0.24	67.00	0.00	0.00	0.00
16.00	0.19	0.00	0.19	68.00	0.00	0.00	0.00
17.00	0.16	0.00	0.16	69.00	0.00	0.00	0.00
18.00	0.14	0.00	0.14	70.00	0.00	0.00	0.00
19.00	0.12	0.00	0.12	71.00	0.00	0.00	0.00
20.00	0.12	0.00	0.12	72.00	0.00	0.00	0.00
21.00	0.11	0.00	0.11				
22.00	0.10	0.00	0.10				
23.00	0.09	0.00	0.09				
24.00	0.09	0.00	0.09				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 5L: DA 1 - Undisturbed

Inflow Area = 2.350 ac, 0.00% Impervious, Inflow Depth = 0.97" for 2-Year event;
Inflow = 1.96 cfs @ 12.22 hrs, Volume= 0.190 af
Primary = 1.96 cfs @ 12.22 hrs, Volume= 0.190 af, Atten= 0%, Lag= 0.0 min
Routed to Link 6L : Total

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 5L: DA 1 - Undisturbed



Hydrograph for Link 5L: DA 1 - Undisturbed

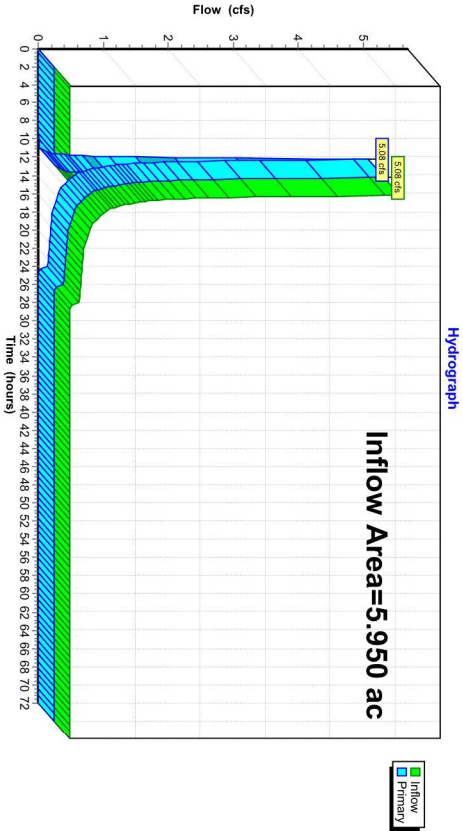
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	0.56	0.00	0.56	64.00	0.00	0.00	0.00
13.00	0.42	0.00	0.42	65.00	0.00	0.00	0.00
14.00	0.21	0.00	0.21	66.00	0.00	0.00	0.00
15.00	0.15	0.00	0.15	67.00	0.00	0.00	0.00
16.00	0.12	0.00	0.12	68.00	0.00	0.00	0.00
17.00	0.11	0.00	0.11	69.00	0.00	0.00	0.00
18.00	0.09	0.00	0.09	70.00	0.00	0.00	0.00
19.00	0.08	0.00	0.08	71.00	0.00	0.00	0.00
20.00	0.07	0.00	0.07	72.00	0.00	0.00	0.00
21.00	0.07	0.00	0.07				
22.00	0.07	0.00	0.07				
23.00	0.06	0.00	0.06				
24.00	0.06	0.00	0.06				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

2023-01 Existing Hydrology

Summary for Link 6L: Total

Inflow Area = 5.950 ac, 1.18% Impervious, Inflow Depth = 1.00" for 2-Year event;
Inflow = 5.08 cfs @ 12.22 hrs, Volume= 0.495 af
Primary = 5.08 cfs @ 12.22 hrs, Volume= 0.495 af, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 6L: Total



Hydrograph for Link 6L: Total

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.01	0.00	0.01	60.00	0.00	0.00	0.00
9.00	0.01	0.00	0.01	61.00	0.00	0.00	0.00
10.00	0.01	0.00	0.01	62.00	0.00	0.00	0.00
11.00	0.02	0.00	0.02	63.00	0.00	0.00	0.00
12.00	1.49	0.00	1.49	64.00	0.00	0.00	0.00
13.00	1.07	0.00	1.07	65.00	0.00	0.00	0.00
14.00	0.54	0.00	0.54	66.00	0.00	0.00	0.00
15.00	0.39	0.00	0.39	67.00	0.00	0.00	0.00
16.00	0.32	0.00	0.32	68.00	0.00	0.00	0.00
17.00	0.27	0.00	0.27	69.00	0.00	0.00	0.00
18.00	0.22	0.00	0.22	70.00	0.00	0.00	0.00
19.00	0.20	0.00	0.20	71.00	0.00	0.00	0.00
20.00	0.19	0.00	0.19	72.00	0.00	0.00	0.00
21.00	0.18	0.00	0.18				
22.00	0.17	0.00	0.17				
23.00	0.15	0.00	0.15				
24.00	0.14	0.00	0.14				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

2023-01 Existing Hydrology

2023-01 Existing Hydrology

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NOAA 24-hr D 10-Year Rainfall=5.22"

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

Subcatchment 1S: DA 1 - Imp.

Subcatchment 3S: DA 1 - Perv.

Subcatchment 4S: Undist. DA 1 - Perv.

Link 2L: DA 1

Link 5L: DA 1 - Undisturbed

Link 6L: Total

Total Runoff Area = 5.950 ac Runoff Volume = 1.108 af Average Runoff Depth = 2.23"
98.82% Pervious = 5.880 ac 1.18% Impervious = 0.070 ac

2023-01 Existing Hydrology

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NOAA 24-hr D 10-Year Rainfall=5.22"

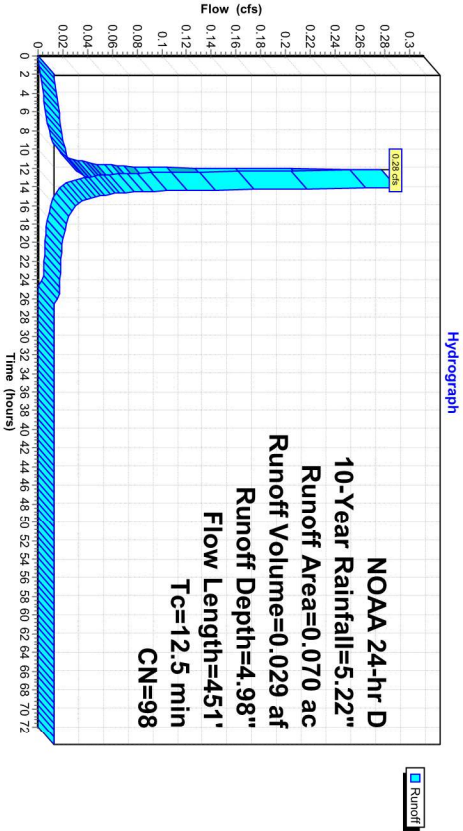
Summary for Subcatchment 1S: DA 1 - Imp.

Runoff = 0.28 cfs @ 12.20 hrs, Volume= 0.029 af, Depth= 4.98"
Routed to Link 2L : DA 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description			
0.060	98	Unconnected pavement, HSG C			
0.010	98	Unconnected pavement, HSG B			
0.070	98	Weighted Average			
0.070	100.00%	Impervious Area			
0.070	100.00%	Unconnected			
Tc	Length	Slope	Velocity	Capacity	Description
	(feet)	(ft/ft)	(ft/sec)	(cfs)	
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Wooded Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spless flow length
0.3	84	0.0950	4.96		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
3.2	342	0.0120	1.76		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps

Subcatchment 1S: DA 1 - Imp.



2023-01 Existing Hydrology

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NOAA 24-hr D 10-Year Rainfall=5.22"

Hydrograph for Subcatchment 1S: DA 1 - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	4.98	0.00
1.00	0.06	0.00	0.00	53.00	5.22	4.98	0.00
2.00	0.13	0.02	0.00	54.00	5.22	4.98	0.00
3.00	0.20	0.07	0.00	55.00	5.22	4.98	0.00
4.00	0.27	0.12	0.00	56.00	5.22	4.98	0.00
5.00	0.36	0.19	0.01	57.00	5.22	4.98	0.00
6.00	0.45	0.27	0.01	58.00	5.22	4.98	0.00
7.00	0.55	0.36	0.01	59.00	5.22	4.98	0.00
8.00	0.68	0.48	0.01	60.00	5.22	4.98	0.00
9.00	0.83	0.63	0.01	61.00	5.22	4.98	0.00
10.00	1.03	0.82	0.02	62.00	5.22	4.98	0.00
11.00	1.36	1.14	0.03	63.00	5.22	4.98	0.00
12.00	2.50	2.27	0.13	64.00	5.22	4.98	0.00
13.00	3.86	3.63	0.04	65.00	5.22	4.98	0.00
14.00	4.19	3.95	0.02	66.00	5.22	4.98	0.00
15.00	4.39	4.16	0.01	67.00	5.22	4.98	0.00
16.00	4.54	4.31	0.01	68.00	5.22	4.98	0.00
17.00	4.67	4.43	0.01	69.00	5.22	4.98	0.00
18.00	4.77	4.54	0.01	70.00	5.22	4.98	0.00
19.00	4.86	4.63	0.01	71.00	5.22	4.98	0.00
20.00	4.95	4.71	0.01	72.00	5.22	4.98	0.00
21.00	5.02	4.79	0.01				
22.00	5.09	4.86	0.00				
23.00	5.16	4.92	0.00				
24.00	5.22	4.98	0.00				
25.00	5.22	4.98	0.00				
26.00	5.22	4.98	0.00				
27.00	5.22	4.98	0.00				
28.00	5.22	4.98	0.00				
29.00	5.22	4.98	0.00				
30.00	5.22	4.98	0.00				
31.00	5.22	4.98	0.00				
32.00	5.22	4.98	0.00				
33.00	5.22	4.98	0.00				
34.00	5.22	4.98	0.00				
35.00	5.22	4.98	0.00				
36.00	5.22	4.98	0.00				
37.00	5.22	4.98	0.00				
38.00	5.22	4.98	0.00				
39.00	5.22	4.98	0.00				
40.00	5.22	4.98	0.00				
41.00	5.22	4.98	0.00				
42.00	5.22	4.98	0.00				
43.00	5.22	4.98	0.00				
44.00	5.22	4.98	0.00				
45.00	5.22	4.98	0.00				
46.00	5.22	4.98	0.00				
47.00	5.22	4.98	0.00				
48.00	5.22	4.98	0.00				
49.00	5.22	4.98	0.00				
50.00	5.22	4.98	0.00				
51.00	5.22	4.98	0.00				

2023-01 Existing Hydrology

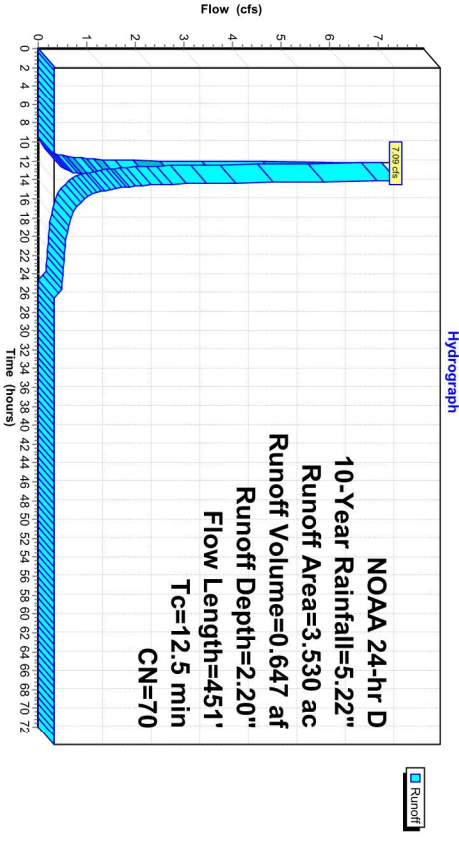
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NOAA 24-hr D 10-Year Rainfall=5.22"

Summary for Subcatchment 3S: DA 1 - Perv.

Runoff	=	7.09 cfs @	12.21 hrs,	Volume=	0.647 af,	Depth= 2.20"
Routed to Link 2L : DA 1						
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span=0.00-72.00 hrs, dt= 0.05 hrs						
NOAA 24-hr D 10-Year Rainfall=5.22"						
Area (ac)	CN	Description				
3.530	70	Woods, Good, HSG C				
3.530		100.00% Pervious Area				
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Wooded	
Woods: Light underbrush n= 0.400 P2= 3.44"						
Using McCuen-Spiess flow length						
0.3	84	0.0950	4.96		Shallow Concentrated Flow, SCF - Unpaved	
Unpaved Kv= 16.1 fps						
3.2	342	0.0120	1.76		Shallow Concentrated Flow, SCF - Unpaved	
Unpaved Kv= 16.1 fps						
12.5	451	Total				

Subcatchment 3S: DA 1 - Perv.



2023-01 Existing Hydrology

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NOAA 24-hr D 10-Year Rainfall=5.22"

Hydrograph for Subcatchment 3S: DA 1 - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	2.20	0.00
1.00	0.06	0.00	0.00	53.00	5.22	2.20	0.00
2.00	0.13	0.00	0.00	54.00	5.22	2.20	0.00
3.00	0.20	0.00	0.00	55.00	5.22	2.20	0.00
4.00	0.27	0.00	0.00	56.00	5.22	2.20	0.00
5.00	0.36	0.00	0.00	57.00	5.22	2.20	0.00
6.00	0.45	0.00	0.00	58.00	5.22	2.20	0.00
7.00	0.55	0.00	0.00	59.00	5.22	2.20	0.00
8.00	0.68	0.00	0.00	60.00	5.22	2.20	0.00
9.00	0.83	0.00	0.00	61.00	5.22	2.20	0.00
10.00	1.03	0.01	0.05	62.00	5.22	2.20	0.00
11.00	1.36	0.05	0.24	63.00	5.22	2.20	0.00
12.00	2.50	0.46	2.52	64.00	5.22	2.20	0.00
13.00	3.86	1.24	1.30	65.00	5.22	2.20	0.00
14.00	4.19	1.45	0.64	66.00	5.22	2.20	0.00
15.00	4.39	1.60	0.45	67.00	5.22	2.20	0.00
16.00	4.54	1.70	0.36	68.00	5.22	2.20	0.00
17.00	4.67	1.80	0.31	69.00	5.22	2.20	0.00
18.00	4.77	1.87	0.25	70.00	5.22	2.20	0.00
19.00	4.86	1.94	0.23	71.00	5.22	2.20	0.00
20.00	4.95	2.00	0.21	72.00	5.22	2.20	0.00
21.00	5.02	2.05	0.20				
22.00	5.09	2.11	0.19				
23.00	5.16	2.16	0.17				
24.00	5.22	2.20	0.16				
25.00	5.22	2.20	0.00				
26.00	5.22	2.20	0.00				
27.00	5.22	2.20	0.00				
28.00	5.22	2.20	0.00				
29.00	5.22	2.20	0.00				
30.00	5.22	2.20	0.00				
31.00	5.22	2.20	0.00				
32.00	5.22	2.20	0.00				
33.00	5.22	2.20	0.00				
34.00	5.22	2.20	0.00				
35.00	5.22	2.20	0.00				
36.00	5.22	2.20	0.00				
37.00	5.22	2.20	0.00				
38.00	5.22	2.20	0.00				
39.00	5.22	2.20	0.00				
40.00	5.22	2.20	0.00				
41.00	5.22	2.20	0.00				
42.00	5.22	2.20	0.00				
43.00	5.22	2.20	0.00				
44.00	5.22	2.20	0.00				
45.00	5.22	2.20	0.00				
46.00	5.22	2.20	0.00				
47.00	5.22	2.20	0.00				
48.00	5.22	2.20	0.00				
49.00	5.22	2.20	0.00				
50.00	5.22	2.20	0.00				
51.00	5.22	2.20	0.00				

2023-01 Existing Hydrology

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NOAA 24-hr D 10-Year Rainfall=5.22"

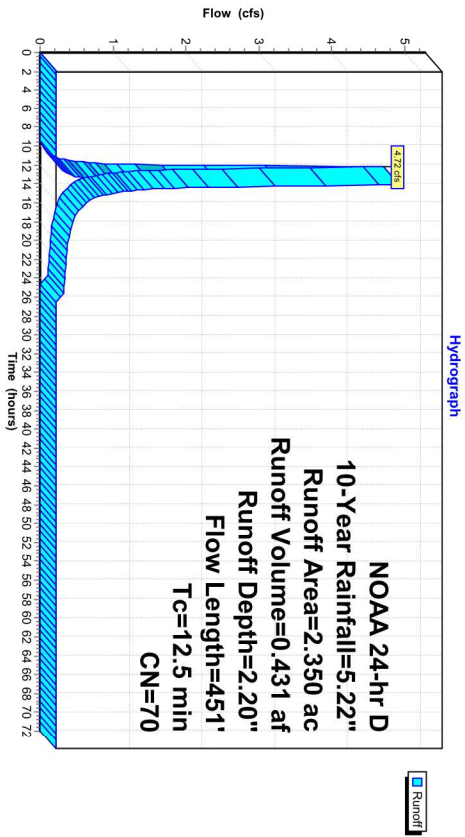
Summary for Subcatchment 4S: Undist. DA 1 - Perv.

Runoff = 4.72 cfs @ 12.21 hrs, Volume= 0.431 af, Depth= 2.20"
Routed to Link 5L : DA 1 - Undisturbed

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description			
0.150	74	>75% Grass cover, Good, HSG C			
2.180	70	Woods, Good, HSG C			
0.020	55	Woods, Good, HSG B			
2.350	70	Weighted Average			
2.350		100.00% Pervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spess flow length
0.3	84	0.0950	4.96		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
3.2	342	0.0120	1.76		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps

Subcatchment 4S: Undist. DA 1 - Perv.



2023-01 Existing Hydrology

NOAA 24-hr D 10-Year Rainfall=5.22"

Hydrograph for Subcatchment 4S: Undist. DA 1 - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	2.20	0.00
1.00	0.06	0.00	0.00	53.00	5.22	2.20	0.00
2.00	0.13	0.00	0.00	54.00	5.22	2.20	0.00
3.00	0.20	0.00	0.00	55.00	5.22	2.20	0.00
4.00	0.27	0.00	0.00	56.00	5.22	2.20	0.00
5.00	0.36	0.00	0.00	57.00	5.22	2.20	0.00
6.00	0.45	0.00	0.00	58.00	5.22	2.20	0.00
7.00	0.55	0.00	0.00	59.00	5.22	2.20	0.00
8.00	0.68	0.00	0.00	60.00	5.22	2.20	0.00
9.00	0.83	0.00	0.00	61.00	5.22	2.20	0.00
10.00	1.03	0.01	0.03	62.00	5.22	2.20	0.00
11.00	1.36	0.05	0.16	63.00	5.22	2.20	0.00
12.00	2.50	0.46	1.68	64.00	5.22	2.20	0.00
13.00	3.86	1.24	0.87	65.00	5.22	2.20	0.00
14.00	4.19	1.45	0.42	66.00	5.22	2.20	0.00
15.00	4.39	1.60	0.30	67.00	5.22	2.20	0.00
16.00	4.54	1.70	0.24	68.00	5.22	2.20	0.00
17.00	4.67	1.80	0.21	69.00	5.22	2.20	0.00
18.00	4.77	1.87	0.17	70.00	5.22	2.20	0.00
19.00	4.86	1.94	0.15	71.00	5.22	2.20	0.00
20.00	4.95	2.00	0.14	72.00	5.22	2.20	0.00
21.00	5.02	2.05	0.13				
22.00	5.09	2.11	0.12				
23.00	5.16	2.16	0.11				
24.00	5.22	2.20	0.10				
25.00	5.22	2.20	0.00				
26.00	5.22	2.20	0.00				
27.00	5.22	2.20	0.00				
28.00	5.22	2.20	0.00				
29.00	5.22	2.20	0.00				
30.00	5.22	2.20	0.00				
31.00	5.22	2.20	0.00				
32.00	5.22	2.20	0.00				
33.00	5.22	2.20	0.00				
34.00	5.22	2.20	0.00				
35.00	5.22	2.20	0.00				
36.00	5.22	2.20	0.00				
37.00	5.22	2.20	0.00				
38.00	5.22	2.20	0.00				
39.00	5.22	2.20	0.00				
40.00	5.22	2.20	0.00				
41.00	5.22	2.20	0.00				
42.00	5.22	2.20	0.00				
43.00	5.22	2.20	0.00				
44.00	5.22	2.20	0.00				
45.00	5.22	2.20	0.00				
46.00	5.22	2.20	0.00				
47.00	5.22	2.20	0.00				
48.00	5.22	2.20	0.00				
49.00	5.22	2.20	0.00				
50.00	5.22	2.20	0.00				
51.00	5.22	2.20	0.00				

2023-01 Existing Hydrology

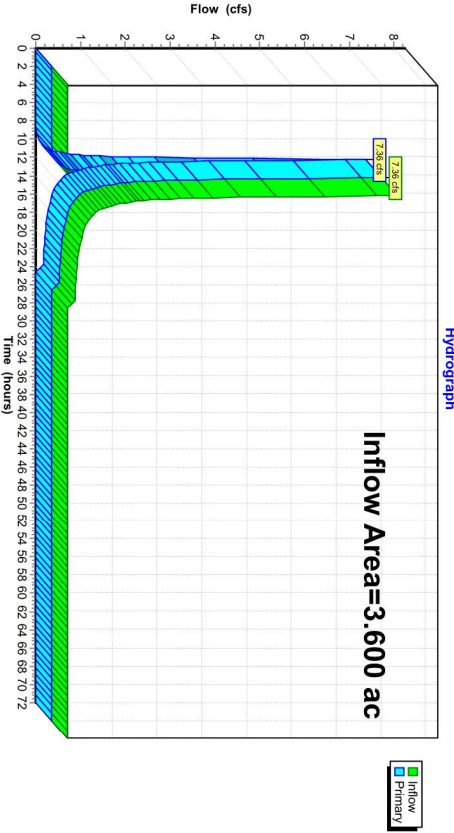
NOAA 24-hr D 10-Year Rainfall=5.22"

Summary for Link 2L: DA 1

Inflow Area = 3,600 ac, 1.94% Impervious, Inflow Depth = 2.25" for 10-Year event
Inflow = 7.36 cfs @ 12.21 hrs, Volume= 0.676 af
Primary = 7.36 cfs @ 12.21 hrs, Volume= 0.676 af, Atten= 0%, Lag= 0.0 min
Routed to Link 6L : Total

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 2L: DA 1



Hydrograph for Link 2L: DA 1

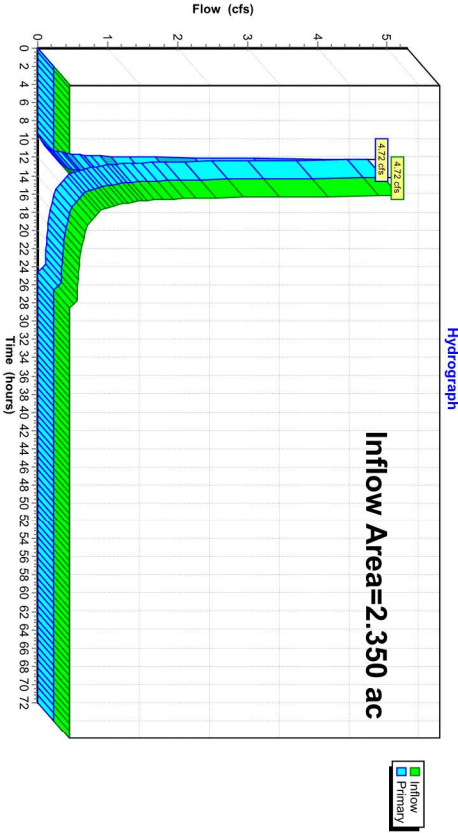
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.01	0.00	0.01	59.00	0.00	0.00	0.00
8.00	0.01	0.00	0.01	60.00	0.00	0.00	0.00
9.00	0.01	0.00	0.01	61.00	0.00	0.00	0.00
10.00	0.06	0.00	0.06	62.00	0.00	0.00	0.00
11.00	0.27	0.00	0.27	63.00	0.00	0.00	0.00
12.00	2.65	0.00	2.65	64.00	0.00	0.00	0.00
13.00	1.34	0.00	1.34	65.00	0.00	0.00	0.00
14.00	0.66	0.00	0.66	66.00	0.00	0.00	0.00
15.00	0.46	0.00	0.46	67.00	0.00	0.00	0.00
16.00	0.37	0.00	0.37	68.00	0.00	0.00	0.00
17.00	0.32	0.00	0.32	69.00	0.00	0.00	0.00
18.00	0.26	0.00	0.26	70.00	0.00	0.00	0.00
19.00	0.23	0.00	0.23	71.00	0.00	0.00	0.00
20.00	0.22	0.00	0.22	72.00	0.00	0.00	0.00
21.00	0.20	0.00	0.20				
22.00	0.19	0.00	0.19				
23.00	0.18	0.00	0.18				
24.00	0.16	0.00	0.16				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 5L: DA 1 - Undisturbed

Inflow Area = 2.350 ac, 0.00% Impervious, Inflow Depth = 2.20" for 10-Year event
Inflow = 4.72 cfs @ 12.21 hrs, Volume= 0.431 af
Primary = 4.72 cfs @ 12.21 hrs, Volume= 0.431 af, Atten= 0%, Lag= 0.0 min
Routed to Link 6L : Total

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 5L: DA 1 - Undisturbed



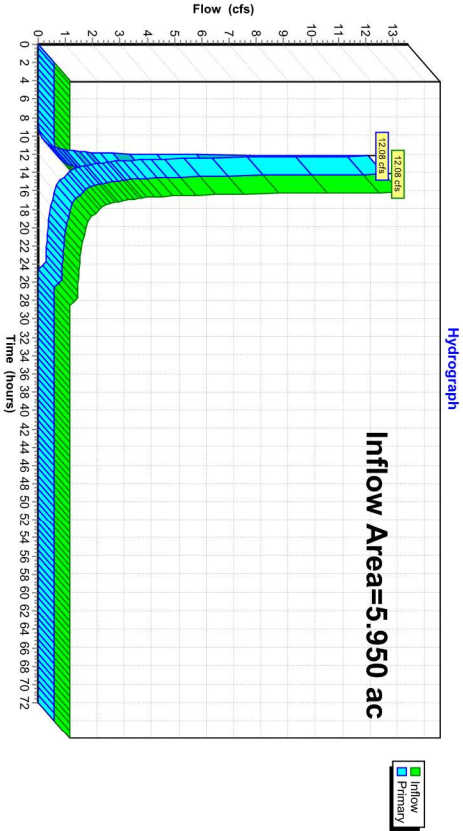
Hydrograph for Link 5L: DA 1 - Undisturbed

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.03	0.00	0.03	62.00	0.00	0.00	0.00
11.00	0.16	0.00	0.16	63.00	0.00	0.00	0.00
12.00	1.68	0.00	1.68	64.00	0.00	0.00	0.00
13.00	0.87	0.00	0.87	65.00	0.00	0.00	0.00
14.00	0.42	0.00	0.42	66.00	0.00	0.00	0.00
15.00	0.30	0.00	0.30	67.00	0.00	0.00	0.00
16.00	0.24	0.00	0.24	68.00	0.00	0.00	0.00
17.00	0.21	0.00	0.21	69.00	0.00	0.00	0.00
18.00	0.17	0.00	0.17	70.00	0.00	0.00	0.00
19.00	0.15	0.00	0.15	71.00	0.00	0.00	0.00
20.00	0.14	0.00	0.14	72.00	0.00	0.00	0.00
21.00	0.13	0.00	0.13				
22.00	0.12	0.00	0.12				
23.00	0.11	0.00	0.11				
24.00	0.10	0.00	0.10				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 6L: Total

Inflow Area = 5.950 ac, 1.18% Impervious, Inflow Depth = 2.23" for 10-Year event
Inflow = 12.08 cfs @ 12.21 hrs, Volume= 1.108 af
Primary = 12.08 cfs @ 12.21 hrs, Volume= 1.108 af, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 6L: Total



2023-01 Existing Hydrology

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NOAA 24-hr D 10-Year Rainfall=5.22"

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Hydrograph for Link 6L: Total

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.01	0.00	0.01	59.00	0.00	0.00	0.00
8.00	0.01	0.00	0.01	60.00	0.00	0.00	0.00
9.00	0.01	0.00	0.01	61.00	0.00	0.00	0.00
10.00	0.10	0.00	0.10	62.00	0.00	0.00	0.00
11.00	0.43	0.00	0.43	63.00	0.00	0.00	0.00
12.00	4.33	0.00	4.33	64.00	0.00	0.00	0.00
13.00	2.21	0.00	2.21	65.00	0.00	0.00	0.00
14.00	1.08	0.00	1.08	66.00	0.00	0.00	0.00
15.00	0.76	0.00	0.76	67.00	0.00	0.00	0.00
16.00	0.61	0.00	0.61	68.00	0.00	0.00	0.00
17.00	0.52	0.00	0.52	69.00	0.00	0.00	0.00
18.00	0.42	0.00	0.42	70.00	0.00	0.00	0.00
19.00	0.38	0.00	0.38	71.00	0.00	0.00	0.00
20.00	0.36	0.00	0.36	72.00	0.00	0.00	0.00
21.00	0.34	0.00	0.34				
22.00	0.31	0.00	0.31				
23.00	0.29	0.00	0.29				
24.00	0.26	0.00	0.26				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

2023-01 Existing Hydrology

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NOAA 24-hr D 25-Year Rainfall=6.44"

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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

Subcatchment 1S: DA 1 - Imp.

Runoff Area=0.070 ac 100.00% Impervious Runoff Depth=6.20"
Flow Length=451' Tc=12.5 min CN=98 Runoff=0.34 cfs 0.036 af

Subcatchment 3S: DA 1 - Perv.

Runoff Area=3.530 ac 0.00% Impervious Runoff Depth=3.16"
Flow Length=451' Tc=12.5 min CN=70 Runoff=10.25 cfs 0.929 af

Subcatchment 4S: Undist. DA 1 - Perv.

Runoff Area=2.350 ac 0.00% Impervious Runoff Depth=3.16"
Flow Length=451' Tc=12.5 min CN=70 Runoff=6.83 cfs 0.619 af

Link 2L: DA 1

Inflow=10.60 cfs 0.965 af
Primary=10.60 cfs 0.965 af

Link 5L: DA 1 - Undisturbed

Inflow=6.83 cfs 0.619 af
Primary=6.83 cfs 0.619 af

Link 6L: Total

Inflow=17.42 cfs 1.584 af
Primary=17.42 cfs 1.584 af

Total Runoff Area = 5.950 ac Runoff Volume = 1.584 af Average Runoff Depth = 3.19"
98.82% Pervious = 5.880 ac 1.18% Impervious = 0.070 ac

2023-01 Existing Hydrology

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NOAA 24-hr D 25-Year Rainfall=6.44"

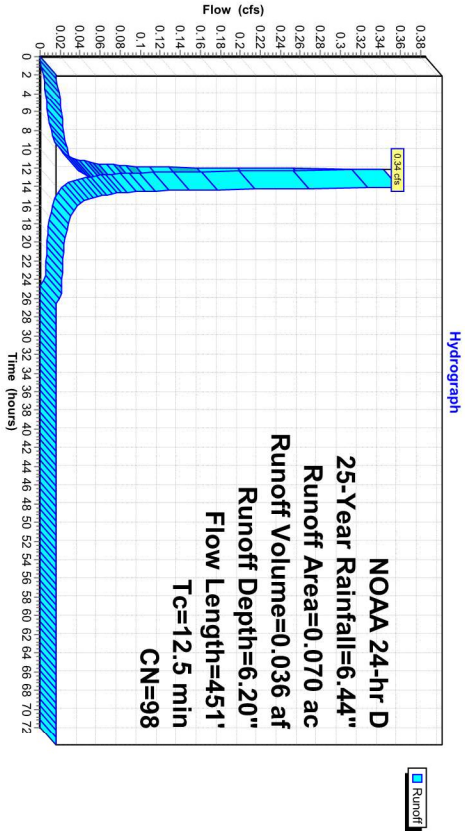
Summary for Subcatchment 1S: DA 1 - Imp.

Runoff = 0.34 cfs @ 12.20 hrs, Volume= 0.036 af, Depth= 6.20"
Routed to Link 2L : DA 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Year Rainfall=6.44"

Area (ac)	CN	Description		
0.060	98	Unconnected pavement, HSG C		
0.010	98	Unconnected pavement, HSG B		
0.070	98	Weighted Average		
0.070		100.00% Impervious Area		
0.070		100.00% Unconnected		
Tc Length (min)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05	Sheet Flow, Sheet Flow - Wooded Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spless flow length
0.3	84	0.0950	4.96	Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
3.2	342	0.0120	1.76	Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps

Subcatchment 1S: DA 1 - Imp.



2023-01 Existing Hydrology

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NOAA 24-hr D 25-Year Rainfall=6.44"

Hydrograph for Subcatchment 1S: DA 1 - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	6.20	0.00
1.00	0.07	0.00	0.00	53.00	6.44	6.20	0.00
2.00	0.15	0.04	0.00	54.00	6.44	6.20	0.00
3.00	0.24	0.10	0.00	55.00	6.44	6.20	0.00
4.00	0.34	0.18	0.01	56.00	6.44	6.20	0.00
5.00	0.44	0.26	0.01	57.00	6.44	6.20	0.00
6.00	0.55	0.36	0.01	58.00	6.44	6.20	0.00
7.00	0.68	0.48	0.01	59.00	6.44	6.20	0.00
8.00	0.84	0.63	0.01	60.00	6.44	6.20	0.00
9.00	1.02	0.81	0.01	61.00	6.44	6.20	0.00
10.00	1.28	1.06	0.02	62.00	6.44	6.20	0.00
11.00	1.67	1.45	0.03	63.00	6.44	6.20	0.00
12.00	3.09	2.85	0.16	64.00	6.44	6.20	0.00
13.00	4.77	4.53	0.05	65.00	6.44	6.20	0.00
14.00	5.16	4.93	0.02	66.00	6.44	6.20	0.00
15.00	5.42	5.18	0.02	67.00	6.44	6.20	0.00
16.00	5.60	5.37	0.01	68.00	6.44	6.20	0.00
17.00	5.76	5.52	0.01	69.00	6.44	6.20	0.00
18.00	5.89	5.65	0.01	70.00	6.44	6.20	0.00
19.00	6.00	5.76	0.01	71.00	6.44	6.20	0.00
20.00	6.10	5.86	0.01	72.00	6.44	6.20	0.00
21.00	6.20	5.96	0.01				
22.00	6.29	6.05	0.01				
23.00	6.37	6.13	0.01				
24.00	6.44	6.20	0.01				
25.00	6.44	6.20	0.00				
26.00	6.44	6.20	0.00				
27.00	6.44	6.20	0.00				
28.00	6.44	6.20	0.00				
29.00	6.44	6.20	0.00				
30.00	6.44	6.20	0.00				
31.00	6.44	6.20	0.00				
32.00	6.44	6.20	0.00				
33.00	6.44	6.20	0.00				
34.00	6.44	6.20	0.00				
35.00	6.44	6.20	0.00				
36.00	6.44	6.20	0.00				
37.00	6.44	6.20	0.00				
38.00	6.44	6.20	0.00				
39.00	6.44	6.20	0.00				
40.00	6.44	6.20	0.00				
41.00	6.44	6.20	0.00				
42.00	6.44	6.20	0.00				
43.00	6.44	6.20	0.00				
44.00	6.44	6.20	0.00				
45.00	6.44	6.20	0.00				
46.00	6.44	6.20	0.00				
47.00	6.44	6.20	0.00				
48.00	6.44	6.20	0.00				
49.00	6.44	6.20	0.00				
50.00	6.44	6.20	0.00				
51.00	6.44	6.20	0.00				

Summary for Subcatchment 3S: DA 1 - Perv.

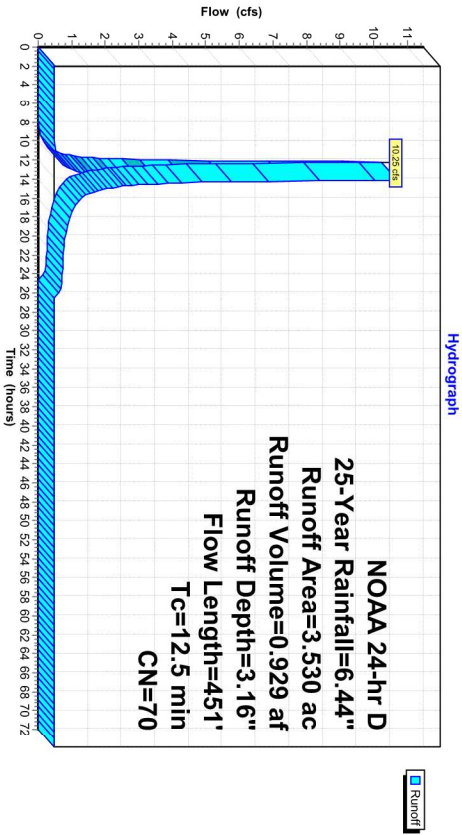
Runoff = 10.25 cfs @ 12.21 hrs, Volume= 0.929 af, Depth= 3.16"

Routed to Link 2L : DA 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Year Rainfall=6.44"

Area (ac)	CN	Description			
3.530	70	Woods, Good, HSG C			
3.530		100.00% Pervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Wooded Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.3	84	0.0950	4.96		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
3.2	342	0.0120	1.76		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
12.5	451	Total			

Subcatchment 3S: DA 1 - Perv.



Hydrograph for Subcatchment 3S: DA 1 - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	3.16	0.00
1.00	0.07	0.00	0.00	53.00	6.44	3.16	0.00
2.00	0.15	0.00	0.00	54.00	6.44	3.16	0.00
3.00	0.24	0.00	0.00	55.00	6.44	3.16	0.00
4.00	0.34	0.00	0.00	56.00	6.44	3.16	0.00
5.00	0.44	0.00	0.00	57.00	6.44	3.16	0.00
6.00	0.55	0.00	0.00	58.00	6.44	3.16	0.00
7.00	0.68	0.00	0.00	59.00	6.44	3.16	0.00
8.00	0.84	0.00	0.00	60.00	6.44	3.16	0.00
9.00	1.02	0.01	0.04	61.00	6.44	3.16	0.00
10.00	1.28	0.04	0.15	62.00	6.44	3.16	0.00
11.00	1.67	0.13	0.46	63.00	6.44	3.16	0.00
12.00	3.09	0.76	3.86	64.00	6.44	3.16	0.00
13.00	4.77	1.86	1.79	65.00	6.44	3.16	0.00
14.00	5.16	2.16	0.87	66.00	6.44	3.16	0.00
15.00	5.42	2.35	0.61	67.00	6.44	3.16	0.00
16.00	5.60	2.49	0.49	68.00	6.44	3.16	0.00
17.00	5.76	2.62	0.41	69.00	6.44	3.16	0.00
18.00	5.89	2.72	0.34	70.00	6.44	3.16	0.00
19.00	6.00	2.81	0.30	71.00	6.44	3.16	0.00
20.00	6.10	2.89	0.28	72.00	6.44	3.16	0.00
21.00	6.20	2.96	0.27				
22.00	6.29	3.03	0.25				
23.00	6.37	3.10	0.23				
24.00	6.44	3.16	0.21				
25.00	6.44	3.16	0.00				
26.00	6.44	3.16	0.00				
27.00	6.44	3.16	0.00				
28.00	6.44	3.16	0.00				
29.00	6.44	3.16	0.00				
30.00	6.44	3.16	0.00				
31.00	6.44	3.16	0.00				
32.00	6.44	3.16	0.00				
33.00	6.44	3.16	0.00				
34.00	6.44	3.16	0.00				
35.00	6.44	3.16	0.00				
36.00	6.44	3.16	0.00				
37.00	6.44	3.16	0.00				
38.00	6.44	3.16	0.00				
39.00	6.44	3.16	0.00				
40.00	6.44	3.16	0.00				
41.00	6.44	3.16	0.00				
42.00	6.44	3.16	0.00				
43.00	6.44	3.16	0.00				
44.00	6.44	3.16	0.00				
45.00	6.44	3.16	0.00				
46.00	6.44	3.16	0.00				
47.00	6.44	3.16	0.00				
48.00	6.44	3.16	0.00				
49.00	6.44	3.16	0.00				
50.00	6.44	3.16	0.00				
51.00	6.44	3.16	0.00				

2023-01 Existing Hydrology

NOAA 24-hr D 25-Year Rainfall=6.44"

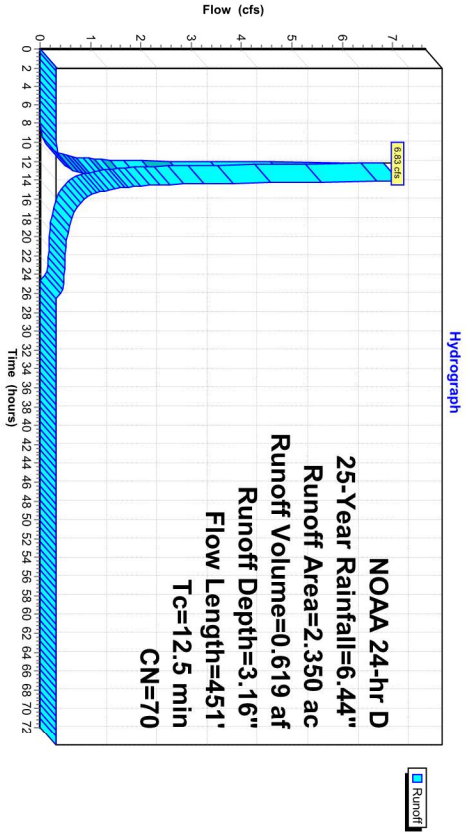
Summary for Subcatchment 4S: Undist. DA 1 - Perv.

Runoff = 6.83 cfs @ 12.21 hrs, Volume= 0.619 af, Depth= 3.16"
Routed to Link 5L : DA 1 - Undisturbed

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Year Rainfall=6.44"

Area (ac)	CN	Description		
0.150	74	>75% Grass cover, Good, HSG C		
2.180	70	Woods, Good, HSG C		
0.020	55	Woods, Good, HSG B		
2.350	70	Weighted Average		
2.350	100.00%	Pervious Area		
Tc Length (min)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05	Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spless flow length
0.3	84	0.0950	4.96	Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
3.2	342	0.0120	1.76	Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps

Subcatchment 4S: Undist. DA 1 - Perv.



2023-01 Existing Hydrology

NOAA 24-hr D 25-Year Rainfall=6.44"

Hydrograph for Subcatchment 4S: Undist. DA 1 - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	3.16	0.00
1.00	0.07	0.00	0.00	53.00	6.44	3.16	0.00
2.00	0.15	0.00	0.00	54.00	6.44	3.16	0.00
3.00	0.24	0.00	0.00	55.00	6.44	3.16	0.00
4.00	0.34	0.00	0.00	56.00	6.44	3.16	0.00
5.00	0.44	0.00	0.00	57.00	6.44	3.16	0.00
6.00	0.55	0.00	0.00	58.00	6.44	3.16	0.00
7.00	0.68	0.00	0.00	59.00	6.44	3.16	0.00
8.00	0.84	0.00	0.00	60.00	6.44	3.16	0.00
9.00	1.02	0.01	0.03	61.00	6.44	3.16	0.00
10.00	1.28	0.04	0.10	62.00	6.44	3.16	0.00
11.00	1.67	0.13	0.31	63.00	6.44	3.16	0.00
12.00	3.09	0.76	2.57	64.00	6.44	3.16	0.00
13.00	4.77	1.86	1.19	65.00	6.44	3.16	0.00
14.00	5.16	2.16	0.58	66.00	6.44	3.16	0.00
15.00	5.42	2.35	0.40	67.00	6.44	3.16	0.00
16.00	5.60	2.49	0.32	68.00	6.44	3.16	0.00
17.00	5.76	2.62	0.28	69.00	6.44	3.16	0.00
18.00	5.89	2.72	0.22	70.00	6.44	3.16	0.00
19.00	6.00	2.81	0.20	71.00	6.44	3.16	0.00
20.00	6.10	2.89	0.19	72.00	6.44	3.16	0.00
21.00	6.20	2.96	0.18				
22.00	6.29	3.03	0.16				
23.00	6.37	3.10	0.15				
24.00	6.44	3.16	0.14				
25.00	6.44	3.16	0.00				
26.00	6.44	3.16	0.00				
27.00	6.44	3.16	0.00				
28.00	6.44	3.16	0.00				
29.00	6.44	3.16	0.00				
30.00	6.44	3.16	0.00				
31.00	6.44	3.16	0.00				
32.00	6.44	3.16	0.00				
33.00	6.44	3.16	0.00				
34.00	6.44	3.16	0.00				
35.00	6.44	3.16	0.00				
36.00	6.44	3.16	0.00				
37.00	6.44	3.16	0.00				
38.00	6.44	3.16	0.00				
39.00	6.44	3.16	0.00				
40.00	6.44	3.16	0.00				
41.00	6.44	3.16	0.00				
42.00	6.44	3.16	0.00				
43.00	6.44	3.16	0.00				
44.00	6.44	3.16	0.00				
45.00	6.44	3.16	0.00				
46.00	6.44	3.16	0.00				
47.00	6.44	3.16	0.00				
48.00	6.44	3.16	0.00				
49.00	6.44	3.16	0.00				
50.00	6.44	3.16	0.00				
51.00	6.44	3.16	0.00				

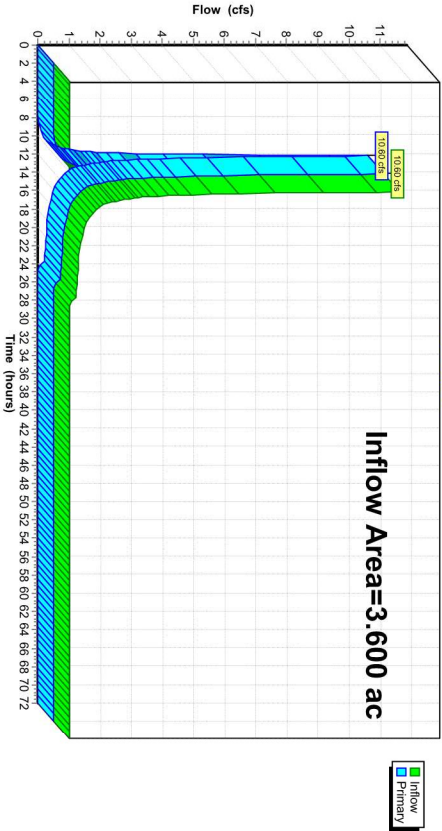
Summary for Link 2L: DA 1

Inflow Area = 3,600 ac, 1.94% Impervious, Inflow Depth = 3.22" for 25-Year event
Inflow = 10.60 cfs @ 12.21 hrs, Volume= 0.965 af
Primary = 10.60 cfs @ 12.21 hrs, Volume= 0.965 af, Atten= 0%, Lag= 0.0 min
Routed to Link 6L: Total

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 2L: DA 1

Hydrograph



Hydrograph for Link 2L: DA 1

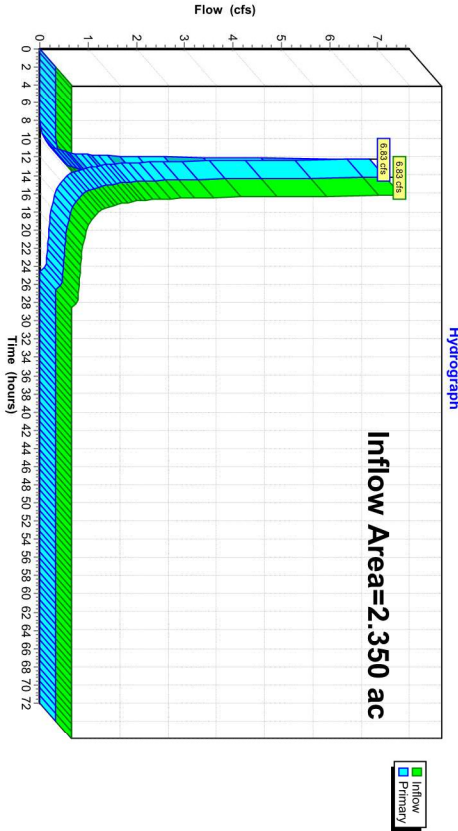
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.01	0.00	0.01	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.01	0.00	0.01	59.00	0.00	0.00	0.00
8.00	0.01	0.00	0.01	60.00	0.00	0.00	0.00
9.00	0.05	0.00	0.05	61.00	0.00	0.00	0.00
10.00	0.17	0.00	0.17	62.00	0.00	0.00	0.00
11.00	0.50	0.00	0.50	63.00	0.00	0.00	0.00
12.00	4.02	0.00	4.02	64.00	0.00	0.00	0.00
13.00	1.84	0.00	1.84	65.00	0.00	0.00	0.00
14.00	0.89	0.00	0.89	66.00	0.00	0.00	0.00
15.00	0.62	0.00	0.62	67.00	0.00	0.00	0.00
16.00	0.50	0.00	0.50	68.00	0.00	0.00	0.00
17.00	0.42	0.00	0.42	69.00	0.00	0.00	0.00
18.00	0.34	0.00	0.34	70.00	0.00	0.00	0.00
19.00	0.31	0.00	0.31	71.00	0.00	0.00	0.00
20.00	0.29	0.00	0.29	72.00	0.00	0.00	0.00
21.00	0.27	0.00	0.27				
22.00	0.25	0.00	0.25				
23.00	0.23	0.00	0.23				
24.00	0.21	0.00	0.21				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 5L: DA 1 - Undisturbed

Inflow Area = 2.350 ac, 0.00% Impervious, Inflow Depth = 3.16" for 25-Year event
Inflow = 6.83 cfs @ 12.21 hrs, Volume= 0.619 af
Primary = 6.83 cfs @ 12.21 hrs, Volume= 0.619 af, Atten= 0%, Lag= 0.0 min
Routed to Link 6L : Total

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 5L: DA 1 - Undisturbed



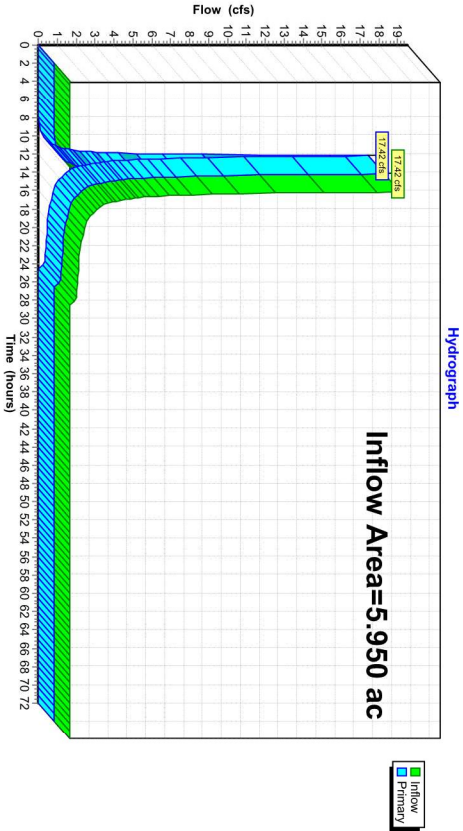
Hydrograph for Link 5L: DA 1 - Undisturbed

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.03	0.00	0.03	61.00	0.00	0.00	0.00
10.00	0.10	0.00	0.10	62.00	0.00	0.00	0.00
11.00	0.31	0.00	0.31	63.00	0.00	0.00	0.00
12.00	2.57	0.00	2.57	64.00	0.00	0.00	0.00
13.00	1.19	0.00	1.19	65.00	0.00	0.00	0.00
14.00	0.58	0.00	0.58	66.00	0.00	0.00	0.00
15.00	0.40	0.00	0.40	67.00	0.00	0.00	0.00
16.00	0.32	0.00	0.32	68.00	0.00	0.00	0.00
17.00	0.28	0.00	0.28	69.00	0.00	0.00	0.00
18.00	0.22	0.00	0.22	70.00	0.00	0.00	0.00
19.00	0.20	0.00	0.20	71.00	0.00	0.00	0.00
20.00	0.19	0.00	0.19	72.00	0.00	0.00	0.00
21.00	0.18	0.00	0.18				
22.00	0.16	0.00	0.16				
23.00	0.15	0.00	0.15				
24.00	0.14	0.00	0.14				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 6L: Total

Inflow Area = 5.950 ac, 1.18% Impervious, Inflow Depth = 3.19" for 25-Year event
Inflow = 17.42 cfs @ 12.21 hrs, Volume= 1.584 af
Primary = 17.42 cfs @ 12.21 hrs, Volume= 1.584 af, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 6L: Total



Hydrograph for Link 6L: Total

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.01	0.00	0.01	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.01	0.00	0.01	59.00	0.00	0.00	0.00
8.00	0.01	0.00	0.01	60.00	0.00	0.00	0.00
9.00	0.08	0.00	0.08	61.00	0.00	0.00	0.00
10.00	0.27	0.00	0.27	62.00	0.00	0.00	0.00
11.00	0.80	0.00	0.80	63.00	0.00	0.00	0.00
12.00	6.59	0.00	6.59	64.00	0.00	0.00	0.00
13.00	3.03	0.00	3.03	65.00	0.00	0.00	0.00
14.00	1.47	0.00	1.47	66.00	0.00	0.00	0.00
15.00	1.03	0.00	1.03	67.00	0.00	0.00	0.00
16.00	0.82	0.00	0.82	68.00	0.00	0.00	0.00
17.00	0.70	0.00	0.70	69.00	0.00	0.00	0.00
18.00	0.57	0.00	0.57	70.00	0.00	0.00	0.00
19.00	0.51	0.00	0.51	71.00	0.00	0.00	0.00
20.00	0.48	0.00	0.48	72.00	0.00	0.00	0.00
21.00	0.45	0.00	0.45				
22.00	0.42	0.00	0.42				
23.00	0.38	0.00	0.38				
24.00	0.35	0.00	0.35				
25.00	0.35	0.00	0.35				
26.00	0.35	0.00	0.35				
27.00	0.35	0.00	0.35				
28.00	0.35	0.00	0.35				
29.00	0.35	0.00	0.35				
30.00	0.35	0.00	0.35				
31.00	0.35	0.00	0.35				
32.00	0.35	0.00	0.35				
33.00	0.35	0.00	0.35				
34.00	0.35	0.00	0.35				
35.00	0.35	0.00	0.35				
36.00	0.35	0.00	0.35				
37.00	0.35	0.00	0.35				
38.00	0.35	0.00	0.35				
39.00	0.35	0.00	0.35				
40.00	0.35	0.00	0.35				
41.00	0.35	0.00	0.35				
42.00	0.35	0.00	0.35				
43.00	0.35	0.00	0.35				
44.00	0.35	0.00	0.35				
45.00	0.35	0.00	0.35				
46.00	0.35	0.00	0.35				
47.00	0.35	0.00	0.35				
48.00	0.35	0.00	0.35				
49.00	0.35	0.00	0.35				
50.00	0.35	0.00	0.35				
51.00	0.35	0.00	0.35				

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

Subcatchment 1S: DA 1 - Imp.

Runoff Area=0.070 ac 100.00% Impervious Runoff Depth=8.42"
Flow Length=451' Tc=12.5 min CN=98 Runoff=0.46 cfs 0.049 af

Subcatchment 3S: DA 1 - Perv.

Runoff Area=3.530 ac 0.00% Impervious Runoff Depth=5.04"
Flow Length=451' Tc=12.5 min CN=70 Runoff=16.33 cfs 1.482 af

Subcatchment 4S: Undist. DA 1 - Perv.

Runoff Area=2.350 ac 0.00% Impervious Runoff Depth=5.04"
Flow Length=451' Tc=12.5 min CN=70 Runoff=10.87 cfs 0.986 af

Link 2L: DA 1

Inflow=16.79 cfs 1.531 af
Primary=16.79 cfs 1.531 af

Link 5L: DA 1 - Undisturbed

Inflow=10.87 cfs 0.986 af
Primary=10.87 cfs 0.986 af

Link 6L: Total

Inflow=27.67 cfs 2.517 af
Primary=27.67 cfs 2.517 af

Total Runoff Area = 5.950 ac Runoff Volume = 2.517 af Average Runoff Depth = 5.08"
98.82% Pervious = 5.880 ac 1.18% Impervious = 0.070 ac

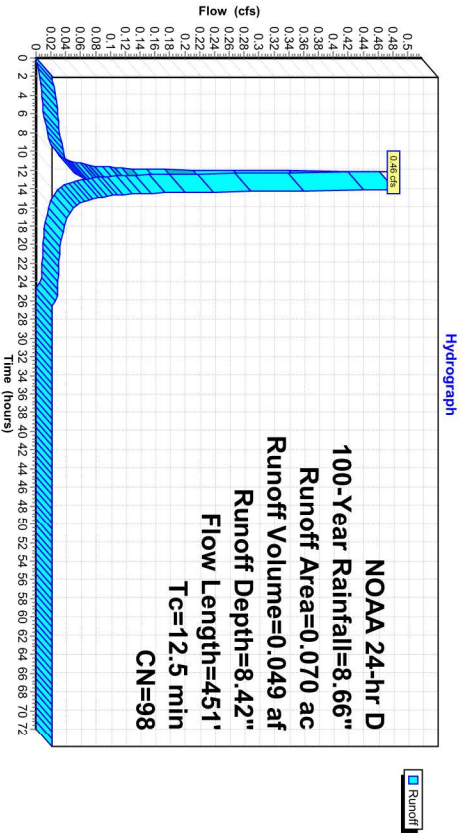
Summary for Subcatchment 1S: DA 1 - Imp.

Runoff = 0.46 cfs @ 12.20 hrs, Volume= 0.049 af, Depth= 8.42"
Routed to Link 2L : DA 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description			
0.060	98	Unconnected pavement, HSG C			
0.010	98	Unconnected pavement, HSG B			
0.070	98	Weighted Average			
0.070		100.00% Impervious Area			
0.070		100.00% Unconnected			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Wooded Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spless flow length
0.3	84	0.0950	4.96		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
3.2	342	0.0120	1.76		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps

Subcatchment 1S: DA 1 - Imp.



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NOAA 24-hr D 100-Year Rainfall=8.66"

Hydrograph for Subcatchment 1S: DA 1 - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.66	8.42	0.00
1.00	0.10	0.01	0.00	53.00	8.66	8.42	0.00
2.00	0.21	0.08	0.01	54.00	8.66	8.42	0.00
3.00	0.33	0.17	0.01	55.00	8.66	8.42	0.00
4.00	0.45	0.28	0.01	56.00	8.66	8.42	0.00
5.00	0.59	0.40	0.01	57.00	8.66	8.42	0.00
6.00	0.74	0.54	0.01	58.00	8.66	8.42	0.00
7.00	0.91	0.71	0.01	59.00	8.66	8.42	0.00
8.00	1.12	0.91	0.02	60.00	8.66	8.42	0.00
9.00	1.37	1.16	0.02	61.00	8.66	8.42	0.00
10.00	1.72	1.49	0.03	62.00	8.66	8.42	0.00
11.00	2.25	2.02	0.05	63.00	8.66	8.42	0.00
12.00	4.15	3.91	0.21	64.00	8.66	8.42	0.00
13.00	6.41	6.17	0.07	65.00	8.66	8.42	0.00
14.00	6.94	6.70	0.03	66.00	8.66	8.42	0.00
15.00	7.29	7.05	0.02	67.00	8.66	8.42	0.00
16.00	7.54	7.30	0.02	68.00	8.66	8.42	0.00
17.00	7.75	7.51	0.01	69.00	8.66	8.42	0.00
18.00	7.92	7.68	0.01	70.00	8.66	8.42	0.00
19.00	8.07	7.83	0.01	71.00	8.66	8.42	0.00
20.00	8.21	7.97	0.01	72.00	8.66	8.42	0.00
21.00	8.33	8.09	0.01				
22.00	8.45	8.21	0.01				
23.00	8.56	8.32	0.01				
24.00	8.66	8.42	0.01				
25.00	8.66	8.42	0.00				
26.00	8.66	8.42	0.00				
27.00	8.66	8.42	0.00				
28.00	8.66	8.42	0.00				
29.00	8.66	8.42	0.00				
30.00	8.66	8.42	0.00				
31.00	8.66	8.42	0.00				
32.00	8.66	8.42	0.00				
33.00	8.66	8.42	0.00				
34.00	8.66	8.42	0.00				
35.00	8.66	8.42	0.00				
36.00	8.66	8.42	0.00				
37.00	8.66	8.42	0.00				
38.00	8.66	8.42	0.00				
39.00	8.66	8.42	0.00				
40.00	8.66	8.42	0.00				
41.00	8.66	8.42	0.00				
42.00	8.66	8.42	0.00				
43.00	8.66	8.42	0.00				
44.00	8.66	8.42	0.00				
45.00	8.66	8.42	0.00				
46.00	8.66	8.42	0.00				
47.00	8.66	8.42	0.00				
48.00	8.66	8.42	0.00				
49.00	8.66	8.42	0.00				
50.00	8.66	8.42	0.00				
51.00	8.66	8.42	0.00				

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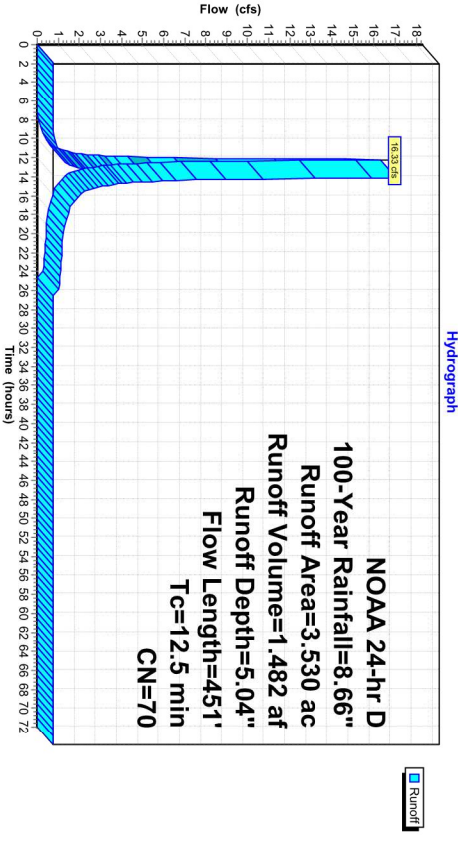
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NOAA 24-hr D 100-Year Rainfall=8.66"

Summary for Subcatchment 3S: DA 1 - Perv.

Runoff	=	6.33 cfs @	12.20 hrs,	Volume=	1.482 af,	Depth= 5.04"
Routed to Link 2L : DA 1						
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs						
NOAA 24-hr D 100-Year Rainfall=8.66"						
Area (ac)	CN	Description				
3.530	70	Woods, Good, HSG C				
3.530		100.00% Pervious Area				
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Wooded	
Woods: Light underbrush n= 0.400 P2= 3.44"						
Using McCuen-Spiess flow length						
0.3	84	0.0950	4.96		Shallow Concentrated Flow, SCF - Unpaved	
Unpaved Kv= 16.1 fps						
3.2	342	0.0120	1.76		Shallow Concentrated Flow, SCF - Unpaved	
Unpaved Kv= 16.1 fps						
12.5	451	Total				

Subcatchment 3S: DA 1 - Perv.



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NOAA 24-hr D 100-Year Rainfall=8.66"

Hydrograph for Subcatchment 3S: DA 1 - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.66	5.04	0.00
1.00	0.10	0.00	0.00	53.00	8.66	5.04	0.00
2.00	0.21	0.00	0.00	54.00	8.66	5.04	0.00
3.00	0.33	0.00	0.00	55.00	8.66	5.04	0.00
4.00	0.45	0.00	0.00	56.00	8.66	5.04	0.00
5.00	0.59	0.00	0.00	57.00	8.66	5.04	0.00
6.00	0.74	0.00	0.00	58.00	8.66	5.04	0.00
7.00	0.91	0.00	0.01	59.00	8.66	5.04	0.00
8.00	1.12	0.02	0.08	60.00	8.66	5.04	0.00
9.00	1.37	0.06	0.17	61.00	8.66	5.04	0.00
10.00	1.72	0.14	0.39	62.00	8.66	5.04	0.00
11.00	2.25	0.34	0.94	63.00	8.66	5.04	0.00
12.00	4.15	1.43	6.51	64.00	8.66	5.04	0.00
13.00	6.41	3.13	2.69	65.00	8.66	5.04	0.00
14.00	6.94	3.57	1.29	66.00	8.66	5.04	0.00
15.00	7.29	3.86	0.90	67.00	8.66	5.04	0.00
16.00	7.54	4.07	0.72	68.00	8.66	5.04	0.00
17.00	7.75	4.25	0.61	69.00	8.66	5.04	0.00
18.00	7.92	4.40	0.49	70.00	8.66	5.04	0.00
19.00	8.07	4.52	0.44	71.00	8.66	5.04	0.00
20.00	8.21	4.64	0.41	72.00	8.66	5.04	0.00
21.00	8.33	4.75	0.39				
22.00	8.45	4.86	0.36				
23.00	8.56	4.95	0.33				
24.00	8.66	5.04	0.30				
25.00	8.66	5.04	0.00				
26.00	8.66	5.04	0.00				
27.00	8.66	5.04	0.00				
28.00	8.66	5.04	0.00				
29.00	8.66	5.04	0.00				
30.00	8.66	5.04	0.00				
31.00	8.66	5.04	0.00				
32.00	8.66	5.04	0.00				
33.00	8.66	5.04	0.00				
34.00	8.66	5.04	0.00				
35.00	8.66	5.04	0.00				
36.00	8.66	5.04	0.00				
37.00	8.66	5.04	0.00				
38.00	8.66	5.04	0.00				
39.00	8.66	5.04	0.00				
40.00	8.66	5.04	0.00				
41.00	8.66	5.04	0.00				
42.00	8.66	5.04	0.00				
43.00	8.66	5.04	0.00				
44.00	8.66	5.04	0.00				
45.00	8.66	5.04	0.00				
46.00	8.66	5.04	0.00				
47.00	8.66	5.04	0.00				
48.00	8.66	5.04	0.00				
49.00	8.66	5.04	0.00				
50.00	8.66	5.04	0.00				
51.00	8.66	5.04	0.00				

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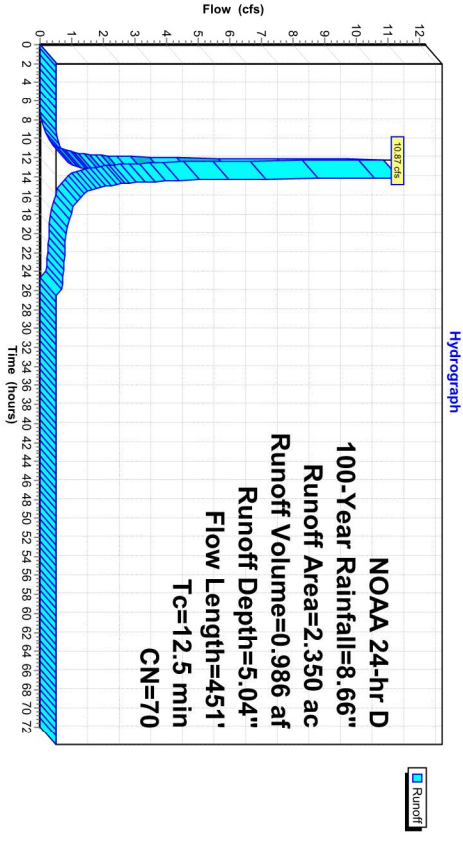
NOAA 24-hr D 100-Year Rainfall=8.66"

Summary for Subcatchment 4S: Undist. DA 1 - Perv.

Runoff = 10.87 cfs @ 12.20 hrs, Volume= 0.986 af, Depth= 5.04"
Routed to Link 5L : DA 1 - Undisturbed
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)						CN	Description
0.150						74	>75% Grass cover, Good, HSG C
2.180						70	Woods, Good, HSG C
0.020						55	Woods, Good, HSG B
2.350						70	Weighted Average
2.350							100.00% Pervious Area
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spless flow length		
0.3	84	0.0950	4.96		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps		
3.2	342	0.0120	1.76		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps		

Subcatchment 4S: Undist. DA 1 - Perv.



2023-01 Existing Hydrology

Hydrograph for Subcatchment 4S: Undist. DA 1 - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.66	5.04	0.00
1.00	0.10	0.00	0.00	53.00	8.66	5.04	0.00
2.00	0.21	0.00	0.00	54.00	8.66	5.04	0.00
3.00	0.33	0.00	0.00	55.00	8.66	5.04	0.00
4.00	0.45	0.00	0.00	56.00	8.66	5.04	0.00
5.00	0.59	0.00	0.00	57.00	8.66	5.04	0.00
6.00	0.74	0.00	0.00	58.00	8.66	5.04	0.00
7.00	0.91	0.00	0.00	59.00	8.66	5.04	0.00
8.00	1.12	0.02	0.05	60.00	8.66	5.04	0.00
9.00	1.37	0.06	0.12	61.00	8.66	5.04	0.00
10.00	1.72	0.14	0.26	62.00	8.66	5.04	0.00
11.00	2.25	0.34	0.62	63.00	8.66	5.04	0.00
12.00	4.15	1.43	4.34	64.00	8.66	5.04	0.00
13.00	6.41	3.13	1.79	65.00	8.66	5.04	0.00
14.00	6.94	3.57	0.86	66.00	8.66	5.04	0.00
15.00	7.29	3.86	0.60	67.00	8.66	5.04	0.00
16.00	7.54	4.07	0.48	68.00	8.66	5.04	0.00
17.00	7.75	4.25	0.40	69.00	8.66	5.04	0.00
18.00	7.92	4.40	0.33	70.00	8.66	5.04	0.00
19.00	8.07	4.52	0.29	71.00	8.66	5.04	0.00
20.00	8.21	4.64	0.28	72.00	8.66	5.04	0.00
21.00	8.33	4.75	0.26				
22.00	8.45	4.86	0.24				
23.00	8.56	4.95	0.22				
24.00	8.66	5.04	0.20				
25.00	8.66	5.04	0.00				
26.00	8.66	5.04	0.00				
27.00	8.66	5.04	0.00				
28.00	8.66	5.04	0.00				
29.00	8.66	5.04	0.00				
30.00	8.66	5.04	0.00				
31.00	8.66	5.04	0.00				
32.00	8.66	5.04	0.00				
33.00	8.66	5.04	0.00				
34.00	8.66	5.04	0.00				
35.00	8.66	5.04	0.00				
36.00	8.66	5.04	0.00				
37.00	8.66	5.04	0.00				
38.00	8.66	5.04	0.00				
39.00	8.66	5.04	0.00				
40.00	8.66	5.04	0.00				
41.00	8.66	5.04	0.00				
42.00	8.66	5.04	0.00				
43.00	8.66	5.04	0.00				
44.00	8.66	5.04	0.00				
45.00	8.66	5.04	0.00				
46.00	8.66	5.04	0.00				
47.00	8.66	5.04	0.00				
48.00	8.66	5.04	0.00				
49.00	8.66	5.04	0.00				
50.00	8.66	5.04	0.00				
51.00	8.66	5.04	0.00				

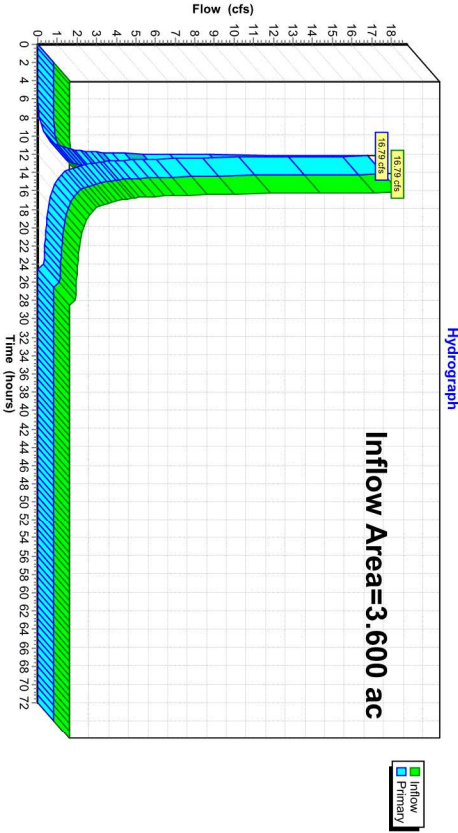
2023-01 Existing Hydrology

Summary for Link 2L: DA 1

Inflow Area = 3,600 ac, 1.94% Impervious, Inflow Depth = 5.10" for 100-Year event
Inflow = 16.79 cfs @ 12.20 hrs, Volume= 1.531 af
Primary = 16.79 cfs @ 12.20 hrs, Volume= 1.531 af, Atten= 0%, Lag= 0.0 min
Routed to Link 6L: Total

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 2L: DA 1



Hydrograph for Link 2L: DA 1

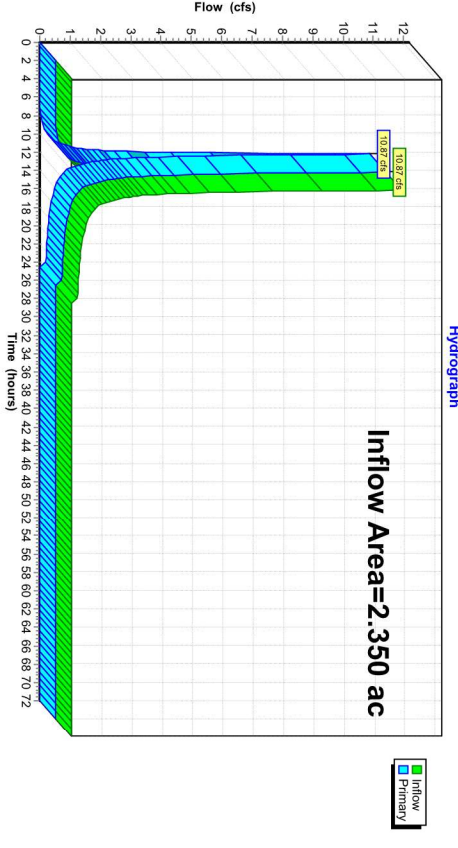
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.01	0.00	0.01	54.00	0.00	0.00	0.00
3.00	0.01	0.00	0.01	55.00	0.00	0.00	0.00
4.00	0.01	0.00	0.01	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.02	0.00	0.02	59.00	0.00	0.00	0.00
8.00	0.09	0.00	0.09	60.00	0.00	0.00	0.00
9.00	0.19	0.00	0.19	61.00	0.00	0.00	0.00
10.00	0.42	0.00	0.42	62.00	0.00	0.00	0.00
11.00	0.98	0.00	0.98	63.00	0.00	0.00	0.00
12.00	6.73	0.00	6.73	64.00	0.00	0.00	0.00
13.00	2.76	0.00	2.76	65.00	0.00	0.00	0.00
14.00	1.32	0.00	1.32	66.00	0.00	0.00	0.00
15.00	0.92	0.00	0.92	67.00	0.00	0.00	0.00
16.00	0.73	0.00	0.73	68.00	0.00	0.00	0.00
17.00	0.62	0.00	0.62	69.00	0.00	0.00	0.00
18.00	0.50	0.00	0.50	70.00	0.00	0.00	0.00
19.00	0.45	0.00	0.45	71.00	0.00	0.00	0.00
20.00	0.42	0.00	0.42	72.00	0.00	0.00	0.00
21.00	0.39	0.00	0.39				
22.00	0.37	0.00	0.37				
23.00	0.34	0.00	0.34				
24.00	0.31	0.00	0.31				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 5L: DA 1 - Undisturbed

Inflow Area = 2.350 ac, 0.00% Impervious, Inflow Depth = 5.04" for 100-Year event
Inflow = 10.87 cfs @ 12.20 hrs, Volume= 0.986 af
Primary = 10.87 cfs @ 12.20 hrs, Volume= 0.986 af, Atten= 0%, Lag= 0.0 min
Routed to Link 6L : Total

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 5L: DA 1 - Undisturbed



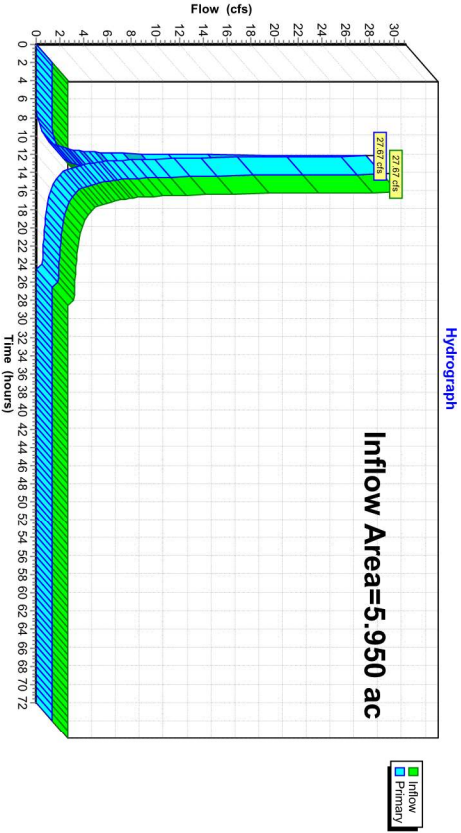
Hydrograph for Link 5L: DA 1 - Undisturbed

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.05	0.00	0.05	60.00	0.00	0.00	0.00
9.00	0.12	0.00	0.12	61.00	0.00	0.00	0.00
10.00	0.26	0.00	0.26	62.00	0.00	0.00	0.00
11.00	0.62	0.00	0.62	63.00	0.00	0.00	0.00
12.00	4.34	0.00	4.34	64.00	0.00	0.00	0.00
13.00	1.79	0.00	1.79	65.00	0.00	0.00	0.00
14.00	0.86	0.00	0.86	66.00	0.00	0.00	0.00
15.00	0.60	0.00	0.60	67.00	0.00	0.00	0.00
16.00	0.48	0.00	0.48	68.00	0.00	0.00	0.00
17.00	0.40	0.00	0.40	69.00	0.00	0.00	0.00
18.00	0.33	0.00	0.33	70.00	0.00	0.00	0.00
19.00	0.29	0.00	0.29	71.00	0.00	0.00	0.00
20.00	0.28	0.00	0.28	72.00	0.00	0.00	0.00
21.00	0.26	0.00	0.26				
22.00	0.24	0.00	0.24				
23.00	0.22	0.00	0.22				
24.00	0.20	0.00	0.20				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 6L: Total

Inflow Area = 5.950 ac, 1.18% Impervious, Inflow Depth = 5.08" for 100-Year event
Inflow = 27.67 cfs @ 12.20 hrs, Volume= 2.517 af
Primary = 27.67 cfs @ 12.20 hrs, Volume= 2.517 af, Atten= 0%, Lag= 0.0 min
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 6L: Total



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NOAA 24-hr D 100-Year Rainfall=8.66"

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Hydrograph for Link 6L: Total

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.01	0.00	0.01	54.00	0.00	0.00	0.00
3.00	0.01	0.00	0.01	55.00	0.00	0.00	0.00
4.00	0.01	0.00	0.01	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.02	0.00	0.02	59.00	0.00	0.00	0.00
8.00	0.14	0.00	0.14	60.00	0.00	0.00	0.00
9.00	0.31	0.00	0.31	61.00	0.00	0.00	0.00
10.00	0.68	0.00	0.68	62.00	0.00	0.00	0.00
11.00	1.61	0.00	1.61	63.00	0.00	0.00	0.00
12.00	11.06	0.00	11.06	64.00	0.00	0.00	0.00
13.00	4.55	0.00	4.55	65.00	0.00	0.00	0.00
14.00	2.18	0.00	2.18	66.00	0.00	0.00	0.00
15.00	1.52	0.00	1.52	67.00	0.00	0.00	0.00
16.00	1.21	0.00	1.21	68.00	0.00	0.00	0.00
17.00	1.02	0.00	1.02	69.00	0.00	0.00	0.00
18.00	0.83	0.00	0.83	70.00	0.00	0.00	0.00
19.00	0.75	0.00	0.75	71.00	0.00	0.00	0.00
20.00	0.70	0.00	0.70	72.00	0.00	0.00	0.00
21.00	0.65	0.00	0.65				
22.00	0.60	0.00	0.60				
23.00	0.55	0.00	0.55				
24.00	0.51	0.00	0.51				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

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Multi-Event Tables

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Events for Subcatchment 1S: DA 1 - Imp.

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	0.18	0.019	3.21
10-Year	5.22	0.28	0.029	4.98
25-Year	6.44	0.34	0.036	6.20
100-Year	8.66	0.46	0.049	8.42

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Multi-Event Tables
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Events for Subcatchment 3S: DA 1 - Perv.

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	2.94	0.286	0.97
10-Year	5.22	7.09	0.647	2.20
25-Year	6.44	10.25	0.929	3.16
100-Year	8.66	16.33	1.482	5.04

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Multi-Event Tables
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Events for Subcatchment 4S: Undist. DA 1 - Perv.

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	1.96	0.190	0.97
10-Year	5.22	4.72	0.431	2.20
25-Year	6.44	6.83	0.619	3.16
100-Year	8.66	10.87	0.986	5.04

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Multi-Event Tables
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Events for Link 2L: DA 1

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
2-Year	3.12	3.12	0.00
10-Year	7.36	7.36	0.00
25-Year	10.60	10.60	0.00
100-Year	16.79	16.79	0.00

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Multi-Event Tables
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Events for Link 5L: DA 1 - Undisturbed

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
2-Year	1.96	1.96	0.00
10-Year	4.72	4.72	0.00
25-Year	6.83	6.83	0.00
100-Year	10.87	10.87	0.00

Events for Link 6L: Total

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
2-Year	5.08	5.08	0.00
10-Year	12.08	12.08	0.00
25-Year	17.42	17.42	0.00
100-Year	27.67	27.67	0.00

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Multi-Event Tables

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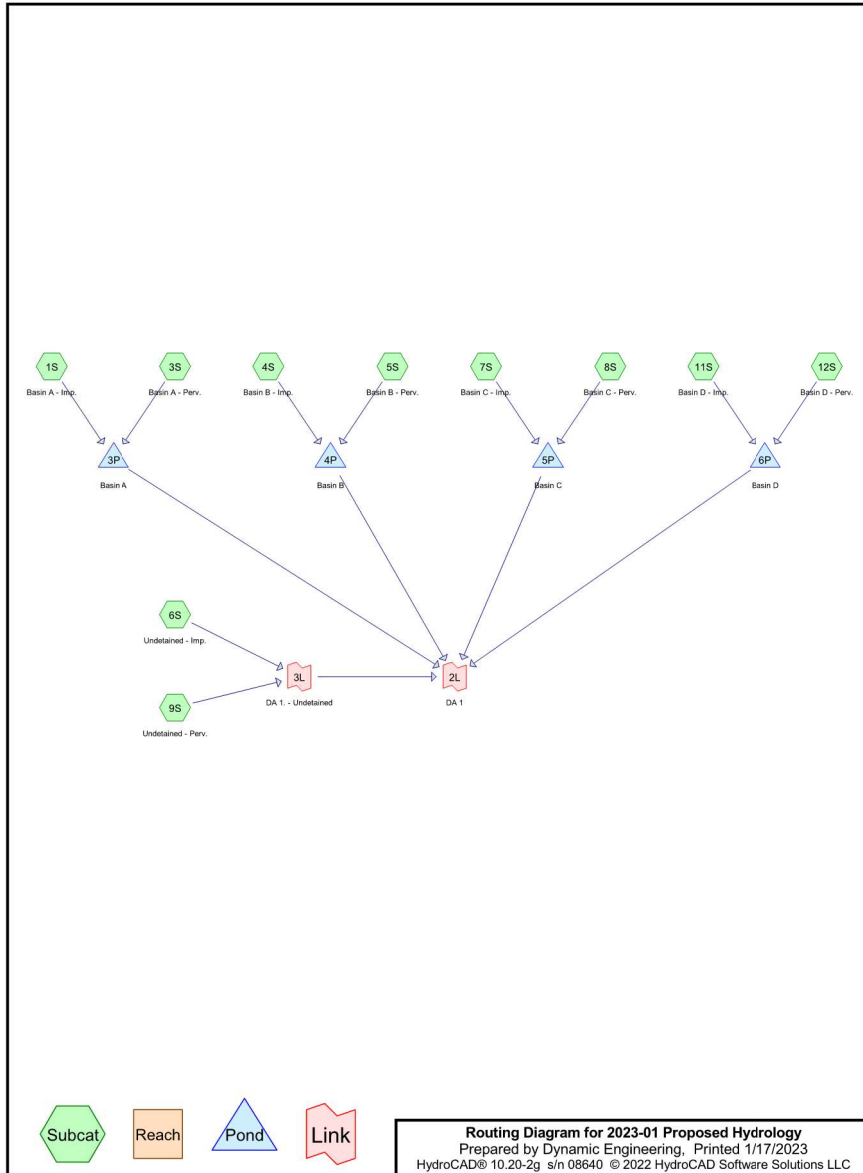
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Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 6606 NJ Essex-D
Rainfall events imported from "2022-04-05 Proposed Conditions.hcp"
Rainfall events imported from "NRCS-Rain.txt" for 6606 NJ Essex-D



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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NOAA 24-hr	D	Default	24.00	1	3.44	2
2	10-Year	NOAA 24-hr	D	Default	24.00	1	5.22	2
3	25-Year	NOAA 24-hr	D	Default	24.00	1	6.44	2
4	100-Year	NOAA 24-hr	D	Default	24.00	1	8.66	2

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.070	61	>75% Grass cover, Good, HSG B (9S)
2.800	74	>75% Grass cover, Good, HSG C (3S, 5S, 8S, 9S, 12S)
0.010	98	Paved parking, HSG B (6S)
0.060	98	Paved parking, HSG C (6S)
0.800	98	Unconnected pavement, HSG C (1S, 4S, 7S, 11S)
0.010	55	Woods, Good, HSG B (12S)
2.170	70	Woods, Good, HSG C (3S, 5S, 8S, 9S, 12S)
5.920	76	TOTAL AREA

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Soil Listing (all nodes)		
Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.090	HSG B	6S, 9S, 12S
5.830	HSG C	1S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 11S, 12S
0.000	HSG D	
0.000	Other	
5.920		TOTAL AREA

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Ground Covers (all nodes)							
HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.070	2.800	0.000	0.000	2.870	>75% Grass cover, Good	3S, 5S, 8S, 9S, 12S
0.000	0.010	0.060	0.000	0.000	0.070	Paved parking	6S
0.000	0.000	0.800	0.000	0.000	0.800	Unconnected pavement	1S, 4S, 7S, 11S
0.000	0.010	2.170	0.000	0.000	2.180	Woods, Good	3S, 5S, 8S, 9S, 12S
0.000	0.090	5.830	0.000	0.000	5.920	TOTAL AREA	

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Notes Listing (all nodes)

Line#	Node Number	Notes
1	Project	Rainfall events imported from "NRCS-Rain.txt" for 6606 NJ Essex-D
2		Rainfall events imported from "2022-04-05 Proposed Conditions.hcp"
3		Rainfall events imported from "NRCS-Rain.txt" for 6606 NJ Essex-D

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NOAA 24-hr D 2-Year Rainfall=3.44"

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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

Subcatchment 1S: Basin A - Imp.	Runoff Area=0.210 ac 100.00% Impervious Runoff Depth=3.21" Flow Length=90' Tc=9.2 min CN=98 Runoff=0.60 cfs 0.056 af
Subcatchment 3S: Basin A - Perv.	Runoff Area=0.920 ac 0.00% Impervious Runoff Depth=1.08" Flow Length=90' Tc=9.2 min CN=72 Runoff=0.97 cfs 0.083 af
Subcatchment 4S: Basin B - Imp.	Runoff Area=0.190 ac 100.00% Impervious Runoff Depth=3.21" Flow Length=133' Tc=9.8 min CN=98 Runoff=0.53 cfs 0.051 af
Subcatchment 5S: Basin B - Perv.	Runoff Area=0.770 ac 0.00% Impervious Runoff Depth=1.08" Flow Length=133' Tc=9.8 min CN=72 Runoff=0.79 cfs 0.069 af
Subcatchment 6S: Undetained - Imp.	Runoff Area=0.070 ac 100.00% Impervious Runoff Depth=3.21" Flow Length=391' Tc=10.8 min CN=98 Runoff=0.19 cfs 0.019 af
Subcatchment 7S: Basin C - Imp.	Runoff Area=0.200 ac 100.00% Impervious Runoff Depth=3.21" Flow Length=78' Tc=9.2 min CN=98 Runoff=0.57 cfs 0.053 af
Subcatchment 8S: Basin C - Perv.	Runoff Area=1.180 ac 0.00% Impervious Runoff Depth=1.08" Flow Length=78' Tc=9.2 min CN=72 Runoff=1.25 cfs 0.106 af
Subcatchment 9S: Undetained - Perv.	Runoff Area=1.050 ac 0.00% Impervious Runoff Depth=1.14" Flow Length=391' Tc=10.8 min CN=73 Runoff=1.12 cfs 0.100 af
Subcatchment 11S: Basin D - Imp.	Runoff Area=0.200 ac 100.00% Impervious Runoff Depth=3.21" Flow Length=136' Tc=9.4 min CN=98 Runoff=0.57 cfs 0.053 af
Subcatchment 12S: Basin D - Perv.	Runoff Area=1.130 ac 0.00% Impervious Runoff Depth=1.08" Flow Length=136' Tc=9.4 min CN=72 Runoff=1.18 cfs 0.102 af
Pond 3P: Basin A	Peak Elev=619.84' Storage=0.050 af Inflow=1.57 cfs 0.139 af Outflow=0.52 cfs 0.116 af
Pond 4P: Basin B	Peak Elev=619.50' Storage=0.065 af Inflow=1.32 cfs 0.120 af Outflow=0.18 cfs 0.065 af
Pond 5P: Basin C	Peak Elev=617.72' Storage=0.077 af Inflow=1.82 cfs 0.160 af Outflow=0.31 cfs 0.097 af
Pond 6P: Basin D	Peak Elev=612.12' Storage=0.048 af Inflow=1.75 cfs 0.155 af Outflow=0.90 cfs 0.130 af
Link 2L: DA 1	Inflow=2.55 cfs 0.527 af Primary=2.55 cfs 0.527 af
Link 3L: DA 1. - Undetained	Inflow=1.31 cfs 0.118 af Primary=1.31 cfs 0.118 af

Total Runoff Area = 5.920 ac Runoff Volume = 0.693 af Average Runoff Depth = 1.40"
85.30% Pervious = 5.050 ac 14.70% Impervious = 0.870 ac

Summary for Subcatchment 1S: Basin A - Imp.

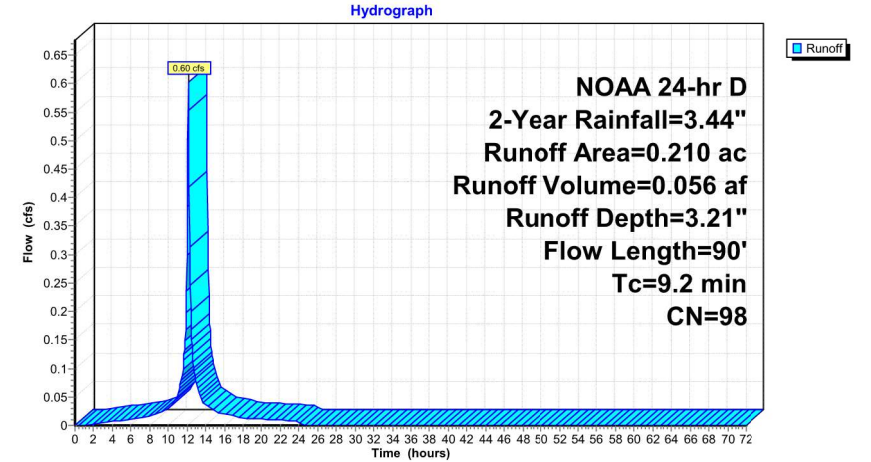
Runoff = 0.60 cfs @ 12.16 hrs, Volume= 0.056 af, Depth= 3.21"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.210	98	Unconnected pavement, HSG C
0.210		100.00% Impervious Area
0.210		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	65	0.1690	6.62		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	90	Total			

Subcatchment 1S: Basin A - Imp.



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Hydrograph for Subcatchment 1S: Basin A - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	3.21	0.00
1.00	0.04	0.00	0.00	53.00	3.44	3.21	0.00
2.00	0.08	0.01	0.00	54.00	3.44	3.21	0.00
3.00	0.13	0.03	0.01	55.00	3.44	3.21	0.00
4.00	0.18	0.06	0.01	56.00	3.44	3.21	0.00
5.00	0.24	0.09	0.01	57.00	3.44	3.21	0.00
6.00	0.29	0.14	0.01	58.00	3.44	3.21	0.00
7.00	0.36	0.20	0.01	59.00	3.44	3.21	0.00
8.00	0.45	0.27	0.02	60.00	3.44	3.21	0.00
9.00	0.55	0.36	0.02	61.00	3.44	3.21	0.00
10.00	0.68	0.49	0.03	62.00	3.44	3.21	0.00
11.00	0.89	0.69	0.05	63.00	3.44	3.21	0.00
12.00	1.65	1.43	0.30	64.00	3.44	3.21	0.00
13.00	2.55	2.32	0.07	65.00	3.44	3.21	0.00
14.00	2.76	2.53	0.04	66.00	3.44	3.21	0.00
15.00	2.89	2.66	0.02	67.00	3.44	3.21	0.00
16.00	2.99	2.76	0.02	68.00	3.44	3.21	0.00
17.00	3.08	2.85	0.02	69.00	3.44	3.21	0.00
18.00	3.15	2.91	0.01	70.00	3.44	3.21	0.00
19.00	3.20	2.97	0.01	71.00	3.44	3.21	0.00
20.00	3.26	3.03	0.01	72.00	3.44	3.21	0.00
21.00	3.31	3.08	0.01				
22.00	3.36	3.12	0.01				
23.00	3.40	3.17	0.01				
24.00	3.44	3.21	0.01				
25.00	3.44	3.21	0.00				
26.00	3.44	3.21	0.00				
27.00	3.44	3.21	0.00				
28.00	3.44	3.21	0.00				
29.00	3.44	3.21	0.00				
30.00	3.44	3.21	0.00				
31.00	3.44	3.21	0.00				
32.00	3.44	3.21	0.00				
33.00	3.44	3.21	0.00				
34.00	3.44	3.21	0.00				
35.00	3.44	3.21	0.00				
36.00	3.44	3.21	0.00				
37.00	3.44	3.21	0.00				
38.00	3.44	3.21	0.00				
39.00	3.44	3.21	0.00				
40.00	3.44	3.21	0.00				
41.00	3.44	3.21	0.00				
42.00	3.44	3.21	0.00				
43.00	3.44	3.21	0.00				
44.00	3.44	3.21	0.00				
45.00	3.44	3.21	0.00				
46.00	3.44	3.21	0.00				
47.00	3.44	3.21	0.00				
48.00	3.44	3.21	0.00				
49.00	3.44	3.21	0.00				
50.00	3.44	3.21	0.00				
51.00	3.44	3.21	0.00				

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NOAA 24-hr D 2-Year Rainfall=3.44"

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Summary for Subcatchment 3S: Basin A - Perv.

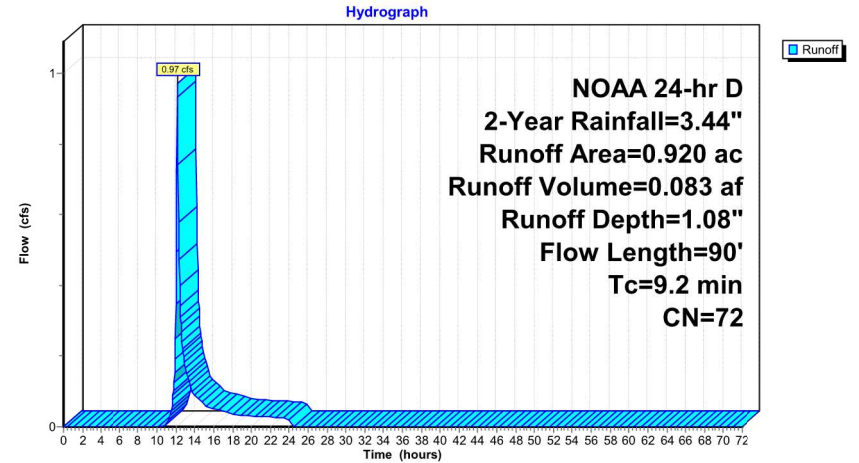
Runoff = 0.97 cfs @ 12.17 hrs, Volume= 0.083 af, Depth= 1.08"

Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.470	74	>75% Grass cover, Good, HSG C
0.450	70	Woods, Good, HSG C
0.920	72	Weighted Average
0.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	65	0.1690	6.62		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	90	Total			

Subcatchment 3S: Basin A - Perv.

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NOAA 24-hr D 2-Year Rainfall=3.44"

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Hydrograph for Subcatchment 3S: Basin A - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	1.08	0.00
1.00	0.04	0.00	0.00	53.00	3.44	1.08	0.00
2.00	0.08	0.00	0.00	54.00	3.44	1.08	0.00
3.00	0.13	0.00	0.00	55.00	3.44	1.08	0.00
4.00	0.18	0.00	0.00	56.00	3.44	1.08	0.00
5.00	0.24	0.00	0.00	57.00	3.44	1.08	0.00
6.00	0.29	0.00	0.00	58.00	3.44	1.08	0.00
7.00	0.36	0.00	0.00	59.00	3.44	1.08	0.00
8.00	0.45	0.00	0.00	60.00	3.44	1.08	0.00
9.00	0.55	0.00	0.00	61.00	3.44	1.08	0.00
10.00	0.68	0.00	0.00	62.00	3.44	1.08	0.00
11.00	0.89	0.00	0.01	63.00	3.44	1.08	0.00
12.00	1.65	0.16	0.35	64.00	3.44	1.08	0.00
13.00	2.55	0.55	0.17	65.00	3.44	1.08	0.00
14.00	2.76	0.67	0.09	66.00	3.44	1.08	0.00
15.00	2.89	0.75	0.06	67.00	3.44	1.08	0.00
16.00	2.99	0.80	0.05	68.00	3.44	1.08	0.00
17.00	3.08	0.85	0.04	69.00	3.44	1.08	0.00
18.00	3.15	0.90	0.04	70.00	3.44	1.08	0.00
19.00	3.20	0.93	0.03	71.00	3.44	1.08	0.00
20.00	3.26	0.97	0.03	72.00	3.44	1.08	0.00
21.00	3.31	1.00	0.03				
22.00	3.36	1.03	0.03				
23.00	3.40	1.06	0.02				
24.00	3.44	1.08	0.02				
25.00	3.44	1.08	0.00				
26.00	3.44	1.08	0.00				
27.00	3.44	1.08	0.00				
28.00	3.44	1.08	0.00				
29.00	3.44	1.08	0.00				
30.00	3.44	1.08	0.00				
31.00	3.44	1.08	0.00				
32.00	3.44	1.08	0.00				
33.00	3.44	1.08	0.00				
34.00	3.44	1.08	0.00				
35.00	3.44	1.08	0.00				
36.00	3.44	1.08	0.00				
37.00	3.44	1.08	0.00				
38.00	3.44	1.08	0.00				
39.00	3.44	1.08	0.00				
40.00	3.44	1.08	0.00				
41.00	3.44	1.08	0.00				
42.00	3.44	1.08	0.00				
43.00	3.44	1.08	0.00				
44.00	3.44	1.08	0.00				
45.00	3.44	1.08	0.00				
46.00	3.44	1.08	0.00				
47.00	3.44	1.08	0.00				
48.00	3.44	1.08	0.00				
49.00	3.44	1.08	0.00				
50.00	3.44	1.08	0.00				
51.00	3.44	1.08	0.00				

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NOAA 24-hr D 2-Year Rainfall=3.44"

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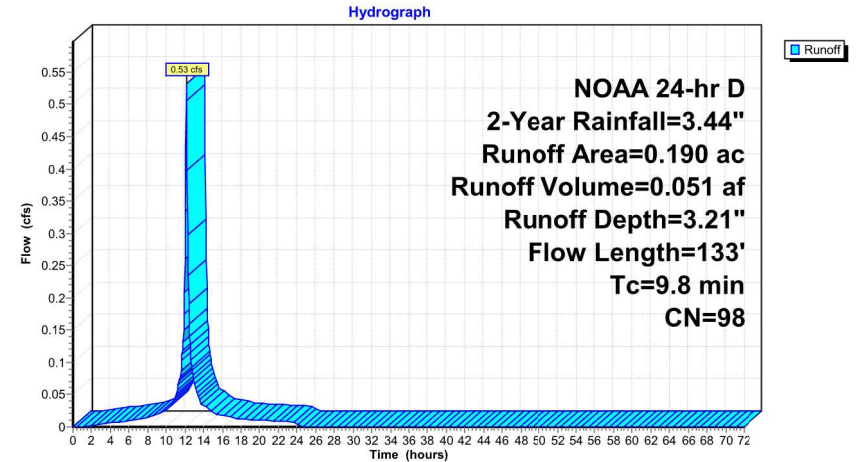
Summary for Subcatchment 4S: Basin B - Imp.

Runoff = 0.53 cfs @ 12.17 hrs, Volume= 0.051 af, Depth= 3.21"
 Routed to Pond 4P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.190	98	Unconnected pavement, HSG C
0.190		100.00% Impervious Area
0.190		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.3	48	0.0310	2.83		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.0	15	0.4000	10.18		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.5	45	0.0100	1.61		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.8	133	Total			

Subcatchment 4S: Basin B - Imp.

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NOAA 24-hr D 2-Year Rainfall=3.44"

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Hydrograph for Subcatchment 4S: Basin B - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	3.21	0.00
1.00	0.04	0.00	0.00	53.00	3.44	3.21	0.00
2.00	0.08	0.01	0.00	54.00	3.44	3.21	0.00
3.00	0.13	0.03	0.00	55.00	3.44	3.21	0.00
4.00	0.18	0.06	0.01	56.00	3.44	3.21	0.00
5.00	0.24	0.09	0.01	57.00	3.44	3.21	0.00
6.00	0.29	0.14	0.01	58.00	3.44	3.21	0.00
7.00	0.36	0.20	0.01	59.00	3.44	3.21	0.00
8.00	0.45	0.27	0.02	60.00	3.44	3.21	0.00
9.00	0.55	0.36	0.02	61.00	3.44	3.21	0.00
10.00	0.68	0.49	0.03	62.00	3.44	3.21	0.00
11.00	0.89	0.69	0.05	63.00	3.44	3.21	0.00
12.00	1.65	1.43	0.26	64.00	3.44	3.21	0.00
13.00	2.55	2.32	0.07	65.00	3.44	3.21	0.00
14.00	2.76	2.53	0.03	66.00	3.44	3.21	0.00
15.00	2.89	2.66	0.02	67.00	3.44	3.21	0.00
16.00	2.99	2.76	0.02	68.00	3.44	3.21	0.00
17.00	3.08	2.85	0.02	69.00	3.44	3.21	0.00
18.00	3.15	2.91	0.01	70.00	3.44	3.21	0.00
19.00	3.20	2.97	0.01	71.00	3.44	3.21	0.00
20.00	3.26	3.03	0.01	72.00	3.44	3.21	0.00
21.00	3.31	3.08	0.01				
22.00	3.36	3.12	0.01				
23.00	3.40	3.17	0.01				
24.00	3.44	3.21	0.01				
25.00	3.44	3.21	0.00				
26.00	3.44	3.21	0.00				
27.00	3.44	3.21	0.00				
28.00	3.44	3.21	0.00				
29.00	3.44	3.21	0.00				
30.00	3.44	3.21	0.00				
31.00	3.44	3.21	0.00				
32.00	3.44	3.21	0.00				
33.00	3.44	3.21	0.00				
34.00	3.44	3.21	0.00				
35.00	3.44	3.21	0.00				
36.00	3.44	3.21	0.00				
37.00	3.44	3.21	0.00				
38.00	3.44	3.21	0.00				
39.00	3.44	3.21	0.00				
40.00	3.44	3.21	0.00				
41.00	3.44	3.21	0.00				
42.00	3.44	3.21	0.00				
43.00	3.44	3.21	0.00				
44.00	3.44	3.21	0.00				
45.00	3.44	3.21	0.00				
46.00	3.44	3.21	0.00				
47.00	3.44	3.21	0.00				
48.00	3.44	3.21	0.00				
49.00	3.44	3.21	0.00				
50.00	3.44	3.21	0.00				
51.00	3.44	3.21	0.00				

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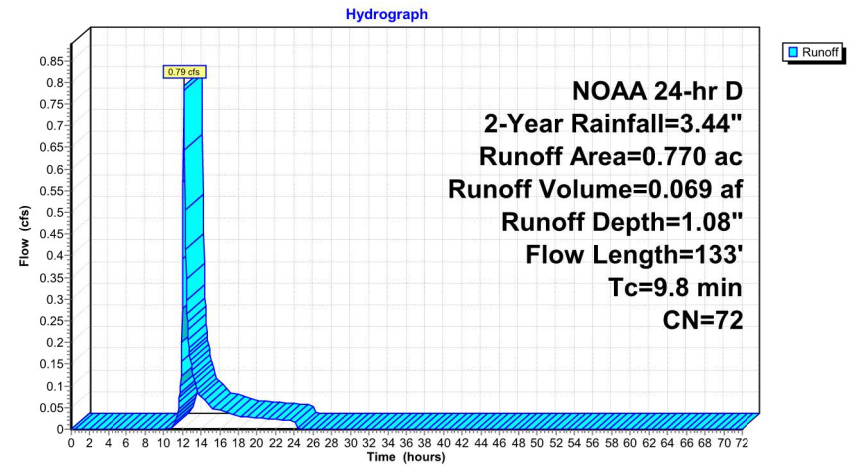
Summary for Subcatchment 5S: Basin B - Perv.

Runoff = 0.79 cfs @ 12.18 hrs, Volume= 0.069 af, Depth= 1.08"
 Routed to Pond 4P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.390	74	>75% Grass cover, Good, HSG C
0.380	70	Woods, Good, HSG C
0.770	72	Weighted Average
0.770		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.3	48	0.0310	2.83		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.0	15	0.4000	10.18		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.5	45	0.0100	1.61		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.8	133	Total			

Subcatchment 5S: Basin B - Perv.

2023-01 Proposed Hydrology

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NOAA 24-hr D 2-Year Rainfall=3.44"

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Hydrograph for Subcatchment 5S: Basin B - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	1.08	0.00
1.00	0.04	0.00	0.00	53.00	3.44	1.08	0.00
2.00	0.08	0.00	0.00	54.00	3.44	1.08	0.00
3.00	0.13	0.00	0.00	55.00	3.44	1.08	0.00
4.00	0.18	0.00	0.00	56.00	3.44	1.08	0.00
5.00	0.24	0.00	0.00	57.00	3.44	1.08	0.00
6.00	0.29	0.00	0.00	58.00	3.44	1.08	0.00
7.00	0.36	0.00	0.00	59.00	3.44	1.08	0.00
8.00	0.45	0.00	0.00	60.00	3.44	1.08	0.00
9.00	0.55	0.00	0.00	61.00	3.44	1.08	0.00
10.00	0.68	0.00	0.00	62.00	3.44	1.08	0.00
11.00	0.89	0.00	0.01	63.00	3.44	1.08	0.00
12.00	1.65	0.16	0.28	64.00	3.44	1.08	0.00
13.00	2.55	0.55	0.14	65.00	3.44	1.08	0.00
14.00	2.76	0.67	0.07	66.00	3.44	1.08	0.00
15.00	2.89	0.75	0.05	67.00	3.44	1.08	0.00
16.00	2.99	0.80	0.04	68.00	3.44	1.08	0.00
17.00	3.08	0.85	0.04	69.00	3.44	1.08	0.00
18.00	3.15	0.90	0.03	70.00	3.44	1.08	0.00
19.00	3.20	0.93	0.03	71.00	3.44	1.08	0.00
20.00	3.26	0.97	0.03	72.00	3.44	1.08	0.00
21.00	3.31	1.00	0.02				
22.00	3.36	1.03	0.02				
23.00	3.40	1.06	0.02				
24.00	3.44	1.08	0.02				
25.00	3.44	1.08	0.00				
26.00	3.44	1.08	0.00				
27.00	3.44	1.08	0.00				
28.00	3.44	1.08	0.00				
29.00	3.44	1.08	0.00				
30.00	3.44	1.08	0.00				
31.00	3.44	1.08	0.00				
32.00	3.44	1.08	0.00				
33.00	3.44	1.08	0.00				
34.00	3.44	1.08	0.00				
35.00	3.44	1.08	0.00				
36.00	3.44	1.08	0.00				
37.00	3.44	1.08	0.00				
38.00	3.44	1.08	0.00				
39.00	3.44	1.08	0.00				
40.00	3.44	1.08	0.00				
41.00	3.44	1.08	0.00				
42.00	3.44	1.08	0.00				
43.00	3.44	1.08	0.00				
44.00	3.44	1.08	0.00				
45.00	3.44	1.08	0.00				
46.00	3.44	1.08	0.00				
47.00	3.44	1.08	0.00				
48.00	3.44	1.08	0.00				
49.00	3.44	1.08	0.00				
50.00	3.44	1.08	0.00				
51.00	3.44	1.08	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 2-Year Rainfall=3.44"

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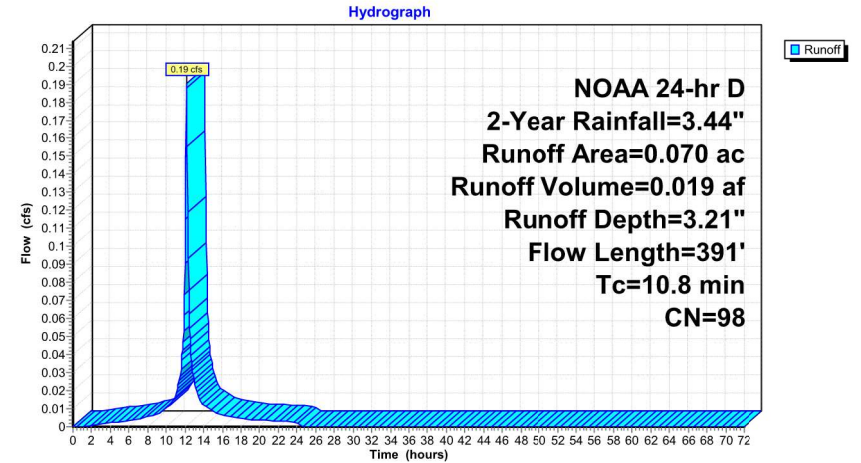
Summary for Subcatchment 6S: Undetained - Imp.

Runoff = 0.19 cfs @ 12.18 hrs, Volume= 0.019 af, Depth= 3.21"
 Routed to Link 3L : DA 1. - Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.060	98	Paved parking, HSG C
0.010	98	Paved parking, HSG B
0.070	98	Weighted Average
0.070		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	59	0.0200	0.11		Sheet Flow, Sheet Flow - Grass Grass: Dense n= 0.240 P2= 3.44" Using McCuen-Spiess flow length
1.8	332	0.0360	3.05		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
10.8	391	Total			

Subcatchment 6S: Undetained - Imp.

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Hydrograph for Subcatchment 6S: Undetained - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	3.21	0.00
1.00	0.04	0.00	0.00	53.00	3.44	3.21	0.00
2.00	0.08	0.01	0.00	54.00	3.44	3.21	0.00
3.00	0.13	0.03	0.00	55.00	3.44	3.21	0.00
4.00	0.18	0.06	0.00	56.00	3.44	3.21	0.00
5.00	0.24	0.09	0.00	57.00	3.44	3.21	0.00
6.00	0.29	0.14	0.00	58.00	3.44	3.21	0.00
7.00	0.36	0.20	0.00	59.00	3.44	3.21	0.00
8.00	0.45	0.27	0.01	60.00	3.44	3.21	0.00
9.00	0.55	0.36	0.01	61.00	3.44	3.21	0.00
10.00	0.68	0.49	0.01	62.00	3.44	3.21	0.00
11.00	0.89	0.69	0.02	63.00	3.44	3.21	0.00
12.00	1.65	1.43	0.09	64.00	3.44	3.21	0.00
13.00	2.55	2.32	0.03	65.00	3.44	3.21	0.00
14.00	2.76	2.53	0.01	66.00	3.44	3.21	0.00
15.00	2.89	2.66	0.01	67.00	3.44	3.21	0.00
16.00	2.99	2.76	0.01	68.00	3.44	3.21	0.00
17.00	3.08	2.85	0.01	69.00	3.44	3.21	0.00
18.00	3.15	2.91	0.00	70.00	3.44	3.21	0.00
19.00	3.20	2.97	0.00	71.00	3.44	3.21	0.00
20.00	3.26	3.03	0.00	72.00	3.44	3.21	0.00
21.00	3.31	3.08	0.00				
22.00	3.36	3.12	0.00				
23.00	3.40	3.17	0.00				
24.00	3.44	3.21	0.00				
25.00	3.44	3.21	0.00				
26.00	3.44	3.21	0.00				
27.00	3.44	3.21	0.00				
28.00	3.44	3.21	0.00				
29.00	3.44	3.21	0.00				
30.00	3.44	3.21	0.00				
31.00	3.44	3.21	0.00				
32.00	3.44	3.21	0.00				
33.00	3.44	3.21	0.00				
34.00	3.44	3.21	0.00				
35.00	3.44	3.21	0.00				
36.00	3.44	3.21	0.00				
37.00	3.44	3.21	0.00				
38.00	3.44	3.21	0.00				
39.00	3.44	3.21	0.00				
40.00	3.44	3.21	0.00				
41.00	3.44	3.21	0.00				
42.00	3.44	3.21	0.00				
43.00	3.44	3.21	0.00				
44.00	3.44	3.21	0.00				
45.00	3.44	3.21	0.00				
46.00	3.44	3.21	0.00				
47.00	3.44	3.21	0.00				
48.00	3.44	3.21	0.00				
49.00	3.44	3.21	0.00				
50.00	3.44	3.21	0.00				
51.00	3.44	3.21	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 2-Year Rainfall=3.44"

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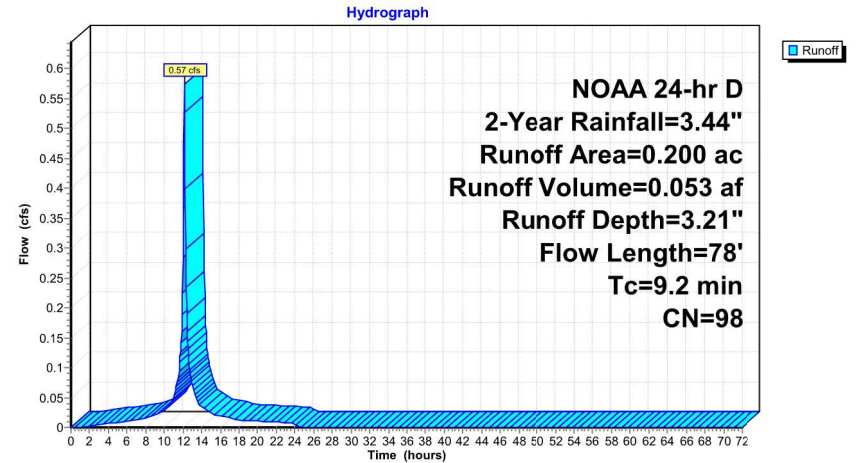
Summary for Subcatchment 7S: Basin C - Imp.

Runoff = 0.57 cfs @ 12.16 hrs, Volume= 0.053 af, Depth= 3.21"
 Routed to Pond 5P : Basin C

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.200	98	Unconnected pavement, HSG C
0.200		100.00% Impervious Area
0.200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Shhet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	53	0.1070	5.27		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	78	Total			

Subcatchment 7S: Basin C - Imp.

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NOAA 24-hr D 2-Year Rainfall=3.44"

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Hydrograph for Subcatchment 7S: Basin C - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	3.21	0.00
1.00	0.04	0.00	0.00	53.00	3.44	3.21	0.00
2.00	0.08	0.01	0.00	54.00	3.44	3.21	0.00
3.00	0.13	0.03	0.00	55.00	3.44	3.21	0.00
4.00	0.18	0.06	0.01	56.00	3.44	3.21	0.00
5.00	0.24	0.09	0.01	57.00	3.44	3.21	0.00
6.00	0.29	0.14	0.01	58.00	3.44	3.21	0.00
7.00	0.36	0.20	0.01	59.00	3.44	3.21	0.00
8.00	0.45	0.27	0.02	60.00	3.44	3.21	0.00
9.00	0.55	0.36	0.02	61.00	3.44	3.21	0.00
10.00	0.68	0.49	0.03	62.00	3.44	3.21	0.00
11.00	0.89	0.69	0.05	63.00	3.44	3.21	0.00
12.00	1.65	1.43	0.29	64.00	3.44	3.21	0.00
13.00	2.55	2.32	0.07	65.00	3.44	3.21	0.00
14.00	2.76	2.53	0.03	66.00	3.44	3.21	0.00
15.00	2.89	2.66	0.02	67.00	3.44	3.21	0.00
16.00	2.99	2.76	0.02	68.00	3.44	3.21	0.00
17.00	3.08	2.85	0.02	69.00	3.44	3.21	0.00
18.00	3.15	2.91	0.01	70.00	3.44	3.21	0.00
19.00	3.20	2.97	0.01	71.00	3.44	3.21	0.00
20.00	3.26	3.03	0.01	72.00	3.44	3.21	0.00
21.00	3.31	3.08	0.01				
22.00	3.36	3.12	0.01				
23.00	3.40	3.17	0.01				
24.00	3.44	3.21	0.01				
25.00	3.44	3.21	0.00				
26.00	3.44	3.21	0.00				
27.00	3.44	3.21	0.00				
28.00	3.44	3.21	0.00				
29.00	3.44	3.21	0.00				
30.00	3.44	3.21	0.00				
31.00	3.44	3.21	0.00				
32.00	3.44	3.21	0.00				
33.00	3.44	3.21	0.00				
34.00	3.44	3.21	0.00				
35.00	3.44	3.21	0.00				
36.00	3.44	3.21	0.00				
37.00	3.44	3.21	0.00				
38.00	3.44	3.21	0.00				
39.00	3.44	3.21	0.00				
40.00	3.44	3.21	0.00				
41.00	3.44	3.21	0.00				
42.00	3.44	3.21	0.00				
43.00	3.44	3.21	0.00				
44.00	3.44	3.21	0.00				
45.00	3.44	3.21	0.00				
46.00	3.44	3.21	0.00				
47.00	3.44	3.21	0.00				
48.00	3.44	3.21	0.00				
49.00	3.44	3.21	0.00				
50.00	3.44	3.21	0.00				
51.00	3.44	3.21	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 2-Year Rainfall=3.44"

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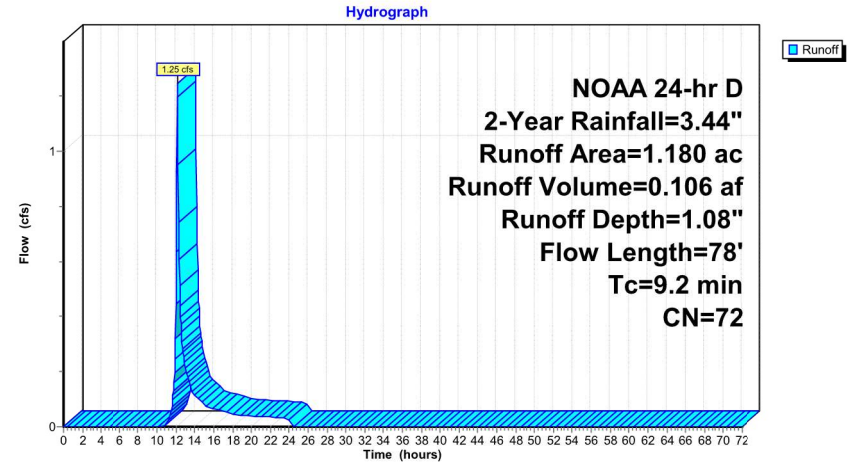
Summary for Subcatchment 8S: Basin C - Perv.

Runoff = 1.25 cfs @ 12.17 hrs, Volume= 0.106 af, Depth= 1.08"
 Routed to Pond 5P : Basin C

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.560	74	>75% Grass cover, Good, HSG C
0.620	70	Woods, Good, HSG C
1.180	72	Weighted Average
1.180		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	53	0.1070	5.27		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	78	Total			

Subcatchment 8S: Basin C - Perv.

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Hydrograph for Subcatchment 8S: Basin C - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	1.08	0.00
1.00	0.04	0.00	0.00	53.00	3.44	1.08	0.00
2.00	0.08	0.00	0.00	54.00	3.44	1.08	0.00
3.00	0.13	0.00	0.00	55.00	3.44	1.08	0.00
4.00	0.18	0.00	0.00	56.00	3.44	1.08	0.00
5.00	0.24	0.00	0.00	57.00	3.44	1.08	0.00
6.00	0.29	0.00	0.00	58.00	3.44	1.08	0.00
7.00	0.36	0.00	0.00	59.00	3.44	1.08	0.00
8.00	0.45	0.00	0.00	60.00	3.44	1.08	0.00
9.00	0.55	0.00	0.00	61.00	3.44	1.08	0.00
10.00	0.68	0.00	0.00	62.00	3.44	1.08	0.00
11.00	0.89	0.00	0.01	63.00	3.44	1.08	0.00
12.00	1.65	0.16	0.45	64.00	3.44	1.08	0.00
13.00	2.55	0.55	0.22	65.00	3.44	1.08	0.00
14.00	2.76	0.67	0.11	66.00	3.44	1.08	0.00
15.00	2.89	0.75	0.08	67.00	3.44	1.08	0.00
16.00	2.99	0.80	0.07	68.00	3.44	1.08	0.00
17.00	3.08	0.85	0.06	69.00	3.44	1.08	0.00
18.00	3.15	0.90	0.05	70.00	3.44	1.08	0.00
19.00	3.20	0.93	0.04	71.00	3.44	1.08	0.00
20.00	3.26	0.97	0.04	72.00	3.44	1.08	0.00
21.00	3.31	1.00	0.04				
22.00	3.36	1.03	0.03				
23.00	3.40	1.06	0.03				
24.00	3.44	1.08	0.03				
25.00	3.44	1.08	0.00				
26.00	3.44	1.08	0.00				
27.00	3.44	1.08	0.00				
28.00	3.44	1.08	0.00				
29.00	3.44	1.08	0.00				
30.00	3.44	1.08	0.00				
31.00	3.44	1.08	0.00				
32.00	3.44	1.08	0.00				
33.00	3.44	1.08	0.00				
34.00	3.44	1.08	0.00				
35.00	3.44	1.08	0.00				
36.00	3.44	1.08	0.00				
37.00	3.44	1.08	0.00				
38.00	3.44	1.08	0.00				
39.00	3.44	1.08	0.00				
40.00	3.44	1.08	0.00				
41.00	3.44	1.08	0.00				
42.00	3.44	1.08	0.00				
43.00	3.44	1.08	0.00				
44.00	3.44	1.08	0.00				
45.00	3.44	1.08	0.00				
46.00	3.44	1.08	0.00				
47.00	3.44	1.08	0.00				
48.00	3.44	1.08	0.00				
49.00	3.44	1.08	0.00				
50.00	3.44	1.08	0.00				
51.00	3.44	1.08	0.00				

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NOAA 24-hr D 2-Year Rainfall=3.44"

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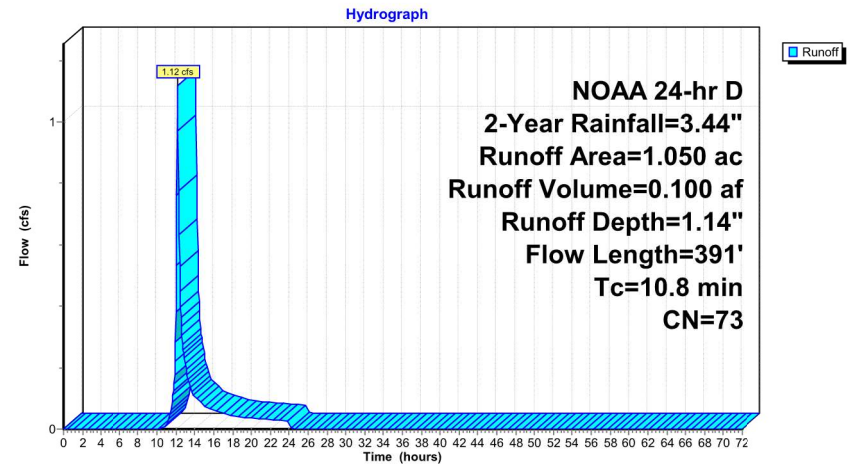
Summary for Subcatchment 9S: Undetained - Perv.

Runoff = 1.12 cfs @ 12.19 hrs, Volume= 0.100 af, Depth= 1.14"
 Routed to Link 3L : DA 1. - Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.910	74	>75% Grass cover, Good, HSG C
0.070	61	>75% Grass cover, Good, HSG B
0.070	70	Woods, Good, HSG C
1.050	73	Weighted Average
1.050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	59	0.0200	0.11		Sheet Flow, Sheet Flow - Grass Grass: Dense n= 0.240 P2= 3.44" Using McCuen-Spiess flow length
1.8	332	0.0360	3.05		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
10.8	391	Total			

Subcatchment 9S: Undetained - Perv.

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NOAA 24-hr D 2-Year Rainfall=3.44"

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Hydrograph for Subcatchment 9S: Undetained - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	1.14	0.00
1.00	0.04	0.00	0.00	53.00	3.44	1.14	0.00
2.00	0.08	0.00	0.00	54.00	3.44	1.14	0.00
3.00	0.13	0.00	0.00	55.00	3.44	1.14	0.00
4.00	0.18	0.00	0.00	56.00	3.44	1.14	0.00
5.00	0.24	0.00	0.00	57.00	3.44	1.14	0.00
6.00	0.29	0.00	0.00	58.00	3.44	1.14	0.00
7.00	0.36	0.00	0.00	59.00	3.44	1.14	0.00
8.00	0.45	0.00	0.00	60.00	3.44	1.14	0.00
9.00	0.55	0.00	0.00	61.00	3.44	1.14	0.00
10.00	0.68	0.00	0.00	62.00	3.44	1.14	0.00
11.00	0.89	0.01	0.02	63.00	3.44	1.14	0.00
12.00	1.65	0.18	0.38	64.00	3.44	1.14	0.00
13.00	2.55	0.59	0.21	65.00	3.44	1.14	0.00
14.00	2.76	0.71	0.11	66.00	3.44	1.14	0.00
15.00	2.89	0.79	0.07	67.00	3.44	1.14	0.00
16.00	2.99	0.85	0.06	68.00	3.44	1.14	0.00
17.00	3.08	0.91	0.05	69.00	3.44	1.14	0.00
18.00	3.15	0.95	0.04	70.00	3.44	1.14	0.00
19.00	3.20	0.99	0.04	71.00	3.44	1.14	0.00
20.00	3.26	1.02	0.04	72.00	3.44	1.14	0.00
21.00	3.31	1.05	0.03				
22.00	3.36	1.08	0.03				
23.00	3.40	1.11	0.03				
24.00	3.44	1.14	0.03				
25.00	3.44	1.14	0.00				
26.00	3.44	1.14	0.00				
27.00	3.44	1.14	0.00				
28.00	3.44	1.14	0.00				
29.00	3.44	1.14	0.00				
30.00	3.44	1.14	0.00				
31.00	3.44	1.14	0.00				
32.00	3.44	1.14	0.00				
33.00	3.44	1.14	0.00				
34.00	3.44	1.14	0.00				
35.00	3.44	1.14	0.00				
36.00	3.44	1.14	0.00				
37.00	3.44	1.14	0.00				
38.00	3.44	1.14	0.00				
39.00	3.44	1.14	0.00				
40.00	3.44	1.14	0.00				
41.00	3.44	1.14	0.00				
42.00	3.44	1.14	0.00				
43.00	3.44	1.14	0.00				
44.00	3.44	1.14	0.00				
45.00	3.44	1.14	0.00				
46.00	3.44	1.14	0.00				
47.00	3.44	1.14	0.00				
48.00	3.44	1.14	0.00				
49.00	3.44	1.14	0.00				
50.00	3.44	1.14	0.00				
51.00	3.44	1.14	0.00				

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NOAA 24-hr D 2-Year Rainfall=3.44"

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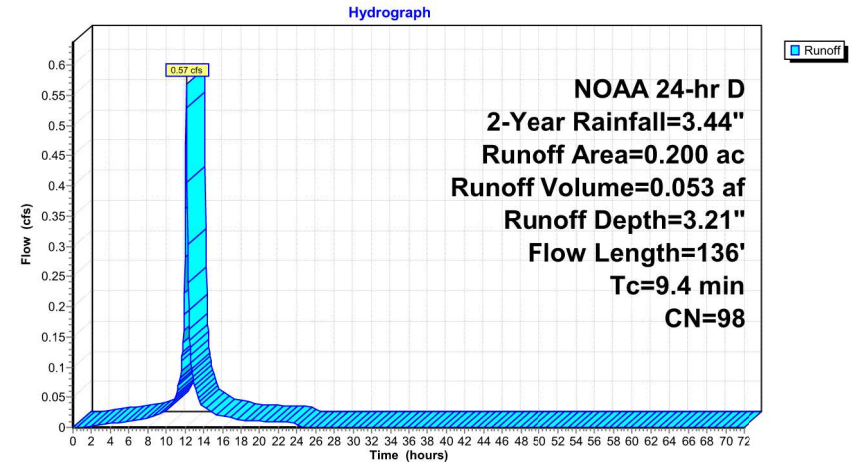
Summary for Subcatchment 11S: Basin D - Imp.

Runoff = 0.57 cfs @ 12.16 hrs, Volume= 0.053 af, Depth= 3.21"
 Routed to Pond 6P : Basin D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.200	98	Unconnected pavement, HSG C
0.200		100.00% Impervious Area
0.200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.4	111	0.0720	4.32		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.4	136	Total			

Subcatchment 11S: Basin D - Imp.

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Hydrograph for Subcatchment 11S: Basin D - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	3.21	0.00
1.00	0.04	0.00	0.00	53.00	3.44	3.21	0.00
2.00	0.08	0.01	0.00	54.00	3.44	3.21	0.00
3.00	0.13	0.03	0.00	55.00	3.44	3.21	0.00
4.00	0.18	0.06	0.01	56.00	3.44	3.21	0.00
5.00	0.24	0.09	0.01	57.00	3.44	3.21	0.00
6.00	0.29	0.14	0.01	58.00	3.44	3.21	0.00
7.00	0.36	0.20	0.01	59.00	3.44	3.21	0.00
8.00	0.45	0.27	0.02	60.00	3.44	3.21	0.00
9.00	0.55	0.36	0.02	61.00	3.44	3.21	0.00
10.00	0.68	0.49	0.03	62.00	3.44	3.21	0.00
11.00	0.89	0.69	0.05	63.00	3.44	3.21	0.00
12.00	1.65	1.43	0.28	64.00	3.44	3.21	0.00
13.00	2.55	2.32	0.07	65.00	3.44	3.21	0.00
14.00	2.76	2.53	0.03	66.00	3.44	3.21	0.00
15.00	2.89	2.66	0.02	67.00	3.44	3.21	0.00
16.00	2.99	2.76	0.02	68.00	3.44	3.21	0.00
17.00	3.08	2.85	0.02	69.00	3.44	3.21	0.00
18.00	3.15	2.91	0.01	70.00	3.44	3.21	0.00
19.00	3.20	2.97	0.01	71.00	3.44	3.21	0.00
20.00	3.26	3.03	0.01	72.00	3.44	3.21	0.00
21.00	3.31	3.08	0.01				
22.00	3.36	3.12	0.01				
23.00	3.40	3.17	0.01				
24.00	3.44	3.21	0.01				
25.00	3.44	3.21	0.00				
26.00	3.44	3.21	0.00				
27.00	3.44	3.21	0.00				
28.00	3.44	3.21	0.00				
29.00	3.44	3.21	0.00				
30.00	3.44	3.21	0.00				
31.00	3.44	3.21	0.00				
32.00	3.44	3.21	0.00				
33.00	3.44	3.21	0.00				
34.00	3.44	3.21	0.00				
35.00	3.44	3.21	0.00				
36.00	3.44	3.21	0.00				
37.00	3.44	3.21	0.00				
38.00	3.44	3.21	0.00				
39.00	3.44	3.21	0.00				
40.00	3.44	3.21	0.00				
41.00	3.44	3.21	0.00				
42.00	3.44	3.21	0.00				
43.00	3.44	3.21	0.00				
44.00	3.44	3.21	0.00				
45.00	3.44	3.21	0.00				
46.00	3.44	3.21	0.00				
47.00	3.44	3.21	0.00				
48.00	3.44	3.21	0.00				
49.00	3.44	3.21	0.00				
50.00	3.44	3.21	0.00				
51.00	3.44	3.21	0.00				

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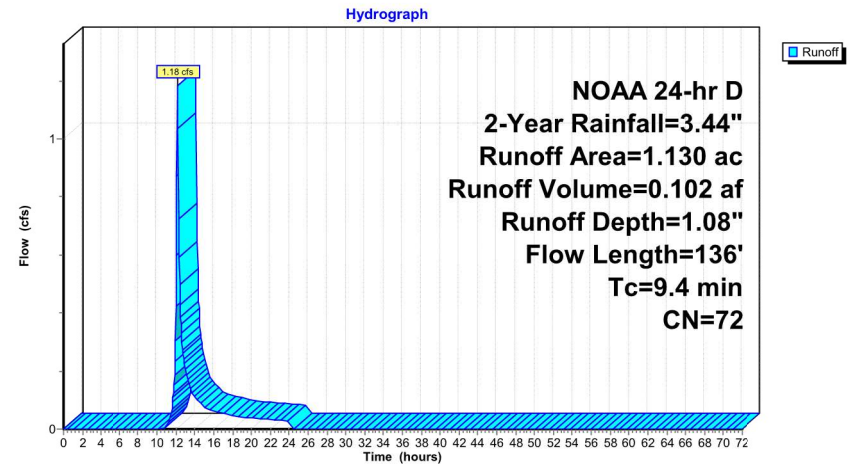
Summary for Subcatchment 12S: Basin D - Perv.

Runoff = 1.18 cfs @ 12.17 hrs, Volume= 0.102 af, Depth= 1.08"
 Routed to Pond 6P : Basin D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.470	74	>75% Grass cover, Good, HSG C
0.650	70	Woods, Good, HSG C
* 0.010	55	Woods, Good, HSG B
1.130	72	Weighted Average
1.130		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.4	111	0.0720	4.32		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.4	136	Total			

Subcatchment 12S: Basin D - Perv.

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Hydrograph for Subcatchment 12S: Basin D - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	1.08	0.00
1.00	0.04	0.00	0.00	53.00	3.44	1.08	0.00
2.00	0.08	0.00	0.00	54.00	3.44	1.08	0.00
3.00	0.13	0.00	0.00	55.00	3.44	1.08	0.00
4.00	0.18	0.00	0.00	56.00	3.44	1.08	0.00
5.00	0.24	0.00	0.00	57.00	3.44	1.08	0.00
6.00	0.29	0.00	0.00	58.00	3.44	1.08	0.00
7.00	0.36	0.00	0.00	59.00	3.44	1.08	0.00
8.00	0.45	0.00	0.00	60.00	3.44	1.08	0.00
9.00	0.55	0.00	0.00	61.00	3.44	1.08	0.00
10.00	0.68	0.00	0.00	62.00	3.44	1.08	0.00
11.00	0.89	0.00	0.01	63.00	3.44	1.08	0.00
12.00	1.65	0.16	0.42	64.00	3.44	1.08	0.00
13.00	2.55	0.55	0.21	65.00	3.44	1.08	0.00
14.00	2.76	0.67	0.11	66.00	3.44	1.08	0.00
15.00	2.89	0.75	0.08	67.00	3.44	1.08	0.00
16.00	2.99	0.80	0.06	68.00	3.44	1.08	0.00
17.00	3.08	0.85	0.05	69.00	3.44	1.08	0.00
18.00	3.15	0.90	0.04	70.00	3.44	1.08	0.00
19.00	3.20	0.93	0.04	71.00	3.44	1.08	0.00
20.00	3.26	0.97	0.04	72.00	3.44	1.08	0.00
21.00	3.31	1.00	0.04				
22.00	3.36	1.03	0.03				
23.00	3.40	1.06	0.03				
24.00	3.44	1.08	0.03				
25.00	3.44	1.08	0.00				
26.00	3.44	1.08	0.00				
27.00	3.44	1.08	0.00				
28.00	3.44	1.08	0.00				
29.00	3.44	1.08	0.00				
30.00	3.44	1.08	0.00				
31.00	3.44	1.08	0.00				
32.00	3.44	1.08	0.00				
33.00	3.44	1.08	0.00				
34.00	3.44	1.08	0.00				
35.00	3.44	1.08	0.00				
36.00	3.44	1.08	0.00				
37.00	3.44	1.08	0.00				
38.00	3.44	1.08	0.00				
39.00	3.44	1.08	0.00				
40.00	3.44	1.08	0.00				
41.00	3.44	1.08	0.00				
42.00	3.44	1.08	0.00				
43.00	3.44	1.08	0.00				
44.00	3.44	1.08	0.00				
45.00	3.44	1.08	0.00				
46.00	3.44	1.08	0.00				
47.00	3.44	1.08	0.00				
48.00	3.44	1.08	0.00				
49.00	3.44	1.08	0.00				
50.00	3.44	1.08	0.00				
51.00	3.44	1.08	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 2-Year Rainfall=3.44"

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Summary for Pond 3P: Basin A

Inflow Area = 1.130 ac, 18.58% Impervious, Inflow Depth = 1.48" for 2-Year event
 Inflow = 1.57 cfs @ 12.17 hrs, Volume= 0.139 af
 Outflow = 0.52 cfs @ 12.45 hrs, Volume= 0.116 af, Atten= 67%, Lag= 16.9 min
 Primary = 0.52 cfs @ 12.45 hrs, Volume= 0.116 af
 Routed to Link 2L : DA 1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 619.84' @ 12.45 hrs Surf.Area= 0.092 ac Storage= 0.050 af

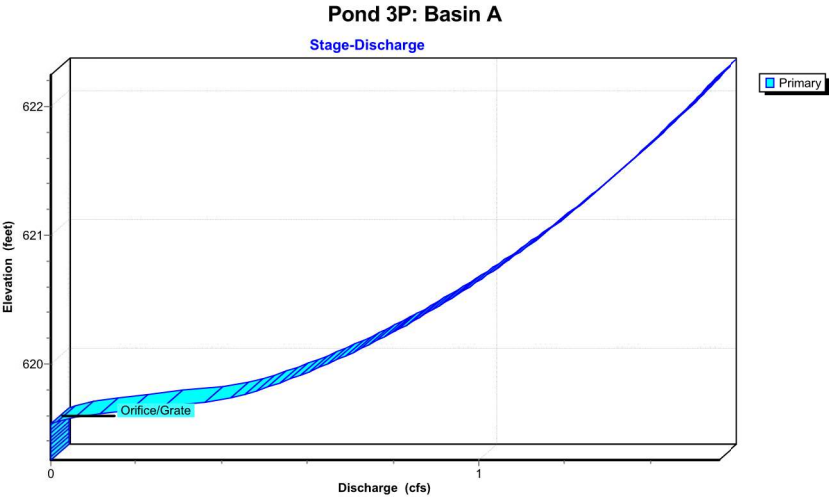
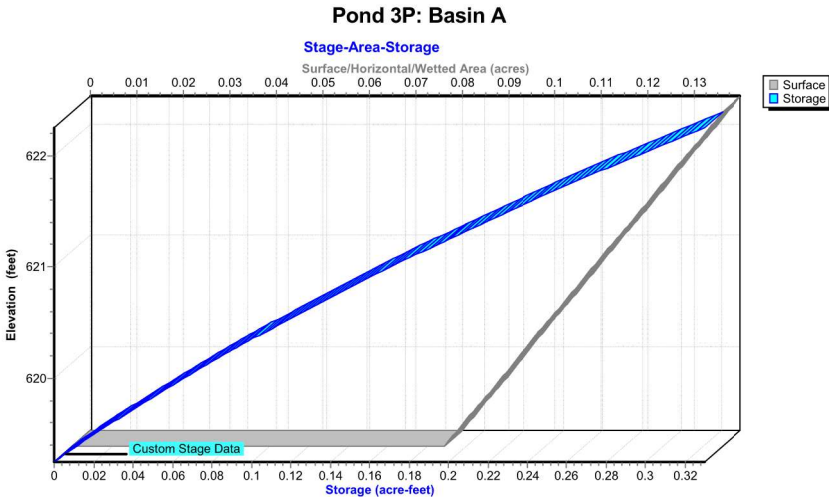
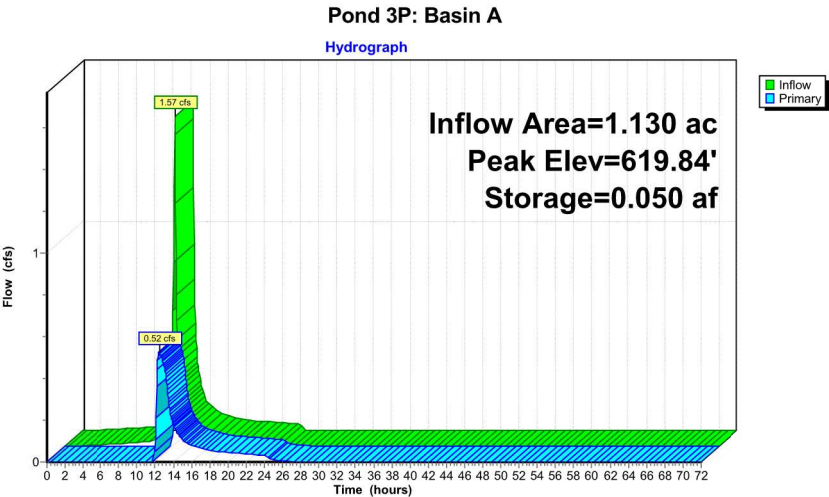
Plug-Flow detention time= 169.4 min calculated for 0.116 af (83% of inflow)
 Center-of-Mass det. time= 90.5 min (922.1 - 831.5)

Volume	Invert	Avail.Storage	Storage Description
#1	619.25'	0.330 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
619.25	0.080	0.000	0.000
620.25	0.100	0.090	0.090
621.25	0.120	0.110	0.200
622.25	0.140	0.130	0.330

Device	Routing	Invert	Outlet Devices
#1	Primary	619.53'	6.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.52 cfs @ 12.45 hrs HW=619.84' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.52 cfs @ 2.66 fps)



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Hydrograph for Pond 3P: Basin A

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	619.25	0.00
2.50	0.00	0.000	619.25	0.00
5.00	0.01	0.002	619.27	0.00
7.50	0.01	0.004	619.30	0.00
10.00	0.03	0.008	619.35	0.00
12.50	0.46	0.050	619.83	0.52
15.00	0.09	0.030	619.61	0.11
17.50	0.05	0.028	619.58	0.06
20.00	0.04	0.027	619.57	0.04
22.50	0.04	0.026	619.57	0.04
25.00	0.00	0.025	619.55	0.01
27.50	0.00	0.023	619.53	0.00
30.00	0.00	0.023	619.53	0.00
32.50	0.00	0.023	619.53	0.00
35.00	0.00	0.023	619.53	0.00
37.50	0.00	0.023	619.53	0.00
40.00	0.00	0.023	619.53	0.00
42.50	0.00	0.023	619.53	0.00
45.00	0.00	0.023	619.53	0.00
47.50	0.00	0.023	619.53	0.00
50.00	0.00	0.023	619.53	0.00
52.50	0.00	0.023	619.53	0.00
55.00	0.00	0.023	619.53	0.00
57.50	0.00	0.023	619.53	0.00
60.00	0.00	0.023	619.53	0.00
62.50	0.00	0.023	619.53	0.00
65.00	0.00	0.023	619.53	0.00
67.50	0.00	0.023	619.53	0.00
70.00	0.00	0.023	619.53	0.00

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Stage-Discharge for Pond 3P: Basin A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
619.25	0.00	620.29	0.82	621.33	1.27
619.27	0.00	620.31	0.83	621.35	1.28
619.29	0.00	620.33	0.85	621.37	1.28
619.31	0.00	620.35	0.86	621.39	1.29
619.33	0.00	620.37	0.87	621.41	1.30
619.35	0.00	620.39	0.88	621.43	1.30
619.37	0.00	620.41	0.89	621.45	1.31
619.39	0.00	620.43	0.90	621.47	1.32
619.41	0.00	620.45	0.91	621.49	1.32
619.43	0.00	620.47	0.92	621.51	1.33
619.45	0.00	620.49	0.93	621.53	1.34
619.47	0.00	620.51	0.94	621.55	1.34
619.49	0.00	620.53	0.95	621.57	1.35
619.51	0.00	620.55	0.95	621.59	1.36
619.53	0.00	620.57	0.96	621.61	1.36
619.55	0.01	620.59	0.97	621.63	1.37
619.57	0.04	620.61	0.98	621.65	1.38
619.59	0.08	620.63	0.99	621.67	1.38
619.61	0.12	620.65	1.00	621.69	1.39
619.63	0.16	620.67	1.01	621.71	1.40
619.65	0.21	620.69	1.02	621.73	1.40
619.67	0.27	620.71	1.03	621.75	1.41
619.69	0.33	620.73	1.04	621.77	1.41
619.71	0.39	620.75	1.04	621.79	1.42
619.73	0.42	620.77	1.05	621.81	1.43
619.75	0.44	620.79	1.06	621.83	1.43
619.77	0.46	620.81	1.07	621.85	1.44
619.79	0.48	620.83	1.08	621.87	1.45
619.81	0.50	620.85	1.09	621.89	1.45
619.83	0.52	620.87	1.09	621.91	1.46
619.85	0.53	620.89	1.10	621.93	1.46
619.87	0.55	620.91	1.11	621.95	1.47
619.89	0.57	620.93	1.12	621.97	1.48
619.91	0.58	620.95	1.13	621.99	1.48
619.93	0.60	620.97	1.13	622.01	1.49
619.95	0.61	620.99	1.14	622.03	1.49
619.97	0.63	621.01	1.15	622.05	1.50
619.99	0.64	621.03	1.16	622.07	1.51
620.01	0.66	621.05	1.17	622.09	1.51
620.03	0.67	621.07	1.17	622.11	1.52
620.05	0.68	621.09	1.18	622.13	1.52
620.07	0.69	621.11	1.19	622.15	1.53
620.09	0.71	621.13	1.20	622.17	1.54
620.11	0.72	621.15	1.20	622.19	1.54
620.13	0.73	621.17	1.21	622.21	1.55
620.15	0.74	621.19	1.22	622.23	1.55
620.17	0.76	621.21	1.23	622.25	1.56
620.19	0.77	621.23	1.23		
620.21	0.78	621.25	1.24		
620.23	0.79	621.27	1.25		
620.25	0.80	621.29	1.25		
620.27	0.81	621.31	1.26		

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Stage-Area-Storage for Pond 3P: Basin A

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
619.25	0.080	0.000	621.85	0.132	0.276
619.30	0.081	0.004	621.90	0.133	0.282
619.35	0.082	0.008	621.95	0.134	0.289
619.40	0.083	0.012	622.00	0.135	0.296
619.45	0.084	0.016	622.05	0.136	0.302
619.50	0.085	0.021	622.10	0.137	0.309
619.55	0.086	0.025	622.15	0.138	0.316
619.60	0.087	0.029	622.20	0.139	0.323
619.65	0.088	0.034	622.25	0.140	0.330
619.70	0.089	0.038			
619.75	0.090	0.043			
619.80	0.091	0.047			
619.85	0.092	0.052			
619.90	0.093	0.056			
619.95	0.094	0.061			
620.00	0.095	0.066			
620.05	0.096	0.070			
620.10	0.097	0.075			
620.15	0.098	0.080			
620.20	0.099	0.085			
620.25	0.100	0.090			
620.30	0.101	0.095			
620.35	0.102	0.100			
620.40	0.103	0.105			
620.45	0.104	0.110			
620.50	0.105	0.116			
620.55	0.106	0.121			
620.60	0.107	0.126			
620.65	0.108	0.132			
620.70	0.109	0.137			
620.75	0.110	0.142			
620.80	0.111	0.148			
620.85	0.112	0.154			
620.90	0.113	0.159			
620.95	0.114	0.165			
621.00	0.115	0.171			
621.05	0.116	0.176			
621.10	0.117	0.182			
621.15	0.118	0.188			
621.20	0.119	0.194			
621.25	0.120	0.200			
621.30	0.121	0.206			
621.35	0.122	0.212			
621.40	0.123	0.218			
621.45	0.124	0.224			
621.50	0.125	0.231			
621.55	0.126	0.237			
621.60	0.127	0.243			
621.65	0.128	0.250			
621.70	0.129	0.256			
621.75	0.130	0.262			
621.80	0.131	0.269			

2023-01 Proposed Hydrology

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Summary for Pond 4P: Basin B

Inflow Area = 0.960 ac, 19.79% Impervious, Inflow Depth = 1.50" for 2-Year event
 Inflow = 1.32 cfs @ 12.18 hrs, Volume= 0.120 af
 Outflow = 0.18 cfs @ 13.20 hrs, Volume= 0.065 af, Atten= 87%, Lag= 61.5 min
 Primary = 0.18 cfs @ 13.20 hrs, Volume= 0.065 af
 Routed to Link 2L : DA 1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 619.50' @ 13.20 hrs Surf.Area= 0.095 ac Storage= 0.065 af

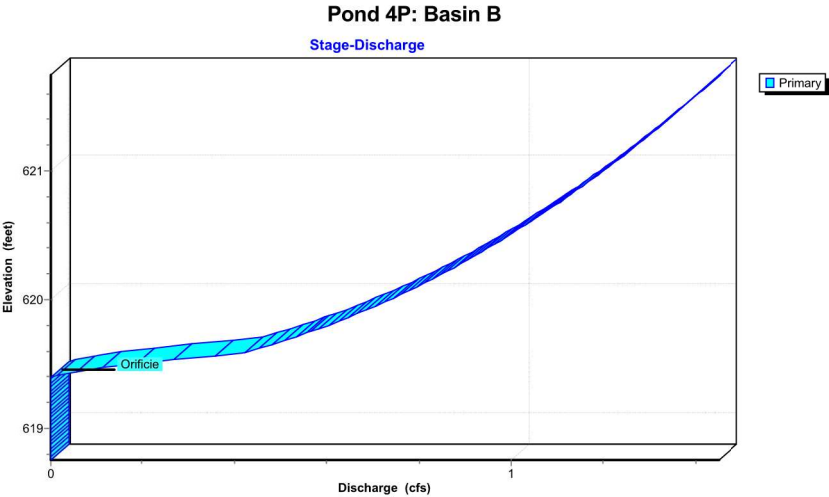
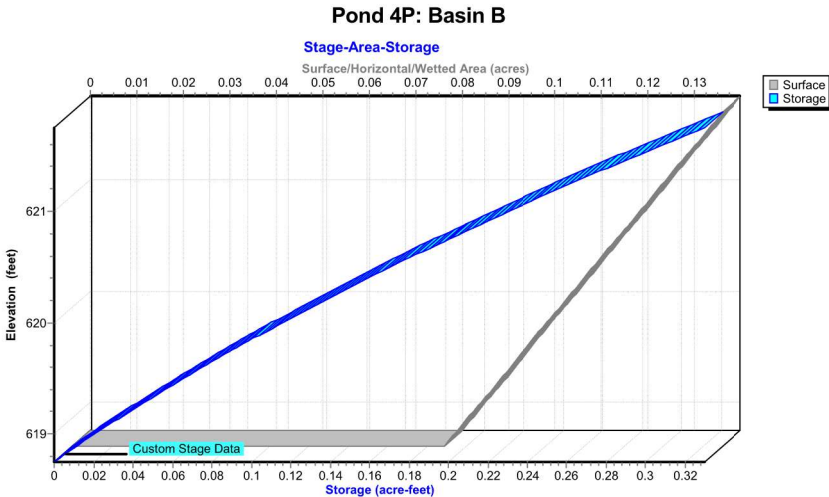
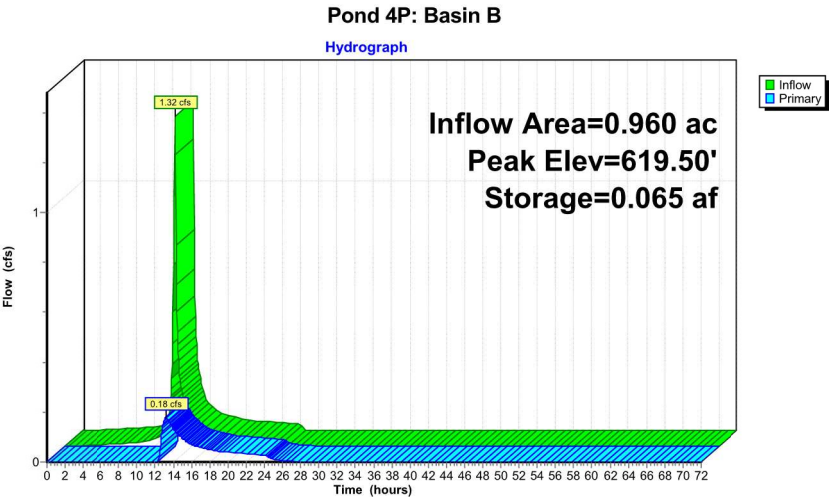
Plug-Flow detention time= 322.4 min calculated for 0.065 af (54% of inflow)
 Center-of-Mass det. time= 183.6 min (1.013.4 - 829.8)

Volume	Invert	Avail.Storage	Storage Description
#1	618.75'	0.330 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
618.75	0.080	0.000	0.000
619.75	0.100	0.090	0.090
620.75	0.120	0.110	0.200
621.75	0.140	0.130	0.330

Device	Routing	Invert	Outlet Devices
#1	Primary	619.39'	6.0" Horiz. Orifice C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.18 cfs @ 13.20 hrs HW=619.50' (Free Discharge)

1=Orifice (Weir Controls 0.18 cfs @ 1.06 fps)



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Hydrograph for Pond 4P: Basin B

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	618.75	0.00
2.50	0.00	0.000	618.75	0.00
5.00	0.01	0.001	618.77	0.00
7.50	0.01	0.003	618.79	0.00
10.00	0.03	0.007	618.84	0.00
12.50	0.41	0.058	619.42	0.02
15.00	0.07	0.062	619.46	0.09
17.50	0.05	0.060	619.44	0.05
20.00	0.04	0.059	619.43	0.04
22.50	0.03	0.058	619.42	0.03
25.00	0.00	0.057	619.41	0.01
27.50	0.00	0.056	619.39	0.00
30.00	0.00	0.055	619.39	0.00
32.50	0.00	0.055	619.39	0.00
35.00	0.00	0.055	619.39	0.00
37.50	0.00	0.055	619.39	0.00
40.00	0.00	0.055	619.39	0.00
42.50	0.00	0.055	619.39	0.00
45.00	0.00	0.055	619.39	0.00
47.50	0.00	0.055	619.39	0.00
50.00	0.00	0.055	619.39	0.00
52.50	0.00	0.055	619.39	0.00
55.00	0.00	0.055	619.39	0.00
57.50	0.00	0.055	619.39	0.00
60.00	0.00	0.055	619.39	0.00
62.50	0.00	0.055	619.39	0.00
65.00	0.00	0.055	619.39	0.00
67.50	0.00	0.055	619.39	0.00
70.00	0.00	0.055	619.39	0.00

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Stage-Discharge for Pond 4P: Basin B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
618.75	0.00	619.79	0.60	620.83	1.13
618.77	0.00	619.81	0.61	620.85	1.14
618.79	0.00	619.83	0.63	620.87	1.15
618.81	0.00	619.85	0.64	620.89	1.16
618.83	0.00	619.87	0.66	620.91	1.17
618.85	0.00	619.89	0.67	620.93	1.17
618.87	0.00	619.91	0.68	620.95	1.18
618.89	0.00	619.93	0.69	620.97	1.19
618.91	0.00	619.95	0.71	620.99	1.20
618.93	0.00	619.97	0.72	621.01	1.20
618.95	0.00	619.99	0.73	621.03	1.21
618.97	0.00	620.01	0.74	621.05	1.22
618.99	0.00	620.03	0.76	621.07	1.23
619.01	0.00	620.05	0.77	621.09	1.23
619.03	0.00	620.07	0.78	621.11	1.24
619.05	0.00	620.09	0.79	621.13	1.25
619.07	0.00	620.11	0.80	621.15	1.25
619.09	0.00	620.13	0.81	621.17	1.26
619.11	0.00	620.15	0.82	621.19	1.27
619.13	0.00	620.17	0.83	621.21	1.28
619.15	0.00	620.19	0.85	621.23	1.28
619.17	0.00	620.21	0.86	621.25	1.29
619.19	0.00	620.23	0.87	621.27	1.30
619.21	0.00	620.25	0.88	621.29	1.30
619.23	0.00	620.27	0.89	621.31	1.31
619.25	0.00	620.29	0.90	621.33	1.32
619.27	0.00	620.31	0.91	621.35	1.32
619.29	0.00	620.33	0.92	621.37	1.33
619.31	0.00	620.35	0.93	621.39	1.34
619.33	0.00	620.37	0.94	621.41	1.34
619.35	0.00	620.39	0.95	621.43	1.35
619.37	0.00	620.41	0.95	621.45	1.36
619.39	0.00	620.43	0.96	621.47	1.36
619.41	0.01	620.45	0.97	621.49	1.37
619.43	0.04	620.47	0.98	621.51	1.38
619.45	0.08	620.49	0.99	621.53	1.38
619.47	0.12	620.51	1.00	621.55	1.39
619.49	0.16	620.53	1.01	621.57	1.40
619.51	0.21	620.55	1.02	621.59	1.40
619.53	0.27	620.57	1.03	621.61	1.41
619.55	0.33	620.59	1.04	621.63	1.41
619.57	0.39	620.61	1.04	621.65	1.42
619.59	0.42	620.63	1.05	621.67	1.43
619.61	0.44	620.65	1.06	621.69	1.43
619.63	0.46	620.67	1.07	621.71	1.44
619.65	0.48	620.69	1.08	621.73	1.45
619.67	0.50	620.71	1.09	621.75	1.45
619.69	0.52	620.73	1.09		
619.71	0.53	620.75	1.10		
619.73	0.55	620.77	1.11		
619.75	0.57	620.79	1.12		
619.77	0.58	620.81	1.13		

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Stage-Area-Storage for Pond 4P: Basin B

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
618.75	0.080	0.000	621.35	0.132	0.276
618.80	0.081	0.004	621.40	0.133	0.282
618.85	0.082	0.008	621.45	0.134	0.289
618.90	0.083	0.012	621.50	0.135	0.296
618.95	0.084	0.016	621.55	0.136	0.302
619.00	0.085	0.021	621.60	0.137	0.309
619.05	0.086	0.025	621.65	0.138	0.316
619.10	0.087	0.029	621.70	0.139	0.323
619.15	0.088	0.034	621.75	0.140	0.330
619.20	0.089	0.038			
619.25	0.090	0.043			
619.30	0.091	0.047			
619.35	0.092	0.052			
619.40	0.093	0.056			
619.45	0.094	0.061			
619.50	0.095	0.066			
619.55	0.096	0.070			
619.60	0.097	0.075			
619.65	0.098	0.080			
619.70	0.099	0.085			
619.75	0.100	0.090			
619.80	0.101	0.095			
619.85	0.102	0.100			
619.90	0.103	0.105			
619.95	0.104	0.110			
620.00	0.105	0.116			
620.05	0.106	0.121			
620.10	0.107	0.126			
620.15	0.108	0.132			
620.20	0.109	0.137			
620.25	0.110	0.142			
620.30	0.111	0.148			
620.35	0.112	0.154			
620.40	0.113	0.159			
620.45	0.114	0.165			
620.50	0.115	0.171			
620.55	0.116	0.176			
620.60	0.117	0.182			
620.65	0.118	0.188			
620.70	0.119	0.194			
620.75	0.120	0.200			
620.80	0.121	0.206			
620.85	0.122	0.212			
620.90	0.123	0.218			
620.95	0.124	0.224			
621.00	0.125	0.231			
621.05	0.126	0.237			
621.10	0.127	0.243			
621.15	0.128	0.250			
621.20	0.129	0.256			
621.25	0.130	0.262			
621.30	0.131	0.269			

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Summary for Pond 5P: Basin C

Inflow Area = 1.380 ac, 14.49% Impervious, Inflow Depth = 1.39" for 2-Year event
 Inflow = 1.82 cfs @ 12.17 hrs, Volume= 0.160 af
 Outflow = 0.31 cfs @ 12.93 hrs, Volume= 0.097 af, Atten= 83%, Lag= 45.8 min
 Primary = 0.31 cfs @ 12.93 hrs, Volume= 0.097 af
 Routed to Link 2L : DA 1

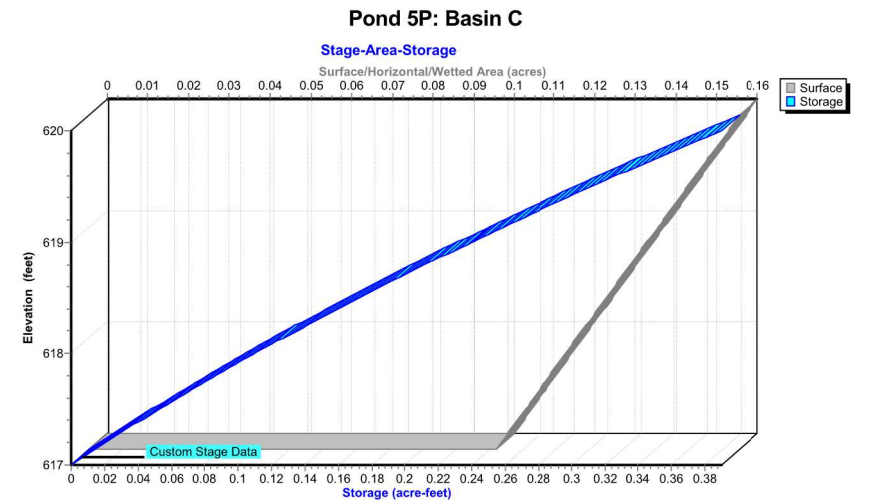
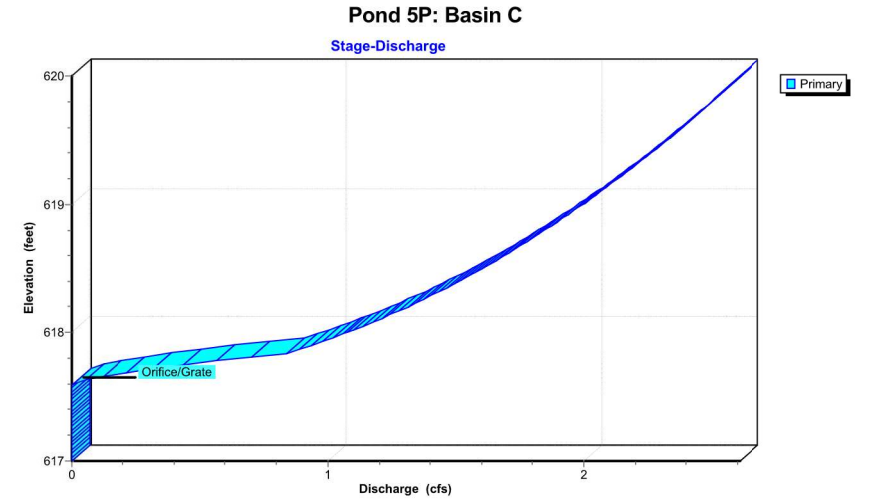
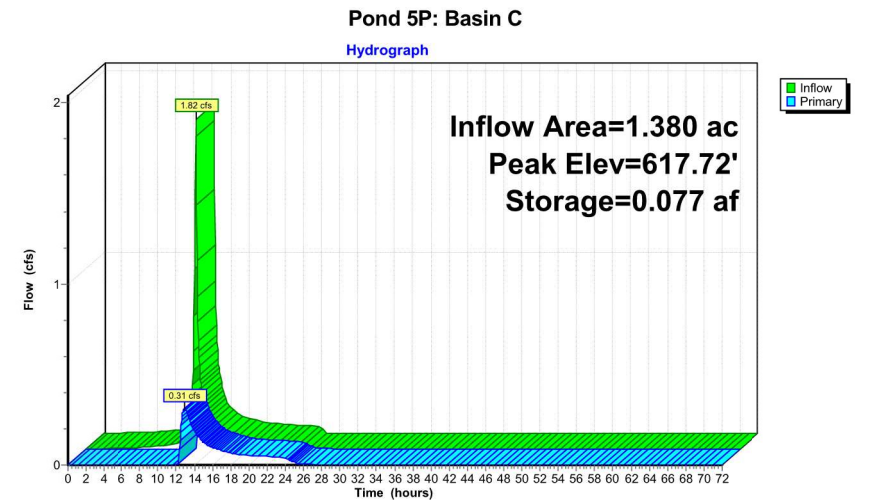
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 617.72' @ 12.93 hrs Surf.Area= 0.114 ac Storage= 0.077 af

Plug-Flow detention time= 280.1 min calculated for 0.097 af (61% of inflow)
 Center-of-Mass det. time= 150.7 min (990.6 - 839.9)

Volume	Invert	Avail.Storage	Storage Description
#1	617.00'	0.390 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
617.00	0.100	0.000	0.000
618.00	0.120	0.110	0.110
619.00	0.140	0.130	0.240
620.00	0.160	0.150	0.390

Device	Routing	Invert	Outlet Devices
#1	Primary	617.59'	8.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.31 cfs @ 12.93 hrs HW=617.72' (Free Discharge)
1=Orifice/Grate (Weir Controls 0.31 cfs @ 1.16 fps)



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Hydrograph for Pond 5P: Basin C

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	617.00	0.00
2.50	0.00	0.000	617.00	0.00
5.00	0.01	0.001	617.01	0.00
7.50	0.01	0.004	617.04	0.00
10.00	0.03	0.008	617.08	0.00
12.50	0.54	0.072	617.68	0.18
15.00	0.10	0.070	617.66	0.13
17.50	0.07	0.068	617.64	0.07
20.00	0.05	0.067	617.63	0.05
22.50	0.04	0.066	617.62	0.04
25.00	0.00	0.064	617.60	0.01
27.50	0.00	0.063	617.59	0.00
30.00	0.00	0.063	617.59	0.00
32.50	0.00	0.063	617.59	0.00
35.00	0.00	0.062	617.59	0.00
37.50	0.00	0.062	617.59	0.00
40.00	0.00	0.062	617.59	0.00
42.50	0.00	0.062	617.59	0.00
45.00	0.00	0.062	617.59	0.00
47.50	0.00	0.062	617.59	0.00
50.00	0.00	0.062	617.59	0.00
52.50	0.00	0.062	617.59	0.00
55.00	0.00	0.062	617.59	0.00
57.50	0.00	0.062	617.59	0.00
60.00	0.00	0.062	617.59	0.00
62.50	0.00	0.062	617.59	0.00
65.00	0.00	0.062	617.59	0.00
67.50	0.00	0.062	617.59	0.00
70.00	0.00	0.062	617.59	0.00

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Stage-Discharge for Pond 5P: Basin C

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
617.00	0.00	618.04	1.13	619.08	2.05
617.02	0.00	618.06	1.15	619.10	2.07
617.04	0.00	618.08	1.18	619.12	2.08
617.06	0.00	618.10	1.20	619.14	2.09
617.08	0.00	618.12	1.22	619.16	2.11
617.10	0.00	618.14	1.25	619.18	2.12
617.12	0.00	618.16	1.27	619.20	2.13
617.14	0.00	618.18	1.29	619.22	2.15
617.16	0.00	618.20	1.31	619.24	2.16
617.18	0.00	618.22	1.33	619.26	2.17
617.20	0.00	618.24	1.36	619.28	2.18
617.22	0.00	618.26	1.38	619.30	2.20
617.24	0.00	618.28	1.40	619.32	2.21
617.26	0.00	618.30	1.42	619.34	2.22
617.28	0.00	618.32	1.44	619.36	2.24
617.30	0.00	618.34	1.46	619.38	2.25
617.32	0.00	618.36	1.47	619.40	2.26
617.34	0.00	618.38	1.49	619.42	2.27
617.36	0.00	618.40	1.51	619.44	2.29
617.38	0.00	618.42	1.53	619.46	2.30
617.40	0.00	618.44	1.55	619.48	2.31
617.42	0.00	618.46	1.57	619.50	2.32
617.44	0.00	618.48	1.59	619.52	2.33
617.46	0.00	618.50	1.60	619.54	2.35
617.48	0.00	618.52	1.62	619.56	2.36
617.50	0.00	618.54	1.64	619.58	2.37
617.52	0.00	618.56	1.66	619.60	2.38
617.54	0.00	618.58	1.67	619.62	2.39
617.56	0.00	618.60	1.69	619.64	2.41
617.58	0.00	618.62	1.71	619.66	2.42
617.60	0.01	618.64	1.72	619.68	2.43
617.62	0.04	618.66	1.74	619.70	2.44
617.64	0.08	618.68	1.75	619.72	2.45
617.66	0.13	618.70	1.77	619.74	2.46
617.68	0.18	618.72	1.79	619.76	2.48
617.70	0.25	618.74	1.80	619.78	2.49
617.72	0.32	618.76	1.82	619.80	2.50
617.74	0.40	618.78	1.83	619.82	2.51
617.76	0.48	618.80	1.85	619.84	2.52
617.78	0.57	618.82	1.86	619.86	2.53
617.80	0.66	618.84	1.88	619.88	2.54
617.82	0.76	618.86	1.89	619.90	2.55
617.84	0.84	618.88	1.91	619.92	2.57
617.86	0.87	618.90	1.92	619.94	2.58
617.88	0.91	618.92	1.94	619.96	2.59
617.90	0.94	618.94	1.95	619.98	2.60
617.92	0.97	618.96	1.97	620.00	2.61
617.94	0.99	618.98	1.98		
617.96	1.02	619.00	2.00		
617.98	1.05	619.02	2.01		
618.00	1.08	619.04	2.02		
618.02	1.10	619.06	2.04		

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Stage-Area-Storage for Pond 5P: Basin C

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
617.00	0.100	0.000	619.60	0.152	0.328
617.05	0.101	0.005	619.65	0.153	0.335
617.10	0.102	0.010	619.70	0.154	0.343
617.15	0.103	0.015	619.75	0.155	0.351
617.20	0.104	0.020	619.80	0.156	0.358
617.25	0.105	0.026	619.85	0.157	0.366
617.30	0.106	0.031	619.90	0.158	0.374
617.35	0.107	0.036	619.95	0.159	0.382
617.40	0.108	0.042	620.00	0.160	0.390
617.45	0.109	0.047			
617.50	0.110	0.052			
617.55	0.111	0.058			
617.60	0.112	0.064			
617.65	0.113	0.069			
617.70	0.114	0.075			
617.75	0.115	0.081			
617.80	0.116	0.086			
617.85	0.117	0.092			
617.90	0.118	0.098			
617.95	0.119	0.104			
618.00	0.120	0.110			
618.05	0.121	0.116			
618.10	0.122	0.122			
618.15	0.123	0.128			
618.20	0.124	0.134			
618.25	0.125	0.141			
618.30	0.126	0.147			
618.35	0.127	0.153			
618.40	0.128	0.160			
618.45	0.129	0.166			
618.50	0.130	0.173			
618.55	0.131	0.179			
618.60	0.132	0.186			
618.65	0.133	0.192			
618.70	0.134	0.199			
618.75	0.135	0.206			
618.80	0.136	0.212			
618.85	0.137	0.219			
618.90	0.138	0.226			
618.95	0.139	0.233			
619.00	0.140	0.240			
619.05	0.141	0.247			
619.10	0.142	0.254			
619.15	0.143	0.261			
619.20	0.144	0.268			
619.25	0.145	0.276			
619.30	0.146	0.283			
619.35	0.147	0.290			
619.40	0.148	0.298			
619.45	0.149	0.305			
619.50	0.150	0.312			
619.55	0.151	0.320			

2023-01 Proposed Hydrology

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Summary for Pond 6P: Basin D

Inflow Area = 1.330 ac, 15.04% Impervious, Inflow Depth = 1.40" for 2-Year event
 Inflow = 1.75 cfs @ 12.17 hrs, Volume= 0.155 af
 Outflow = 0.90 cfs @ 12.34 hrs, Volume= 0.130 af, Atten= 49%, Lag= 9.9 min
 Primary = 0.90 cfs @ 12.34 hrs, Volume= 0.130 af
 Routed to Link 2L : DA 1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 612.12' @ 12.34 hrs Surf.Area= 0.082 ac Storage= 0.048 af

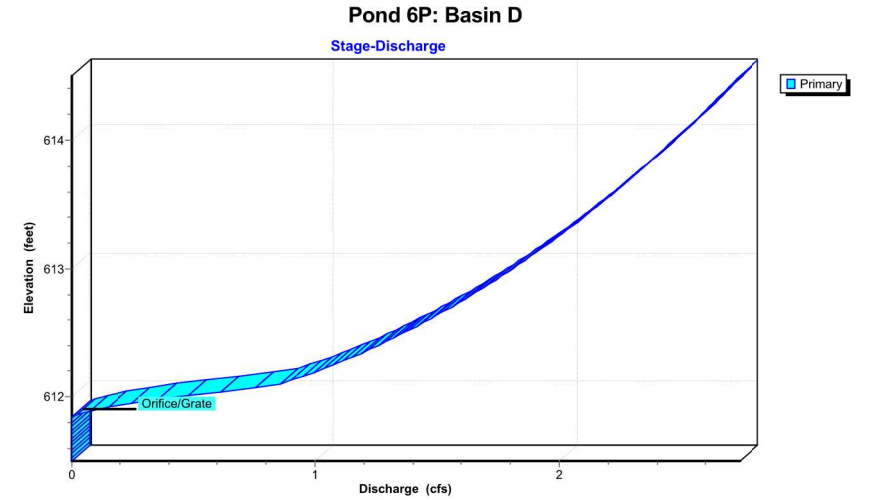
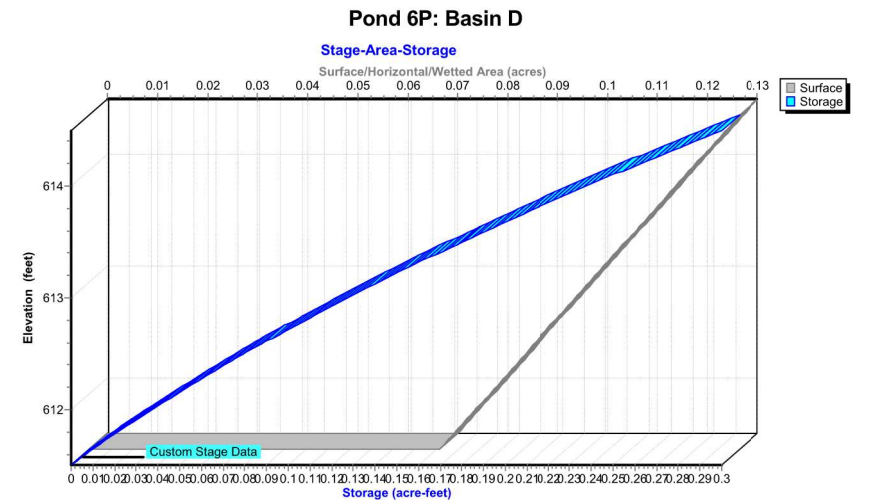
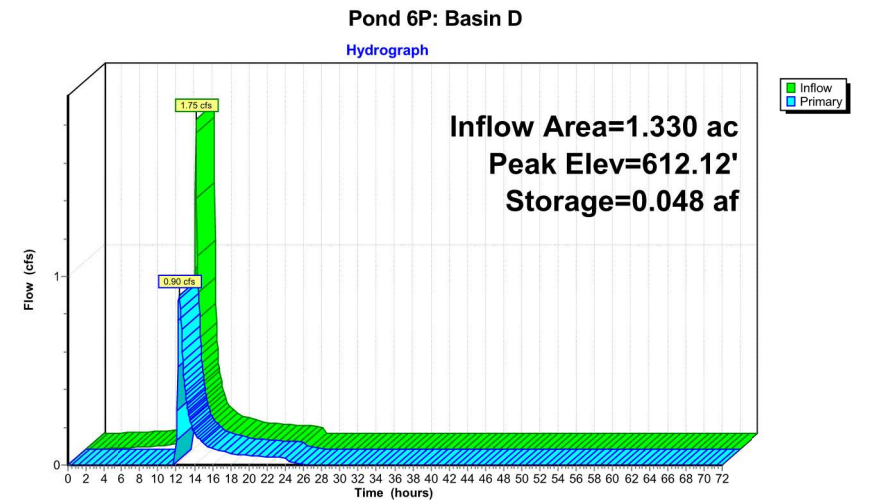
Plug-Flow detention time= 148.1 min calculated for 0.130 af (84% of inflow)
 Center-of-Mass det. time= 72.5 min (911.4 - 838.9)

Volume	Invert	Avail.Storage	Storage Description
#1	611.50'	0.300 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
611.50	0.070	0.000	0.000
612.50	0.090	0.080	0.080
613.50	0.110	0.100	0.180
614.50	0.130	0.120	0.300

Device	Routing	Invert	Outlet Devices
#1	Primary	611.84'	8.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.89 cfs @ 12.34 hrs HW=612.12' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.89 cfs @ 2.56 fps)



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Hydrograph for Pond 6P: Basin D

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	611.50	0.00
2.50	0.00	0.000	611.50	0.00
5.00	0.01	0.001	611.52	0.00
7.50	0.01	0.004	611.55	0.00
10.00	0.03	0.008	611.61	0.00
12.50	0.53	0.045	612.09	0.83
15.00	0.10	0.030	611.91	0.12
17.50	0.06	0.029	611.89	0.07
20.00	0.05	0.028	611.88	0.05
22.50	0.04	0.027	611.87	0.04
25.00	0.00	0.026	611.85	0.01
27.50	0.00	0.025	611.84	0.00
30.00	0.00	0.025	611.84	0.00
32.50	0.00	0.025	611.84	0.00
35.00	0.00	0.025	611.84	0.00
37.50	0.00	0.025	611.84	0.00
40.00	0.00	0.025	611.84	0.00
42.50	0.00	0.025	611.84	0.00
45.00	0.00	0.025	611.84	0.00
47.50	0.00	0.025	611.84	0.00
50.00	0.00	0.025	611.84	0.00
52.50	0.00	0.025	611.84	0.00
55.00	0.00	0.025	611.84	0.00
57.50	0.00	0.025	611.84	0.00
60.00	0.00	0.025	611.84	0.00
62.50	0.00	0.025	611.84	0.00
65.00	0.00	0.025	611.84	0.00
67.50	0.00	0.025	611.84	0.00
70.00	0.00	0.025	611.84	0.00

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Stage-Discharge for Pond 6P: Basin D

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
611.50	0.00	612.54	1.41	613.58	2.22
611.52	0.00	612.56	1.43	613.60	2.23
611.54	0.00	612.58	1.45	613.62	2.24
611.56	0.00	612.60	1.47	613.64	2.25
611.58	0.00	612.62	1.48	613.66	2.27
611.60	0.00	612.64	1.50	613.68	2.28
611.62	0.00	612.66	1.52	613.70	2.29
611.64	0.00	612.68	1.54	613.72	2.30
611.66	0.00	612.70	1.56	613.74	2.32
611.68	0.00	612.72	1.58	613.76	2.33
611.70	0.00	612.74	1.59	613.78	2.34
611.72	0.00	612.76	1.61	613.80	2.35
611.74	0.00	612.78	1.63	613.82	2.37
611.76	0.00	612.80	1.65	613.84	2.38
611.78	0.00	612.82	1.66	613.86	2.39
611.80	0.00	612.84	1.68	613.88	2.40
611.82	0.00	612.86	1.70	613.90	2.41
611.84	0.00	612.88	1.71	613.92	2.42
611.86	0.02	612.90	1.73	613.94	2.44
611.88	0.05	612.92	1.75	613.96	2.45
611.90	0.10	612.94	1.76	613.98	2.46
611.92	0.15	612.96	1.78	614.00	2.47
611.94	0.22	612.98	1.79	614.02	2.48
611.96	0.28	613.00	1.81	614.04	2.49
611.98	0.36	613.02	1.83	614.06	2.50
612.00	0.44	613.04	1.84	614.08	2.52
612.02	0.52	613.06	1.86	614.10	2.53
612.04	0.61	613.08	1.87	614.12	2.54
612.06	0.71	613.10	1.89	614.14	2.55
612.08	0.81	613.12	1.90	614.16	2.56
612.10	0.86	613.14	1.92	614.18	2.57
612.12	0.89	613.16	1.93	614.20	2.58
612.14	0.92	613.18	1.95	614.22	2.59
612.16	0.95	613.20	1.96	614.24	2.60
612.18	0.98	613.22	1.97	614.26	2.61
612.20	1.01	613.24	1.99	614.28	2.63
612.22	1.04	613.26	2.00	614.30	2.64
612.24	1.06	613.28	2.02	614.32	2.65
612.26	1.09	613.30	2.03	614.34	2.66
612.28	1.11	613.32	2.04	614.36	2.67
612.30	1.14	613.34	2.06	614.38	2.68
612.32	1.16	613.36	2.07	614.40	2.69
612.34	1.19	613.38	2.09	614.42	2.70
612.36	1.21	613.40	2.10	614.44	2.71
612.38	1.24	613.42	2.11	614.46	2.72
612.40	1.26	613.44	2.13	614.48	2.73
612.42	1.28	613.46	2.14	614.50	2.74
612.44	1.30	613.48	2.15		
612.46	1.32	613.50	2.17		
612.48	1.34	613.52	2.18		
612.50	1.37	613.54	2.19		
612.52	1.39	613.56	2.20		

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Stage-Area-Storage for Pond 6P: Basin D

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
611.50	0.070	0.000	614.10	0.122	0.250
611.55	0.071	0.004	614.15	0.123	0.256
611.60	0.072	0.007	614.20	0.124	0.262
611.65	0.073	0.011	614.25	0.125	0.268
611.70	0.074	0.014	614.30	0.126	0.274
611.75	0.075	0.018	614.35	0.127	0.281
611.80	0.076	0.022	614.40	0.128	0.287
611.85	0.077	0.026	614.45	0.129	0.294
611.90	0.078	0.030	614.50	0.130	0.300
611.95	0.079	0.034			
612.00	0.080	0.037			
612.05	0.081	0.042			
612.10	0.082	0.046			
612.15	0.083	0.050			
612.20	0.084	0.054			
612.25	0.085	0.058			
612.30	0.086	0.062			
612.35	0.087	0.067			
612.40	0.088	0.071			
612.45	0.089	0.076			
612.50	0.090	0.080			
612.55	0.091	0.085			
612.60	0.092	0.089			
612.65	0.093	0.094			
612.70	0.094	0.098			
612.75	0.095	0.103			
612.80	0.096	0.108			
612.85	0.097	0.113			
612.90	0.098	0.118			
612.95	0.099	0.123			
613.00	0.100	0.127			
613.05	0.101	0.133			
613.10	0.102	0.138			
613.15	0.103	0.143			
613.20	0.104	0.148			
613.25	0.105	0.153			
613.30	0.106	0.158			
613.35	0.107	0.164			
613.40	0.108	0.169			
613.45	0.109	0.175			
613.50	0.110	0.180			
613.55	0.111	0.186			
613.60	0.112	0.191			
613.65	0.113	0.197			
613.70	0.114	0.202			
613.75	0.115	0.208			
613.80	0.116	0.214			
613.85	0.117	0.220			
613.90	0.118	0.226			
613.95	0.119	0.232			
614.00	0.120	0.237			
614.05	0.121	0.244			

2023-01 Proposed Hydrology

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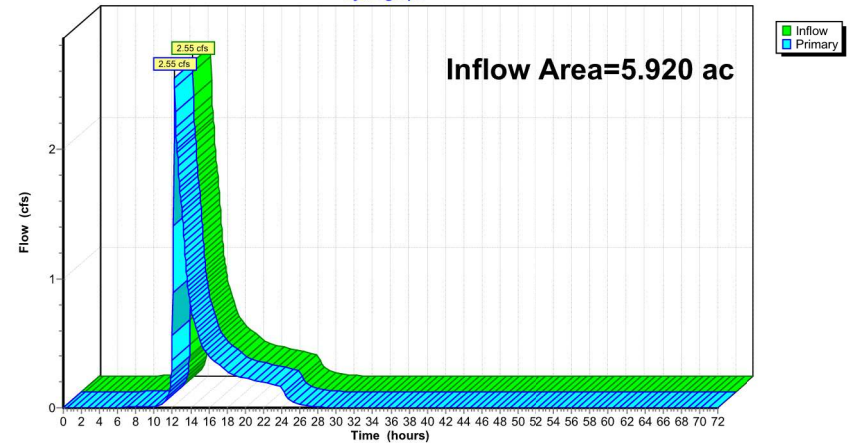
Summary for Link 2L: DA 1

Inflow Area = 5.920 ac, 14.70% Impervious, Inflow Depth = 1.07" for 2-Year event
Inflow = 2.55 cfs @ 12.22 hrs, Volume= 0.527 af
Primary = 2.55 cfs @ 12.22 hrs, Volume= 0.527 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 2L: DA 1

Hydrograph



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Hydrograph for Link 2L: DA 1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.01	0.00	0.01	60.00	0.00	0.00	0.00
9.00	0.01	0.00	0.01	61.00	0.00	0.00	0.00
10.00	0.01	0.00	0.01	62.00	0.00	0.00	0.00
11.00	0.03	0.00	0.03	63.00	0.00	0.00	0.00
12.00	0.56	0.00	0.56	64.00	0.00	0.00	0.00
13.00	1.55	0.00	1.55	65.00	0.00	0.00	0.00
14.00	0.79	0.00	0.79	66.00	0.00	0.00	0.00
15.00	0.53	0.00	0.53	67.00	0.00	0.00	0.00
16.00	0.40	0.00	0.40	68.00	0.00	0.00	0.00
17.00	0.34	0.00	0.34	69.00	0.00	0.00	0.00
18.00	0.28	0.00	0.28	70.00	0.00	0.00	0.00
19.00	0.24	0.00	0.24	71.00	0.00	0.00	0.00
20.00	0.23	0.00	0.23	72.00	0.00	0.00	0.00
21.00	0.21	0.00	0.21				
22.00	0.20	0.00	0.20				
23.00	0.18	0.00	0.18				
24.00	0.17	0.00	0.17				
25.00	0.05	0.00	0.05				
26.00	0.02	0.00	0.02				
27.00	0.01	0.00	0.01				
28.00	0.01	0.00	0.01				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 2-Year Rainfall=3.44"

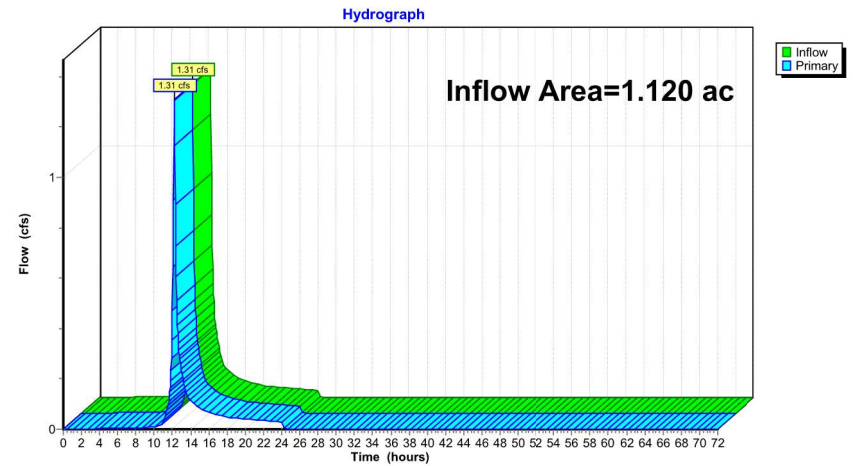
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Summary for Link 3L: DA 1. - Undetained

Inflow Area = 1.120 ac, 6.25% Impervious, Inflow Depth = 1.27" for 2-Year event
Inflow = 1.31 cfs @ 12.19 hrs, Volume= 0.118 af
Primary = 1.31 cfs @ 12.19 hrs, Volume= 0.118 af, Atten= 0%, Lag= 0.0 min
Routed to Link 2L : DA 1

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 3L: DA 1. - Undetained

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Hydrograph for Link 3L: DA 1. - Undetained

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.01	0.00	0.01	60.00	0.00	0.00	0.00
9.00	0.01	0.00	0.01	61.00	0.00	0.00	0.00
10.00	0.01	0.00	0.01	62.00	0.00	0.00	0.00
11.00	0.03	0.00	0.03	63.00	0.00	0.00	0.00
12.00	0.47	0.00	0.47	64.00	0.00	0.00	0.00
13.00	0.23	0.00	0.23	65.00	0.00	0.00	0.00
14.00	0.12	0.00	0.12	66.00	0.00	0.00	0.00
15.00	0.08	0.00	0.08	67.00	0.00	0.00	0.00
16.00	0.07	0.00	0.07	68.00	0.00	0.00	0.00
17.00	0.06	0.00	0.06	69.00	0.00	0.00	0.00
18.00	0.05	0.00	0.05	70.00	0.00	0.00	0.00
19.00	0.04	0.00	0.04	71.00	0.00	0.00	0.00
20.00	0.04	0.00	0.04	72.00	0.00	0.00	0.00
21.00	0.04	0.00	0.04				
22.00	0.04	0.00	0.04				
23.00	0.03	0.00	0.03				
24.00	0.03	0.00	0.03				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 10-Year Rainfall=5.22"

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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

Subcatchment 1S: Basin A - Imp.	Runoff Area=0.210 ac 100.00% Impervious Runoff Depth=4.98" Flow Length=90' Tc=9.2 min CN=98 Runoff=0.92 cfs 0.087 af
Subcatchment 3S: Basin A - Perv.	Runoff Area=0.920 ac 0.00% Impervious Runoff Depth=2.37" Flow Length=90' Tc=9.2 min CN=72 Runoff=2.22 cfs 0.182 af
Subcatchment 4S: Basin B - Imp.	Runoff Area=0.190 ac 100.00% Impervious Runoff Depth=4.98" Flow Length=133' Tc=9.8 min CN=98 Runoff=0.81 cfs 0.079 af
Subcatchment 5S: Basin B - Perv.	Runoff Area=0.770 ac 0.00% Impervious Runoff Depth=2.37" Flow Length=133' Tc=9.8 min CN=72 Runoff=1.81 cfs 0.152 af
Subcatchment 6S: Undetained - Imp.	Runoff Area=0.070 ac 100.00% Impervious Runoff Depth=4.98" Flow Length=391' Tc=10.8 min CN=98 Runoff=0.29 cfs 0.029 af
Subcatchment 7S: Basin C - Imp.	Runoff Area=0.200 ac 100.00% Impervious Runoff Depth=4.98" Flow Length=78' Tc=9.2 min CN=98 Runoff=0.88 cfs 0.083 af
Subcatchment 8S: Basin C - Perv.	Runoff Area=1.180 ac 0.00% Impervious Runoff Depth=2.37" Flow Length=78' Tc=9.2 min CN=72 Runoff=2.85 cfs 0.233 af
Subcatchment 9S: Undetained - Perv.	Runoff Area=1.050 ac 0.00% Impervious Runoff Depth=2.45" Flow Length=391' Tc=10.8 min CN=73 Runoff=2.49 cfs 0.215 af
Subcatchment 11S: Basin D - Imp.	Runoff Area=0.200 ac 100.00% Impervious Runoff Depth=4.98" Flow Length=136' Tc=9.4 min CN=98 Runoff=0.87 cfs 0.083 af
Subcatchment 12S: Basin D - Perv.	Runoff Area=1.130 ac 0.00% Impervious Runoff Depth=2.37" Flow Length=136' Tc=9.4 min CN=72 Runoff=2.70 cfs 0.223 af
Pond 3P: Basin A	Peak Elev=620.29' Storage=0.094 af Inflow=3.14 cfs 0.269 af Outflow=0.83 cfs 0.246 af
Pond 4P: Basin B	Peak Elev=619.86' Storage=0.101 af Inflow=2.62 cfs 0.231 af Outflow=0.65 cfs 0.176 af
Pond 5P: Basin C	Peak Elev=618.10' Storage=0.122 af Inflow=3.73 cfs 0.316 af Outflow=1.20 cfs 0.253 af
Pond 6P: Basin D	Peak Elev=612.56' Storage=0.085 af Inflow=3.57 cfs 0.306 af Outflow=1.42 cfs 0.281 af
Link 2L: DA 1	Inflow=6.28 cfs 1.200 af Primary=6.28 cfs 1.200 af
Link 3L: DA 1. - Undetained	Inflow=2.78 cfs 0.244 af Primary=2.78 cfs 0.244 af

Total Runoff Area = 5.920 ac Runoff Volume = 1.366 af Average Runoff Depth = 2.77"
85.30% Pervious = 5.050 ac 14.70% Impervious = 0.870 ac

Summary for Subcatchment 1S: Basin A - Imp.

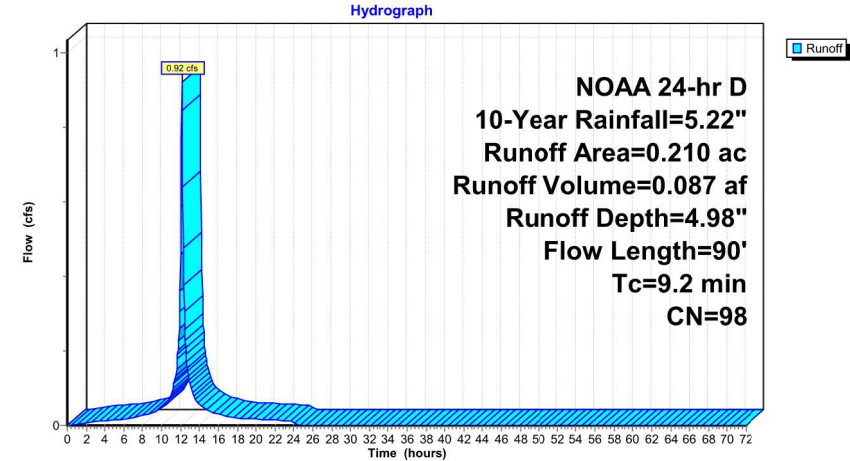
Runoff = 0.92 cfs @ 12.16 hrs, Volume= 0.087 af, Depth= 4.98"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.210	98	Unconnected pavement, HSG C
0.210		100.00% Impervious Area
0.210		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	65	0.1690	6.62		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	90	Total			

Subcatchment 1S: Basin A - Imp.



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NOAA 24-hr D 10-Year Rainfall=5.22"

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Hydrograph for Subcatchment 1S: Basin A - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	4.98	0.00
1.00	0.06	0.00	0.00	53.00	5.22	4.98	0.00
2.00	0.13	0.02	0.01	54.00	5.22	4.98	0.00
3.00	0.20	0.07	0.01	55.00	5.22	4.98	0.00
4.00	0.27	0.12	0.01	56.00	5.22	4.98	0.00
5.00	0.36	0.19	0.02	57.00	5.22	4.98	0.00
6.00	0.45	0.27	0.02	58.00	5.22	4.98	0.00
7.00	0.55	0.36	0.02	59.00	5.22	4.98	0.00
8.00	0.68	0.48	0.03	60.00	5.22	4.98	0.00
9.00	0.83	0.63	0.03	61.00	5.22	4.98	0.00
10.00	1.03	0.82	0.05	62.00	5.22	4.98	0.00
11.00	1.36	1.14	0.08	63.00	5.22	4.98	0.00
12.00	2.50	2.27	0.46	64.00	5.22	4.98	0.00
13.00	3.86	3.63	0.11	65.00	5.22	4.98	0.00
14.00	4.19	3.95	0.05	66.00	5.22	4.98	0.00
15.00	4.39	4.16	0.04	67.00	5.22	4.98	0.00
16.00	4.54	4.31	0.03	68.00	5.22	4.98	0.00
17.00	4.67	4.43	0.03	69.00	5.22	4.98	0.00
18.00	4.77	4.54	0.02	70.00	5.22	4.98	0.00
19.00	4.86	4.63	0.02	71.00	5.22	4.98	0.00
20.00	4.95	4.71	0.02	72.00	5.22	4.98	0.00
21.00	5.02	4.79	0.02				
22.00	5.09	4.86	0.01				
23.00	5.16	4.92	0.01				
24.00	5.22	4.98	0.01				
25.00	5.22	4.98	0.00				
26.00	5.22	4.98	0.00				
27.00	5.22	4.98	0.00				
28.00	5.22	4.98	0.00				
29.00	5.22	4.98	0.00				
30.00	5.22	4.98	0.00				
31.00	5.22	4.98	0.00				
32.00	5.22	4.98	0.00				
33.00	5.22	4.98	0.00				
34.00	5.22	4.98	0.00				
35.00	5.22	4.98	0.00				
36.00	5.22	4.98	0.00				
37.00	5.22	4.98	0.00				
38.00	5.22	4.98	0.00				
39.00	5.22	4.98	0.00				
40.00	5.22	4.98	0.00				
41.00	5.22	4.98	0.00				
42.00	5.22	4.98	0.00				
43.00	5.22	4.98	0.00				
44.00	5.22	4.98	0.00				
45.00	5.22	4.98	0.00				
46.00	5.22	4.98	0.00				
47.00	5.22	4.98	0.00				
48.00	5.22	4.98	0.00				
49.00	5.22	4.98	0.00				
50.00	5.22	4.98	0.00				
51.00	5.22	4.98	0.00				

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NOAA 24-hr D 10-Year Rainfall=5.22"

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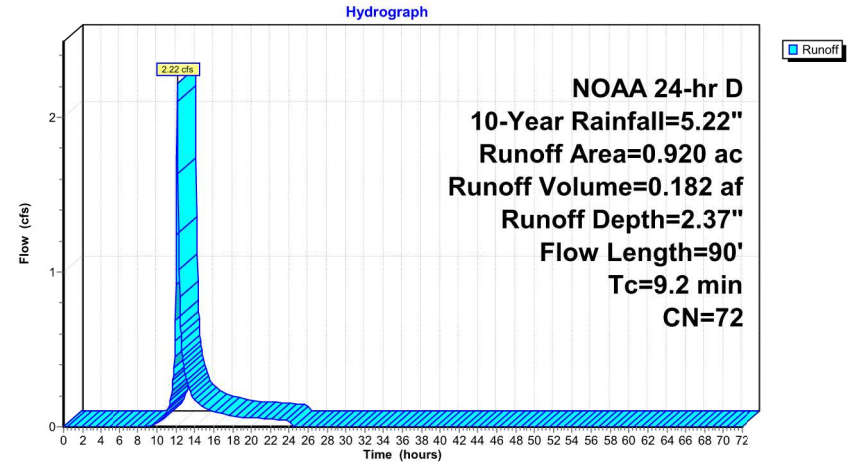
Summary for Subcatchment 3S: Basin A - Perv.

Runoff = 2.22 cfs @ 12.17 hrs, Volume= 0.182 af, Depth= 2.37"
 Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.470	74	>75% Grass cover, Good, HSG C
0.450	70	Woods, Good, HSG C
0.920	72	Weighted Average
0.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	65	0.1690	6.62		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	90	Total			

Subcatchment 3S: Basin A - Perv.

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Hydrograph for Subcatchment 3S: Basin A - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	2.37	0.00
1.00	0.06	0.00	0.00	53.00	5.22	2.37	0.00
2.00	0.13	0.00	0.00	54.00	5.22	2.37	0.00
3.00	0.20	0.00	0.00	55.00	5.22	2.37	0.00
4.00	0.27	0.00	0.00	56.00	5.22	2.37	0.00
5.00	0.36	0.00	0.00	57.00	5.22	2.37	0.00
6.00	0.45	0.00	0.00	58.00	5.22	2.37	0.00
7.00	0.55	0.00	0.00	59.00	5.22	2.37	0.00
8.00	0.68	0.00	0.00	60.00	5.22	2.37	0.00
9.00	0.83	0.00	0.00	61.00	5.22	2.37	0.00
10.00	1.03	0.02	0.02	62.00	5.22	2.37	0.00
11.00	1.36	0.08	0.08	63.00	5.22	2.37	0.00
12.00	2.50	0.53	0.92	64.00	5.22	2.37	0.00
13.00	3.86	1.36	0.34	65.00	5.22	2.37	0.00
14.00	4.19	1.59	0.17	66.00	5.22	2.37	0.00
15.00	4.39	1.74	0.12	67.00	5.22	2.37	0.00
16.00	4.54	1.85	0.10	68.00	5.22	2.37	0.00
17.00	4.67	1.95	0.08	69.00	5.22	2.37	0.00
18.00	4.77	2.03	0.07	70.00	5.22	2.37	0.00
19.00	4.86	2.09	0.06	71.00	5.22	2.37	0.00
20.00	4.95	2.16	0.06	72.00	5.22	2.37	0.00
21.00	5.02	2.22	0.05				
22.00	5.09	2.27	0.05				
23.00	5.16	2.32	0.05				
24.00	5.22	2.37	0.04				
25.00	5.22	2.37	0.00				
26.00	5.22	2.37	0.00				
27.00	5.22	2.37	0.00				
28.00	5.22	2.37	0.00				
29.00	5.22	2.37	0.00				
30.00	5.22	2.37	0.00				
31.00	5.22	2.37	0.00				
32.00	5.22	2.37	0.00				
33.00	5.22	2.37	0.00				
34.00	5.22	2.37	0.00				
35.00	5.22	2.37	0.00				
36.00	5.22	2.37	0.00				
37.00	5.22	2.37	0.00				
38.00	5.22	2.37	0.00				
39.00	5.22	2.37	0.00				
40.00	5.22	2.37	0.00				
41.00	5.22	2.37	0.00				
42.00	5.22	2.37	0.00				
43.00	5.22	2.37	0.00				
44.00	5.22	2.37	0.00				
45.00	5.22	2.37	0.00				
46.00	5.22	2.37	0.00				
47.00	5.22	2.37	0.00				
48.00	5.22	2.37	0.00				
49.00	5.22	2.37	0.00				
50.00	5.22	2.37	0.00				
51.00	5.22	2.37	0.00				

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NOAA 24-hr D 10-Year Rainfall=5.22"

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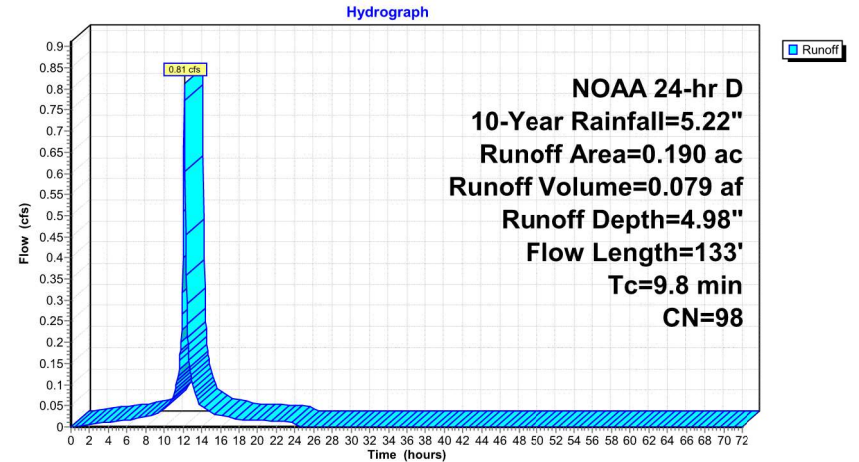
Summary for Subcatchment 4S: Basin B - Imp.

Runoff = 0.81 cfs @ 12.17 hrs, Volume= 0.079 af, Depth= 4.98"
 Routed to Pond 4P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.190	98	Unconnected pavement, HSG C
0.190		100.00% Impervious Area
0.190		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.3	48	0.0310	2.83		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.0	15	0.4000	10.18		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.5	45	0.0100	1.61		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.8	133	Total			

Subcatchment 4S: Basin B - Imp.

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Hydrograph for Subcatchment 4S: Basin B - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	4.98	0.00
1.00	0.06	0.00	0.00	53.00	5.22	4.98	0.00
2.00	0.13	0.02	0.01	54.00	5.22	4.98	0.00
3.00	0.20	0.07	0.01	55.00	5.22	4.98	0.00
4.00	0.27	0.12	0.01	56.00	5.22	4.98	0.00
5.00	0.36	0.19	0.01	57.00	5.22	4.98	0.00
6.00	0.45	0.27	0.02	58.00	5.22	4.98	0.00
7.00	0.55	0.36	0.02	59.00	5.22	4.98	0.00
8.00	0.68	0.48	0.02	60.00	5.22	4.98	0.00
9.00	0.83	0.63	0.03	61.00	5.22	4.98	0.00
10.00	1.03	0.82	0.04	62.00	5.22	4.98	0.00
11.00	1.36	1.14	0.08	63.00	5.22	4.98	0.00
12.00	2.50	2.27	0.40	64.00	5.22	4.98	0.00
13.00	3.86	3.63	0.10	65.00	5.22	4.98	0.00
14.00	4.19	3.95	0.05	66.00	5.22	4.98	0.00
15.00	4.39	4.16	0.03	67.00	5.22	4.98	0.00
16.00	4.54	4.31	0.03	68.00	5.22	4.98	0.00
17.00	4.67	4.43	0.02	69.00	5.22	4.98	0.00
18.00	4.77	4.54	0.02	70.00	5.22	4.98	0.00
19.00	4.86	4.63	0.02	71.00	5.22	4.98	0.00
20.00	4.95	4.71	0.02	72.00	5.22	4.98	0.00
21.00	5.02	4.79	0.01				
22.00	5.09	4.86	0.01				
23.00	5.16	4.92	0.01				
24.00	5.22	4.98	0.01				
25.00	5.22	4.98	0.00				
26.00	5.22	4.98	0.00				
27.00	5.22	4.98	0.00				
28.00	5.22	4.98	0.00				
29.00	5.22	4.98	0.00				
30.00	5.22	4.98	0.00				
31.00	5.22	4.98	0.00				
32.00	5.22	4.98	0.00				
33.00	5.22	4.98	0.00				
34.00	5.22	4.98	0.00				
35.00	5.22	4.98	0.00				
36.00	5.22	4.98	0.00				
37.00	5.22	4.98	0.00				
38.00	5.22	4.98	0.00				
39.00	5.22	4.98	0.00				
40.00	5.22	4.98	0.00				
41.00	5.22	4.98	0.00				
42.00	5.22	4.98	0.00				
43.00	5.22	4.98	0.00				
44.00	5.22	4.98	0.00				
45.00	5.22	4.98	0.00				
46.00	5.22	4.98	0.00				
47.00	5.22	4.98	0.00				
48.00	5.22	4.98	0.00				
49.00	5.22	4.98	0.00				
50.00	5.22	4.98	0.00				
51.00	5.22	4.98	0.00				

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NOAA 24-hr D 10-Year Rainfall=5.22"

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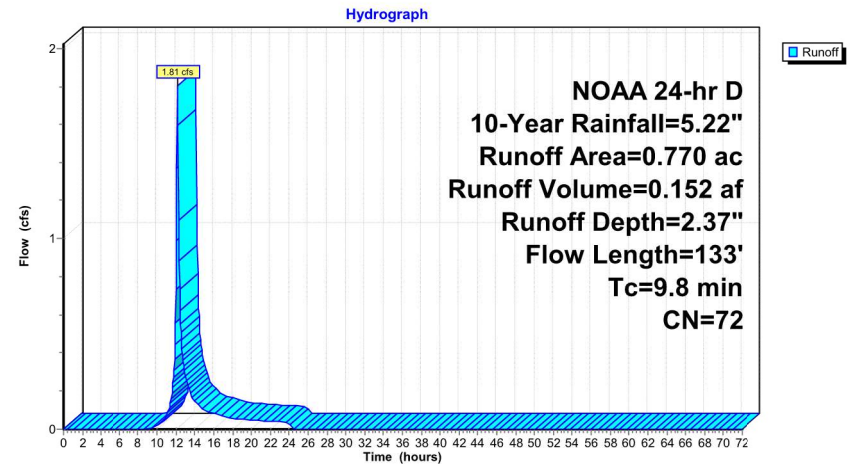
Summary for Subcatchment 5S: Basin B - Perv.

Runoff = 1.81 cfs @ 12.18 hrs, Volume= 0.152 af, Depth= 2.37"
 Routed to Pond 4P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.390	74	>75% Grass cover, Good, HSG C
0.380	70	Woods, Good, HSG C
0.770	72	Weighted Average
0.770		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.3	48	0.0310	2.83		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.0	15	0.4000	10.18		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.5	45	0.0100	1.61		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.8	133	Total			

Subcatchment 5S: Basin B - Perv.

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NOAA 24-hr D 10-Year Rainfall=5.22"

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Hydrograph for Subcatchment 5S: Basin B - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	2.37	0.00
1.00	0.06	0.00	0.00	53.00	5.22	2.37	0.00
2.00	0.13	0.00	0.00	54.00	5.22	2.37	0.00
3.00	0.20	0.00	0.00	55.00	5.22	2.37	0.00
4.00	0.27	0.00	0.00	56.00	5.22	2.37	0.00
5.00	0.36	0.00	0.00	57.00	5.22	2.37	0.00
6.00	0.45	0.00	0.00	58.00	5.22	2.37	0.00
7.00	0.55	0.00	0.00	59.00	5.22	2.37	0.00
8.00	0.68	0.00	0.00	60.00	5.22	2.37	0.00
9.00	0.83	0.00	0.00	61.00	5.22	2.37	0.00
10.00	1.03	0.02	0.02	62.00	5.22	2.37	0.00
11.00	1.36	0.08	0.07	63.00	5.22	2.37	0.00
12.00	2.50	0.53	0.74	64.00	5.22	2.37	0.00
13.00	3.86	1.36	0.29	65.00	5.22	2.37	0.00
14.00	4.19	1.59	0.14	66.00	5.22	2.37	0.00
15.00	4.39	1.74	0.10	67.00	5.22	2.37	0.00
16.00	4.54	1.85	0.08	68.00	5.22	2.37	0.00
17.00	4.67	1.95	0.07	69.00	5.22	2.37	0.00
18.00	4.77	2.03	0.06	70.00	5.22	2.37	0.00
19.00	4.86	2.09	0.05	71.00	5.22	2.37	0.00
20.00	4.95	2.16	0.05	72.00	5.22	2.37	0.00
21.00	5.02	2.22	0.04				
22.00	5.09	2.27	0.04				
23.00	5.16	2.32	0.04				
24.00	5.22	2.37	0.04				
25.00	5.22	2.37	0.00				
26.00	5.22	2.37	0.00				
27.00	5.22	2.37	0.00				
28.00	5.22	2.37	0.00				
29.00	5.22	2.37	0.00				
30.00	5.22	2.37	0.00				
31.00	5.22	2.37	0.00				
32.00	5.22	2.37	0.00				
33.00	5.22	2.37	0.00				
34.00	5.22	2.37	0.00				
35.00	5.22	2.37	0.00				
36.00	5.22	2.37	0.00				
37.00	5.22	2.37	0.00				
38.00	5.22	2.37	0.00				
39.00	5.22	2.37	0.00				
40.00	5.22	2.37	0.00				
41.00	5.22	2.37	0.00				
42.00	5.22	2.37	0.00				
43.00	5.22	2.37	0.00				
44.00	5.22	2.37	0.00				
45.00	5.22	2.37	0.00				
46.00	5.22	2.37	0.00				
47.00	5.22	2.37	0.00				
48.00	5.22	2.37	0.00				
49.00	5.22	2.37	0.00				
50.00	5.22	2.37	0.00				
51.00	5.22	2.37	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 10-Year Rainfall=5.22"

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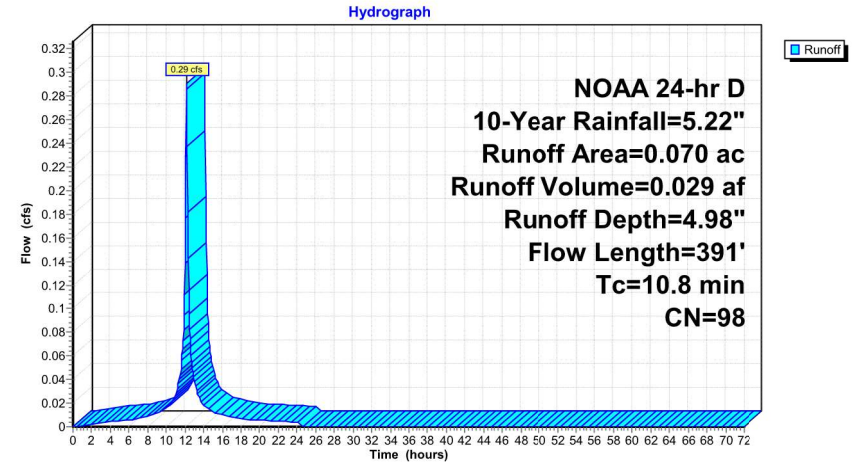
Summary for Subcatchment 6S: Undetained - Imp.

Runoff = 0.29 cfs @ 12.18 hrs, Volume= 0.029 af, Depth= 4.98"
 Routed to Link 3L : DA 1. - Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.060	98	Paved parking, HSG C
0.010	98	Paved parking, HSG B
0.070	98	Weighted Average
0.070		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	59	0.0200	0.11		Sheet Flow, Sheet Flow - Grass Grass: Dense n= 0.240 P2= 3.44" Using McCuen-Spiess flow length
1.8	332	0.0360	3.05		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
10.8	391	Total			

Subcatchment 6S: Undetained - Imp.

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NOAA 24-hr D 10-Year Rainfall=5.22"

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Hydrograph for Subcatchment 6S: Undetained - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	4.98	0.00
1.00	0.06	0.00	0.00	53.00	5.22	4.98	0.00
2.00	0.13	0.02	0.00	54.00	5.22	4.98	0.00
3.00	0.20	0.07	0.00	55.00	5.22	4.98	0.00
4.00	0.27	0.12	0.00	56.00	5.22	4.98	0.00
5.00	0.36	0.19	0.01	57.00	5.22	4.98	0.00
6.00	0.45	0.27	0.01	58.00	5.22	4.98	0.00
7.00	0.55	0.36	0.01	59.00	5.22	4.98	0.00
8.00	0.68	0.48	0.01	60.00	5.22	4.98	0.00
9.00	0.83	0.63	0.01	61.00	5.22	4.98	0.00
10.00	1.03	0.82	0.02	62.00	5.22	4.98	0.00
11.00	1.36	1.14	0.03	63.00	5.22	4.98	0.00
12.00	2.50	2.27	0.14	64.00	5.22	4.98	0.00
13.00	3.86	3.63	0.04	65.00	5.22	4.98	0.00
14.00	4.19	3.95	0.02	66.00	5.22	4.98	0.00
15.00	4.39	4.16	0.01	67.00	5.22	4.98	0.00
16.00	4.54	4.31	0.01	68.00	5.22	4.98	0.00
17.00	4.67	4.43	0.01	69.00	5.22	4.98	0.00
18.00	4.77	4.54	0.01	70.00	5.22	4.98	0.00
19.00	4.86	4.63	0.01	71.00	5.22	4.98	0.00
20.00	4.95	4.71	0.01	72.00	5.22	4.98	0.00
21.00	5.02	4.79	0.01				
22.00	5.09	4.86	0.00				
23.00	5.16	4.92	0.00				
24.00	5.22	4.98	0.00				
25.00	5.22	4.98	0.00				
26.00	5.22	4.98	0.00				
27.00	5.22	4.98	0.00				
28.00	5.22	4.98	0.00				
29.00	5.22	4.98	0.00				
30.00	5.22	4.98	0.00				
31.00	5.22	4.98	0.00				
32.00	5.22	4.98	0.00				
33.00	5.22	4.98	0.00				
34.00	5.22	4.98	0.00				
35.00	5.22	4.98	0.00				
36.00	5.22	4.98	0.00				
37.00	5.22	4.98	0.00				
38.00	5.22	4.98	0.00				
39.00	5.22	4.98	0.00				
40.00	5.22	4.98	0.00				
41.00	5.22	4.98	0.00				
42.00	5.22	4.98	0.00				
43.00	5.22	4.98	0.00				
44.00	5.22	4.98	0.00				
45.00	5.22	4.98	0.00				
46.00	5.22	4.98	0.00				
47.00	5.22	4.98	0.00				
48.00	5.22	4.98	0.00				
49.00	5.22	4.98	0.00				
50.00	5.22	4.98	0.00				
51.00	5.22	4.98	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 10-Year Rainfall=5.22"

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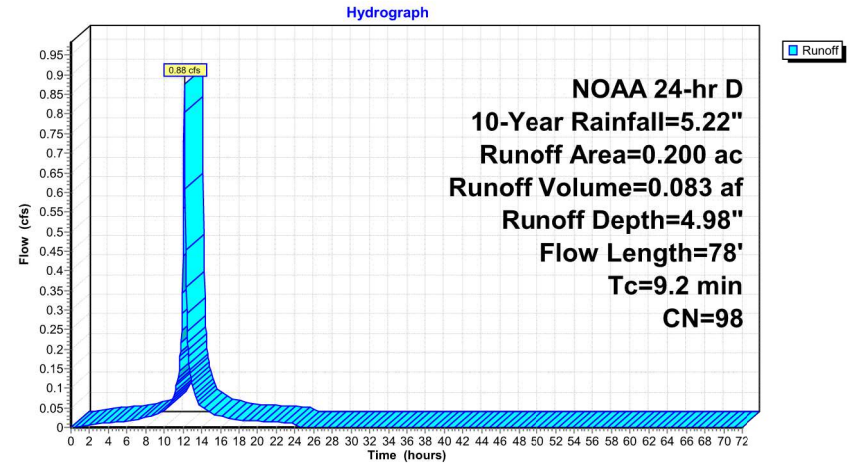
Summary for Subcatchment 7S: Basin C - Imp.

Runoff = 0.88 cfs @ 12.16 hrs, Volume= 0.083 af, Depth= 4.98"
 Routed to Pond 5P : Basin C

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.200	98	Unconnected pavement, HSG C
0.200		100.00% Impervious Area
0.200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Shhet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	53	0.1070	5.27		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	78	Total			

Subcatchment 7S: Basin C - Imp.

2023-01 Proposed Hydrology

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NOAA 24-hr D 10-Year Rainfall=5.22"

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Hydrograph for Subcatchment 7S: Basin C - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	4.98	0.00
1.00	0.06	0.00	0.00	53.00	5.22	4.98	0.00
2.00	0.13	0.02	0.01	54.00	5.22	4.98	0.00
3.00	0.20	0.07	0.01	55.00	5.22	4.98	0.00
4.00	0.27	0.12	0.01	56.00	5.22	4.98	0.00
5.00	0.36	0.19	0.01	57.00	5.22	4.98	0.00
6.00	0.45	0.27	0.02	58.00	5.22	4.98	0.00
7.00	0.55	0.36	0.02	59.00	5.22	4.98	0.00
8.00	0.68	0.48	0.03	60.00	5.22	4.98	0.00
9.00	0.83	0.63	0.03	61.00	5.22	4.98	0.00
10.00	1.03	0.82	0.05	62.00	5.22	4.98	0.00
11.00	1.36	1.14	0.08	63.00	5.22	4.98	0.00
12.00	2.50	2.27	0.44	64.00	5.22	4.98	0.00
13.00	3.86	3.63	0.11	65.00	5.22	4.98	0.00
14.00	4.19	3.95	0.05	66.00	5.22	4.98	0.00
15.00	4.39	4.16	0.04	67.00	5.22	4.98	0.00
16.00	4.54	4.31	0.03	68.00	5.22	4.98	0.00
17.00	4.67	4.43	0.02	69.00	5.22	4.98	0.00
18.00	4.77	4.54	0.02	70.00	5.22	4.98	0.00
19.00	4.86	4.63	0.02	71.00	5.22	4.98	0.00
20.00	4.95	4.71	0.02	72.00	5.22	4.98	0.00
21.00	5.02	4.79	0.02				
22.00	5.09	4.86	0.01				
23.00	5.16	4.92	0.01				
24.00	5.22	4.98	0.01				
25.00	5.22	4.98	0.00				
26.00	5.22	4.98	0.00				
27.00	5.22	4.98	0.00				
28.00	5.22	4.98	0.00				
29.00	5.22	4.98	0.00				
30.00	5.22	4.98	0.00				
31.00	5.22	4.98	0.00				
32.00	5.22	4.98	0.00				
33.00	5.22	4.98	0.00				
34.00	5.22	4.98	0.00				
35.00	5.22	4.98	0.00				
36.00	5.22	4.98	0.00				
37.00	5.22	4.98	0.00				
38.00	5.22	4.98	0.00				
39.00	5.22	4.98	0.00				
40.00	5.22	4.98	0.00				
41.00	5.22	4.98	0.00				
42.00	5.22	4.98	0.00				
43.00	5.22	4.98	0.00				
44.00	5.22	4.98	0.00				
45.00	5.22	4.98	0.00				
46.00	5.22	4.98	0.00				
47.00	5.22	4.98	0.00				
48.00	5.22	4.98	0.00				
49.00	5.22	4.98	0.00				
50.00	5.22	4.98	0.00				
51.00	5.22	4.98	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 10-Year Rainfall=5.22"

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Summary for Subcatchment 8S: Basin C - Perv.

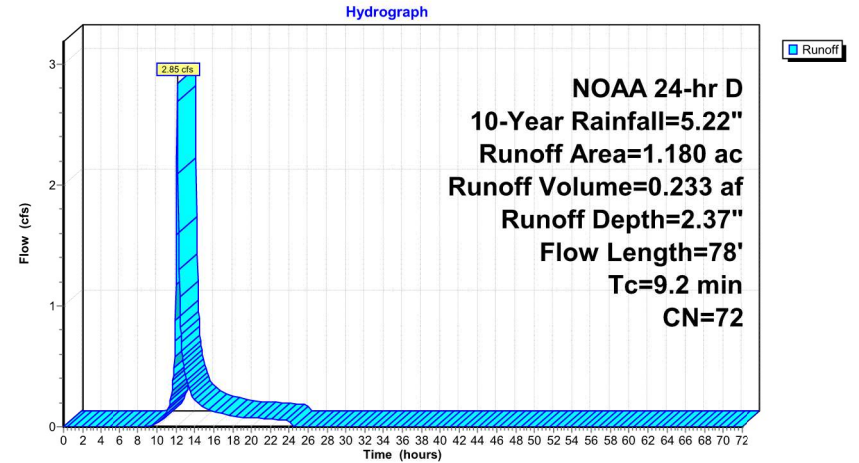
Runoff = 2.85 cfs @ 12.17 hrs, Volume= 0.233 af, Depth= 2.37"

Routed to Pond 5P : Basin C

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.560	74	>75% Grass cover, Good, HSG C
0.620	70	Woods, Good, HSG C
1.180	72	Weighted Average
1.180		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	53	0.1070	5.27		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	78	Total			

Subcatchment 8S: Basin C - Perv.

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NOAA 24-hr D 10-Year Rainfall=5.22"

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Hydrograph for Subcatchment 8S: Basin C - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	2.37	0.00
1.00	0.06	0.00	0.00	53.00	5.22	2.37	0.00
2.00	0.13	0.00	0.00	54.00	5.22	2.37	0.00
3.00	0.20	0.00	0.00	55.00	5.22	2.37	0.00
4.00	0.27	0.00	0.00	56.00	5.22	2.37	0.00
5.00	0.36	0.00	0.00	57.00	5.22	2.37	0.00
6.00	0.45	0.00	0.00	58.00	5.22	2.37	0.00
7.00	0.55	0.00	0.00	59.00	5.22	2.37	0.00
8.00	0.68	0.00	0.00	60.00	5.22	2.37	0.00
9.00	0.83	0.00	0.00	61.00	5.22	2.37	0.00
10.00	1.03	0.02	0.03	62.00	5.22	2.37	0.00
11.00	1.36	0.08	0.11	63.00	5.22	2.37	0.00
12.00	2.50	0.53	1.18	64.00	5.22	2.37	0.00
13.00	3.86	1.36	0.44	65.00	5.22	2.37	0.00
14.00	4.19	1.59	0.22	66.00	5.22	2.37	0.00
15.00	4.39	1.74	0.15	67.00	5.22	2.37	0.00
16.00	4.54	1.85	0.13	68.00	5.22	2.37	0.00
17.00	4.67	1.95	0.11	69.00	5.22	2.37	0.00
18.00	4.77	2.03	0.09	70.00	5.22	2.37	0.00
19.00	4.86	2.09	0.08	71.00	5.22	2.37	0.00
20.00	4.95	2.16	0.07	72.00	5.22	2.37	0.00
21.00	5.02	2.22	0.07				
22.00	5.09	2.27	0.06				
23.00	5.16	2.32	0.06				
24.00	5.22	2.37	0.05				
25.00	5.22	2.37	0.00				
26.00	5.22	2.37	0.00				
27.00	5.22	2.37	0.00				
28.00	5.22	2.37	0.00				
29.00	5.22	2.37	0.00				
30.00	5.22	2.37	0.00				
31.00	5.22	2.37	0.00				
32.00	5.22	2.37	0.00				
33.00	5.22	2.37	0.00				
34.00	5.22	2.37	0.00				
35.00	5.22	2.37	0.00				
36.00	5.22	2.37	0.00				
37.00	5.22	2.37	0.00				
38.00	5.22	2.37	0.00				
39.00	5.22	2.37	0.00				
40.00	5.22	2.37	0.00				
41.00	5.22	2.37	0.00				
42.00	5.22	2.37	0.00				
43.00	5.22	2.37	0.00				
44.00	5.22	2.37	0.00				
45.00	5.22	2.37	0.00				
46.00	5.22	2.37	0.00				
47.00	5.22	2.37	0.00				
48.00	5.22	2.37	0.00				
49.00	5.22	2.37	0.00				
50.00	5.22	2.37	0.00				
51.00	5.22	2.37	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 10-Year Rainfall=5.22"

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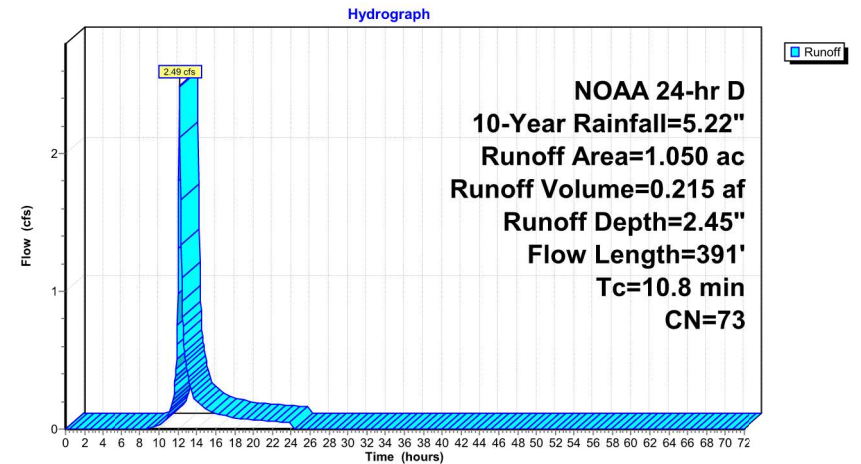
Summary for Subcatchment 9S: Undetained - Perv.

Runoff = 2.49 cfs @ 12.19 hrs, Volume= 0.215 af, Depth= 2.45"
 Routed to Link 3L : DA 1. - Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.910	74	>75% Grass cover, Good, HSG C
0.070	61	>75% Grass cover, Good, HSG B
0.070	70	Woods, Good, HSG C
1.050	73	Weighted Average
1.050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	59	0.0200	0.11		Sheet Flow, Sheet Flow - Grass Grass: Dense n= 0.240 P2= 3.44" Using McCuen-Spiess flow length
1.8	332	0.0360	3.05		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
10.8	391	Total			

Subcatchment 9S: Undetained - Perv.

2023-01 Proposed Hydrology

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NOAA 24-hr D 10-Year Rainfall=5.22"

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Hydrograph for Subcatchment 9S: Undetained - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	2.45	0.00
1.00	0.06	0.00	0.00	53.00	5.22	2.45	0.00
2.00	0.13	0.00	0.00	54.00	5.22	2.45	0.00
3.00	0.20	0.00	0.00	55.00	5.22	2.45	0.00
4.00	0.27	0.00	0.00	56.00	5.22	2.45	0.00
5.00	0.36	0.00	0.00	57.00	5.22	2.45	0.00
6.00	0.45	0.00	0.00	58.00	5.22	2.45	0.00
7.00	0.55	0.00	0.00	59.00	5.22	2.45	0.00
8.00	0.68	0.00	0.00	60.00	5.22	2.45	0.00
9.00	0.83	0.00	0.01	61.00	5.22	2.45	0.00
10.00	1.03	0.02	0.03	62.00	5.22	2.45	0.00
11.00	1.36	0.09	0.10	63.00	5.22	2.45	0.00
12.00	2.50	0.57	0.98	64.00	5.22	2.45	0.00
13.00	3.86	1.43	0.41	65.00	5.22	2.45	0.00
14.00	4.19	1.66	0.20	66.00	5.22	2.45	0.00
15.00	4.39	1.81	0.14	67.00	5.22	2.45	0.00
16.00	4.54	1.93	0.11	68.00	5.22	2.45	0.00
17.00	4.67	2.02	0.10	69.00	5.22	2.45	0.00
18.00	4.77	2.10	0.08	70.00	5.22	2.45	0.00
19.00	4.86	2.17	0.07	71.00	5.22	2.45	0.00
20.00	4.95	2.24	0.07	72.00	5.22	2.45	0.00
21.00	5.02	2.30	0.06				
22.00	5.09	2.35	0.06				
23.00	5.16	2.41	0.05				
24.00	5.22	2.45	0.05				
25.00	5.22	2.45	0.00				
26.00	5.22	2.45	0.00				
27.00	5.22	2.45	0.00				
28.00	5.22	2.45	0.00				
29.00	5.22	2.45	0.00				
30.00	5.22	2.45	0.00				
31.00	5.22	2.45	0.00				
32.00	5.22	2.45	0.00				
33.00	5.22	2.45	0.00				
34.00	5.22	2.45	0.00				
35.00	5.22	2.45	0.00				
36.00	5.22	2.45	0.00				
37.00	5.22	2.45	0.00				
38.00	5.22	2.45	0.00				
39.00	5.22	2.45	0.00				
40.00	5.22	2.45	0.00				
41.00	5.22	2.45	0.00				
42.00	5.22	2.45	0.00				
43.00	5.22	2.45	0.00				
44.00	5.22	2.45	0.00				
45.00	5.22	2.45	0.00				
46.00	5.22	2.45	0.00				
47.00	5.22	2.45	0.00				
48.00	5.22	2.45	0.00				
49.00	5.22	2.45	0.00				
50.00	5.22	2.45	0.00				
51.00	5.22	2.45	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 10-Year Rainfall=5.22"

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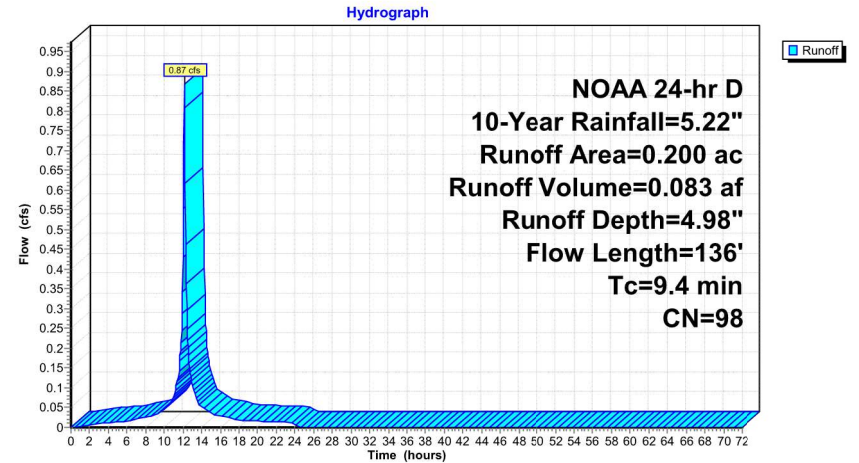
Summary for Subcatchment 11S: Basin D - Imp.

Runoff = 0.87 cfs @ 12.16 hrs, Volume= 0.083 af, Depth= 4.98"
 Routed to Pond 6P : Basin D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.200	98	Unconnected pavement, HSG C
0.200		100.00% Impervious Area
0.200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.4	111	0.0720	4.32		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.4	136	Total			

Subcatchment 11S: Basin D - Imp.

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NOAA 24-hr D 10-Year Rainfall=5.22"

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Hydrograph for Subcatchment 11S: Basin D - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	4.98	0.00
1.00	0.06	0.00	0.00	53.00	5.22	4.98	0.00
2.00	0.13	0.02	0.01	54.00	5.22	4.98	0.00
3.00	0.20	0.07	0.01	55.00	5.22	4.98	0.00
4.00	0.27	0.12	0.01	56.00	5.22	4.98	0.00
5.00	0.36	0.19	0.01	57.00	5.22	4.98	0.00
6.00	0.45	0.27	0.02	58.00	5.22	4.98	0.00
7.00	0.55	0.36	0.02	59.00	5.22	4.98	0.00
8.00	0.68	0.48	0.03	60.00	5.22	4.98	0.00
9.00	0.83	0.63	0.03	61.00	5.22	4.98	0.00
10.00	1.03	0.82	0.05	62.00	5.22	4.98	0.00
11.00	1.36	1.14	0.08	63.00	5.22	4.98	0.00
12.00	2.50	2.27	0.43	64.00	5.22	4.98	0.00
13.00	3.86	3.63	0.11	65.00	5.22	4.98	0.00
14.00	4.19	3.95	0.05	66.00	5.22	4.98	0.00
15.00	4.39	4.16	0.04	67.00	5.22	4.98	0.00
16.00	4.54	4.31	0.03	68.00	5.22	4.98	0.00
17.00	4.67	4.43	0.02	69.00	5.22	4.98	0.00
18.00	4.77	4.54	0.02	70.00	5.22	4.98	0.00
19.00	4.86	4.63	0.02	71.00	5.22	4.98	0.00
20.00	4.95	4.71	0.02	72.00	5.22	4.98	0.00
21.00	5.02	4.79	0.02				
22.00	5.09	4.86	0.01				
23.00	5.16	4.92	0.01				
24.00	5.22	4.98	0.01				
25.00	5.22	4.98	0.00				
26.00	5.22	4.98	0.00				
27.00	5.22	4.98	0.00				
28.00	5.22	4.98	0.00				
29.00	5.22	4.98	0.00				
30.00	5.22	4.98	0.00				
31.00	5.22	4.98	0.00				
32.00	5.22	4.98	0.00				
33.00	5.22	4.98	0.00				
34.00	5.22	4.98	0.00				
35.00	5.22	4.98	0.00				
36.00	5.22	4.98	0.00				
37.00	5.22	4.98	0.00				
38.00	5.22	4.98	0.00				
39.00	5.22	4.98	0.00				
40.00	5.22	4.98	0.00				
41.00	5.22	4.98	0.00				
42.00	5.22	4.98	0.00				
43.00	5.22	4.98	0.00				
44.00	5.22	4.98	0.00				
45.00	5.22	4.98	0.00				
46.00	5.22	4.98	0.00				
47.00	5.22	4.98	0.00				
48.00	5.22	4.98	0.00				
49.00	5.22	4.98	0.00				
50.00	5.22	4.98	0.00				
51.00	5.22	4.98	0.00				

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NOAA 24-hr D 10-Year Rainfall=5.22"

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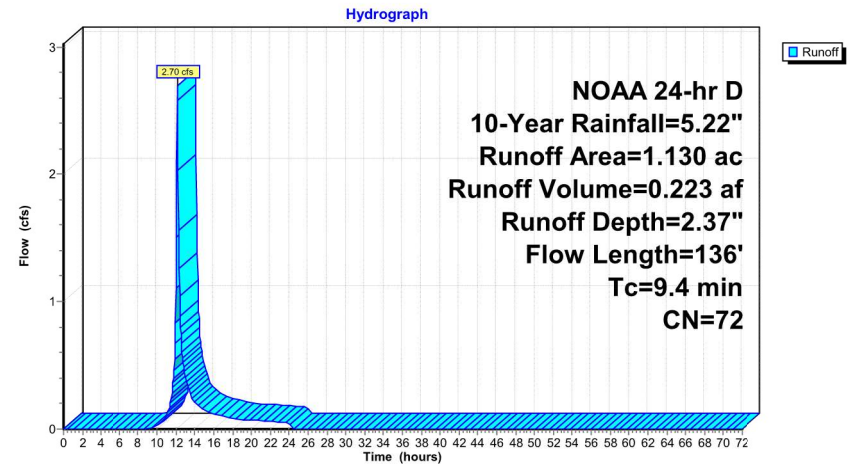
Summary for Subcatchment 12S: Basin D - Perv.

Runoff = 2.70 cfs @ 12.17 hrs, Volume= 0.223 af, Depth= 2.37"
 Routed to Pond 6P : Basin D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.470	74	>75% Grass cover, Good, HSG C
0.650	70	Woods, Good, HSG C
* 0.010	55	Woods, Good, HSG B
1.130	72	Weighted Average
1.130		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.4	111	0.0720	4.32		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.4	136	Total			

Subcatchment 12S: Basin D - Perv.

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Hydrograph for Subcatchment 12S: Basin D - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	2.37	0.00
1.00	0.06	0.00	0.00	53.00	5.22	2.37	0.00
2.00	0.13	0.00	0.00	54.00	5.22	2.37	0.00
3.00	0.20	0.00	0.00	55.00	5.22	2.37	0.00
4.00	0.27	0.00	0.00	56.00	5.22	2.37	0.00
5.00	0.36	0.00	0.00	57.00	5.22	2.37	0.00
6.00	0.45	0.00	0.00	58.00	5.22	2.37	0.00
7.00	0.55	0.00	0.00	59.00	5.22	2.37	0.00
8.00	0.68	0.00	0.00	60.00	5.22	2.37	0.00
9.00	0.83	0.00	0.00	61.00	5.22	2.37	0.00
10.00	1.03	0.02	0.03	62.00	5.22	2.37	0.00
11.00	1.36	0.08	0.10	63.00	5.22	2.37	0.00
12.00	2.50	0.53	1.11	64.00	5.22	2.37	0.00
13.00	3.86	1.36	0.42	65.00	5.22	2.37	0.00
14.00	4.19	1.59	0.21	66.00	5.22	2.37	0.00
15.00	4.39	1.74	0.15	67.00	5.22	2.37	0.00
16.00	4.54	1.85	0.12	68.00	5.22	2.37	0.00
17.00	4.67	1.95	0.10	69.00	5.22	2.37	0.00
18.00	4.77	2.03	0.08	70.00	5.22	2.37	0.00
19.00	4.86	2.09	0.08	71.00	5.22	2.37	0.00
20.00	4.95	2.16	0.07	72.00	5.22	2.37	0.00
21.00	5.02	2.22	0.07				
22.00	5.09	2.27	0.06				
23.00	5.16	2.32	0.06				
24.00	5.22	2.37	0.05				
25.00	5.22	2.37	0.00				
26.00	5.22	2.37	0.00				
27.00	5.22	2.37	0.00				
28.00	5.22	2.37	0.00				
29.00	5.22	2.37	0.00				
30.00	5.22	2.37	0.00				
31.00	5.22	2.37	0.00				
32.00	5.22	2.37	0.00				
33.00	5.22	2.37	0.00				
34.00	5.22	2.37	0.00				
35.00	5.22	2.37	0.00				
36.00	5.22	2.37	0.00				
37.00	5.22	2.37	0.00				
38.00	5.22	2.37	0.00				
39.00	5.22	2.37	0.00				
40.00	5.22	2.37	0.00				
41.00	5.22	2.37	0.00				
42.00	5.22	2.37	0.00				
43.00	5.22	2.37	0.00				
44.00	5.22	2.37	0.00				
45.00	5.22	2.37	0.00				
46.00	5.22	2.37	0.00				
47.00	5.22	2.37	0.00				
48.00	5.22	2.37	0.00				
49.00	5.22	2.37	0.00				
50.00	5.22	2.37	0.00				
51.00	5.22	2.37	0.00				

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Summary for Pond 3P: Basin A

Inflow Area = 1.130 ac, 18.58% Impervious, Inflow Depth = 2.85" for 10-Year event
 Inflow = 3.14 cfs @ 12.16 hrs, Volume= 0.269 af
 Outflow = 0.83 cfs @ 12.54 hrs, Volume= 0.246 af, Atten= 74%, Lag= 22.3 min
 Primary = 0.83 cfs @ 12.54 hrs, Volume= 0.246 af
 Routed to Link 2L : DA 1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 620.29' @ 12.54 hrs Surf.Area= 0.101 ac Storage= 0.094 af

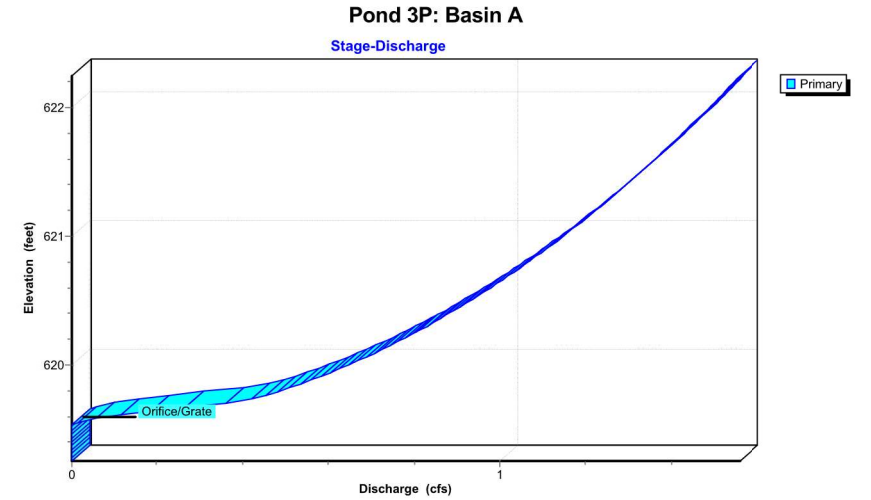
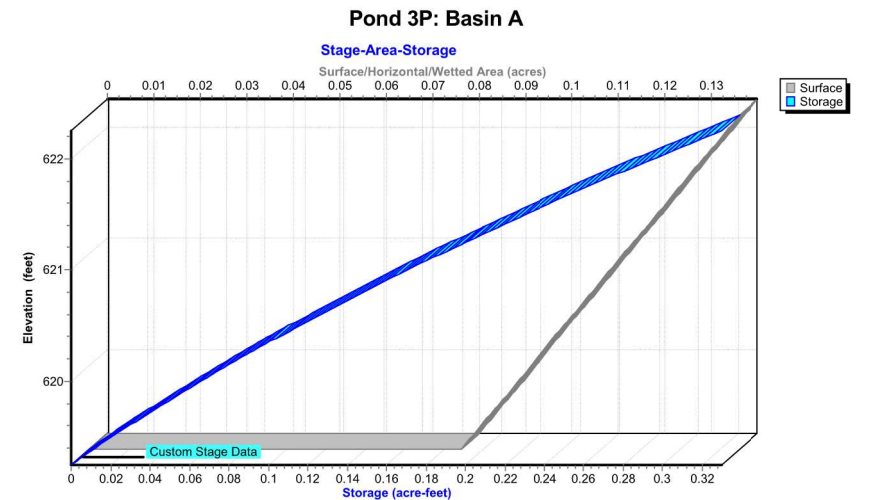
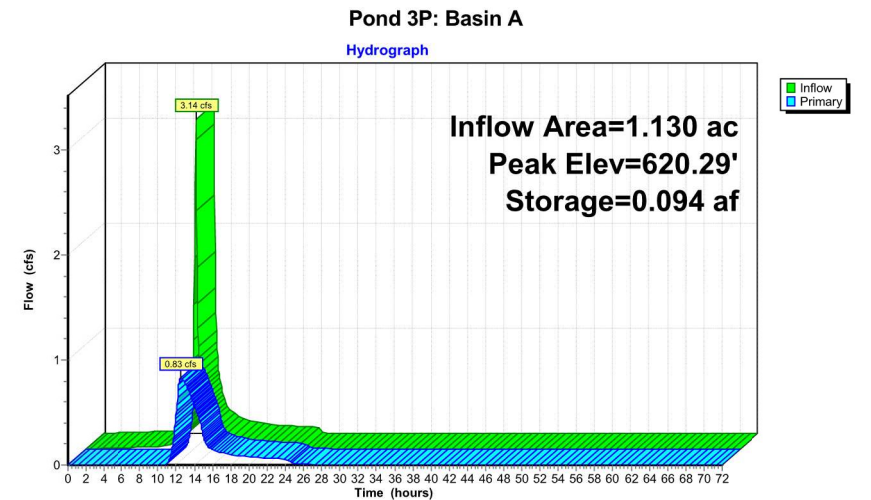
Plug-Flow detention time= 123.8 min calculated for 0.245 af (91% of inflow)
 Center-of-Mass det. time= 78.2 min (899.1 - 820.9)

Volume	Invert	Avail.Storage	Storage Description
#1	619.25'	0.330 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
619.25	0.080	0.000	0.000
620.25	0.100	0.090	0.090
621.25	0.120	0.110	0.200
622.25	0.140	0.130	0.330

Device	Routing	Invert	Outlet Devices
#1	Primary	619.53'	6.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.83 cfs @ 12.54 hrs HW=620.29' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.83 cfs @ 4.20 fps)



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Hydrograph for Pond 3P: Basin A

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	619.25	0.00
2.50	0.01	0.001	619.26	0.00
5.00	0.02	0.003	619.29	0.00
7.50	0.02	0.007	619.34	0.00
10.00	0.07	0.015	619.43	0.00
12.50	0.87	0.094	620.29	0.83
15.00	0.16	0.035	619.67	0.26
17.50	0.10	0.030	619.61	0.11
20.00	0.07	0.028	619.59	0.08
22.50	0.06	0.028	619.58	0.06
25.00	0.00	0.025	619.55	0.02
27.50	0.00	0.024	619.53	0.00
30.00	0.00	0.023	619.53	0.00
32.50	0.00	0.023	619.53	0.00
35.00	0.00	0.023	619.53	0.00
37.50	0.00	0.023	619.53	0.00
40.00	0.00	0.023	619.53	0.00
42.50	0.00	0.023	619.53	0.00
45.00	0.00	0.023	619.53	0.00
47.50	0.00	0.023	619.53	0.00
50.00	0.00	0.023	619.53	0.00
52.50	0.00	0.023	619.53	0.00
55.00	0.00	0.023	619.53	0.00
57.50	0.00	0.023	619.53	0.00
60.00	0.00	0.023	619.53	0.00
62.50	0.00	0.023	619.53	0.00
65.00	0.00	0.023	619.53	0.00
67.50	0.00	0.023	619.53	0.00
70.00	0.00	0.023	619.53	0.00

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Stage-Discharge for Pond 3P: Basin A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
619.25	0.00	620.29	0.82	621.33	1.27
619.27	0.00	620.31	0.83	621.35	1.28
619.29	0.00	620.33	0.85	621.37	1.28
619.31	0.00	620.35	0.86	621.39	1.29
619.33	0.00	620.37	0.87	621.41	1.30
619.35	0.00	620.39	0.88	621.43	1.30
619.37	0.00	620.41	0.89	621.45	1.31
619.39	0.00	620.43	0.90	621.47	1.32
619.41	0.00	620.45	0.91	621.49	1.32
619.43	0.00	620.47	0.92	621.51	1.33
619.45	0.00	620.49	0.93	621.53	1.34
619.47	0.00	620.51	0.94	621.55	1.34
619.49	0.00	620.53	0.95	621.57	1.35
619.51	0.00	620.55	0.95	621.59	1.36
619.53	0.00	620.57	0.96	621.61	1.36
619.55	0.01	620.59	0.97	621.63	1.37
619.57	0.04	620.61	0.98	621.65	1.38
619.59	0.08	620.63	0.99	621.67	1.38
619.61	0.12	620.65	1.00	621.69	1.39
619.63	0.16	620.67	1.01	621.71	1.40
619.65	0.21	620.69	1.02	621.73	1.40
619.67	0.27	620.71	1.03	621.75	1.41
619.69	0.33	620.73	1.04	621.77	1.41
619.71	0.39	620.75	1.04	621.79	1.42
619.73	0.42	620.77	1.05	621.81	1.43
619.75	0.44	620.79	1.06	621.83	1.43
619.77	0.46	620.81	1.07	621.85	1.44
619.79	0.48	620.83	1.08	621.87	1.45
619.81	0.50	620.85	1.09	621.89	1.45
619.83	0.52	620.87	1.09	621.91	1.46
619.85	0.53	620.89	1.10	621.93	1.46
619.87	0.55	620.91	1.11	621.95	1.47
619.89	0.57	620.93	1.12	621.97	1.48
619.91	0.58	620.95	1.13	621.99	1.48
619.93	0.60	620.97	1.13	622.01	1.49
619.95	0.61	620.99	1.14	622.03	1.49
619.97	0.63	621.01	1.15	622.05	1.50
619.99	0.64	621.03	1.16	622.07	1.51
620.01	0.66	621.05	1.17	622.09	1.51
620.03	0.67	621.07	1.17	622.11	1.52
620.05	0.68	621.09	1.18	622.13	1.52
620.07	0.69	621.11	1.19	622.15	1.53
620.09	0.71	621.13	1.20	622.17	1.54
620.11	0.72	621.15	1.20	622.19	1.54
620.13	0.73	621.17	1.21	622.21	1.55
620.15	0.74	621.19	1.22	622.23	1.55
620.17	0.76	621.21	1.23	622.25	1.56
620.19	0.77	621.23	1.23		
620.21	0.78	621.25	1.24		
620.23	0.79	621.27	1.25		
620.25	0.80	621.29	1.25		
620.27	0.81	621.31	1.26		

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Stage-Area-Storage for Pond 3P: Basin A

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
619.25	0.080	0.000	621.85	0.132	0.276
619.30	0.081	0.004	621.90	0.133	0.282
619.35	0.082	0.008	621.95	0.134	0.289
619.40	0.083	0.012	622.00	0.135	0.296
619.45	0.084	0.016	622.05	0.136	0.302
619.50	0.085	0.021	622.10	0.137	0.309
619.55	0.086	0.025	622.15	0.138	0.316
619.60	0.087	0.029	622.20	0.139	0.323
619.65	0.088	0.034	622.25	0.140	0.330
619.70	0.089	0.038			
619.75	0.090	0.043			
619.80	0.091	0.047			
619.85	0.092	0.052			
619.90	0.093	0.056			
619.95	0.094	0.061			
620.00	0.095	0.066			
620.05	0.096	0.070			
620.10	0.097	0.075			
620.15	0.098	0.080			
620.20	0.099	0.085			
620.25	0.100	0.090			
620.30	0.101	0.095			
620.35	0.102	0.100			
620.40	0.103	0.105			
620.45	0.104	0.110			
620.50	0.105	0.116			
620.55	0.106	0.121			
620.60	0.107	0.126			
620.65	0.108	0.132			
620.70	0.109	0.137			
620.75	0.110	0.142			
620.80	0.111	0.148			
620.85	0.112	0.154			
620.90	0.113	0.159			
620.95	0.114	0.165			
621.00	0.115	0.171			
621.05	0.116	0.176			
621.10	0.117	0.182			
621.15	0.118	0.188			
621.20	0.119	0.194			
621.25	0.120	0.200			
621.30	0.121	0.206			
621.35	0.122	0.212			
621.40	0.123	0.218			
621.45	0.124	0.224			
621.50	0.125	0.231			
621.55	0.126	0.237			
621.60	0.127	0.243			
621.65	0.128	0.250			
621.70	0.129	0.256			
621.75	0.130	0.262			
621.80	0.131	0.269			

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Summary for Pond 4P: Basin B

Inflow Area = 0.960 ac, 19.79% Impervious, Inflow Depth = 2.89" for 10-Year event
 Inflow = 2.62 cfs @ 12.17 hrs, Volume= 0.231 af
 Outflow = 0.65 cfs @ 12.60 hrs, Volume= 0.176 af, Atten= 75%, Lag= 25.4 min
 Primary = 0.65 cfs @ 12.60 hrs, Volume= 0.176 af
 Routed to Link 2L : DA 1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 619.86' @ 12.60 hrs Surf.Area= 0.102 ac Storage= 0.101 af

Plug-Flow detention time= 205.2 min calculated for 0.176 af (76% of inflow)
 Center-of-Mass det. time= 107.8 min (927.5 - 819.7)

Volume	Invert	Avail.Storage	Storage Description
#1	618.75'	0.330 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
618.75	0.080	0.000	0.000
619.75	0.100	0.090	0.090
620.75	0.120	0.110	0.200
621.75	0.140	0.130	0.330

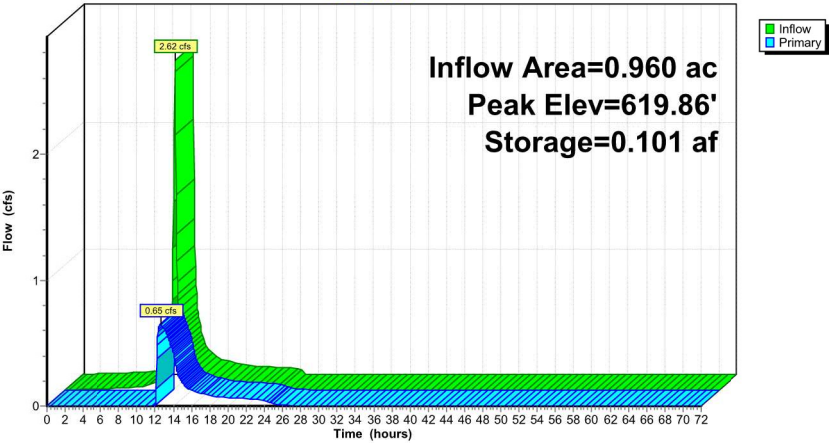
Device	Routing	Invert	Outlet Devices
#1	Primary	619.39'	6.0" Horiz. Orifice C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.65 cfs @ 12.60 hrs HW=619.86' (Free Discharge)

1=Orifice (Orifice Controls 0.65 cfs @ 3.30 fps)

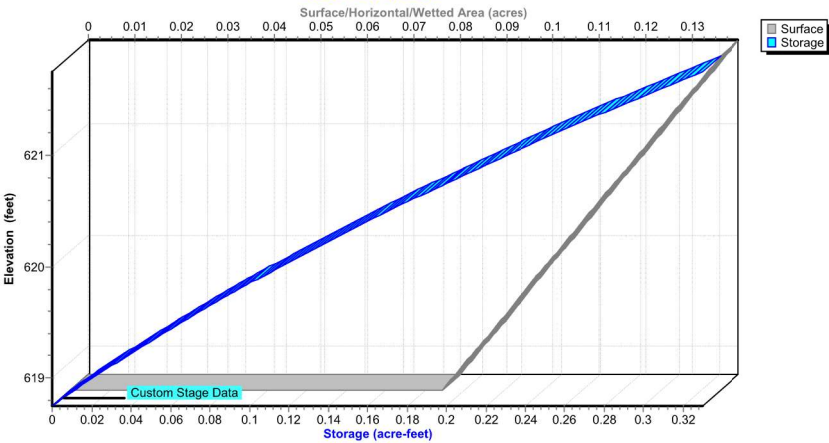
Pond 4P: Basin B

Hydrograph



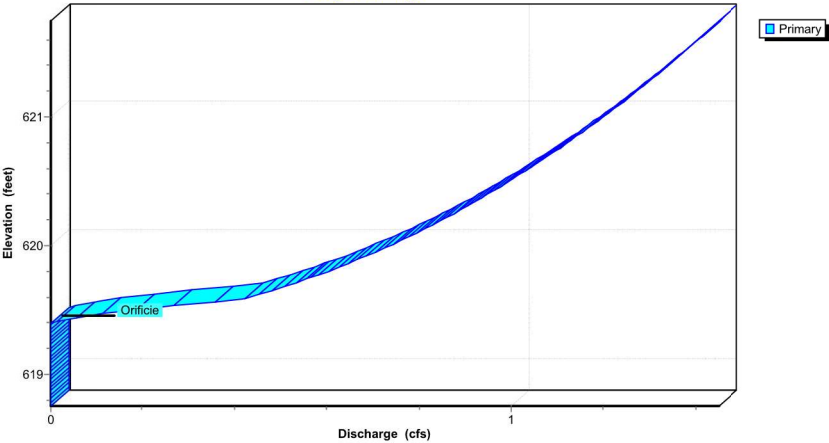
Pond 4P: Basin B

Stage-Area-Storage



Pond 4P: Basin B

Stage-Discharge



2023-01 Proposed Hydrology

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Hydrograph for Pond 4P: Basin B

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	618.75	0.00
2.50	0.01	0.001	618.76	0.00
5.00	0.01	0.003	618.79	0.00
7.50	0.02	0.006	618.83	0.00
10.00	0.06	0.013	618.91	0.00
12.50	0.76	0.101	619.85	0.64
15.00	0.13	0.065	619.50	0.18
17.50	0.08	0.062	619.46	0.09
20.00	0.06	0.060	619.44	0.07
22.50	0.05	0.060	619.44	0.06
25.00	0.00	0.057	619.41	0.02
27.50	0.00	0.056	619.39	0.00
30.00	0.00	0.055	619.39	0.00
32.50	0.00	0.055	619.39	0.00
35.00	0.00	0.055	619.39	0.00
37.50	0.00	0.055	619.39	0.00
40.00	0.00	0.055	619.39	0.00
42.50	0.00	0.055	619.39	0.00
45.00	0.00	0.055	619.39	0.00
47.50	0.00	0.055	619.39	0.00
50.00	0.00	0.055	619.39	0.00
52.50	0.00	0.055	619.39	0.00
55.00	0.00	0.055	619.39	0.00
57.50	0.00	0.055	619.39	0.00
60.00	0.00	0.055	619.39	0.00
62.50	0.00	0.055	619.39	0.00
65.00	0.00	0.055	619.39	0.00
67.50	0.00	0.055	619.39	0.00
70.00	0.00	0.055	619.39	0.00

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Stage-Discharge for Pond 4P: Basin B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
618.75	0.00	619.79	0.60	620.83	1.13
618.77	0.00	619.81	0.61	620.85	1.14
618.79	0.00	619.83	0.63	620.87	1.15
618.81	0.00	619.85	0.64	620.89	1.16
618.83	0.00	619.87	0.66	620.91	1.17
618.85	0.00	619.89	0.67	620.93	1.17
618.87	0.00	619.91	0.68	620.95	1.18
618.89	0.00	619.93	0.69	620.97	1.19
618.91	0.00	619.95	0.71	620.99	1.20
618.93	0.00	619.97	0.72	621.01	1.20
618.95	0.00	619.99	0.73	621.03	1.21
618.97	0.00	620.01	0.74	621.05	1.22
618.99	0.00	620.03	0.76	621.07	1.23
619.01	0.00	620.05	0.77	621.09	1.23
619.03	0.00	620.07	0.78	621.11	1.24
619.05	0.00	620.09	0.79	621.13	1.25
619.07	0.00	620.11	0.80	621.15	1.25
619.09	0.00	620.13	0.81	621.17	1.26
619.11	0.00	620.15	0.82	621.19	1.27
619.13	0.00	620.17	0.83	621.21	1.28
619.15	0.00	620.19	0.85	621.23	1.28
619.17	0.00	620.21	0.86	621.25	1.29
619.19	0.00	620.23	0.87	621.27	1.30
619.21	0.00	620.25	0.88	621.29	1.30
619.23	0.00	620.27	0.89	621.31	1.31
619.25	0.00	620.29	0.90	621.33	1.32
619.27	0.00	620.31	0.91	621.35	1.32
619.29	0.00	620.33	0.92	621.37	1.33
619.31	0.00	620.35	0.93	621.39	1.34
619.33	0.00	620.37	0.94	621.41	1.34
619.35	0.00	620.39	0.95	621.43	1.35
619.37	0.00	620.41	0.95	621.45	1.36
619.39	0.00	620.43	0.96	621.47	1.36
619.41	0.01	620.45	0.97	621.49	1.37
619.43	0.04	620.47	0.98	621.51	1.38
619.45	0.08	620.49	0.99	621.53	1.38
619.47	0.12	620.51	1.00	621.55	1.39
619.49	0.16	620.53	1.01	621.57	1.40
619.51	0.21	620.55	1.02	621.59	1.40
619.53	0.27	620.57	1.03	621.61	1.41
619.55	0.33	620.59	1.04	621.63	1.41
619.57	0.39	620.61	1.04	621.65	1.42
619.59	0.42	620.63	1.05	621.67	1.43
619.61	0.44	620.65	1.06	621.69	1.43
619.63	0.46	620.67	1.07	621.71	1.44
619.65	0.48	620.69	1.08	621.73	1.45
619.67	0.50	620.71	1.09	621.75	1.45
619.69	0.52	620.73	1.09		
619.71	0.53	620.75	1.10		
619.73	0.55	620.77	1.11		
619.75	0.57	620.79	1.12		
619.77	0.58	620.81	1.13		

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Stage-Area-Storage for Pond 4P: Basin B

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
618.75	0.080	0.000	621.35	0.132	0.276
618.80	0.081	0.004	621.40	0.133	0.282
618.85	0.082	0.008	621.45	0.134	0.289
618.90	0.083	0.012	621.50	0.135	0.296
618.95	0.084	0.016	621.55	0.136	0.302
619.00	0.085	0.021	621.60	0.137	0.309
619.05	0.086	0.025	621.65	0.138	0.316
619.10	0.087	0.029	621.70	0.139	0.323
619.15	0.088	0.034	621.75	0.140	0.330
619.20	0.089	0.038			
619.25	0.090	0.043			
619.30	0.091	0.047			
619.35	0.092	0.052			
619.40	0.093	0.056			
619.45	0.094	0.061			
619.50	0.095	0.066			
619.55	0.096	0.070			
619.60	0.097	0.075			
619.65	0.098	0.080			
619.70	0.099	0.085			
619.75	0.100	0.090			
619.80	0.101	0.095			
619.85	0.102	0.100			
619.90	0.103	0.105			
619.95	0.104	0.110			
620.00	0.105	0.116			
620.05	0.106	0.121			
620.10	0.107	0.126			
620.15	0.108	0.132			
620.20	0.109	0.137			
620.25	0.110	0.142			
620.30	0.111	0.148			
620.35	0.112	0.154			
620.40	0.113	0.159			
620.45	0.114	0.165			
620.50	0.115	0.171			
620.55	0.116	0.176			
620.60	0.117	0.182			
620.65	0.118	0.188			
620.70	0.119	0.194			
620.75	0.120	0.200			
620.80	0.121	0.206			
620.85	0.122	0.212			
620.90	0.123	0.218			
620.95	0.124	0.224			
621.00	0.125	0.231			
621.05	0.126	0.237			
621.10	0.127	0.243			
621.15	0.128	0.250			
621.20	0.129	0.256			
621.25	0.130	0.262			
621.30	0.131	0.269			

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Summary for Pond 5P: Basin C

Inflow Area = 1.380 ac, 14.49% Impervious, Inflow Depth = 2.75" for 10-Year event
 Inflow = 3.73 cfs @ 12.16 hrs, Volume= 0.316 af
 Outflow = 1.20 cfs @ 12.45 hrs, Volume= 0.253 af, Atten= 68%, Lag= 16.9 min
 Primary = 1.20 cfs @ 12.45 hrs, Volume= 0.253 af
 Routed to Link 2L : DA 1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 618.10' @ 12.45 hrs Surf.Area= 0.122 ac Storage= 0.122 af

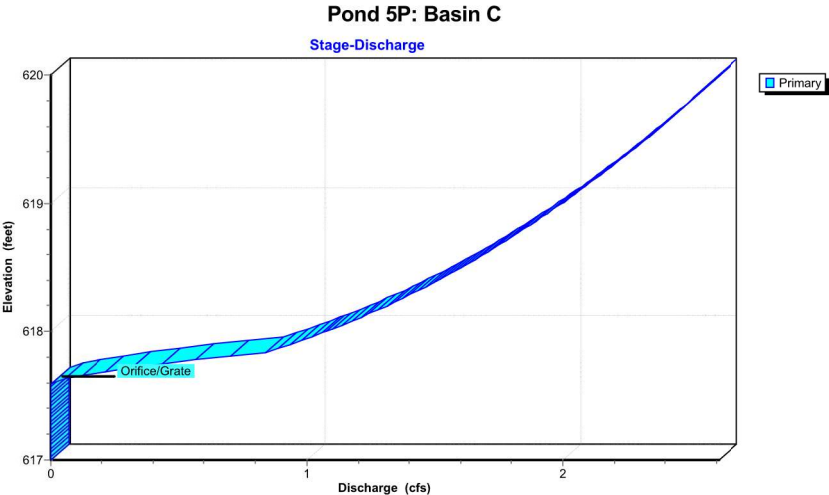
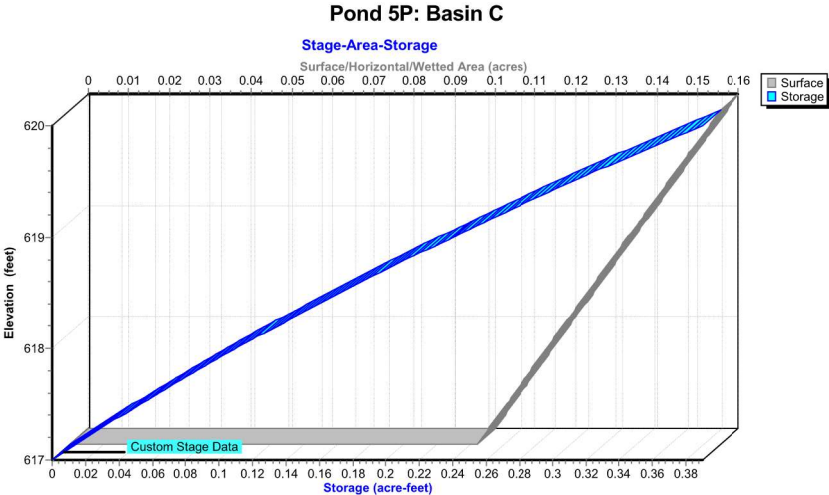
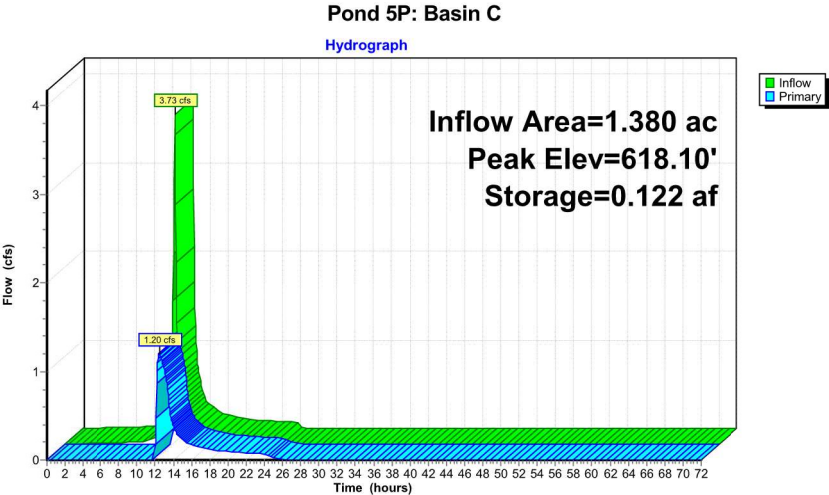
Plug-Flow detention time= 173.4 min calculated for 0.253 af (80% of inflow)
 Center-of-Mass det. time= 86.8 min (914.0 - 827.3)

Volume	Invert	Avail.Storage	Storage Description
#1	617.00'	0.390 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
617.00	0.100	0.000	0.000
618.00	0.120	0.110	0.110
619.00	0.140	0.130	0.240
620.00	0.160	0.150	0.390

Device	Routing	Invert	Outlet Devices
#1	Primary	617.59'	8.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.20 cfs @ 12.45 hrs HW=618.10' (Free Discharge)

1=Orifice/Grate (Orifice Controls 1.20 cfs @ 3.43 fps)



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Hydrograph for Pond 5P: Basin C

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	617.00	0.00
2.50	0.01	0.001	617.01	0.00
5.00	0.01	0.003	617.03	0.00
7.50	0.02	0.007	617.07	0.00
10.00	0.08	0.014	617.14	0.00
12.50	1.04	0.121	618.09	1.19
15.00	0.19	0.074	617.69	0.23
17.50	0.12	0.070	617.66	0.13
20.00	0.09	0.069	617.65	0.09
22.50	0.07	0.068	617.64	0.08
25.00	0.00	0.065	617.61	0.02
27.50	0.00	0.063	617.59	0.00
30.00	0.00	0.063	617.59	0.00
32.50	0.00	0.063	617.59	0.00
35.00	0.00	0.062	617.59	0.00
37.50	0.00	0.062	617.59	0.00
40.00	0.00	0.062	617.59	0.00
42.50	0.00	0.062	617.59	0.00
45.00	0.00	0.062	617.59	0.00
47.50	0.00	0.062	617.59	0.00
50.00	0.00	0.062	617.59	0.00
52.50	0.00	0.062	617.59	0.00
55.00	0.00	0.062	617.59	0.00
57.50	0.00	0.062	617.59	0.00
60.00	0.00	0.062	617.59	0.00
62.50	0.00	0.062	617.59	0.00
65.00	0.00	0.062	617.59	0.00
67.50	0.00	0.062	617.59	0.00
70.00	0.00	0.062	617.59	0.00

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Stage-Discharge for Pond 5P: Basin C

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
617.00	0.00	618.04	1.13	619.08	2.05
617.02	0.00	618.06	1.15	619.10	2.07
617.04	0.00	618.08	1.18	619.12	2.08
617.06	0.00	618.10	1.20	619.14	2.09
617.08	0.00	618.12	1.22	619.16	2.11
617.10	0.00	618.14	1.25	619.18	2.12
617.12	0.00	618.16	1.27	619.20	2.13
617.14	0.00	618.18	1.29	619.22	2.15
617.16	0.00	618.20	1.31	619.24	2.16
617.18	0.00	618.22	1.33	619.26	2.17
617.20	0.00	618.24	1.36	619.28	2.18
617.22	0.00	618.26	1.38	619.30	2.20
617.24	0.00	618.28	1.40	619.32	2.21
617.26	0.00	618.30	1.42	619.34	2.22
617.28	0.00	618.32	1.44	619.36	2.24
617.30	0.00	618.34	1.46	619.38	2.25
617.32	0.00	618.36	1.47	619.40	2.26
617.34	0.00	618.38	1.49	619.42	2.27
617.36	0.00	618.40	1.51	619.44	2.29
617.38	0.00	618.42	1.53	619.46	2.30
617.40	0.00	618.44	1.55	619.48	2.31
617.42	0.00	618.46	1.57	619.50	2.32
617.44	0.00	618.48	1.59	619.52	2.33
617.46	0.00	618.50	1.60	619.54	2.35
617.48	0.00	618.52	1.62	619.56	2.36
617.50	0.00	618.54	1.64	619.58	2.37
617.52	0.00	618.56	1.66	619.60	2.38
617.54	0.00	618.58	1.67	619.62	2.39
617.56	0.00	618.60	1.69	619.64	2.41
617.58	0.00	618.62	1.71	619.66	2.42
617.60	0.01	618.64	1.72	619.68	2.43
617.62	0.04	618.66	1.74	619.70	2.44
617.64	0.08	618.68	1.75	619.72	2.45
617.66	0.13	618.70	1.77	619.74	2.46
617.68	0.18	618.72	1.79	619.76	2.48
617.70	0.25	618.74	1.80	619.78	2.49
617.72	0.32	618.76	1.82	619.80	2.50
617.74	0.40	618.78	1.83	619.82	2.51
617.76	0.48	618.80	1.85	619.84	2.52
617.78	0.57	618.82	1.86	619.86	2.53
617.80	0.66	618.84	1.88	619.88	2.54
617.82	0.76	618.86	1.89	619.90	2.55
617.84	0.84	618.88	1.91	619.92	2.57
617.86	0.87	618.90	1.92	619.94	2.58
617.88	0.91	618.92	1.94	619.96	2.59
617.90	0.94	618.94	1.95	619.98	2.60
617.92	0.97	618.96	1.97	620.00	2.61
617.94	0.99	618.98	1.98		
617.96	1.02	619.00	2.00		
617.98	1.05	619.02	2.01		
618.00	1.08	619.04	2.02		
618.02	1.10	619.06	2.04		

2023-01 Proposed Hydrology

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Stage-Area-Storage for Pond 5P: Basin C

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
617.00	0.100	0.000	619.60	0.152	0.328
617.05	0.101	0.005	619.65	0.153	0.335
617.10	0.102	0.010	619.70	0.154	0.343
617.15	0.103	0.015	619.75	0.155	0.351
617.20	0.104	0.020	619.80	0.156	0.358
617.25	0.105	0.026	619.85	0.157	0.366
617.30	0.106	0.031	619.90	0.158	0.374
617.35	0.107	0.036	619.95	0.159	0.382
617.40	0.108	0.042	620.00	0.160	0.390
617.45	0.109	0.047			
617.50	0.110	0.052			
617.55	0.111	0.058			
617.60	0.112	0.064			
617.65	0.113	0.069			
617.70	0.114	0.075			
617.75	0.115	0.081			
617.80	0.116	0.086			
617.85	0.117	0.092			
617.90	0.118	0.098			
617.95	0.119	0.104			
618.00	0.120	0.110			
618.05	0.121	0.116			
618.10	0.122	0.122			
618.15	0.123	0.128			
618.20	0.124	0.134			
618.25	0.125	0.141			
618.30	0.126	0.147			
618.35	0.127	0.153			
618.40	0.128	0.160			
618.45	0.129	0.166			
618.50	0.130	0.173			
618.55	0.131	0.179			
618.60	0.132	0.186			
618.65	0.133	0.192			
618.70	0.134	0.199			
618.75	0.135	0.206			
618.80	0.136	0.212			
618.85	0.137	0.219			
618.90	0.138	0.226			
618.95	0.139	0.233			
619.00	0.140	0.240			
619.05	0.141	0.247			
619.10	0.142	0.254			
619.15	0.143	0.261			
619.20	0.144	0.268			
619.25	0.145	0.276			
619.30	0.146	0.283			
619.35	0.147	0.290			
619.40	0.148	0.298			
619.45	0.149	0.305			
619.50	0.150	0.312			
619.55	0.151	0.320			

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Summary for Pond 6P: Basin D

Inflow Area = 1.330 ac, 15.04% Impervious, Inflow Depth = 2.76" for 10-Year event
 Inflow = 3.57 cfs @ 12.17 hrs, Volume= 0.306 af
 Outflow = 1.42 cfs @ 12.39 hrs, Volume= 0.281 af, Atten= 60%, Lag= 13.3 min
 Primary = 1.42 cfs @ 12.39 hrs, Volume= 0.281 af
 Routed to Link 2L : DA 1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 612.56' @ 12.39 hrs Surf.Area= 0.091 ac Storage= 0.085 af

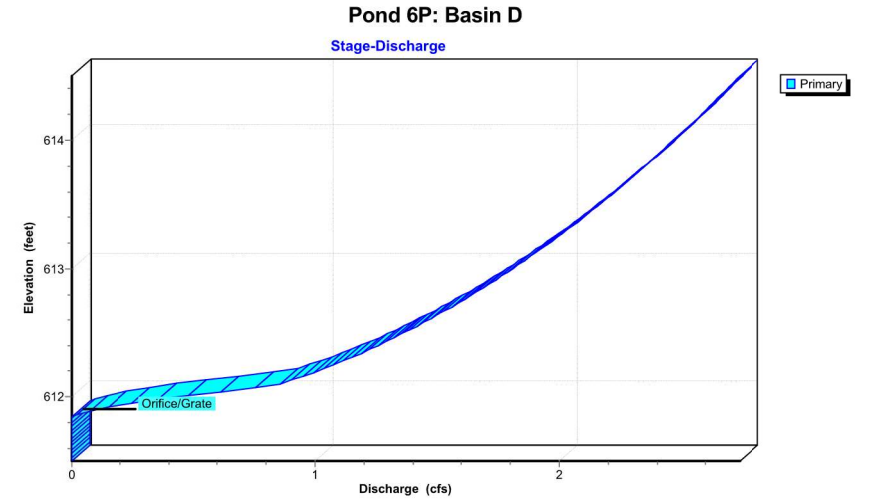
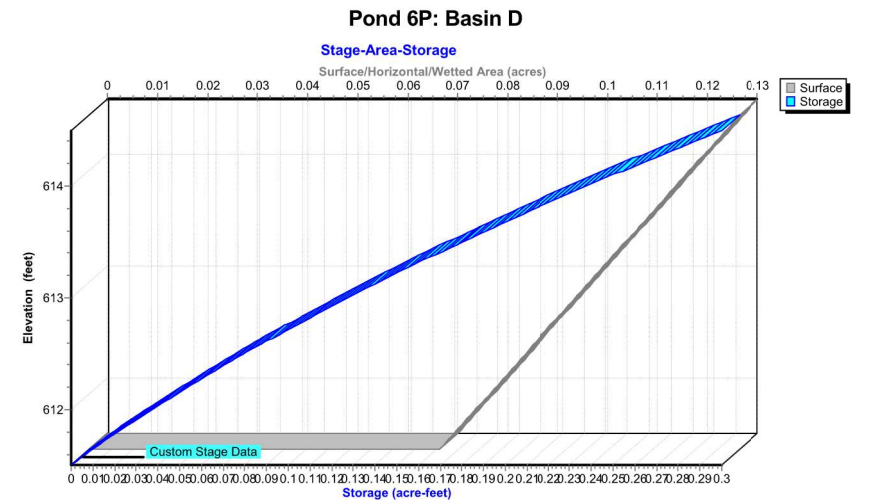
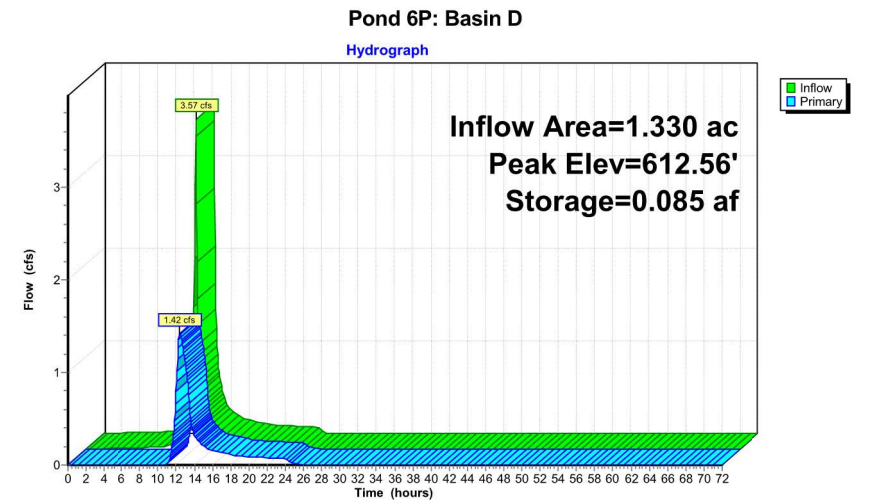
Plug-Flow detention time= 98.5 min calculated for 0.281 af (92% of inflow)
 Center-of-Mass det. time= 54.5 min (881.0 - 826.6)

Volume	Invert	Avail.Storage	Storage Description
#1	611.50'	0.300 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
611.50	0.070	0.000	0.000
612.50	0.090	0.080	0.080
613.50	0.110	0.100	0.180
614.50	0.130	0.120	0.300

Device	Routing	Invert	Outlet Devices
#1	Primary	611.84'	8.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.42 cfs @ 12.39 hrs HW=612.56' (Free Discharge)

1=Orifice/Grate (Orifice Controls 1.42 cfs @ 4.07 fps)



2023-01 Proposed Hydrology

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NOAA 24-hr D 10-Year Rainfall=5.22"

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Hydrograph for Pond 6P: Basin D

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	611.50	0.00
2.50	0.01	0.001	611.51	0.00
5.00	0.01	0.003	611.54	0.00
7.50	0.02	0.007	611.59	0.00
10.00	0.07	0.014	611.70	0.00
12.50	1.02	0.083	612.53	1.40
15.00	0.18	0.032	611.94	0.21
17.50	0.11	0.030	611.91	0.12
20.00	0.09	0.029	611.89	0.09
22.50	0.07	0.029	611.89	0.07
25.00	0.00	0.026	611.86	0.01
27.50	0.00	0.025	611.84	0.00
30.00	0.00	0.025	611.84	0.00
32.50	0.00	0.025	611.84	0.00
35.00	0.00	0.025	611.84	0.00
37.50	0.00	0.025	611.84	0.00
40.00	0.00	0.025	611.84	0.00
42.50	0.00	0.025	611.84	0.00
45.00	0.00	0.025	611.84	0.00
47.50	0.00	0.025	611.84	0.00
50.00	0.00	0.025	611.84	0.00
52.50	0.00	0.025	611.84	0.00
55.00	0.00	0.025	611.84	0.00
57.50	0.00	0.025	611.84	0.00
60.00	0.00	0.025	611.84	0.00
62.50	0.00	0.025	611.84	0.00
65.00	0.00	0.025	611.84	0.00
67.50	0.00	0.025	611.84	0.00
70.00	0.00	0.025	611.84	0.00

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Stage-Discharge for Pond 6P: Basin D

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
611.50	0.00	612.54	1.41	613.58	2.22
611.52	0.00	612.56	1.43	613.60	2.23
611.54	0.00	612.58	1.45	613.62	2.24
611.56	0.00	612.60	1.47	613.64	2.25
611.58	0.00	612.62	1.48	613.66	2.27
611.60	0.00	612.64	1.50	613.68	2.28
611.62	0.00	612.66	1.52	613.70	2.29
611.64	0.00	612.68	1.54	613.72	2.30
611.66	0.00	612.70	1.56	613.74	2.32
611.68	0.00	612.72	1.58	613.76	2.33
611.70	0.00	612.74	1.59	613.78	2.34
611.72	0.00	612.76	1.61	613.80	2.35
611.74	0.00	612.78	1.63	613.82	2.37
611.76	0.00	612.80	1.65	613.84	2.38
611.78	0.00	612.82	1.66	613.86	2.39
611.80	0.00	612.84	1.68	613.88	2.40
611.82	0.00	612.86	1.70	613.90	2.41
611.84	0.00	612.88	1.71	613.92	2.42
611.86	0.02	612.90	1.73	613.94	2.44
611.88	0.05	612.92	1.75	613.96	2.45
611.90	0.10	612.94	1.76	613.98	2.46
611.92	0.15	612.96	1.78	614.00	2.47
611.94	0.22	612.98	1.79	614.02	2.48
611.96	0.28	613.00	1.81	614.04	2.49
611.98	0.36	613.02	1.83	614.06	2.50
612.00	0.44	613.04	1.84	614.08	2.52
612.02	0.52	613.06	1.86	614.10	2.53
612.04	0.61	613.08	1.87	614.12	2.54
612.06	0.71	613.10	1.89	614.14	2.55
612.08	0.81	613.12	1.90	614.16	2.56
612.10	0.86	613.14	1.92	614.18	2.57
612.12	0.89	613.16	1.93	614.20	2.58
612.14	0.92	613.18	1.95	614.22	2.59
612.16	0.95	613.20	1.96	614.24	2.60
612.18	0.98	613.22	1.97	614.26	2.61
612.20	1.01	613.24	1.99	614.28	2.63
612.22	1.04	613.26	2.00	614.30	2.64
612.24	1.06	613.28	2.02	614.32	2.65
612.26	1.09	613.30	2.03	614.34	2.66
612.28	1.11	613.32	2.04	614.36	2.67
612.30	1.14	613.34	2.06	614.38	2.68
612.32	1.16	613.36	2.07	614.40	2.69
612.34	1.19	613.38	2.09	614.42	2.70
612.36	1.21	613.40	2.10	614.44	2.71
612.38	1.24	613.42	2.11	614.46	2.72
612.40	1.26	613.44	2.13	614.48	2.73
612.42	1.28	613.46	2.14	614.50	2.74
612.44	1.30	613.48	2.15		
612.46	1.32	613.50	2.17		
612.48	1.34	613.52	2.18		
612.50	1.37	613.54	2.19		
612.52	1.39	613.56	2.20		

2023-01 Proposed Hydrology

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Stage-Area-Storage for Pond 6P: Basin D

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
611.50	0.070	0.000	614.10	0.122	0.250
611.55	0.071	0.004	614.15	0.123	0.256
611.60	0.072	0.007	614.20	0.124	0.262
611.65	0.073	0.011	614.25	0.125	0.268
611.70	0.074	0.014	614.30	0.126	0.274
611.75	0.075	0.018	614.35	0.127	0.281
611.80	0.076	0.022	614.40	0.128	0.287
611.85	0.077	0.026	614.45	0.129	0.294
611.90	0.078	0.030	614.50	0.130	0.300
611.95	0.079	0.034			
612.00	0.080	0.037			
612.05	0.081	0.042			
612.10	0.082	0.046			
612.15	0.083	0.050			
612.20	0.084	0.054			
612.25	0.085	0.058			
612.30	0.086	0.062			
612.35	0.087	0.067			
612.40	0.088	0.071			
612.45	0.089	0.076			
612.50	0.090	0.080			
612.55	0.091	0.085			
612.60	0.092	0.089			
612.65	0.093	0.094			
612.70	0.094	0.098			
612.75	0.095	0.103			
612.80	0.096	0.108			
612.85	0.097	0.113			
612.90	0.098	0.118			
612.95	0.099	0.123			
613.00	0.100	0.127			
613.05	0.101	0.133			
613.10	0.102	0.138			
613.15	0.103	0.143			
613.20	0.104	0.148			
613.25	0.105	0.153			
613.30	0.106	0.158			
613.35	0.107	0.164			
613.40	0.108	0.169			
613.45	0.109	0.175			
613.50	0.110	0.180			
613.55	0.111	0.186			
613.60	0.112	0.191			
613.65	0.113	0.197			
613.70	0.114	0.202			
613.75	0.115	0.208			
613.80	0.116	0.214			
613.85	0.117	0.220			
613.90	0.118	0.226			
613.95	0.119	0.232			
614.00	0.120	0.237			
614.05	0.121	0.244			

2023-01 Proposed Hydrology

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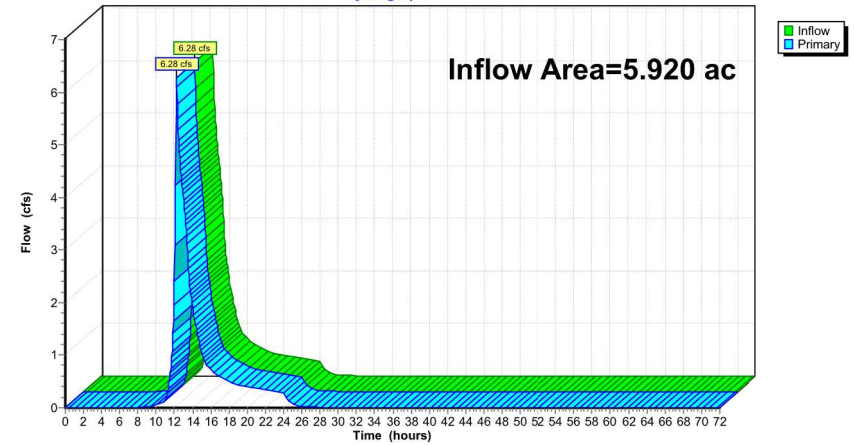
Summary for Link 2L: DA 1

Inflow Area = 5.920 ac, 14.70% Impervious, Inflow Depth = 2.43" for 10-Year event
Inflow = 6.28 cfs @ 12.22 hrs, Volume= 1.200 af
Primary = 6.28 cfs @ 12.22 hrs, Volume= 1.200 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 2L: DA 1

Hydrograph



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Hydrograph for Link 2L: DA 1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.01	0.00	0.01	59.00	0.00	0.00	0.00
8.00	0.01	0.00	0.01	60.00	0.00	0.00	0.00
9.00	0.02	0.00	0.02	61.00	0.00	0.00	0.00
10.00	0.05	0.00	0.05	62.00	0.00	0.00	0.00
11.00	0.13	0.00	0.13	63.00	0.00	0.00	0.00
12.00	2.42	0.00	2.42	64.00	0.00	0.00	0.00
13.00	3.96	0.00	3.96	65.00	0.00	0.00	0.00
14.00	1.91	0.00	1.91	66.00	0.00	0.00	0.00
15.00	1.04	0.00	1.04	67.00	0.00	0.00	0.00
16.00	0.72	0.00	0.72	68.00	0.00	0.00	0.00
17.00	0.60	0.00	0.60	69.00	0.00	0.00	0.00
18.00	0.50	0.00	0.50	70.00	0.00	0.00	0.00
19.00	0.43	0.00	0.43	71.00	0.00	0.00	0.00
20.00	0.40	0.00	0.40	72.00	0.00	0.00	0.00
21.00	0.37	0.00	0.37				
22.00	0.35	0.00	0.35				
23.00	0.32	0.00	0.32				
24.00	0.29	0.00	0.29				
25.00	0.07	0.00	0.07				
26.00	0.03	0.00	0.03				
27.00	0.01	0.00	0.01				
28.00	0.01	0.00	0.01				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 10-Year Rainfall=5.22"

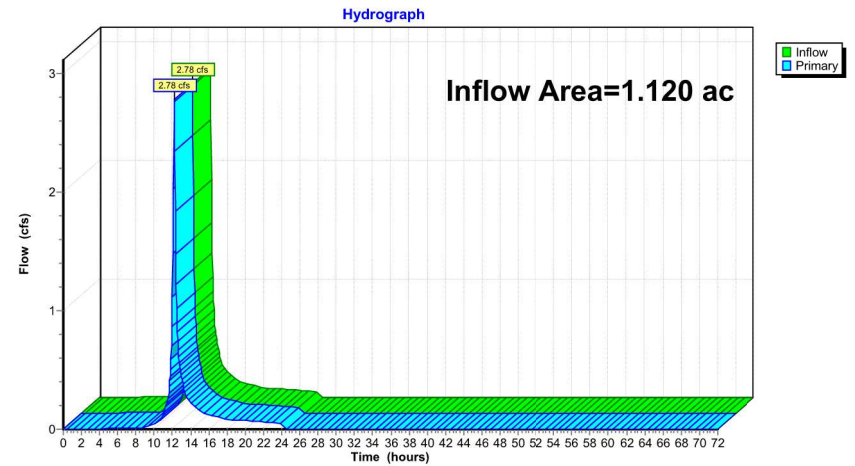
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Summary for Link 3L: DA 1. - Undetained

Inflow Area = 1.120 ac, 6.25% Impervious, Inflow Depth = 2.61" for 10-Year event
Inflow = 2.78 cfs @ 12.19 hrs, Volume= 0.244 af
Primary = 2.78 cfs @ 12.19 hrs, Volume= 0.244 af, Atten= 0%, Lag= 0.0 min
Routed to Link 2L : DA 1

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 3L: DA 1. - Undetained

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Hydrograph for Link 3L: DA 1. - Undetained

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.01	0.00	0.01	59.00	0.00	0.00	0.00
8.00	0.01	0.00	0.01	60.00	0.00	0.00	0.00
9.00	0.02	0.00	0.02	61.00	0.00	0.00	0.00
10.00	0.05	0.00	0.05	62.00	0.00	0.00	0.00
11.00	0.13	0.00	0.13	63.00	0.00	0.00	0.00
12.00	1.12	0.00	1.12	64.00	0.00	0.00	0.00
13.00	0.45	0.00	0.45	65.00	0.00	0.00	0.00
14.00	0.22	0.00	0.22	66.00	0.00	0.00	0.00
15.00	0.15	0.00	0.15	67.00	0.00	0.00	0.00
16.00	0.12	0.00	0.12	68.00	0.00	0.00	0.00
17.00	0.11	0.00	0.11	69.00	0.00	0.00	0.00
18.00	0.09	0.00	0.09	70.00	0.00	0.00	0.00
19.00	0.08	0.00	0.08	71.00	0.00	0.00	0.00
20.00	0.07	0.00	0.07	72.00	0.00	0.00	0.00
21.00	0.07	0.00	0.07				
22.00	0.06	0.00	0.06				
23.00	0.06	0.00	0.06				
24.00	0.05	0.00	0.05				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 25-Year Rainfall=6.44"

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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

Subcatchment 1S: Basin A - Imp.	Runoff Area=0.210 ac 100.00% Impervious Runoff Depth=6.20" Flow Length=90' Tc=9.2 min CN=98 Runoff=1.14 cfs 0.109 af
Subcatchment 3S: Basin A - Perv.	Runoff Area=0.920 ac 0.00% Impervious Runoff Depth=3.36" Flow Length=90' Tc=9.2 min CN=72 Runoff=3.16 cfs 0.257 af
Subcatchment 4S: Basin B - Imp.	Runoff Area=0.190 ac 100.00% Impervious Runoff Depth=6.20" Flow Length=133' Tc=9.8 min CN=98 Runoff=1.01 cfs 0.098 af
Subcatchment 5S: Basin B - Perv.	Runoff Area=0.770 ac 0.00% Impervious Runoff Depth=3.36" Flow Length=133' Tc=9.8 min CN=72 Runoff=2.58 cfs 0.215 af
Subcatchment 6S: Undetained - Imp.	Runoff Area=0.070 ac 100.00% Impervious Runoff Depth=6.20" Flow Length=391' Tc=10.8 min CN=98 Runoff=0.36 cfs 0.036 af
Subcatchment 7S: Basin C - Imp.	Runoff Area=0.200 ac 100.00% Impervious Runoff Depth=6.20" Flow Length=78' Tc=9.2 min CN=98 Runoff=1.08 cfs 0.103 af
Subcatchment 8S: Basin C - Perv.	Runoff Area=1.180 ac 0.00% Impervious Runoff Depth=3.36" Flow Length=78' Tc=9.2 min CN=72 Runoff=4.05 cfs 0.330 af
Subcatchment 9S: Undetained - Perv.	Runoff Area=1.050 ac 0.00% Impervious Runoff Depth=3.46" Flow Length=391' Tc=10.8 min CN=73 Runoff=3.52 cfs 0.302 af
Subcatchment 11S: Basin D - Imp.	Runoff Area=0.200 ac 100.00% Impervious Runoff Depth=6.20" Flow Length=136' Tc=9.4 min CN=98 Runoff=1.07 cfs 0.103 af
Subcatchment 12S: Basin D - Perv.	Runoff Area=1.130 ac 0.00% Impervious Runoff Depth=3.36" Flow Length=136' Tc=9.4 min CN=72 Runoff=3.84 cfs 0.316 af
Pond 3P: Basin A	Peak Elev=620.62' Storage=0.129 af Inflow=4.30 cfs 0.366 af Outflow=0.99 cfs 0.343 af
Pond 4P: Basin B	Peak Elev=620.19' Storage=0.136 af Inflow=3.58 cfs 0.314 af Outflow=0.84 cfs 0.258 af
Pond 5P: Basin C	Peak Elev=618.43' Storage=0.163 af Inflow=5.13 cfs 0.433 af Outflow=1.54 cfs 0.371 af
Pond 6P: Basin D	Peak Elev=612.88' Storage=0.116 af Inflow=4.91 cfs 0.419 af Outflow=1.71 cfs 0.394 af
Link 2L: DA 1	Inflow=8.25 cfs 1.705 af Primary=8.25 cfs 1.705 af
Link 3L: DA 1. - Undetained	Inflow=3.87 cfs 0.339 af Primary=3.87 cfs 0.339 af

Total Runoff Area = 5.920 ac Runoff Volume = 1.871 af Average Runoff Depth = 3.79"
85.30% Pervious = 5.050 ac 14.70% Impervious = 0.870 ac

Summary for Subcatchment 1S: Basin A - Imp.

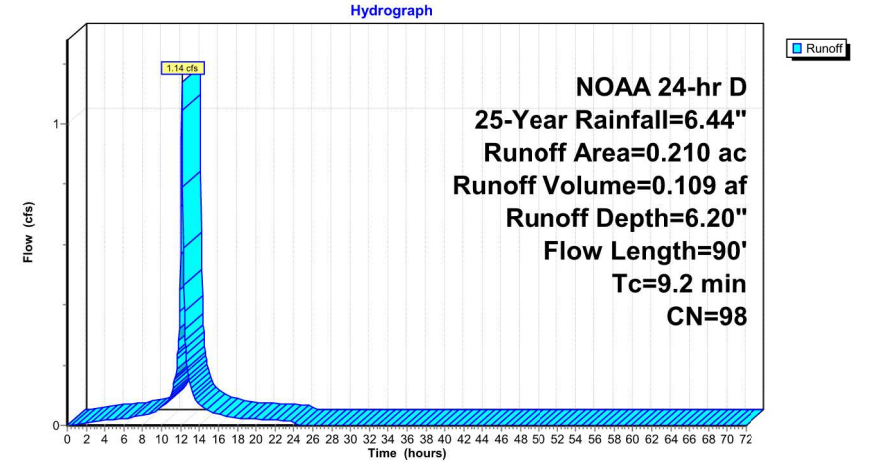
Runoff = 1.14 cfs @ 12.16 hrs, Volume= 0.109 af, Depth= 6.20"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Year Rainfall=6.44"

Area (ac)	CN	Description
0.210	98	Unconnected pavement, HSG C
0.210		100.00% Impervious Area
0.210		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	65	0.1690	6.62		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	90	Total			

Subcatchment 1S: Basin A - Imp.



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NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Subcatchment 1S: Basin A - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	6.20	0.00
1.00	0.07	0.00	0.00	53.00	6.44	6.20	0.00
2.00	0.15	0.04	0.01	54.00	6.44	6.20	0.00
3.00	0.24	0.10	0.01	55.00	6.44	6.20	0.00
4.00	0.34	0.18	0.02	56.00	6.44	6.20	0.00
5.00	0.44	0.26	0.02	57.00	6.44	6.20	0.00
6.00	0.55	0.36	0.02	58.00	6.44	6.20	0.00
7.00	0.68	0.48	0.03	59.00	6.44	6.20	0.00
8.00	0.84	0.63	0.03	60.00	6.44	6.20	0.00
9.00	1.02	0.81	0.04	61.00	6.44	6.20	0.00
10.00	1.28	1.06	0.06	62.00	6.44	6.20	0.00
11.00	1.67	1.45	0.11	63.00	6.44	6.20	0.00
12.00	3.09	2.85	0.57	64.00	6.44	6.20	0.00
13.00	4.77	4.53	0.14	65.00	6.44	6.20	0.00
14.00	5.16	4.93	0.07	66.00	6.44	6.20	0.00
15.00	5.42	5.18	0.05	67.00	6.44	6.20	0.00
16.00	5.60	5.37	0.04	68.00	6.44	6.20	0.00
17.00	5.76	5.52	0.03	69.00	6.44	6.20	0.00
18.00	5.89	5.65	0.03	70.00	6.44	6.20	0.00
19.00	6.00	5.76	0.02	71.00	6.44	6.20	0.00
20.00	6.10	5.86	0.02	72.00	6.44	6.20	0.00
21.00	6.20	5.96	0.02				
22.00	6.29	6.05	0.02				
23.00	6.37	6.13	0.02				
24.00	6.44	6.20	0.02				
25.00	6.44	6.20	0.00				
26.00	6.44	6.20	0.00				
27.00	6.44	6.20	0.00				
28.00	6.44	6.20	0.00				
29.00	6.44	6.20	0.00				
30.00	6.44	6.20	0.00				
31.00	6.44	6.20	0.00				
32.00	6.44	6.20	0.00				
33.00	6.44	6.20	0.00				
34.00	6.44	6.20	0.00				
35.00	6.44	6.20	0.00				
36.00	6.44	6.20	0.00				
37.00	6.44	6.20	0.00				
38.00	6.44	6.20	0.00				
39.00	6.44	6.20	0.00				
40.00	6.44	6.20	0.00				
41.00	6.44	6.20	0.00				
42.00	6.44	6.20	0.00				
43.00	6.44	6.20	0.00				
44.00	6.44	6.20	0.00				
45.00	6.44	6.20	0.00				
46.00	6.44	6.20	0.00				
47.00	6.44	6.20	0.00				
48.00	6.44	6.20	0.00				
49.00	6.44	6.20	0.00				
50.00	6.44	6.20	0.00				
51.00	6.44	6.20	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 25-Year Rainfall=6.44"

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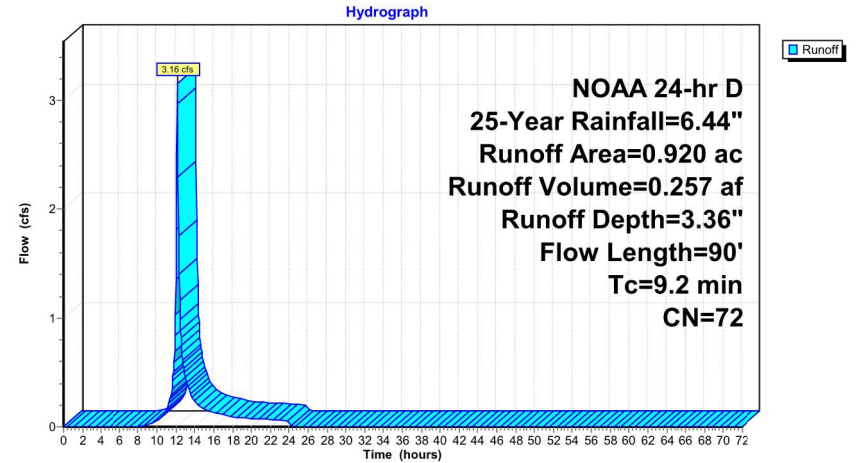
Summary for Subcatchment 3S: Basin A - Perv.

Runoff = 3.16 cfs @ 12.17 hrs, Volume= 0.257 af, Depth= 3.36"
 Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 25-Year Rainfall=6.44"

Area (ac)	CN	Description
0.470	74	>75% Grass cover, Good, HSG C
0.450	70	Woods, Good, HSG C
0.920	72	Weighted Average
0.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	65	0.1690	6.62		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	90	Total			

Subcatchment 3S: Basin A - Perv.

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Hydrograph for Subcatchment 3S: Basin A - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	3.36	0.00
1.00	0.07	0.00	0.00	53.00	6.44	3.36	0.00
2.00	0.15	0.00	0.00	54.00	6.44	3.36	0.00
3.00	0.24	0.00	0.00	55.00	6.44	3.36	0.00
4.00	0.34	0.00	0.00	56.00	6.44	3.36	0.00
5.00	0.44	0.00	0.00	57.00	6.44	3.36	0.00
6.00	0.55	0.00	0.00	58.00	6.44	3.36	0.00
7.00	0.68	0.00	0.00	59.00	6.44	3.36	0.00
8.00	0.84	0.00	0.00	60.00	6.44	3.36	0.00
9.00	1.02	0.01	0.02	61.00	6.44	3.36	0.00
10.00	1.28	0.06	0.05	62.00	6.44	3.36	0.00
11.00	1.67	0.17	0.15	63.00	6.44	3.36	0.00
12.00	3.09	0.86	1.36	64.00	6.44	3.36	0.00
13.00	4.77	2.02	0.46	65.00	6.44	3.36	0.00
14.00	5.16	2.32	0.23	66.00	6.44	3.36	0.00
15.00	5.42	2.52	0.16	67.00	6.44	3.36	0.00
16.00	5.60	2.67	0.13	68.00	6.44	3.36	0.00
17.00	5.76	2.80	0.11	69.00	6.44	3.36	0.00
18.00	5.89	2.90	0.09	70.00	6.44	3.36	0.00
19.00	6.00	2.99	0.08	71.00	6.44	3.36	0.00
20.00	6.10	3.08	0.08	72.00	6.44	3.36	0.00
21.00	6.20	3.16	0.07				
22.00	6.29	3.23	0.07				
23.00	6.37	3.30	0.06				
24.00	6.44	3.36	0.06				
25.00	6.44	3.36	0.00				
26.00	6.44	3.36	0.00				
27.00	6.44	3.36	0.00				
28.00	6.44	3.36	0.00				
29.00	6.44	3.36	0.00				
30.00	6.44	3.36	0.00				
31.00	6.44	3.36	0.00				
32.00	6.44	3.36	0.00				
33.00	6.44	3.36	0.00				
34.00	6.44	3.36	0.00				
35.00	6.44	3.36	0.00				
36.00	6.44	3.36	0.00				
37.00	6.44	3.36	0.00				
38.00	6.44	3.36	0.00				
39.00	6.44	3.36	0.00				
40.00	6.44	3.36	0.00				
41.00	6.44	3.36	0.00				
42.00	6.44	3.36	0.00				
43.00	6.44	3.36	0.00				
44.00	6.44	3.36	0.00				
45.00	6.44	3.36	0.00				
46.00	6.44	3.36	0.00				
47.00	6.44	3.36	0.00				
48.00	6.44	3.36	0.00				
49.00	6.44	3.36	0.00				
50.00	6.44	3.36	0.00				
51.00	6.44	3.36	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 25-Year Rainfall=6.44"

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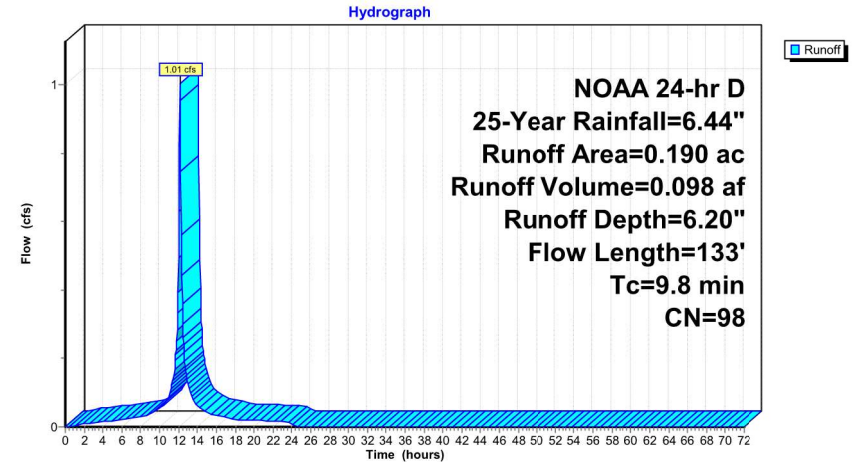
Summary for Subcatchment 4S: Basin B - Imp.

Runoff = 1.01 cfs @ 12.17 hrs, Volume= 0.098 af, Depth= 6.20"
 Routed to Pond 4P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 25-Year Rainfall=6.44"

Area (ac)	CN	Description
0.190	98	Unconnected pavement, HSG C
0.190		100.00% Impervious Area
0.190		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.3	48	0.0310	2.83		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.0	15	0.4000	10.18		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.5	45	0.0100	1.61		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.8	133	Total			

Subcatchment 4S: Basin B - Imp.

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NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Subcatchment 4S: Basin B - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	6.20	0.00
1.00	0.07	0.00	0.00	53.00	6.44	6.20	0.00
2.00	0.15	0.04	0.01	54.00	6.44	6.20	0.00
3.00	0.24	0.10	0.01	55.00	6.44	6.20	0.00
4.00	0.34	0.18	0.02	56.00	6.44	6.20	0.00
5.00	0.44	0.26	0.02	57.00	6.44	6.20	0.00
6.00	0.55	0.36	0.02	58.00	6.44	6.20	0.00
7.00	0.68	0.48	0.02	59.00	6.44	6.20	0.00
8.00	0.84	0.63	0.03	60.00	6.44	6.20	0.00
9.00	1.02	0.81	0.04	61.00	6.44	6.20	0.00
10.00	1.28	1.06	0.05	62.00	6.44	6.20	0.00
11.00	1.67	1.45	0.09	63.00	6.44	6.20	0.00
12.00	3.09	2.85	0.50	64.00	6.44	6.20	0.00
13.00	4.77	4.53	0.13	65.00	6.44	6.20	0.00
14.00	5.16	4.93	0.06	66.00	6.44	6.20	0.00
15.00	5.42	5.18	0.04	67.00	6.44	6.20	0.00
16.00	5.60	5.37	0.03	68.00	6.44	6.20	0.00
17.00	5.76	5.52	0.03	69.00	6.44	6.20	0.00
18.00	5.89	5.65	0.02	70.00	6.44	6.20	0.00
19.00	6.00	5.76	0.02	71.00	6.44	6.20	0.00
20.00	6.10	5.86	0.02	72.00	6.44	6.20	0.00
21.00	6.20	5.96	0.02				
22.00	6.29	6.05	0.02				
23.00	6.37	6.13	0.02				
24.00	6.44	6.20	0.01				
25.00	6.44	6.20	0.00				
26.00	6.44	6.20	0.00				
27.00	6.44	6.20	0.00				
28.00	6.44	6.20	0.00				
29.00	6.44	6.20	0.00				
30.00	6.44	6.20	0.00				
31.00	6.44	6.20	0.00				
32.00	6.44	6.20	0.00				
33.00	6.44	6.20	0.00				
34.00	6.44	6.20	0.00				
35.00	6.44	6.20	0.00				
36.00	6.44	6.20	0.00				
37.00	6.44	6.20	0.00				
38.00	6.44	6.20	0.00				
39.00	6.44	6.20	0.00				
40.00	6.44	6.20	0.00				
41.00	6.44	6.20	0.00				
42.00	6.44	6.20	0.00				
43.00	6.44	6.20	0.00				
44.00	6.44	6.20	0.00				
45.00	6.44	6.20	0.00				
46.00	6.44	6.20	0.00				
47.00	6.44	6.20	0.00				
48.00	6.44	6.20	0.00				
49.00	6.44	6.20	0.00				
50.00	6.44	6.20	0.00				
51.00	6.44	6.20	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 25-Year Rainfall=6.44"

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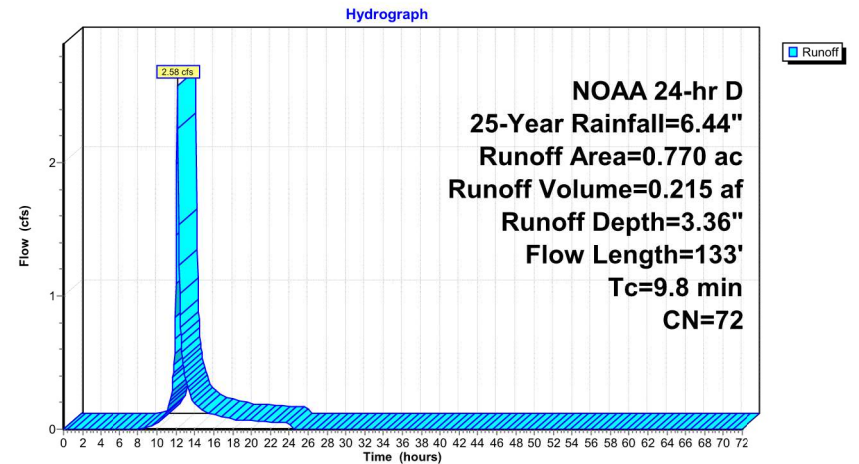
Summary for Subcatchment 5S: Basin B - Perv.

Runoff = 2.58 cfs @ 12.17 hrs, Volume= 0.215 af, Depth= 3.36"
 Routed to Pond 4P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 25-Year Rainfall=6.44"

Area (ac)	CN	Description
0.390	74	>75% Grass cover, Good, HSG C
0.380	70	Woods, Good, HSG C
0.770	72	Weighted Average
0.770		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.3	48	0.0310	2.83		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.0	15	0.4000	10.18		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.5	45	0.0100	1.61		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.8	133	Total			

Subcatchment 5S: Basin B - Perv.

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NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Subcatchment 5S: Basin B - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	3.36	0.00
1.00	0.07	0.00	0.00	53.00	6.44	3.36	0.00
2.00	0.15	0.00	0.00	54.00	6.44	3.36	0.00
3.00	0.24	0.00	0.00	55.00	6.44	3.36	0.00
4.00	0.34	0.00	0.00	56.00	6.44	3.36	0.00
5.00	0.44	0.00	0.00	57.00	6.44	3.36	0.00
6.00	0.55	0.00	0.00	58.00	6.44	3.36	0.00
7.00	0.68	0.00	0.00	59.00	6.44	3.36	0.00
8.00	0.84	0.00	0.00	60.00	6.44	3.36	0.00
9.00	1.02	0.01	0.02	61.00	6.44	3.36	0.00
10.00	1.28	0.06	0.04	62.00	6.44	3.36	0.00
11.00	1.67	0.17	0.12	63.00	6.44	3.36	0.00
12.00	3.09	0.86	1.09	64.00	6.44	3.36	0.00
13.00	4.77	2.02	0.39	65.00	6.44	3.36	0.00
14.00	5.16	2.32	0.19	66.00	6.44	3.36	0.00
15.00	5.42	2.52	0.13	67.00	6.44	3.36	0.00
16.00	5.60	2.67	0.11	68.00	6.44	3.36	0.00
17.00	5.76	2.80	0.09	69.00	6.44	3.36	0.00
18.00	5.89	2.90	0.07	70.00	6.44	3.36	0.00
19.00	6.00	2.99	0.07	71.00	6.44	3.36	0.00
20.00	6.10	3.08	0.06	72.00	6.44	3.36	0.00
21.00	6.20	3.16	0.06				
22.00	6.29	3.23	0.06				
23.00	6.37	3.30	0.05				
24.00	6.44	3.36	0.05				
25.00	6.44	3.36	0.00				
26.00	6.44	3.36	0.00				
27.00	6.44	3.36	0.00				
28.00	6.44	3.36	0.00				
29.00	6.44	3.36	0.00				
30.00	6.44	3.36	0.00				
31.00	6.44	3.36	0.00				
32.00	6.44	3.36	0.00				
33.00	6.44	3.36	0.00				
34.00	6.44	3.36	0.00				
35.00	6.44	3.36	0.00				
36.00	6.44	3.36	0.00				
37.00	6.44	3.36	0.00				
38.00	6.44	3.36	0.00				
39.00	6.44	3.36	0.00				
40.00	6.44	3.36	0.00				
41.00	6.44	3.36	0.00				
42.00	6.44	3.36	0.00				
43.00	6.44	3.36	0.00				
44.00	6.44	3.36	0.00				
45.00	6.44	3.36	0.00				
46.00	6.44	3.36	0.00				
47.00	6.44	3.36	0.00				
48.00	6.44	3.36	0.00				
49.00	6.44	3.36	0.00				
50.00	6.44	3.36	0.00				
51.00	6.44	3.36	0.00				

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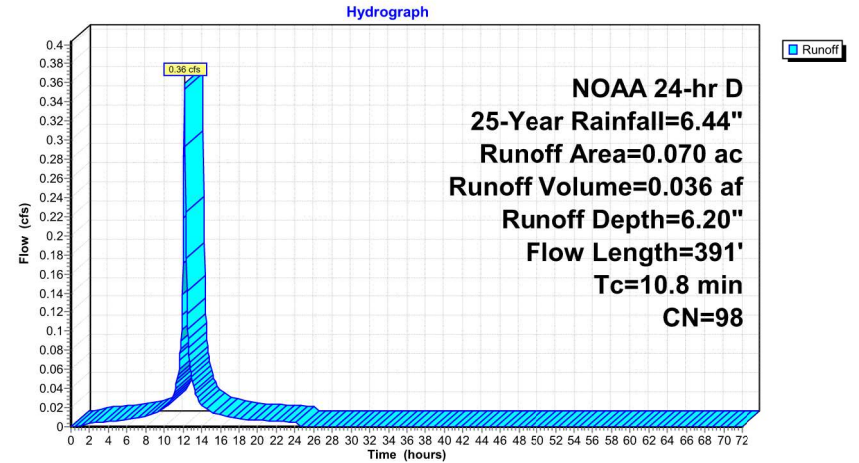
Summary for Subcatchment 6S: Undetained - Imp.

Runoff = 0.36 cfs @ 12.18 hrs, Volume= 0.036 af, Depth= 6.20"
 Routed to Link 3L : DA 1. - Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 25-Year Rainfall=6.44"

Area (ac)	CN	Description
0.060	98	Paved parking, HSG C
0.010	98	Paved parking, HSG B
0.070	98	Weighted Average
0.070		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	59	0.0200	0.11		Sheet Flow, Sheet Flow - Grass Grass: Dense n= 0.240 P2= 3.44" Using McCuen-Spiess flow length
1.8	332	0.0360	3.05		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
10.8	391	Total			

Subcatchment 6S: Undetained - Imp.

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NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Subcatchment 6S: Undetained - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	6.20	0.00
1.00	0.07	0.00	0.00	53.00	6.44	6.20	0.00
2.00	0.15	0.04	0.00	54.00	6.44	6.20	0.00
3.00	0.24	0.10	0.00	55.00	6.44	6.20	0.00
4.00	0.34	0.18	0.01	56.00	6.44	6.20	0.00
5.00	0.44	0.26	0.01	57.00	6.44	6.20	0.00
6.00	0.55	0.36	0.01	58.00	6.44	6.20	0.00
7.00	0.68	0.48	0.01	59.00	6.44	6.20	0.00
8.00	0.84	0.63	0.01	60.00	6.44	6.20	0.00
9.00	1.02	0.81	0.01	61.00	6.44	6.20	0.00
10.00	1.28	1.06	0.02	62.00	6.44	6.20	0.00
11.00	1.67	1.45	0.03	63.00	6.44	6.20	0.00
12.00	3.09	2.85	0.17	64.00	6.44	6.20	0.00
13.00	4.77	4.53	0.05	65.00	6.44	6.20	0.00
14.00	5.16	4.93	0.02	66.00	6.44	6.20	0.00
15.00	5.42	5.18	0.02	67.00	6.44	6.20	0.00
16.00	5.60	5.37	0.01	68.00	6.44	6.20	0.00
17.00	5.76	5.52	0.01	69.00	6.44	6.20	0.00
18.00	5.89	5.65	0.01	70.00	6.44	6.20	0.00
19.00	6.00	5.76	0.01	71.00	6.44	6.20	0.00
20.00	6.10	5.86	0.01	72.00	6.44	6.20	0.00
21.00	6.20	5.96	0.01				
22.00	6.29	6.05	0.01				
23.00	6.37	6.13	0.01				
24.00	6.44	6.20	0.01				
25.00	6.44	6.20	0.00				
26.00	6.44	6.20	0.00				
27.00	6.44	6.20	0.00				
28.00	6.44	6.20	0.00				
29.00	6.44	6.20	0.00				
30.00	6.44	6.20	0.00				
31.00	6.44	6.20	0.00				
32.00	6.44	6.20	0.00				
33.00	6.44	6.20	0.00				
34.00	6.44	6.20	0.00				
35.00	6.44	6.20	0.00				
36.00	6.44	6.20	0.00				
37.00	6.44	6.20	0.00				
38.00	6.44	6.20	0.00				
39.00	6.44	6.20	0.00				
40.00	6.44	6.20	0.00				
41.00	6.44	6.20	0.00				
42.00	6.44	6.20	0.00				
43.00	6.44	6.20	0.00				
44.00	6.44	6.20	0.00				
45.00	6.44	6.20	0.00				
46.00	6.44	6.20	0.00				
47.00	6.44	6.20	0.00				
48.00	6.44	6.20	0.00				
49.00	6.44	6.20	0.00				
50.00	6.44	6.20	0.00				
51.00	6.44	6.20	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 25-Year Rainfall=6.44"

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Summary for Subcatchment 7S: Basin C - Imp.

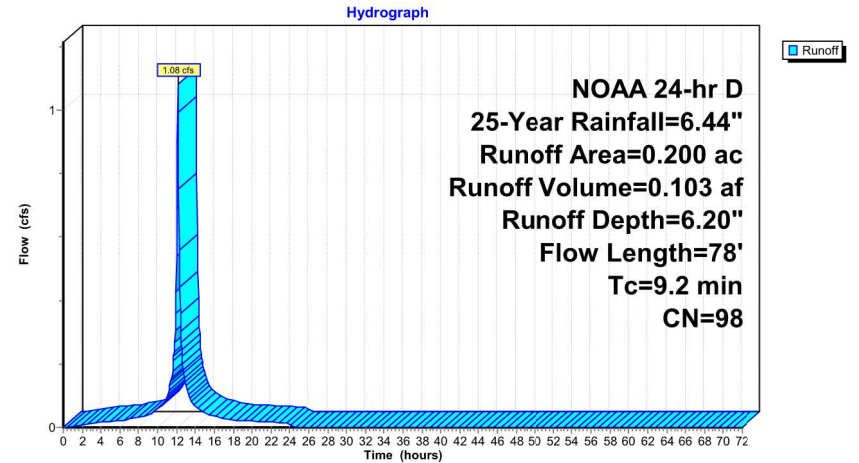
Runoff = 1.08 cfs @ 12.16 hrs, Volume= 0.103 af, Depth= 6.20"

Routed to Pond 5P : Basin C

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 25-Year Rainfall=6.44"

Area (ac)	CN	Description
0.200	98	Unconnected pavement, HSG C
0.200		100.00% Impervious Area
0.200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Shhet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	53	0.1070	5.27		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	78	Total			

Subcatchment 7S: Basin C - Imp.

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Hydrograph for Subcatchment 7S: Basin C - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	6.20	0.00
1.00	0.07	0.00	0.00	53.00	6.44	6.20	0.00
2.00	0.15	0.04	0.01	54.00	6.44	6.20	0.00
3.00	0.24	0.10	0.01	55.00	6.44	6.20	0.00
4.00	0.34	0.18	0.02	56.00	6.44	6.20	0.00
5.00	0.44	0.26	0.02	57.00	6.44	6.20	0.00
6.00	0.55	0.36	0.02	58.00	6.44	6.20	0.00
7.00	0.68	0.48	0.03	59.00	6.44	6.20	0.00
8.00	0.84	0.63	0.03	60.00	6.44	6.20	0.00
9.00	1.02	0.81	0.04	61.00	6.44	6.20	0.00
10.00	1.28	1.06	0.06	62.00	6.44	6.20	0.00
11.00	1.67	1.45	0.10	63.00	6.44	6.20	0.00
12.00	3.09	2.85	0.54	64.00	6.44	6.20	0.00
13.00	4.77	4.53	0.13	65.00	6.44	6.20	0.00
14.00	5.16	4.93	0.06	66.00	6.44	6.20	0.00
15.00	5.42	5.18	0.04	67.00	6.44	6.20	0.00
16.00	5.60	5.37	0.04	68.00	6.44	6.20	0.00
17.00	5.76	5.52	0.03	69.00	6.44	6.20	0.00
18.00	5.89	5.65	0.02	70.00	6.44	6.20	0.00
19.00	6.00	5.76	0.02	71.00	6.44	6.20	0.00
20.00	6.10	5.86	0.02	72.00	6.44	6.20	0.00
21.00	6.20	5.96	0.02				
22.00	6.29	6.05	0.02				
23.00	6.37	6.13	0.02				
24.00	6.44	6.20	0.01				
25.00	6.44	6.20	0.00				
26.00	6.44	6.20	0.00				
27.00	6.44	6.20	0.00				
28.00	6.44	6.20	0.00				
29.00	6.44	6.20	0.00				
30.00	6.44	6.20	0.00				
31.00	6.44	6.20	0.00				
32.00	6.44	6.20	0.00				
33.00	6.44	6.20	0.00				
34.00	6.44	6.20	0.00				
35.00	6.44	6.20	0.00				
36.00	6.44	6.20	0.00				
37.00	6.44	6.20	0.00				
38.00	6.44	6.20	0.00				
39.00	6.44	6.20	0.00				
40.00	6.44	6.20	0.00				
41.00	6.44	6.20	0.00				
42.00	6.44	6.20	0.00				
43.00	6.44	6.20	0.00				
44.00	6.44	6.20	0.00				
45.00	6.44	6.20	0.00				
46.00	6.44	6.20	0.00				
47.00	6.44	6.20	0.00				
48.00	6.44	6.20	0.00				
49.00	6.44	6.20	0.00				
50.00	6.44	6.20	0.00				
51.00	6.44	6.20	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 25-Year Rainfall=6.44"

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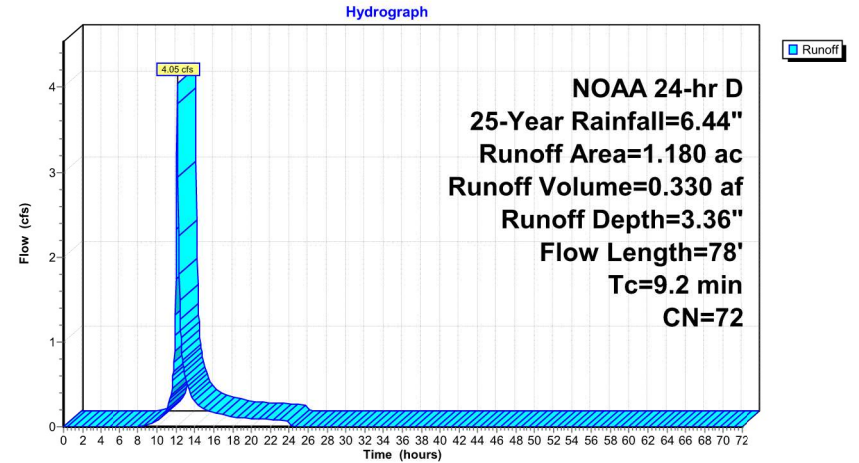
Summary for Subcatchment 8S: Basin C - Perv.

Runoff = 4.05 cfs @ 12.17 hrs, Volume= 0.330 af, Depth= 3.36"
 Routed to Pond 5P : Basin C

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 25-Year Rainfall=6.44"

Area (ac)	CN	Description
0.560	74	>75% Grass cover, Good, HSG C
0.620	70	Woods, Good, HSG C
1.180	72	Weighted Average
1.180		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	53	0.1070	5.27		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	78	Total			

Subcatchment 8S: Basin C - Perv.

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Hydrograph for Subcatchment 8S: Basin C - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	3.36	0.00
1.00	0.07	0.00	0.00	53.00	6.44	3.36	0.00
2.00	0.15	0.00	0.00	54.00	6.44	3.36	0.00
3.00	0.24	0.00	0.00	55.00	6.44	3.36	0.00
4.00	0.34	0.00	0.00	56.00	6.44	3.36	0.00
5.00	0.44	0.00	0.00	57.00	6.44	3.36	0.00
6.00	0.55	0.00	0.00	58.00	6.44	3.36	0.00
7.00	0.68	0.00	0.00	59.00	6.44	3.36	0.00
8.00	0.84	0.00	0.00	60.00	6.44	3.36	0.00
9.00	1.02	0.01	0.02	61.00	6.44	3.36	0.00
10.00	1.28	0.06	0.07	62.00	6.44	3.36	0.00
11.00	1.67	0.17	0.19	63.00	6.44	3.36	0.00
12.00	3.09	0.86	1.74	64.00	6.44	3.36	0.00
13.00	4.77	2.02	0.59	65.00	6.44	3.36	0.00
14.00	5.16	2.32	0.30	66.00	6.44	3.36	0.00
15.00	5.42	2.52	0.21	67.00	6.44	3.36	0.00
16.00	5.60	2.67	0.17	68.00	6.44	3.36	0.00
17.00	5.76	2.80	0.14	69.00	6.44	3.36	0.00
18.00	5.89	2.90	0.11	70.00	6.44	3.36	0.00
19.00	6.00	2.99	0.10	71.00	6.44	3.36	0.00
20.00	6.10	3.08	0.10	72.00	6.44	3.36	0.00
21.00	6.20	3.16	0.09				
22.00	6.29	3.23	0.08				
23.00	6.37	3.30	0.08				
24.00	6.44	3.36	0.07				
25.00	6.44	3.36	0.00				
26.00	6.44	3.36	0.00				
27.00	6.44	3.36	0.00				
28.00	6.44	3.36	0.00				
29.00	6.44	3.36	0.00				
30.00	6.44	3.36	0.00				
31.00	6.44	3.36	0.00				
32.00	6.44	3.36	0.00				
33.00	6.44	3.36	0.00				
34.00	6.44	3.36	0.00				
35.00	6.44	3.36	0.00				
36.00	6.44	3.36	0.00				
37.00	6.44	3.36	0.00				
38.00	6.44	3.36	0.00				
39.00	6.44	3.36	0.00				
40.00	6.44	3.36	0.00				
41.00	6.44	3.36	0.00				
42.00	6.44	3.36	0.00				
43.00	6.44	3.36	0.00				
44.00	6.44	3.36	0.00				
45.00	6.44	3.36	0.00				
46.00	6.44	3.36	0.00				
47.00	6.44	3.36	0.00				
48.00	6.44	3.36	0.00				
49.00	6.44	3.36	0.00				
50.00	6.44	3.36	0.00				
51.00	6.44	3.36	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 25-Year Rainfall=6.44"

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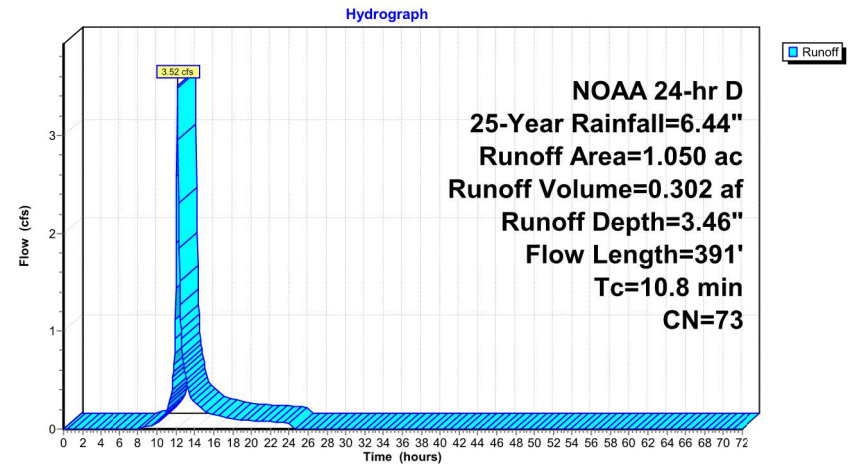
Summary for Subcatchment 9S: Undetained - Perv.

Runoff = 3.52 cfs @ 12.19 hrs, Volume= 0.302 af, Depth= 3.46"
 Routed to Link 3L : DA 1. - Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 25-Year Rainfall=6.44"

Area (ac)	CN	Description
0.910	74	>75% Grass cover, Good, HSG C
0.070	61	>75% Grass cover, Good, HSG B
0.070	70	Woods, Good, HSG C
1.050	73	Weighted Average
1.050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	59	0.0200	0.11		Sheet Flow, Sheet Flow - Grass Grass: Dense n= 0.240 P2= 3.44" Using McCuen-Spiess flow length
1.8	332	0.0360	3.05		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
10.8	391	Total			

Subcatchment 9S: Undetained - Perv.

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NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Subcatchment 9S: Undetained - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	3.46	0.00
1.00	0.07	0.00	0.00	53.00	6.44	3.46	0.00
2.00	0.15	0.00	0.00	54.00	6.44	3.46	0.00
3.00	0.24	0.00	0.00	55.00	6.44	3.46	0.00
4.00	0.34	0.00	0.00	56.00	6.44	3.46	0.00
5.00	0.44	0.00	0.00	57.00	6.44	3.46	0.00
6.00	0.55	0.00	0.00	58.00	6.44	3.46	0.00
7.00	0.68	0.00	0.00	59.00	6.44	3.46	0.00
8.00	0.84	0.00	0.01	60.00	6.44	3.46	0.00
9.00	1.02	0.02	0.03	61.00	6.44	3.46	0.00
10.00	1.28	0.07	0.07	62.00	6.44	3.46	0.00
11.00	1.67	0.19	0.18	63.00	6.44	3.46	0.00
12.00	3.09	0.91	1.44	64.00	6.44	3.46	0.00
13.00	4.77	2.10	0.55	65.00	6.44	3.46	0.00
14.00	5.16	2.41	0.27	66.00	6.44	3.46	0.00
15.00	5.42	2.61	0.19	67.00	6.44	3.46	0.00
16.00	5.60	2.76	0.15	68.00	6.44	3.46	0.00
17.00	5.76	2.89	0.13	69.00	6.44	3.46	0.00
18.00	5.89	3.00	0.10	70.00	6.44	3.46	0.00
19.00	6.00	3.09	0.09	71.00	6.44	3.46	0.00
20.00	6.10	3.17	0.09	72.00	6.44	3.46	0.00
21.00	6.20	3.25	0.08				
22.00	6.29	3.33	0.08				
23.00	6.37	3.39	0.07				
24.00	6.44	3.46	0.06				
25.00	6.44	3.46	0.00				
26.00	6.44	3.46	0.00				
27.00	6.44	3.46	0.00				
28.00	6.44	3.46	0.00				
29.00	6.44	3.46	0.00				
30.00	6.44	3.46	0.00				
31.00	6.44	3.46	0.00				
32.00	6.44	3.46	0.00				
33.00	6.44	3.46	0.00				
34.00	6.44	3.46	0.00				
35.00	6.44	3.46	0.00				
36.00	6.44	3.46	0.00				
37.00	6.44	3.46	0.00				
38.00	6.44	3.46	0.00				
39.00	6.44	3.46	0.00				
40.00	6.44	3.46	0.00				
41.00	6.44	3.46	0.00				
42.00	6.44	3.46	0.00				
43.00	6.44	3.46	0.00				
44.00	6.44	3.46	0.00				
45.00	6.44	3.46	0.00				
46.00	6.44	3.46	0.00				
47.00	6.44	3.46	0.00				
48.00	6.44	3.46	0.00				
49.00	6.44	3.46	0.00				
50.00	6.44	3.46	0.00				
51.00	6.44	3.46	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 25-Year Rainfall=6.44"

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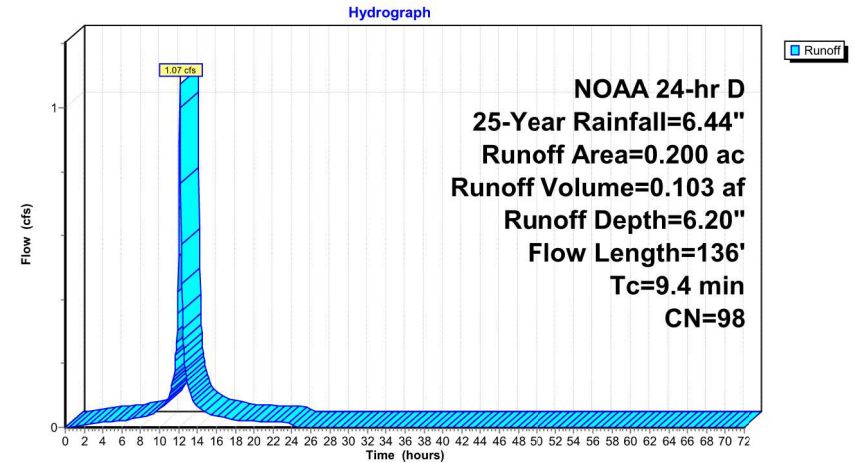
Summary for Subcatchment 11S: Basin D - Imp.

Runoff = 1.07 cfs @ 12.16 hrs, Volume= 0.103 af, Depth= 6.20"
 Routed to Pond 6P : Basin D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 25-Year Rainfall=6.44"

Area (ac)	CN	Description
0.200	98	Unconnected pavement, HSG C
0.200		100.00% Impervious Area
0.200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.4	111	0.0720	4.32		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.4	136	Total			

Subcatchment 11S: Basin D - Imp.

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NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Subcatchment 11S: Basin D - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	6.20	0.00
1.00	0.07	0.00	0.00	53.00	6.44	6.20	0.00
2.00	0.15	0.04	0.01	54.00	6.44	6.20	0.00
3.00	0.24	0.10	0.01	55.00	6.44	6.20	0.00
4.00	0.34	0.18	0.02	56.00	6.44	6.20	0.00
5.00	0.44	0.26	0.02	57.00	6.44	6.20	0.00
6.00	0.55	0.36	0.02	58.00	6.44	6.20	0.00
7.00	0.68	0.48	0.03	59.00	6.44	6.20	0.00
8.00	0.84	0.63	0.03	60.00	6.44	6.20	0.00
9.00	1.02	0.81	0.04	61.00	6.44	6.20	0.00
10.00	1.28	1.06	0.06	62.00	6.44	6.20	0.00
11.00	1.67	1.45	0.10	63.00	6.44	6.20	0.00
12.00	3.09	2.85	0.53	64.00	6.44	6.20	0.00
13.00	4.77	4.53	0.13	65.00	6.44	6.20	0.00
14.00	5.16	4.93	0.06	66.00	6.44	6.20	0.00
15.00	5.42	5.18	0.04	67.00	6.44	6.20	0.00
16.00	5.60	5.37	0.04	68.00	6.44	6.20	0.00
17.00	5.76	5.52	0.03	69.00	6.44	6.20	0.00
18.00	5.89	5.65	0.02	70.00	6.44	6.20	0.00
19.00	6.00	5.76	0.02	71.00	6.44	6.20	0.00
20.00	6.10	5.86	0.02	72.00	6.44	6.20	0.00
21.00	6.20	5.96	0.02				
22.00	6.29	6.05	0.02				
23.00	6.37	6.13	0.02				
24.00	6.44	6.20	0.01				
25.00	6.44	6.20	0.00				
26.00	6.44	6.20	0.00				
27.00	6.44	6.20	0.00				
28.00	6.44	6.20	0.00				
29.00	6.44	6.20	0.00				
30.00	6.44	6.20	0.00				
31.00	6.44	6.20	0.00				
32.00	6.44	6.20	0.00				
33.00	6.44	6.20	0.00				
34.00	6.44	6.20	0.00				
35.00	6.44	6.20	0.00				
36.00	6.44	6.20	0.00				
37.00	6.44	6.20	0.00				
38.00	6.44	6.20	0.00				
39.00	6.44	6.20	0.00				
40.00	6.44	6.20	0.00				
41.00	6.44	6.20	0.00				
42.00	6.44	6.20	0.00				
43.00	6.44	6.20	0.00				
44.00	6.44	6.20	0.00				
45.00	6.44	6.20	0.00				
46.00	6.44	6.20	0.00				
47.00	6.44	6.20	0.00				
48.00	6.44	6.20	0.00				
49.00	6.44	6.20	0.00				
50.00	6.44	6.20	0.00				
51.00	6.44	6.20	0.00				

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NOAA 24-hr D 25-Year Rainfall=6.44"

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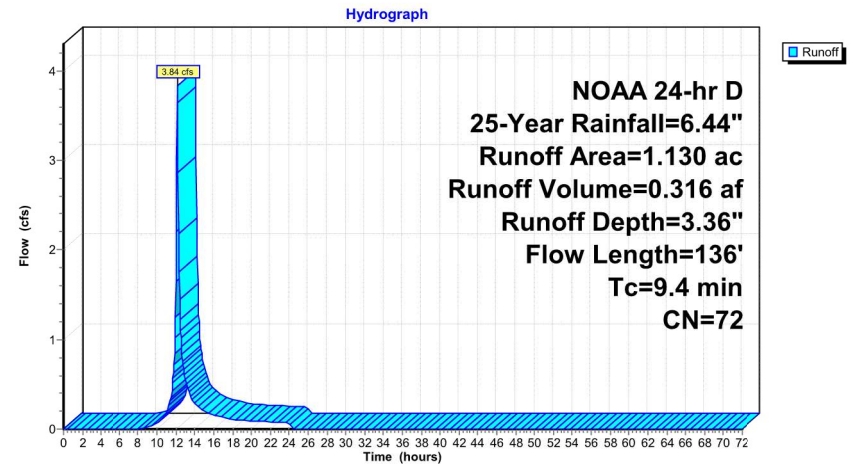
Summary for Subcatchment 12S: Basin D - Perv.

Runoff = 3.84 cfs @ 12.17 hrs, Volume= 0.316 af, Depth= 3.36"
 Routed to Pond 6P : Basin D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 25-Year Rainfall=6.44"

Area (ac)	CN	Description
0.470	74	>75% Grass cover, Good, HSG C
0.650	70	Woods, Good, HSG C
* 0.010	55	Woods, Good, HSG B
1.130	72	Weighted Average
1.130		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.4	111	0.0720	4.32		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.4	136	Total			

Subcatchment 12S: Basin D - Perv.

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Hydrograph for Subcatchment 12S: Basin D - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.44	3.36	0.00
1.00	0.07	0.00	0.00	53.00	6.44	3.36	0.00
2.00	0.15	0.00	0.00	54.00	6.44	3.36	0.00
3.00	0.24	0.00	0.00	55.00	6.44	3.36	0.00
4.00	0.34	0.00	0.00	56.00	6.44	3.36	0.00
5.00	0.44	0.00	0.00	57.00	6.44	3.36	0.00
6.00	0.55	0.00	0.00	58.00	6.44	3.36	0.00
7.00	0.68	0.00	0.00	59.00	6.44	3.36	0.00
8.00	0.84	0.00	0.00	60.00	6.44	3.36	0.00
9.00	1.02	0.01	0.02	61.00	6.44	3.36	0.00
10.00	1.28	0.06	0.07	62.00	6.44	3.36	0.00
11.00	1.67	0.17	0.18	63.00	6.44	3.36	0.00
12.00	3.09	0.86	1.65	64.00	6.44	3.36	0.00
13.00	4.77	2.02	0.57	65.00	6.44	3.36	0.00
14.00	5.16	2.32	0.28	66.00	6.44	3.36	0.00
15.00	5.42	2.52	0.20	67.00	6.44	3.36	0.00
16.00	5.60	2.67	0.16	68.00	6.44	3.36	0.00
17.00	5.76	2.80	0.14	69.00	6.44	3.36	0.00
18.00	5.89	2.90	0.11	70.00	6.44	3.36	0.00
19.00	6.00	2.99	0.10	71.00	6.44	3.36	0.00
20.00	6.10	3.08	0.09	72.00	6.44	3.36	0.00
21.00	6.20	3.16	0.09				
22.00	6.29	3.23	0.08				
23.00	6.37	3.30	0.07				
24.00	6.44	3.36	0.07				
25.00	6.44	3.36	0.00				
26.00	6.44	3.36	0.00				
27.00	6.44	3.36	0.00				
28.00	6.44	3.36	0.00				
29.00	6.44	3.36	0.00				
30.00	6.44	3.36	0.00				
31.00	6.44	3.36	0.00				
32.00	6.44	3.36	0.00				
33.00	6.44	3.36	0.00				
34.00	6.44	3.36	0.00				
35.00	6.44	3.36	0.00				
36.00	6.44	3.36	0.00				
37.00	6.44	3.36	0.00				
38.00	6.44	3.36	0.00				
39.00	6.44	3.36	0.00				
40.00	6.44	3.36	0.00				
41.00	6.44	3.36	0.00				
42.00	6.44	3.36	0.00				
43.00	6.44	3.36	0.00				
44.00	6.44	3.36	0.00				
45.00	6.44	3.36	0.00				
46.00	6.44	3.36	0.00				
47.00	6.44	3.36	0.00				
48.00	6.44	3.36	0.00				
49.00	6.44	3.36	0.00				
50.00	6.44	3.36	0.00				
51.00	6.44	3.36	0.00				

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Summary for Pond 3P: Basin A

Inflow Area = 1.130 ac, 18.58% Impervious, Inflow Depth = 3.89" for 25-Year event
 Inflow = 4.30 cfs @ 12.16 hrs, Volume= 0.366 af
 Outflow = 0.99 cfs @ 12.60 hrs, Volume= 0.343 af, Atten= 77%, Lag= 26.0 min
 Primary = 0.99 cfs @ 12.60 hrs, Volume= 0.343 af
 Routed to Link 2L : DA 1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 620.62' @ 12.60 hrs Surf.Area= 0.107 ac Storage= 0.129 af

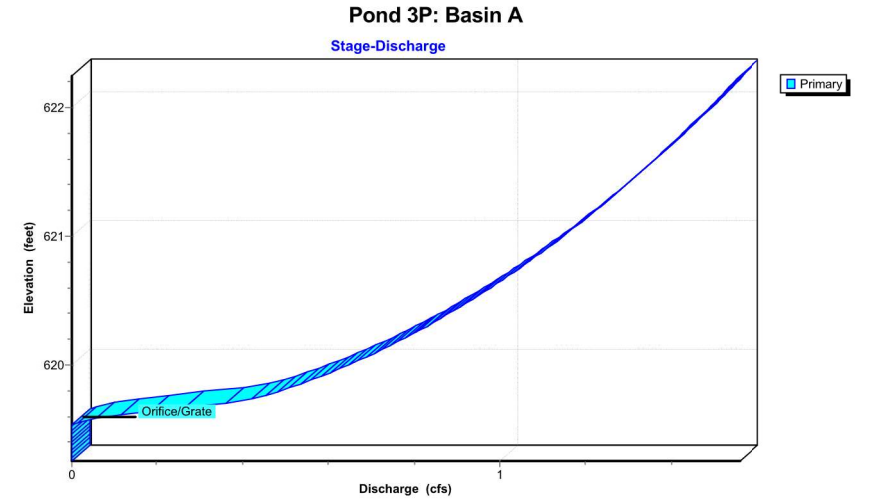
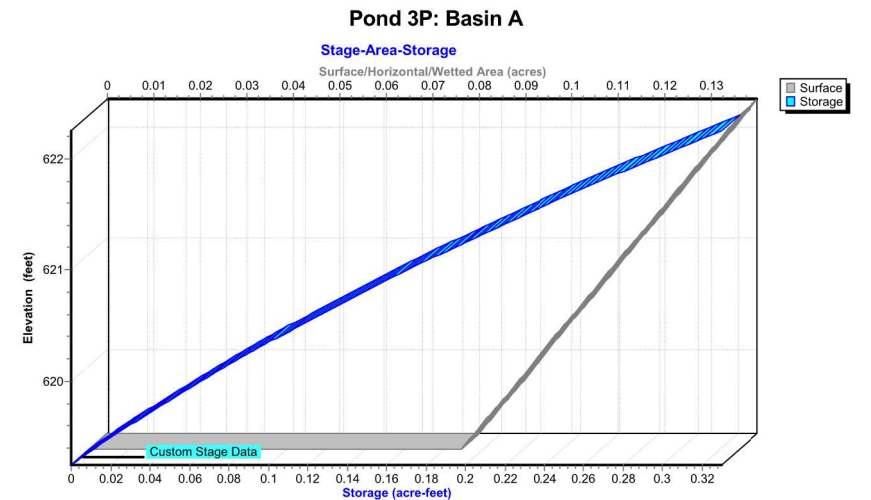
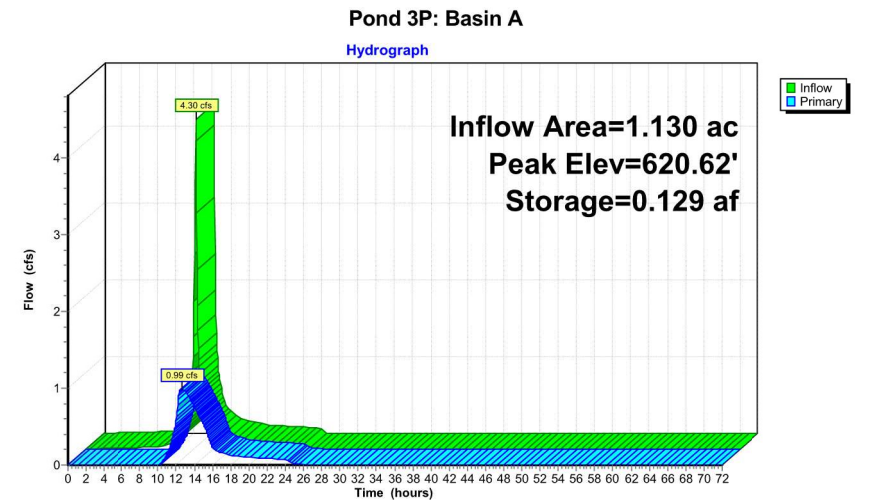
Plug-Flow detention time= 114.7 min calculated for 0.343 af (94% of inflow)
 Center-of-Mass det. time= 78.7 min (893.7 - 814.9)

Volume	Invert	Avail.Storage	Storage Description
#1	619.25'	0.330 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
619.25	0.080	0.000	0.000
620.25	0.100	0.090	0.090
621.25	0.120	0.110	0.200
622.25	0.140	0.130	0.330

Device	Routing	Invert	Outlet Devices
#1	Primary	619.53'	6.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.99 cfs @ 12.60 hrs HW=620.62' (Free Discharge)

1=Orifice/Grate (Orifice Controls 0.99 cfs @ 5.03 fps)



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Hydrograph for Pond 3P: Basin A

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	619.25	0.00
2.50	0.01	0.001	619.26	0.00
5.00	0.02	0.004	619.30	0.00
7.50	0.03	0.009	619.36	0.00
10.00	0.11	0.022	619.51	0.00
12.50	1.17	0.128	620.62	0.99
15.00	0.21	0.051	619.84	0.53
17.50	0.13	0.031	619.62	0.14
20.00	0.10	0.029	619.60	0.10
22.50	0.08	0.029	619.59	0.08
25.00	0.00	0.025	619.55	0.02
27.50	0.00	0.024	619.53	0.00
30.00	0.00	0.023	619.53	0.00
32.50	0.00	0.023	619.53	0.00
35.00	0.00	0.023	619.53	0.00
37.50	0.00	0.023	619.53	0.00
40.00	0.00	0.023	619.53	0.00
42.50	0.00	0.023	619.53	0.00
45.00	0.00	0.023	619.53	0.00
47.50	0.00	0.023	619.53	0.00
50.00	0.00	0.023	619.53	0.00
52.50	0.00	0.023	619.53	0.00
55.00	0.00	0.023	619.53	0.00
57.50	0.00	0.023	619.53	0.00
60.00	0.00	0.023	619.53	0.00
62.50	0.00	0.023	619.53	0.00
65.00	0.00	0.023	619.53	0.00
67.50	0.00	0.023	619.53	0.00
70.00	0.00	0.023	619.53	0.00

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Stage-Discharge for Pond 3P: Basin A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
619.25	0.00	620.29	0.82	621.33	1.27
619.27	0.00	620.31	0.83	621.35	1.28
619.29	0.00	620.33	0.85	621.37	1.28
619.31	0.00	620.35	0.86	621.39	1.29
619.33	0.00	620.37	0.87	621.41	1.30
619.35	0.00	620.39	0.88	621.43	1.30
619.37	0.00	620.41	0.89	621.45	1.31
619.39	0.00	620.43	0.90	621.47	1.32
619.41	0.00	620.45	0.91	621.49	1.32
619.43	0.00	620.47	0.92	621.51	1.33
619.45	0.00	620.49	0.93	621.53	1.34
619.47	0.00	620.51	0.94	621.55	1.34
619.49	0.00	620.53	0.95	621.57	1.35
619.51	0.00	620.55	0.95	621.59	1.36
619.53	0.00	620.57	0.96	621.61	1.36
619.55	0.01	620.59	0.97	621.63	1.37
619.57	0.04	620.61	0.98	621.65	1.38
619.59	0.08	620.63	0.99	621.67	1.38
619.61	0.12	620.65	1.00	621.69	1.39
619.63	0.16	620.67	1.01	621.71	1.40
619.65	0.21	620.69	1.02	621.73	1.40
619.67	0.27	620.71	1.03	621.75	1.41
619.69	0.33	620.73	1.04	621.77	1.41
619.71	0.39	620.75	1.04	621.79	1.42
619.73	0.42	620.77	1.05	621.81	1.43
619.75	0.44	620.79	1.06	621.83	1.43
619.77	0.46	620.81	1.07	621.85	1.44
619.79	0.48	620.83	1.08	621.87	1.45
619.81	0.50	620.85	1.09	621.89	1.45
619.83	0.52	620.87	1.09	621.91	1.46
619.85	0.53	620.89	1.10	621.93	1.46
619.87	0.55	620.91	1.11	621.95	1.47
619.89	0.57	620.93	1.12	621.97	1.48
619.91	0.58	620.95	1.13	621.99	1.48
619.93	0.60	620.97	1.13	622.01	1.49
619.95	0.61	620.99	1.14	622.03	1.49
619.97	0.63	621.01	1.15	622.05	1.50
619.99	0.64	621.03	1.16	622.07	1.51
620.01	0.66	621.05	1.17	622.09	1.51
620.03	0.67	621.07	1.17	622.11	1.52
620.05	0.68	621.09	1.18	622.13	1.52
620.07	0.69	621.11	1.19	622.15	1.53
620.09	0.71	621.13	1.20	622.17	1.54
620.11	0.72	621.15	1.20	622.19	1.54
620.13	0.73	621.17	1.21	622.21	1.55
620.15	0.74	621.19	1.22	622.23	1.55
620.17	0.76	621.21	1.23	622.25	1.56
620.19	0.77	621.23	1.23		
620.21	0.78	621.25	1.24		
620.23	0.79	621.27	1.25		
620.25	0.80	621.29	1.25		
620.27	0.81	621.31	1.26		

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Stage-Area-Storage for Pond 3P: Basin A

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
619.25	0.080	0.000	621.85	0.132	0.276
619.30	0.081	0.004	621.90	0.133	0.282
619.35	0.082	0.008	621.95	0.134	0.289
619.40	0.083	0.012	622.00	0.135	0.296
619.45	0.084	0.016	622.05	0.136	0.302
619.50	0.085	0.021	622.10	0.137	0.309
619.55	0.086	0.025	622.15	0.138	0.316
619.60	0.087	0.029	622.20	0.139	0.323
619.65	0.088	0.034	622.25	0.140	0.330
619.70	0.089	0.038			
619.75	0.090	0.043			
619.80	0.091	0.047			
619.85	0.092	0.052			
619.90	0.093	0.056			
619.95	0.094	0.061			
620.00	0.095	0.066			
620.05	0.096	0.070			
620.10	0.097	0.075			
620.15	0.098	0.080			
620.20	0.099	0.085			
620.25	0.100	0.090			
620.30	0.101	0.095			
620.35	0.102	0.100			
620.40	0.103	0.105			
620.45	0.104	0.110			
620.50	0.105	0.116			
620.55	0.106	0.121			
620.60	0.107	0.126			
620.65	0.108	0.132			
620.70	0.109	0.137			
620.75	0.110	0.142			
620.80	0.111	0.148			
620.85	0.112	0.154			
620.90	0.113	0.159			
620.95	0.114	0.165			
621.00	0.115	0.171			
621.05	0.116	0.176			
621.10	0.117	0.182			
621.15	0.118	0.188			
621.20	0.119	0.194			
621.25	0.120	0.200			
621.30	0.121	0.206			
621.35	0.122	0.212			
621.40	0.123	0.218			
621.45	0.124	0.224			
621.50	0.125	0.231			
621.55	0.126	0.237			
621.60	0.127	0.243			
621.65	0.128	0.250			
621.70	0.129	0.256			
621.75	0.130	0.262			
621.80	0.131	0.269			

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Summary for Pond 4P: Basin B

Inflow Area = 0.960 ac, 19.79% Impervious, Inflow Depth = 3.92" for 25-Year event
 Inflow = 3.58 cfs @ 12.17 hrs, Volume= 0.314 af
 Outflow = 0.84 cfs @ 12.61 hrs, Volume= 0.258 af, Atten= 76%, Lag= 26.1 min
 Primary = 0.84 cfs @ 12.61 hrs, Volume= 0.258 af
 Routed to Link 2L : DA 1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 620.19' @ 12.61 hrs Surf.Area= 0.109 ac Storage= 0.136 af

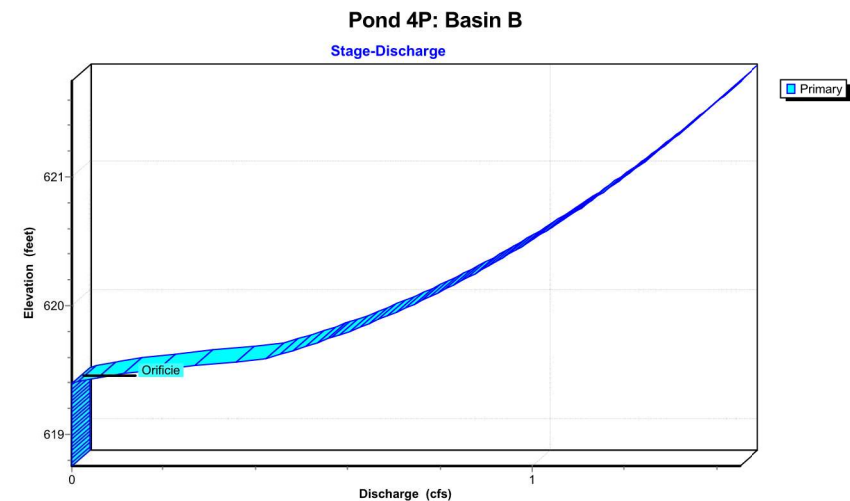
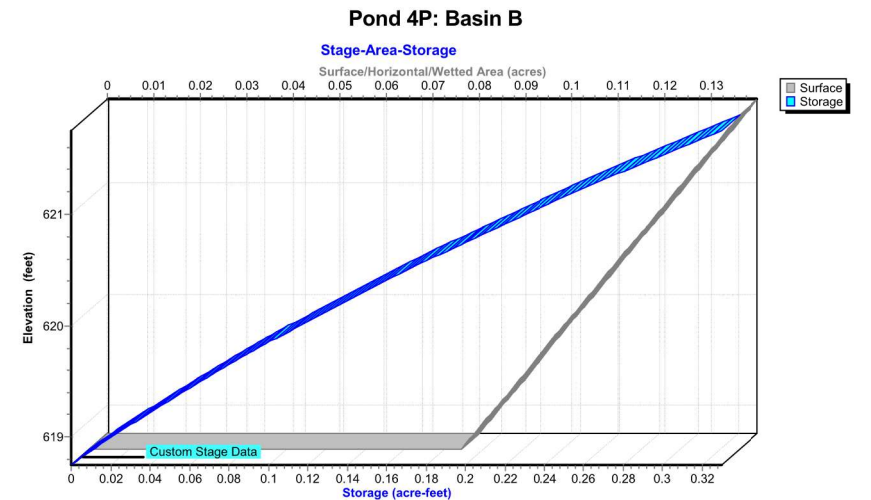
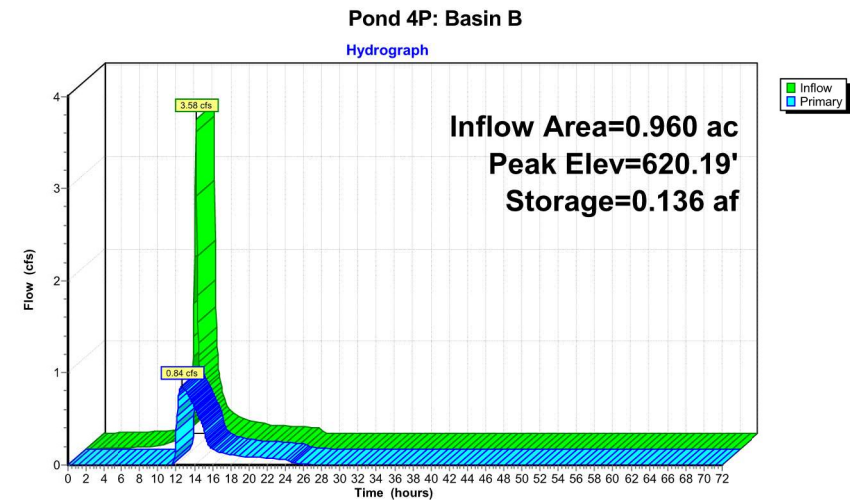
Plug-Flow detention time= 181.1 min calculated for 0.258 af (82% of inflow)
 Center-of-Mass det. time= 101.4 min (915.3 - 813.9)

Volume	Invert	Avail.Storage	Storage Description
#1	618.75'	0.330 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
618.75	0.080	0.000	0.000
619.75	0.100	0.090	0.090
620.75	0.120	0.110	0.200
621.75	0.140	0.130	0.330

Device	Routing	Invert	Outlet Devices
#1	Primary	619.39'	6.0" Horiz. Orifice C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.84 cfs @ 12.61 hrs HW=620.19' (Free Discharge)

1=Orifice (Orifice Controls 0.84 cfs @ 4.30 fps)



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Hydrograph for Pond 4P: Basin B

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	618.75	0.00
2.50	0.01	0.001	618.76	0.00
5.00	0.02	0.004	618.80	0.00
7.50	0.03	0.008	618.85	0.00
10.00	0.10	0.019	618.98	0.00
12.50	1.02	0.135	620.18	0.84
15.00	0.18	0.073	619.58	0.40
17.50	0.11	0.063	619.47	0.12
20.00	0.08	0.061	619.45	0.09
22.50	0.07	0.061	619.45	0.07
25.00	0.00	0.058	619.41	0.02
27.50	0.00	0.056	619.39	0.00
30.00	0.00	0.055	619.39	0.00
32.50	0.00	0.055	619.39	0.00
35.00	0.00	0.055	619.39	0.00
37.50	0.00	0.055	619.39	0.00
40.00	0.00	0.055	619.39	0.00
42.50	0.00	0.055	619.39	0.00
45.00	0.00	0.055	619.39	0.00
47.50	0.00	0.055	619.39	0.00
50.00	0.00	0.055	619.39	0.00
52.50	0.00	0.055	619.39	0.00
55.00	0.00	0.055	619.39	0.00
57.50	0.00	0.055	619.39	0.00
60.00	0.00	0.055	619.39	0.00
62.50	0.00	0.055	619.39	0.00
65.00	0.00	0.055	619.39	0.00
67.50	0.00	0.055	619.39	0.00
70.00	0.00	0.055	619.39	0.00

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Stage-Discharge for Pond 4P: Basin B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
618.75	0.00	619.79	0.60	620.83	1.13
618.77	0.00	619.81	0.61	620.85	1.14
618.79	0.00	619.83	0.63	620.87	1.15
618.81	0.00	619.85	0.64	620.89	1.16
618.83	0.00	619.87	0.66	620.91	1.17
618.85	0.00	619.89	0.67	620.93	1.17
618.87	0.00	619.91	0.68	620.95	1.18
618.89	0.00	619.93	0.69	620.97	1.19
618.91	0.00	619.95	0.71	620.99	1.20
618.93	0.00	619.97	0.72	621.01	1.20
618.95	0.00	619.99	0.73	621.03	1.21
618.97	0.00	620.01	0.74	621.05	1.22
618.99	0.00	620.03	0.76	621.07	1.23
619.01	0.00	620.05	0.77	621.09	1.23
619.03	0.00	620.07	0.78	621.11	1.24
619.05	0.00	620.09	0.79	621.13	1.25
619.07	0.00	620.11	0.80	621.15	1.25
619.09	0.00	620.13	0.81	621.17	1.26
619.11	0.00	620.15	0.82	621.19	1.27
619.13	0.00	620.17	0.83	621.21	1.28
619.15	0.00	620.19	0.85	621.23	1.28
619.17	0.00	620.21	0.86	621.25	1.29
619.19	0.00	620.23	0.87	621.27	1.30
619.21	0.00	620.25	0.88	621.29	1.30
619.23	0.00	620.27	0.89	621.31	1.31
619.25	0.00	620.29	0.90	621.33	1.32
619.27	0.00	620.31	0.91	621.35	1.32
619.29	0.00	620.33	0.92	621.37	1.33
619.31	0.00	620.35	0.93	621.39	1.34
619.33	0.00	620.37	0.94	621.41	1.34
619.35	0.00	620.39	0.95	621.43	1.35
619.37	0.00	620.41	0.95	621.45	1.36
619.39	0.00	620.43	0.96	621.47	1.36
619.41	0.01	620.45	0.97	621.49	1.37
619.43	0.04	620.47	0.98	621.51	1.38
619.45	0.08	620.49	0.99	621.53	1.38
619.47	0.12	620.51	1.00	621.55	1.39
619.49	0.16	620.53	1.01	621.57	1.40
619.51	0.21	620.55	1.02	621.59	1.40
619.53	0.27	620.57	1.03	621.61	1.41
619.55	0.33	620.59	1.04	621.63	1.41
619.57	0.39	620.61	1.04	621.65	1.42
619.59	0.42	620.63	1.05	621.67	1.43
619.61	0.44	620.65	1.06	621.69	1.43
619.63	0.46	620.67	1.07	621.71	1.44
619.65	0.48	620.69	1.08	621.73	1.45
619.67	0.50	620.71	1.09	621.75	1.45
619.69	0.52	620.73	1.09		
619.71	0.53	620.75	1.10		
619.73	0.55	620.77	1.11		
619.75	0.57	620.79	1.12		
619.77	0.58	620.81	1.13		

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Stage-Area-Storage for Pond 4P: Basin B

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
618.75	0.080	0.000	621.35	0.132	0.276
618.80	0.081	0.004	621.40	0.133	0.282
618.85	0.082	0.008	621.45	0.134	0.289
618.90	0.083	0.012	621.50	0.135	0.296
618.95	0.084	0.016	621.55	0.136	0.302
619.00	0.085	0.021	621.60	0.137	0.309
619.05	0.086	0.025	621.65	0.138	0.316
619.10	0.087	0.029	621.70	0.139	0.323
619.15	0.088	0.034	621.75	0.140	0.330
619.20	0.089	0.038			
619.25	0.090	0.043			
619.30	0.091	0.047			
619.35	0.092	0.052			
619.40	0.093	0.056			
619.45	0.094	0.061			
619.50	0.095	0.066			
619.55	0.096	0.070			
619.60	0.097	0.075			
619.65	0.098	0.080			
619.70	0.099	0.085			
619.75	0.100	0.090			
619.80	0.101	0.095			
619.85	0.102	0.100			
619.90	0.103	0.105			
619.95	0.104	0.110			
620.00	0.105	0.116			
620.05	0.106	0.121			
620.10	0.107	0.126			
620.15	0.108	0.132			
620.20	0.109	0.137			
620.25	0.110	0.142			
620.30	0.111	0.148			
620.35	0.112	0.154			
620.40	0.113	0.159			
620.45	0.114	0.165			
620.50	0.115	0.171			
620.55	0.116	0.176			
620.60	0.117	0.182			
620.65	0.118	0.188			
620.70	0.119	0.194			
620.75	0.120	0.200			
620.80	0.121	0.206			
620.85	0.122	0.212			
620.90	0.123	0.218			
620.95	0.124	0.224			
621.00	0.125	0.231			
621.05	0.126	0.237			
621.10	0.127	0.243			
621.15	0.128	0.250			
621.20	0.129	0.256			
621.25	0.130	0.262			
621.30	0.131	0.269			

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Summary for Pond 5P: Basin C

Inflow Area = 1.380 ac, 14.49% Impervious, Inflow Depth = 3.77" for 25-Year event
 Inflow = 5.13 cfs @ 12.16 hrs, Volume= 0.433 af
 Outflow = 1.54 cfs @ 12.46 hrs, Volume= 0.371 af, Atten= 70%, Lag= 18.0 min
 Primary = 1.54 cfs @ 12.46 hrs, Volume= 0.371 af
 Routed to Link 2L : DA 1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 618.43' @ 12.46 hrs Surf.Area= 0.129 ac Storage= 0.163 af

Plug-Flow detention time= 146.9 min calculated for 0.371 af (86% of inflow)
 Center-of-Mass det. time= 78.9 min (899.3 - 820.5)

Volume	Invert	Avail.Storage	Storage Description
#1	617.00'	0.390 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
617.00	0.100	0.000	0.000
618.00	0.120	0.110	0.110
619.00	0.140	0.130	0.240
620.00	0.160	0.150	0.390

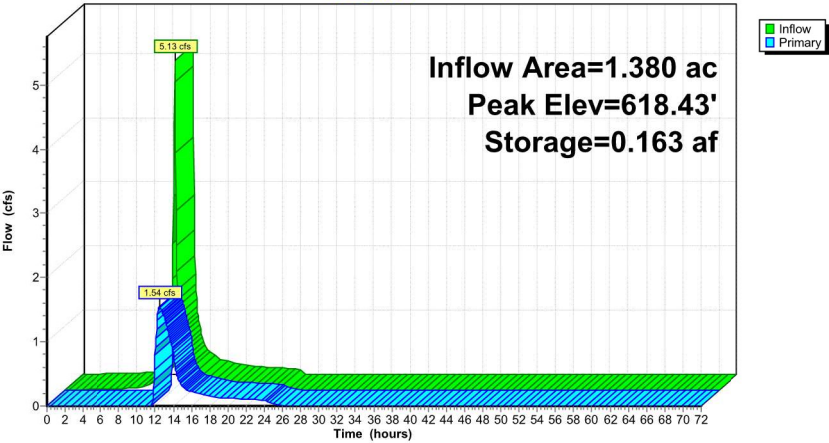
Device	Routing	Invert	Outlet Devices
#1	Primary	617.59'	8.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.54 cfs @ 12.46 hrs HW=618.43' (Free Discharge)

1=Orifice/Grate (Orifice Controls 1.54 cfs @ 4.41 fps)

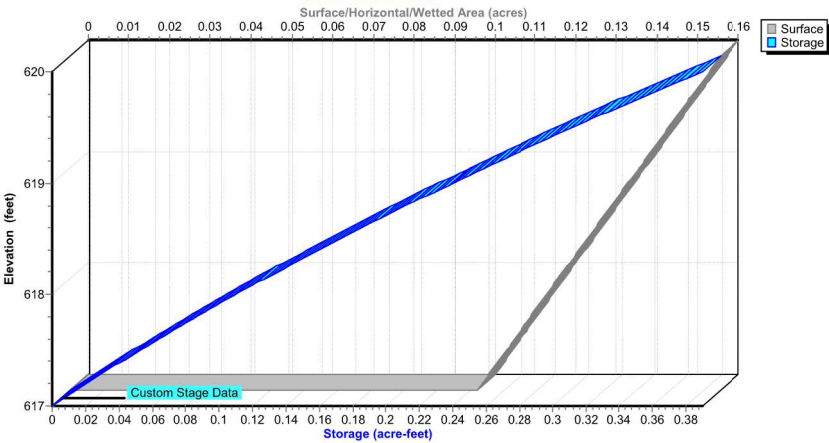
Pond 5P: Basin C

Hydrograph



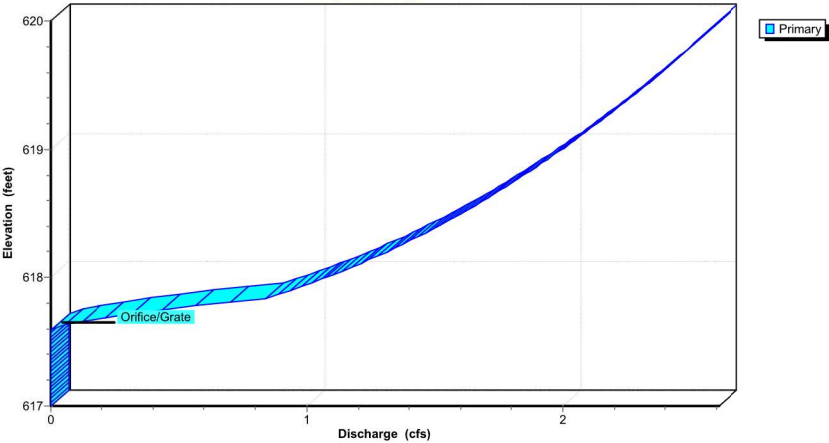
Pond 5P: Basin C

Stage-Area-Storage



Pond 5P: Basin C

Stage-Discharge



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Hydrograph for Pond 5P: Basin C

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	617.00	0.00
2.50	0.01	0.001	617.01	0.00
5.00	0.02	0.004	617.04	0.00
7.50	0.03	0.009	617.09	0.00
10.00	0.13	0.022	617.21	0.00
12.50	1.40	0.163	618.43	1.54
15.00	0.25	0.077	617.72	0.31
17.50	0.15	0.072	617.67	0.17
20.00	0.12	0.070	617.66	0.12
22.50	0.10	0.069	617.65	0.10
25.00	0.00	0.065	617.61	0.03
27.50	0.00	0.063	617.60	0.00
30.00	0.00	0.063	617.59	0.00
32.50	0.00	0.063	617.59	0.00
35.00	0.00	0.062	617.59	0.00
37.50	0.00	0.062	617.59	0.00
40.00	0.00	0.062	617.59	0.00
42.50	0.00	0.062	617.59	0.00
45.00	0.00	0.062	617.59	0.00
47.50	0.00	0.062	617.59	0.00
50.00	0.00	0.062	617.59	0.00
52.50	0.00	0.062	617.59	0.00
55.00	0.00	0.062	617.59	0.00
57.50	0.00	0.062	617.59	0.00
60.00	0.00	0.062	617.59	0.00
62.50	0.00	0.062	617.59	0.00
65.00	0.00	0.062	617.59	0.00
67.50	0.00	0.062	617.59	0.00
70.00	0.00	0.062	617.59	0.00

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Stage-Discharge for Pond 5P: Basin C

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
617.00	0.00	618.04	1.13	619.08	2.05
617.02	0.00	618.06	1.15	619.10	2.07
617.04	0.00	618.08	1.18	619.12	2.08
617.06	0.00	618.10	1.20	619.14	2.09
617.08	0.00	618.12	1.22	619.16	2.11
617.10	0.00	618.14	1.25	619.18	2.12
617.12	0.00	618.16	1.27	619.20	2.13
617.14	0.00	618.18	1.29	619.22	2.15
617.16	0.00	618.20	1.31	619.24	2.16
617.18	0.00	618.22	1.33	619.26	2.17
617.20	0.00	618.24	1.36	619.28	2.18
617.22	0.00	618.26	1.38	619.30	2.20
617.24	0.00	618.28	1.40	619.32	2.21
617.26	0.00	618.30	1.42	619.34	2.22
617.28	0.00	618.32	1.44	619.36	2.24
617.30	0.00	618.34	1.46	619.38	2.25
617.32	0.00	618.36	1.47	619.40	2.26
617.34	0.00	618.38	1.49	619.42	2.27
617.36	0.00	618.40	1.51	619.44	2.29
617.38	0.00	618.42	1.53	619.46	2.30
617.40	0.00	618.44	1.55	619.48	2.31
617.42	0.00	618.46	1.57	619.50	2.32
617.44	0.00	618.48	1.59	619.52	2.33
617.46	0.00	618.50	1.60	619.54	2.35
617.48	0.00	618.52	1.62	619.56	2.36
617.50	0.00	618.54	1.64	619.58	2.37
617.52	0.00	618.56	1.66	619.60	2.38
617.54	0.00	618.58	1.67	619.62	2.39
617.56	0.00	618.60	1.69	619.64	2.41
617.58	0.00	618.62	1.71	619.66	2.42
617.60	0.01	618.64	1.72	619.68	2.43
617.62	0.04	618.66	1.74	619.70	2.44
617.64	0.08	618.68	1.75	619.72	2.45
617.66	0.13	618.70	1.77	619.74	2.46
617.68	0.18	618.72	1.79	619.76	2.48
617.70	0.25	618.74	1.80	619.78	2.49
617.72	0.32	618.76	1.82	619.80	2.50
617.74	0.40	618.78	1.83	619.82	2.51
617.76	0.48	618.80	1.85	619.84	2.52
617.78	0.57	618.82	1.86	619.86	2.53
617.80	0.66	618.84	1.88	619.88	2.54
617.82	0.76	618.86	1.89	619.90	2.55
617.84	0.84	618.88	1.91	619.92	2.57
617.86	0.87	618.90	1.92	619.94	2.58
617.88	0.91	618.92	1.94	619.96	2.59
617.90	0.94	618.94	1.95	619.98	2.60
617.92	0.97	618.96	1.97	620.00	2.61
617.94	0.99	618.98	1.98		
617.96	1.02	619.00	2.00		
617.98	1.05	619.02	2.01		
618.00	1.08	619.04	2.02		
618.02	1.10	619.06	2.04		

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Stage-Area-Storage for Pond 5P: Basin C

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
617.00	0.100	0.000	619.60	0.152	0.328
617.05	0.101	0.005	619.65	0.153	0.335
617.10	0.102	0.010	619.70	0.154	0.343
617.15	0.103	0.015	619.75	0.155	0.351
617.20	0.104	0.020	619.80	0.156	0.358
617.25	0.105	0.026	619.85	0.157	0.366
617.30	0.106	0.031	619.90	0.158	0.374
617.35	0.107	0.036	619.95	0.159	0.382
617.40	0.108	0.042	620.00	0.160	0.390
617.45	0.109	0.047			
617.50	0.110	0.052			
617.55	0.111	0.058			
617.60	0.112	0.064			
617.65	0.113	0.069			
617.70	0.114	0.075			
617.75	0.115	0.081			
617.80	0.116	0.086			
617.85	0.117	0.092			
617.90	0.118	0.098			
617.95	0.119	0.104			
618.00	0.120	0.110			
618.05	0.121	0.116			
618.10	0.122	0.122			
618.15	0.123	0.128			
618.20	0.124	0.134			
618.25	0.125	0.141			
618.30	0.126	0.147			
618.35	0.127	0.153			
618.40	0.128	0.160			
618.45	0.129	0.166			
618.50	0.130	0.173			
618.55	0.131	0.179			
618.60	0.132	0.186			
618.65	0.133	0.192			
618.70	0.134	0.199			
618.75	0.135	0.206			
618.80	0.136	0.212			
618.85	0.137	0.219			
618.90	0.138	0.226			
618.95	0.139	0.233			
619.00	0.140	0.240			
619.05	0.141	0.247			
619.10	0.142	0.254			
619.15	0.143	0.261			
619.20	0.144	0.268			
619.25	0.145	0.276			
619.30	0.146	0.283			
619.35	0.147	0.290			
619.40	0.148	0.298			
619.45	0.149	0.305			
619.50	0.150	0.312			
619.55	0.151	0.320			

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Summary for Pond 6P: Basin D

Inflow Area = 1.330 ac, 15.04% Impervious, Inflow Depth = 3.78" for 25-Year event
 Inflow = 4.91 cfs @ 12.17 hrs, Volume= 0.419 af
 Outflow = 1.71 cfs @ 12.42 hrs, Volume= 0.394 af, Atten= 65%, Lag= 15.2 min
 Primary = 1.71 cfs @ 12.42 hrs, Volume= 0.394 af
 Routed to Link 2L : DA 1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 612.88' @ 12.42 hrs Surf.Area= 0.098 ac Storage= 0.116 af

Plug-Flow detention time= 84.2 min calculated for 0.394 af (94% of inflow)
 Center-of-Mass det. time= 51.2 min (871.1 - 819.9)

Volume	Invert	Avail.Storage	Storage Description
#1	611.50'	0.300 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
611.50	0.070	0.000	0.000
612.50	0.090	0.080	0.080
613.50	0.110	0.100	0.180
614.50	0.130	0.120	0.300

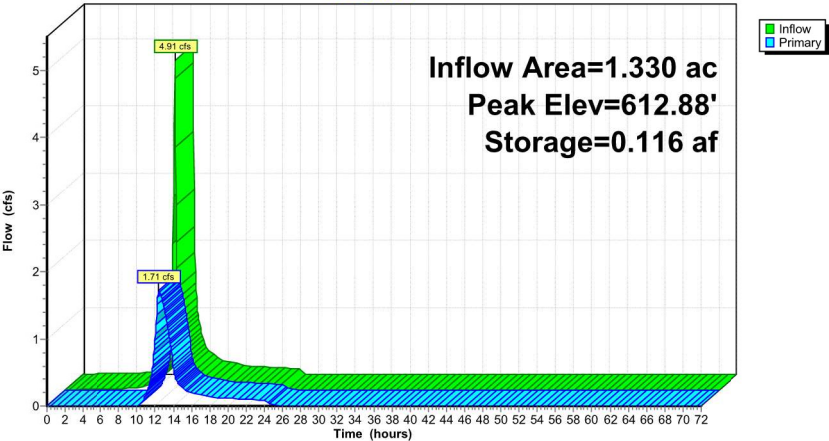
Device	Routing	Invert	Outlet Devices
#1	Primary	611.84'	8.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.71 cfs @ 12.42 hrs HW=612.88' (Free Discharge)

1=Orifice/Grate (Orifice Controls 1.71 cfs @ 4.90 fps)

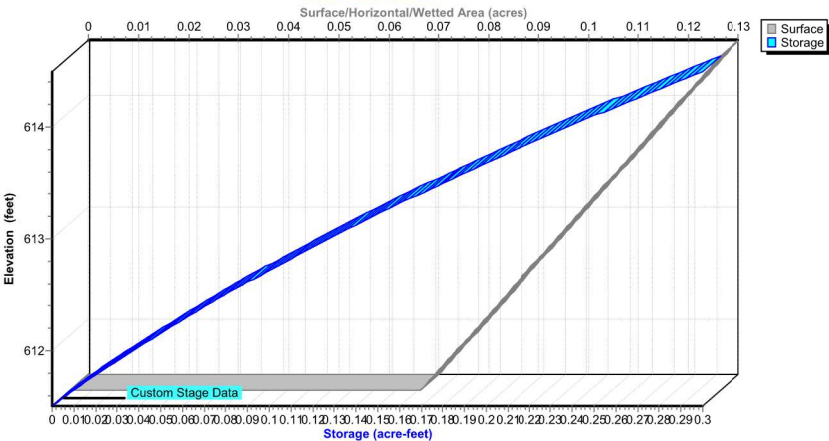
Pond 6P: Basin D

Hydrograph



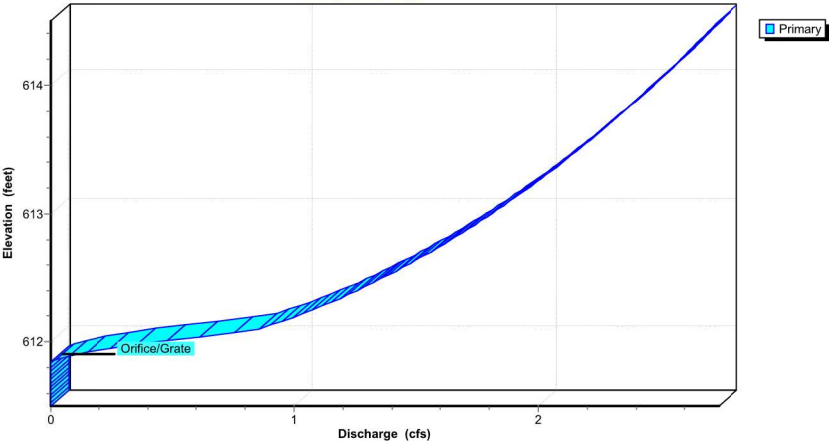
Pond 6P: Basin D

Stage-Area-Storage



Pond 6P: Basin D

Stage-Discharge



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Hydrograph for Pond 6P: Basin D

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	611.50	0.00
2.50	0.01	0.001	611.51	0.00
5.00	0.02	0.004	611.56	0.00
7.50	0.03	0.009	611.62	0.00
10.00	0.12	0.021	611.79	0.00
12.50	1.37	0.114	612.87	1.70
15.00	0.24	0.034	611.96	0.27
17.50	0.15	0.031	611.92	0.16
20.00	0.11	0.030	611.91	0.12
22.50	0.09	0.029	611.90	0.10
25.00	0.00	0.026	611.86	0.02
27.50	0.00	0.025	611.84	0.00
30.00	0.00	0.025	611.84	0.00
32.50	0.00	0.025	611.84	0.00
35.00	0.00	0.025	611.84	0.00
37.50	0.00	0.025	611.84	0.00
40.00	0.00	0.025	611.84	0.00
42.50	0.00	0.025	611.84	0.00
45.00	0.00	0.025	611.84	0.00
47.50	0.00	0.025	611.84	0.00
50.00	0.00	0.025	611.84	0.00
52.50	0.00	0.025	611.84	0.00
55.00	0.00	0.025	611.84	0.00
57.50	0.00	0.025	611.84	0.00
60.00	0.00	0.025	611.84	0.00
62.50	0.00	0.025	611.84	0.00
65.00	0.00	0.025	611.84	0.00
67.50	0.00	0.025	611.84	0.00
70.00	0.00	0.025	611.84	0.00

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Stage-Discharge for Pond 6P: Basin D

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
611.50	0.00	612.54	1.41	613.58	2.22
611.52	0.00	612.56	1.43	613.60	2.23
611.54	0.00	612.58	1.45	613.62	2.24
611.56	0.00	612.60	1.47	613.64	2.25
611.58	0.00	612.62	1.48	613.66	2.27
611.60	0.00	612.64	1.50	613.68	2.28
611.62	0.00	612.66	1.52	613.70	2.29
611.64	0.00	612.68	1.54	613.72	2.30
611.66	0.00	612.70	1.56	613.74	2.32
611.68	0.00	612.72	1.58	613.76	2.33
611.70	0.00	612.74	1.59	613.78	2.34
611.72	0.00	612.76	1.61	613.80	2.35
611.74	0.00	612.78	1.63	613.82	2.37
611.76	0.00	612.80	1.65	613.84	2.38
611.78	0.00	612.82	1.66	613.86	2.39
611.80	0.00	612.84	1.68	613.88	2.40
611.82	0.00	612.86	1.70	613.90	2.41
611.84	0.00	612.88	1.71	613.92	2.42
611.86	0.02	612.90	1.73	613.94	2.44
611.88	0.05	612.92	1.75	613.96	2.45
611.90	0.10	612.94	1.76	613.98	2.46
611.92	0.15	612.96	1.78	614.00	2.47
611.94	0.22	612.98	1.79	614.02	2.48
611.96	0.28	613.00	1.81	614.04	2.49
611.98	0.36	613.02	1.83	614.06	2.50
612.00	0.44	613.04	1.84	614.08	2.52
612.02	0.52	613.06	1.86	614.10	2.53
612.04	0.61	613.08	1.87	614.12	2.54
612.06	0.71	613.10	1.89	614.14	2.55
612.08	0.81	613.12	1.90	614.16	2.56
612.10	0.86	613.14	1.92	614.18	2.57
612.12	0.89	613.16	1.93	614.20	2.58
612.14	0.92	613.18	1.95	614.22	2.59
612.16	0.95	613.20	1.96	614.24	2.60
612.18	0.98	613.22	1.97	614.26	2.61
612.20	1.01	613.24	1.99	614.28	2.63
612.22	1.04	613.26	2.00	614.30	2.64
612.24	1.06	613.28	2.02	614.32	2.65
612.26	1.09	613.30	2.03	614.34	2.66
612.28	1.11	613.32	2.04	614.36	2.67
612.30	1.14	613.34	2.06	614.38	2.68
612.32	1.16	613.36	2.07	614.40	2.69
612.34	1.19	613.38	2.09	614.42	2.70
612.36	1.21	613.40	2.10	614.44	2.71
612.38	1.24	613.42	2.11	614.46	2.72
612.40	1.26	613.44	2.13	614.48	2.73
612.42	1.28	613.46	2.14	614.50	2.74
612.44	1.30	613.48	2.15		
612.46	1.32	613.50	2.17		
612.48	1.34	613.52	2.18		
612.50	1.37	613.54	2.19		
612.52	1.39	613.56	2.20		

2023-01 Proposed Hydrology

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Stage-Area-Storage for Pond 6P: Basin D

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
611.50	0.070	0.000	614.10	0.122	0.250
611.55	0.071	0.004	614.15	0.123	0.256
611.60	0.072	0.007	614.20	0.124	0.262
611.65	0.073	0.011	614.25	0.125	0.268
611.70	0.074	0.014	614.30	0.126	0.274
611.75	0.075	0.018	614.35	0.127	0.281
611.80	0.076	0.022	614.40	0.128	0.287
611.85	0.077	0.026	614.45	0.129	0.294
611.90	0.078	0.030	614.50	0.130	0.300
611.95	0.079	0.034			
612.00	0.080	0.037			
612.05	0.081	0.042			
612.10	0.082	0.046			
612.15	0.083	0.050			
612.20	0.084	0.054			
612.25	0.085	0.058			
612.30	0.086	0.062			
612.35	0.087	0.067			
612.40	0.088	0.071			
612.45	0.089	0.076			
612.50	0.090	0.080			
612.55	0.091	0.085			
612.60	0.092	0.089			
612.65	0.093	0.094			
612.70	0.094	0.098			
612.75	0.095	0.103			
612.80	0.096	0.108			
612.85	0.097	0.113			
612.90	0.098	0.118			
612.95	0.099	0.123			
613.00	0.100	0.127			
613.05	0.101	0.133			
613.10	0.102	0.138			
613.15	0.103	0.143			
613.20	0.104	0.148			
613.25	0.105	0.153			
613.30	0.106	0.158			
613.35	0.107	0.164			
613.40	0.108	0.169			
613.45	0.109	0.175			
613.50	0.110	0.180			
613.55	0.111	0.186			
613.60	0.112	0.191			
613.65	0.113	0.197			
613.70	0.114	0.202			
613.75	0.115	0.208			
613.80	0.116	0.214			
613.85	0.117	0.220			
613.90	0.118	0.226			
613.95	0.119	0.232			
614.00	0.120	0.237			
614.05	0.121	0.244			

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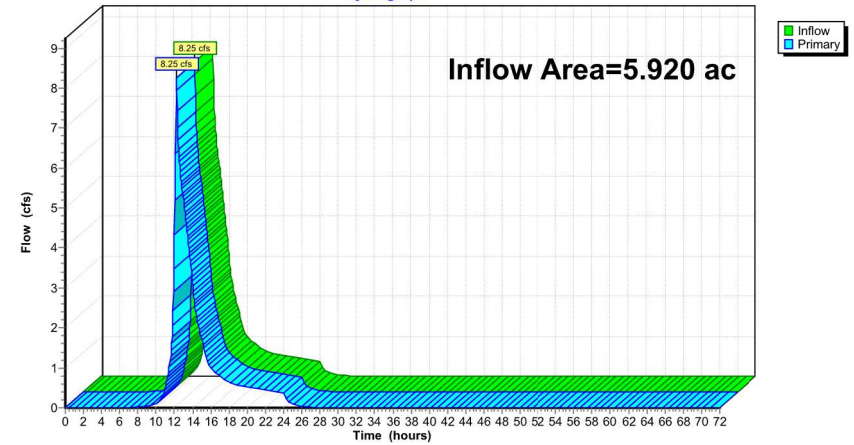
Summary for Link 2L: DA 1

Inflow Area = 5.920 ac, 14.70% Impervious, Inflow Depth = 3.46" for 25-Year event
 Inflow = 8.25 cfs @ 12.21 hrs, Volume= 1.705 af
 Primary = 8.25 cfs @ 12.21 hrs, Volume= 1.705 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 2L: DA 1

Hydrograph



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Hydrograph for Link 2L: DA 1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.01	0.00	0.01	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.01	0.00	0.01	59.00	0.00	0.00	0.00
8.00	0.02	0.00	0.02	60.00	0.00	0.00	0.00
9.00	0.04	0.00	0.04	61.00	0.00	0.00	0.00
10.00	0.09	0.00	0.09	62.00	0.00	0.00	0.00
11.00	0.54	0.00	0.54	63.00	0.00	0.00	0.00
12.00	4.31	0.00	4.31	64.00	0.00	0.00	0.00
13.00	5.20	0.00	5.20	65.00	0.00	0.00	0.00
14.00	3.06	0.00	3.06	66.00	0.00	0.00	0.00
15.00	1.71	0.00	1.71	67.00	0.00	0.00	0.00
16.00	1.00	0.00	1.00	68.00	0.00	0.00	0.00
17.00	0.79	0.00	0.79	69.00	0.00	0.00	0.00
18.00	0.65	0.00	0.65	70.00	0.00	0.00	0.00
19.00	0.56	0.00	0.56	71.00	0.00	0.00	0.00
20.00	0.52	0.00	0.52	72.00	0.00	0.00	0.00
21.00	0.49	0.00	0.49				
22.00	0.45	0.00	0.45				
23.00	0.42	0.00	0.42				
24.00	0.38	0.00	0.38				
25.00	0.09	0.00	0.09				
26.00	0.03	0.00	0.03				
27.00	0.02	0.00	0.02				
28.00	0.01	0.00	0.01				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 25-Year Rainfall=6.44"

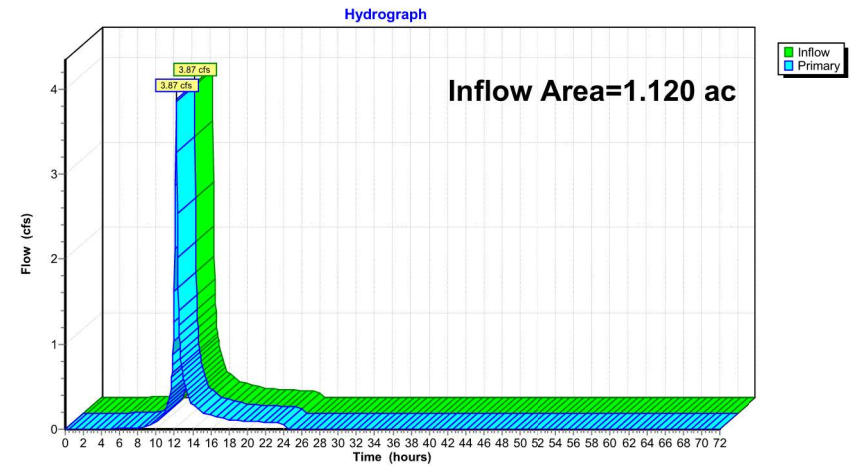
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Summary for Link 3L: DA 1. - Undetained

Inflow Area = 1.120 ac, 6.25% Impervious, Inflow Depth = 3.63" for 25-Year event
Inflow = 3.87 cfs @ 12.19 hrs, Volume= 0.339 af
Primary = 3.87 cfs @ 12.19 hrs, Volume= 0.339 af, Atten= 0%, Lag= 0.0 min
Routed to Link 2L : DA 1

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 3L: DA 1. - Undetained

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NOAA 24-hr D 25-Year Rainfall=6.44"

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Hydrograph for Link 3L: DA 1. - Undetained

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.01	0.00	0.01	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.01	0.00	0.01	59.00	0.00	0.00	0.00
8.00	0.02	0.00	0.02	60.00	0.00	0.00	0.00
9.00	0.04	0.00	0.04	61.00	0.00	0.00	0.00
10.00	0.09	0.00	0.09	62.00	0.00	0.00	0.00
11.00	0.21	0.00	0.21	63.00	0.00	0.00	0.00
12.00	1.61	0.00	1.61	64.00	0.00	0.00	0.00
13.00	0.60	0.00	0.60	65.00	0.00	0.00	0.00
14.00	0.29	0.00	0.29	66.00	0.00	0.00	0.00
15.00	0.20	0.00	0.20	67.00	0.00	0.00	0.00
16.00	0.16	0.00	0.16	68.00	0.00	0.00	0.00
17.00	0.14	0.00	0.14	69.00	0.00	0.00	0.00
18.00	0.11	0.00	0.11	70.00	0.00	0.00	0.00
19.00	0.10	0.00	0.10	71.00	0.00	0.00	0.00
20.00	0.10	0.00	0.10	72.00	0.00	0.00	0.00
21.00	0.09	0.00	0.09				
22.00	0.08	0.00	0.08				
23.00	0.08	0.00	0.08				
24.00	0.07	0.00	0.07				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 100-Year Rainfall=8.66"

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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

Subcatchment 1S: Basin A - Imp.	Runoff Area=0.210 ac 100.00% Impervious Runoff Depth=8.42" Flow Length=90' Tc=9.2 min CN=98 Runoff=1.53 cfs 0.147 af
Subcatchment 3S: Basin A - Perv.	Runoff Area=0.920 ac 0.00% Impervious Runoff Depth=5.28" Flow Length=90' Tc=9.2 min CN=72 Runoff=4.93 cfs 0.405 af
Subcatchment 4S: Basin B - Imp.	Runoff Area=0.190 ac 100.00% Impervious Runoff Depth=8.42" Flow Length=133' Tc=9.8 min CN=98 Runoff=1.35 cfs 0.133 af
Subcatchment 5S: Basin B - Perv.	Runoff Area=0.770 ac 0.00% Impervious Runoff Depth=5.28" Flow Length=133' Tc=9.8 min CN=72 Runoff=4.03 cfs 0.339 af
Subcatchment 6S: Undetained - Imp.	Runoff Area=0.070 ac 100.00% Impervious Runoff Depth=8.42" Flow Length=391' Tc=10.8 min CN=98 Runoff=0.48 cfs 0.049 af
Subcatchment 7S: Basin C - Imp.	Runoff Area=0.200 ac 100.00% Impervious Runoff Depth=8.42" Flow Length=78' Tc=9.2 min CN=98 Runoff=1.46 cfs 0.140 af
Subcatchment 8S: Basin C - Perv.	Runoff Area=1.180 ac 0.00% Impervious Runoff Depth=5.28" Flow Length=78' Tc=9.2 min CN=72 Runoff=6.33 cfs 0.519 af
Subcatchment 9S: Undetained - Perv.	Runoff Area=1.050 ac 0.00% Impervious Runoff Depth=5.40" Flow Length=391' Tc=10.8 min CN=73 Runoff=5.45 cfs 0.472 af
Subcatchment 11S: Basin D - Imp.	Runoff Area=0.200 ac 100.00% Impervious Runoff Depth=8.42" Flow Length=136' Tc=9.4 min CN=98 Runoff=1.45 cfs 0.140 af
Subcatchment 12S: Basin D - Perv.	Runoff Area=1.130 ac 0.00% Impervious Runoff Depth=5.28" Flow Length=136' Tc=9.4 min CN=72 Runoff=6.00 cfs 0.497 af
Pond 3P: Basin A	Peak Elev=621.25' Storage=0.200 af Inflow=6.47 cfs 0.552 af Outflow=1.24 cfs 0.529 af
Pond 4P: Basin B	Peak Elev=620.75' Storage=0.201 af Inflow=5.38 cfs 0.472 af Outflow=1.10 cfs 0.417 af
Pond 5P: Basin C	Peak Elev=619.00' Storage=0.241 af Inflow=7.79 cfs 0.659 af Outflow=2.00 cfs 0.597 af
Pond 6P: Basin D	Peak Elev=613.50' Storage=0.180 af Inflow=7.44 cfs 0.637 af Outflow=2.17 cfs 0.612 af
Link 2L: DA 1	Inflow=11.51 cfs 2.676 af Primary=11.51 cfs 2.676 af
Link 3L: DA 1. - Undetained	Inflow=5.93 cfs 0.522 af Primary=5.93 cfs 0.522 af

Total Runoff Area = 5.920 ac Runoff Volume = 2.842 af Average Runoff Depth = 5.76"
85.30% Pervious = 5.050 ac 14.70% Impervious = 0.870 ac

Summary for Subcatchment 1S: Basin A - Imp.

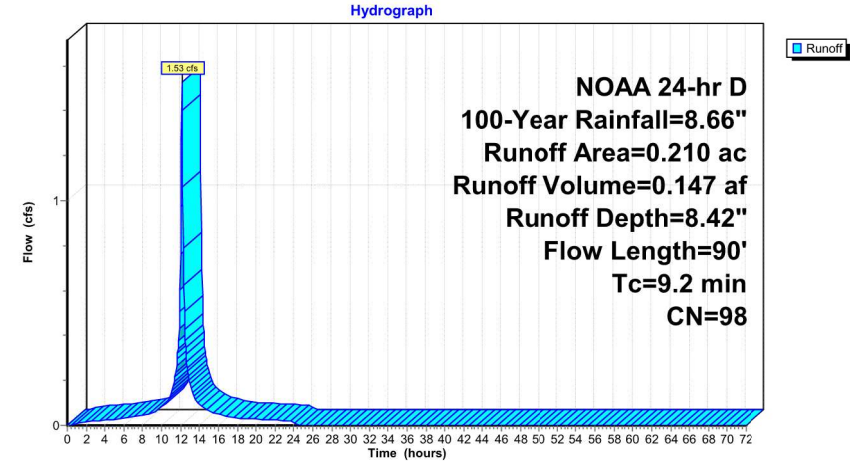
Runoff = 1.53 cfs @ 12.16 hrs, Volume= 0.147 af, Depth= 8.42"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.210	98	Unconnected pavement, HSG C
0.210		100.00% Impervious Area
0.210		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	65	0.1690	6.62		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	90	Total			

Subcatchment 1S: Basin A - Imp.



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Hydrograph for Subcatchment 1S: Basin A - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.66	8.42	0.00
1.00	0.10	0.01	0.01	53.00	8.66	8.42	0.00
2.00	0.21	0.08	0.02	54.00	8.66	8.42	0.00
3.00	0.33	0.17	0.02	55.00	8.66	8.42	0.00
4.00	0.45	0.28	0.02	56.00	8.66	8.42	0.00
5.00	0.59	0.40	0.03	57.00	8.66	8.42	0.00
6.00	0.74	0.54	0.03	58.00	8.66	8.42	0.00
7.00	0.91	0.71	0.04	59.00	8.66	8.42	0.00
8.00	1.12	0.91	0.05	60.00	8.66	8.42	0.00
9.00	1.37	1.16	0.05	61.00	8.66	8.42	0.00
10.00	1.72	1.49	0.08	62.00	8.66	8.42	0.00
11.00	2.25	2.02	0.14	63.00	8.66	8.42	0.00
12.00	4.15	3.91	0.77	64.00	8.66	8.42	0.00
13.00	6.41	6.17	0.19	65.00	8.66	8.42	0.00
14.00	6.94	6.70	0.09	66.00	8.66	8.42	0.00
15.00	7.29	7.05	0.06	67.00	8.66	8.42	0.00
16.00	7.54	7.30	0.05	68.00	8.66	8.42	0.00
17.00	7.75	7.51	0.04	69.00	8.66	8.42	0.00
18.00	7.92	7.68	0.03	70.00	8.66	8.42	0.00
19.00	8.07	7.83	0.03	71.00	8.66	8.42	0.00
20.00	8.21	7.97	0.03	72.00	8.66	8.42	0.00
21.00	8.33	8.09	0.03				
22.00	8.45	8.21	0.02				
23.00	8.56	8.32	0.02				
24.00	8.66	8.42	0.02				
25.00	8.66	8.42	0.00				
26.00	8.66	8.42	0.00				
27.00	8.66	8.42	0.00				
28.00	8.66	8.42	0.00				
29.00	8.66	8.42	0.00				
30.00	8.66	8.42	0.00				
31.00	8.66	8.42	0.00				
32.00	8.66	8.42	0.00				
33.00	8.66	8.42	0.00				
34.00	8.66	8.42	0.00				
35.00	8.66	8.42	0.00				
36.00	8.66	8.42	0.00				
37.00	8.66	8.42	0.00				
38.00	8.66	8.42	0.00				
39.00	8.66	8.42	0.00				
40.00	8.66	8.42	0.00				
41.00	8.66	8.42	0.00				
42.00	8.66	8.42	0.00				
43.00	8.66	8.42	0.00				
44.00	8.66	8.42	0.00				
45.00	8.66	8.42	0.00				
46.00	8.66	8.42	0.00				
47.00	8.66	8.42	0.00				
48.00	8.66	8.42	0.00				
49.00	8.66	8.42	0.00				
50.00	8.66	8.42	0.00				
51.00	8.66	8.42	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 100-Year Rainfall=8.66"

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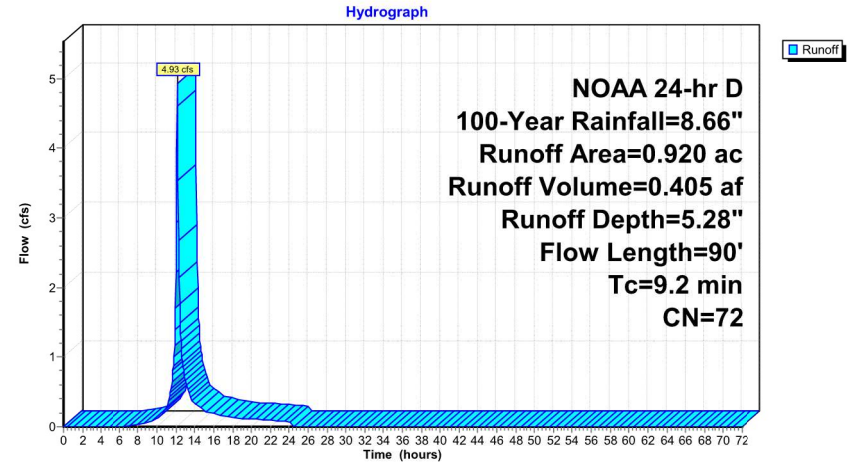
Summary for Subcatchment 3S: Basin A - Perv.

Runoff = 4.93 cfs @ 12.16 hrs, Volume= 0.405 af, Depth= 5.28"
 Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.470	74	>75% Grass cover, Good, HSG C
0.450	70	Woods, Good, HSG C
0.920	72	Weighted Average
0.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	65	0.1690	6.62		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	90	Total			

Subcatchment 3S: Basin A - Perv.

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Hydrograph for Subcatchment 3S: Basin A - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.66	5.28	0.00
1.00	0.10	0.00	0.00	53.00	8.66	5.28	0.00
2.00	0.21	0.00	0.00	54.00	8.66	5.28	0.00
3.00	0.33	0.00	0.00	55.00	8.66	5.28	0.00
4.00	0.45	0.00	0.00	56.00	8.66	5.28	0.00
5.00	0.59	0.00	0.00	57.00	8.66	5.28	0.00
6.00	0.74	0.00	0.00	58.00	8.66	5.28	0.00
7.00	0.91	0.00	0.01	59.00	8.66	5.28	0.00
8.00	1.12	0.03	0.03	60.00	8.66	5.28	0.00
9.00	1.37	0.08	0.06	61.00	8.66	5.28	0.00
10.00	1.72	0.18	0.12	62.00	8.66	5.28	0.00
11.00	2.25	0.40	0.29	63.00	8.66	5.28	0.00
12.00	4.15	1.57	2.22	64.00	8.66	5.28	0.00
13.00	6.41	3.33	0.69	65.00	8.66	5.28	0.00
14.00	6.94	3.78	0.34	66.00	8.66	5.28	0.00
15.00	7.29	4.07	0.23	67.00	8.66	5.28	0.00
16.00	7.54	4.29	0.19	68.00	8.66	5.28	0.00
17.00	7.75	4.47	0.16	69.00	8.66	5.28	0.00
18.00	7.92	4.62	0.13	70.00	8.66	5.28	0.00
19.00	8.07	4.75	0.12	71.00	8.66	5.28	0.00
20.00	8.21	4.88	0.11	72.00	8.66	5.28	0.00
21.00	8.33	4.99	0.10				
22.00	8.45	5.09	0.09				
23.00	8.56	5.19	0.09				
24.00	8.66	5.28	0.08				
25.00	8.66	5.28	0.00				
26.00	8.66	5.28	0.00				
27.00	8.66	5.28	0.00				
28.00	8.66	5.28	0.00				
29.00	8.66	5.28	0.00				
30.00	8.66	5.28	0.00				
31.00	8.66	5.28	0.00				
32.00	8.66	5.28	0.00				
33.00	8.66	5.28	0.00				
34.00	8.66	5.28	0.00				
35.00	8.66	5.28	0.00				
36.00	8.66	5.28	0.00				
37.00	8.66	5.28	0.00				
38.00	8.66	5.28	0.00				
39.00	8.66	5.28	0.00				
40.00	8.66	5.28	0.00				
41.00	8.66	5.28	0.00				
42.00	8.66	5.28	0.00				
43.00	8.66	5.28	0.00				
44.00	8.66	5.28	0.00				
45.00	8.66	5.28	0.00				
46.00	8.66	5.28	0.00				
47.00	8.66	5.28	0.00				
48.00	8.66	5.28	0.00				
49.00	8.66	5.28	0.00				
50.00	8.66	5.28	0.00				
51.00	8.66	5.28	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 100-Year Rainfall=8.66"

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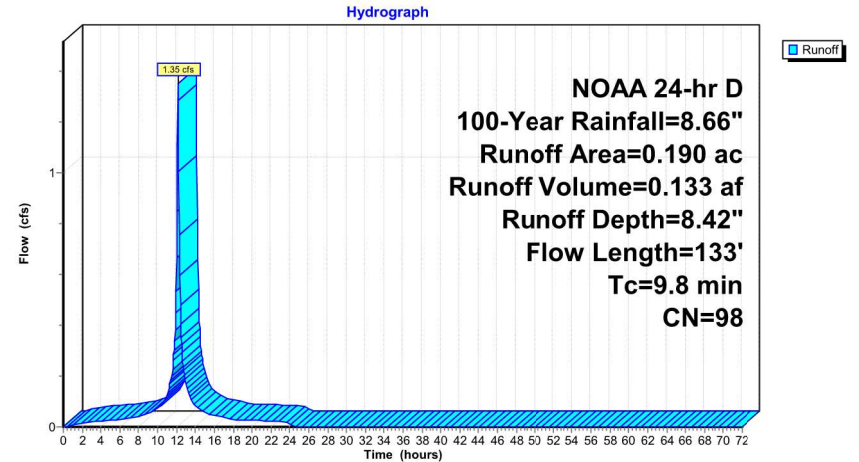
Summary for Subcatchment 4S: Basin B - Imp.

Runoff = 1.35 cfs @ 12.17 hrs, Volume= 0.133 af, Depth= 8.42"
 Routed to Pond 4P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.190	98	Unconnected pavement, HSG C
0.190		100.00% Impervious Area
0.190		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.3	48	0.0310	2.83		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.0	15	0.4000	10.18		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.5	45	0.0100	1.61		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.8	133	Total			

Subcatchment 4S: Basin B - Imp.

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Hydrograph for Subcatchment 4S: Basin B - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.66	8.42	0.00
1.00	0.10	0.01	0.01	53.00	8.66	8.42	0.00
2.00	0.21	0.08	0.01	54.00	8.66	8.42	0.00
3.00	0.33	0.17	0.02	55.00	8.66	8.42	0.00
4.00	0.45	0.28	0.02	56.00	8.66	8.42	0.00
5.00	0.59	0.40	0.02	57.00	8.66	8.42	0.00
6.00	0.74	0.54	0.03	58.00	8.66	8.42	0.00
7.00	0.91	0.71	0.03	59.00	8.66	8.42	0.00
8.00	1.12	0.91	0.04	60.00	8.66	8.42	0.00
9.00	1.37	1.16	0.05	61.00	8.66	8.42	0.00
10.00	1.72	1.49	0.07	62.00	8.66	8.42	0.00
11.00	2.25	2.02	0.13	63.00	8.66	8.42	0.00
12.00	4.15	3.91	0.67	64.00	8.66	8.42	0.00
13.00	6.41	6.17	0.17	65.00	8.66	8.42	0.00
14.00	6.94	6.70	0.08	66.00	8.66	8.42	0.00
15.00	7.29	7.05	0.06	67.00	8.66	8.42	0.00
16.00	7.54	7.30	0.05	68.00	8.66	8.42	0.00
17.00	7.75	7.51	0.04	69.00	8.66	8.42	0.00
18.00	7.92	7.68	0.03	70.00	8.66	8.42	0.00
19.00	8.07	7.83	0.03	71.00	8.66	8.42	0.00
20.00	8.21	7.97	0.03	72.00	8.66	8.42	0.00
21.00	8.33	8.09	0.02				
22.00	8.45	8.21	0.02				
23.00	8.56	8.32	0.02				
24.00	8.66	8.42	0.02				
25.00	8.66	8.42	0.00				
26.00	8.66	8.42	0.00				
27.00	8.66	8.42	0.00				
28.00	8.66	8.42	0.00				
29.00	8.66	8.42	0.00				
30.00	8.66	8.42	0.00				
31.00	8.66	8.42	0.00				
32.00	8.66	8.42	0.00				
33.00	8.66	8.42	0.00				
34.00	8.66	8.42	0.00				
35.00	8.66	8.42	0.00				
36.00	8.66	8.42	0.00				
37.00	8.66	8.42	0.00				
38.00	8.66	8.42	0.00				
39.00	8.66	8.42	0.00				
40.00	8.66	8.42	0.00				
41.00	8.66	8.42	0.00				
42.00	8.66	8.42	0.00				
43.00	8.66	8.42	0.00				
44.00	8.66	8.42	0.00				
45.00	8.66	8.42	0.00				
46.00	8.66	8.42	0.00				
47.00	8.66	8.42	0.00				
48.00	8.66	8.42	0.00				
49.00	8.66	8.42	0.00				
50.00	8.66	8.42	0.00				
51.00	8.66	8.42	0.00				

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NOAA 24-hr D 100-Year Rainfall=8.66"

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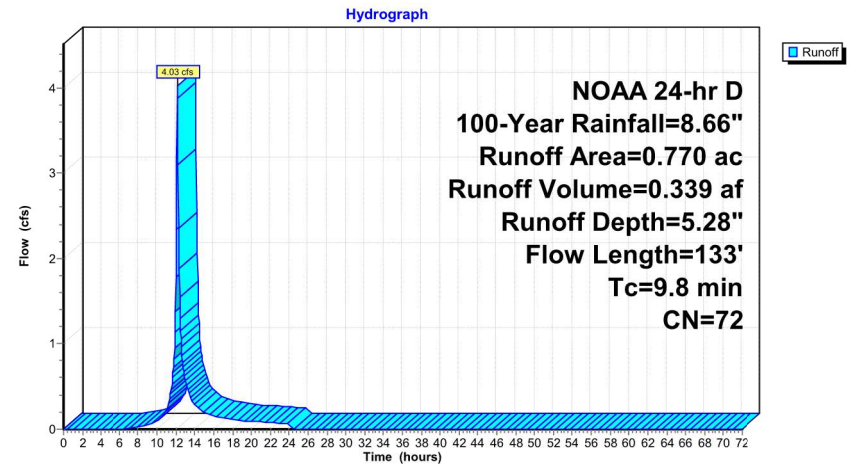
Summary for Subcatchment 5S: Basin B - Perv.

Runoff = 4.03 cfs @ 12.17 hrs, Volume= 0.339 af, Depth= 5.28"
 Routed to Pond 4P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.390	74	>75% Grass cover, Good, HSG C
0.380	70	Woods, Good, HSG C
0.770	72	Weighted Average
0.770		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.3	48	0.0310	2.83		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.0	15	0.4000	10.18		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.5	45	0.0100	1.61		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.8	133	Total			

Subcatchment 5S: Basin B - Perv.

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Hydrograph for Subcatchment 5S: Basin B - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.66	5.28	0.00
1.00	0.10	0.00	0.00	53.00	8.66	5.28	0.00
2.00	0.21	0.00	0.00	54.00	8.66	5.28	0.00
3.00	0.33	0.00	0.00	55.00	8.66	5.28	0.00
4.00	0.45	0.00	0.00	56.00	8.66	5.28	0.00
5.00	0.59	0.00	0.00	57.00	8.66	5.28	0.00
6.00	0.74	0.00	0.00	58.00	8.66	5.28	0.00
7.00	0.91	0.00	0.01	59.00	8.66	5.28	0.00
8.00	1.12	0.03	0.02	60.00	8.66	5.28	0.00
9.00	1.37	0.08	0.05	61.00	8.66	5.28	0.00
10.00	1.72	0.18	0.10	62.00	8.66	5.28	0.00
11.00	2.25	0.40	0.24	63.00	8.66	5.28	0.00
12.00	4.15	1.57	1.78	64.00	8.66	5.28	0.00
13.00	6.41	3.33	0.58	65.00	8.66	5.28	0.00
14.00	6.94	3.78	0.28	66.00	8.66	5.28	0.00
15.00	7.29	4.07	0.20	67.00	8.66	5.28	0.00
16.00	7.54	4.29	0.16	68.00	8.66	5.28	0.00
17.00	7.75	4.47	0.13	69.00	8.66	5.28	0.00
18.00	7.92	4.62	0.11	70.00	8.66	5.28	0.00
19.00	8.07	4.75	0.10	71.00	8.66	5.28	0.00
20.00	8.21	4.88	0.09	72.00	8.66	5.28	0.00
21.00	8.33	4.99	0.09				
22.00	8.45	5.09	0.08				
23.00	8.56	5.19	0.07				
24.00	8.66	5.28	0.07				
25.00	8.66	5.28	0.00				
26.00	8.66	5.28	0.00				
27.00	8.66	5.28	0.00				
28.00	8.66	5.28	0.00				
29.00	8.66	5.28	0.00				
30.00	8.66	5.28	0.00				
31.00	8.66	5.28	0.00				
32.00	8.66	5.28	0.00				
33.00	8.66	5.28	0.00				
34.00	8.66	5.28	0.00				
35.00	8.66	5.28	0.00				
36.00	8.66	5.28	0.00				
37.00	8.66	5.28	0.00				
38.00	8.66	5.28	0.00				
39.00	8.66	5.28	0.00				
40.00	8.66	5.28	0.00				
41.00	8.66	5.28	0.00				
42.00	8.66	5.28	0.00				
43.00	8.66	5.28	0.00				
44.00	8.66	5.28	0.00				
45.00	8.66	5.28	0.00				
46.00	8.66	5.28	0.00				
47.00	8.66	5.28	0.00				
48.00	8.66	5.28	0.00				
49.00	8.66	5.28	0.00				
50.00	8.66	5.28	0.00				
51.00	8.66	5.28	0.00				

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NOAA 24-hr D 100-Year Rainfall=8.66"

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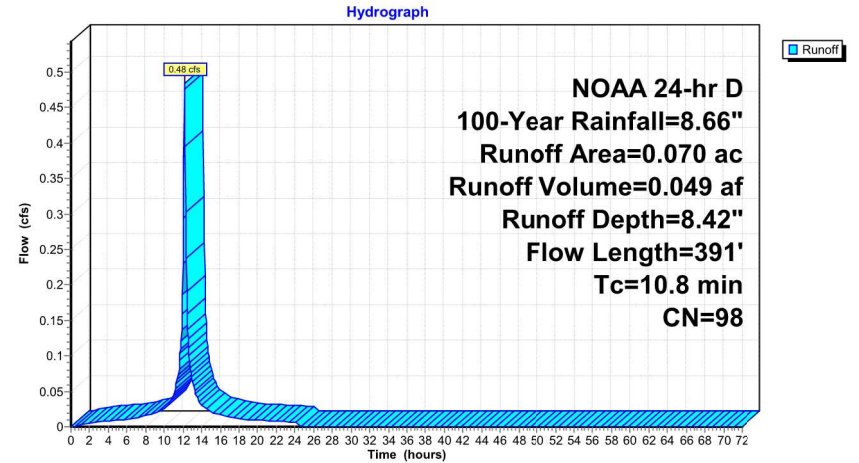
Summary for Subcatchment 6S: Undetained - Imp.

Runoff = 0.48 cfs @ 12.18 hrs, Volume= 0.049 af, Depth= 8.42"
 Routed to Link 3L : DA 1. - Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.060	98	Paved parking, HSG C
0.010	98	Paved parking, HSG B
0.070	98	Weighted Average
0.070		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	59	0.0200	0.11		Sheet Flow, Sheet Flow - Grass Grass: Dense n= 0.240 P2= 3.44" Using McCuen-Spiess flow length
1.8	332	0.0360	3.05		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
10.8	391	Total			

Subcatchment 6S: Undetained - Imp.

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Hydrograph for Subcatchment 6S: Undetained - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.66	8.42	0.00
1.00	0.10	0.01	0.00	53.00	8.66	8.42	0.00
2.00	0.21	0.08	0.01	54.00	8.66	8.42	0.00
3.00	0.33	0.17	0.01	55.00	8.66	8.42	0.00
4.00	0.45	0.28	0.01	56.00	8.66	8.42	0.00
5.00	0.59	0.40	0.01	57.00	8.66	8.42	0.00
6.00	0.74	0.54	0.01	58.00	8.66	8.42	0.00
7.00	0.91	0.71	0.01	59.00	8.66	8.42	0.00
8.00	1.12	0.91	0.02	60.00	8.66	8.42	0.00
9.00	1.37	1.16	0.02	61.00	8.66	8.42	0.00
10.00	1.72	1.49	0.03	62.00	8.66	8.42	0.00
11.00	2.25	2.02	0.05	63.00	8.66	8.42	0.00
12.00	4.15	3.91	0.23	64.00	8.66	8.42	0.00
13.00	6.41	6.17	0.06	65.00	8.66	8.42	0.00
14.00	6.94	6.70	0.03	66.00	8.66	8.42	0.00
15.00	7.29	7.05	0.02	67.00	8.66	8.42	0.00
16.00	7.54	7.30	0.02	68.00	8.66	8.42	0.00
17.00	7.75	7.51	0.01	69.00	8.66	8.42	0.00
18.00	7.92	7.68	0.01	70.00	8.66	8.42	0.00
19.00	8.07	7.83	0.01	71.00	8.66	8.42	0.00
20.00	8.21	7.97	0.01	72.00	8.66	8.42	0.00
21.00	8.33	8.09	0.01				
22.00	8.45	8.21	0.01				
23.00	8.56	8.32	0.01				
24.00	8.66	8.42	0.01				
25.00	8.66	8.42	0.00				
26.00	8.66	8.42	0.00				
27.00	8.66	8.42	0.00				
28.00	8.66	8.42	0.00				
29.00	8.66	8.42	0.00				
30.00	8.66	8.42	0.00				
31.00	8.66	8.42	0.00				
32.00	8.66	8.42	0.00				
33.00	8.66	8.42	0.00				
34.00	8.66	8.42	0.00				
35.00	8.66	8.42	0.00				
36.00	8.66	8.42	0.00				
37.00	8.66	8.42	0.00				
38.00	8.66	8.42	0.00				
39.00	8.66	8.42	0.00				
40.00	8.66	8.42	0.00				
41.00	8.66	8.42	0.00				
42.00	8.66	8.42	0.00				
43.00	8.66	8.42	0.00				
44.00	8.66	8.42	0.00				
45.00	8.66	8.42	0.00				
46.00	8.66	8.42	0.00				
47.00	8.66	8.42	0.00				
48.00	8.66	8.42	0.00				
49.00	8.66	8.42	0.00				
50.00	8.66	8.42	0.00				
51.00	8.66	8.42	0.00				

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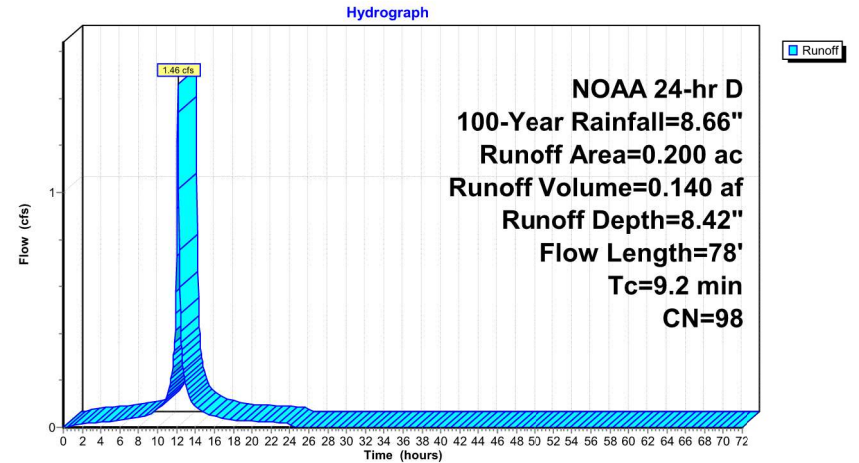
Summary for Subcatchment 7S: Basin C - Imp.

Runoff = 1.46 cfs @ 12.16 hrs, Volume= 0.140 af, Depth= 8.42"
Routed to Pond 5P : Basin C

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.200	98	Unconnected pavement, HSG C
0.200		100.00% Impervious Area
0.200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Shhet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	53	0.1070	5.27		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	78	Total			

Subcatchment 7S: Basin C - Imp.

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NOAA 24-hr D 100-Year Rainfall=8.66"

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Hydrograph for Subcatchment 7S: Basin C - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.66	8.42	0.00
1.00	0.10	0.01	0.01	53.00	8.66	8.42	0.00
2.00	0.21	0.08	0.02	54.00	8.66	8.42	0.00
3.00	0.33	0.17	0.02	55.00	8.66	8.42	0.00
4.00	0.45	0.28	0.02	56.00	8.66	8.42	0.00
5.00	0.59	0.40	0.03	57.00	8.66	8.42	0.00
6.00	0.74	0.54	0.03	58.00	8.66	8.42	0.00
7.00	0.91	0.71	0.04	59.00	8.66	8.42	0.00
8.00	1.12	0.91	0.04	60.00	8.66	8.42	0.00
9.00	1.37	1.16	0.05	61.00	8.66	8.42	0.00
10.00	1.72	1.49	0.08	62.00	8.66	8.42	0.00
11.00	2.25	2.02	0.14	63.00	8.66	8.42	0.00
12.00	4.15	3.91	0.73	64.00	8.66	8.42	0.00
13.00	6.41	6.17	0.18	65.00	8.66	8.42	0.00
14.00	6.94	6.70	0.09	66.00	8.66	8.42	0.00
15.00	7.29	7.05	0.06	67.00	8.66	8.42	0.00
16.00	7.54	7.30	0.05	68.00	8.66	8.42	0.00
17.00	7.75	7.51	0.04	69.00	8.66	8.42	0.00
18.00	7.92	7.68	0.03	70.00	8.66	8.42	0.00
19.00	8.07	7.83	0.03	71.00	8.66	8.42	0.00
20.00	8.21	7.97	0.03	72.00	8.66	8.42	0.00
21.00	8.33	8.09	0.03				
22.00	8.45	8.21	0.02				
23.00	8.56	8.32	0.02				
24.00	8.66	8.42	0.02				
25.00	8.66	8.42	0.00				
26.00	8.66	8.42	0.00				
27.00	8.66	8.42	0.00				
28.00	8.66	8.42	0.00				
29.00	8.66	8.42	0.00				
30.00	8.66	8.42	0.00				
31.00	8.66	8.42	0.00				
32.00	8.66	8.42	0.00				
33.00	8.66	8.42	0.00				
34.00	8.66	8.42	0.00				
35.00	8.66	8.42	0.00				
36.00	8.66	8.42	0.00				
37.00	8.66	8.42	0.00				
38.00	8.66	8.42	0.00				
39.00	8.66	8.42	0.00				
40.00	8.66	8.42	0.00				
41.00	8.66	8.42	0.00				
42.00	8.66	8.42	0.00				
43.00	8.66	8.42	0.00				
44.00	8.66	8.42	0.00				
45.00	8.66	8.42	0.00				
46.00	8.66	8.42	0.00				
47.00	8.66	8.42	0.00				
48.00	8.66	8.42	0.00				
49.00	8.66	8.42	0.00				
50.00	8.66	8.42	0.00				
51.00	8.66	8.42	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 100-Year Rainfall=8.66"

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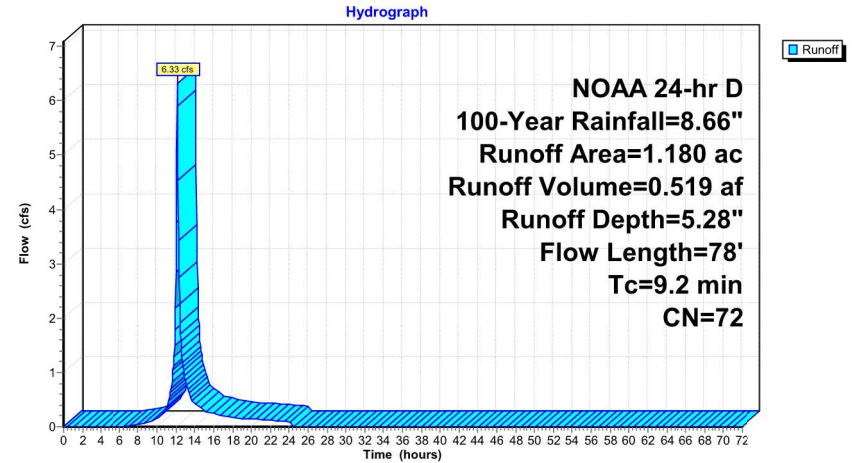
Summary for Subcatchment 8S: Basin C - Perv.

Runoff = 6.33 cfs @ 12.16 hrs, Volume= 0.519 af, Depth= 5.28"
 Routed to Pond 5P : Basin C

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.560	74	>75% Grass cover, Good, HSG C
0.620	70	Woods, Good, HSG C
1.180	72	Weighted Average
1.180		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	53	0.1070	5.27		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	78	Total			

Subcatchment 8S: Basin C - Perv.

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Hydrograph for Subcatchment 8S: Basin C - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.66	5.28	0.00
1.00	0.10	0.00	0.00	53.00	8.66	5.28	0.00
2.00	0.21	0.00	0.00	54.00	8.66	5.28	0.00
3.00	0.33	0.00	0.00	55.00	8.66	5.28	0.00
4.00	0.45	0.00	0.00	56.00	8.66	5.28	0.00
5.00	0.59	0.00	0.00	57.00	8.66	5.28	0.00
6.00	0.74	0.00	0.00	58.00	8.66	5.28	0.00
7.00	0.91	0.00	0.01	59.00	8.66	5.28	0.00
8.00	1.12	0.03	0.04	60.00	8.66	5.28	0.00
9.00	1.37	0.08	0.07	61.00	8.66	5.28	0.00
10.00	1.72	0.18	0.16	62.00	8.66	5.28	0.00
11.00	2.25	0.40	0.37	63.00	8.66	5.28	0.00
12.00	4.15	1.57	2.85	64.00	8.66	5.28	0.00
13.00	6.41	3.33	0.88	65.00	8.66	5.28	0.00
14.00	6.94	3.78	0.43	66.00	8.66	5.28	0.00
15.00	7.29	4.07	0.30	67.00	8.66	5.28	0.00
16.00	7.54	4.29	0.24	68.00	8.66	5.28	0.00
17.00	7.75	4.47	0.21	69.00	8.66	5.28	0.00
18.00	7.92	4.62	0.17	70.00	8.66	5.28	0.00
19.00	8.07	4.75	0.15	71.00	8.66	5.28	0.00
20.00	8.21	4.88	0.14	72.00	8.66	5.28	0.00
21.00	8.33	4.99	0.13				
22.00	8.45	5.09	0.12				
23.00	8.56	5.19	0.11				
24.00	8.66	5.28	0.10				
25.00	8.66	5.28	0.00				
26.00	8.66	5.28	0.00				
27.00	8.66	5.28	0.00				
28.00	8.66	5.28	0.00				
29.00	8.66	5.28	0.00				
30.00	8.66	5.28	0.00				
31.00	8.66	5.28	0.00				
32.00	8.66	5.28	0.00				
33.00	8.66	5.28	0.00				
34.00	8.66	5.28	0.00				
35.00	8.66	5.28	0.00				
36.00	8.66	5.28	0.00				
37.00	8.66	5.28	0.00				
38.00	8.66	5.28	0.00				
39.00	8.66	5.28	0.00				
40.00	8.66	5.28	0.00				
41.00	8.66	5.28	0.00				
42.00	8.66	5.28	0.00				
43.00	8.66	5.28	0.00				
44.00	8.66	5.28	0.00				
45.00	8.66	5.28	0.00				
46.00	8.66	5.28	0.00				
47.00	8.66	5.28	0.00				
48.00	8.66	5.28	0.00				
49.00	8.66	5.28	0.00				
50.00	8.66	5.28	0.00				
51.00	8.66	5.28	0.00				

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NOAA 24-hr D 100-Year Rainfall=8.66"

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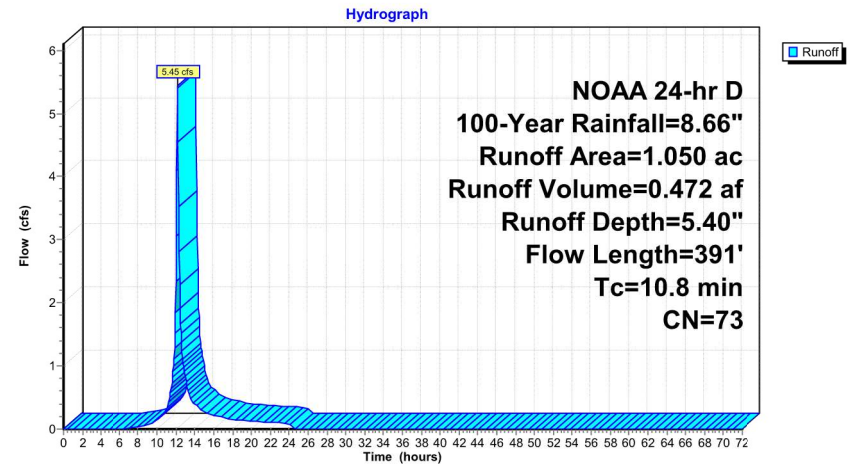
Summary for Subcatchment 9S: Undetained - Perv.

Runoff = 5.45 cfs @ 12.18 hrs, Volume= 0.472 af, Depth= 5.40"
 Routed to Link 3L : DA 1. - Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.910	74	>75% Grass cover, Good, HSG C
0.070	61	>75% Grass cover, Good, HSG B
0.070	70	Woods, Good, HSG C
1.050	73	Weighted Average
1.050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	59	0.0200	0.11		Sheet Flow, Sheet Flow - Grass Grass: Dense n= 0.240 P2= 3.44" Using McCuen-Spiess flow length
1.8	332	0.0360	3.05		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
10.8	391	Total			

Subcatchment 9S: Undetained - Perv.

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Hydrograph for Subcatchment 9S: Undetained - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.66	5.40	0.00
1.00	0.10	0.00	0.00	53.00	8.66	5.40	0.00
2.00	0.21	0.00	0.00	54.00	8.66	5.40	0.00
3.00	0.33	0.00	0.00	55.00	8.66	5.40	0.00
4.00	0.45	0.00	0.00	56.00	8.66	5.40	0.00
5.00	0.59	0.00	0.00	57.00	8.66	5.40	0.00
6.00	0.74	0.00	0.00	58.00	8.66	5.40	0.00
7.00	0.91	0.01	0.01	59.00	8.66	5.40	0.00
8.00	1.12	0.04	0.04	60.00	8.66	5.40	0.00
9.00	1.37	0.09	0.07	61.00	8.66	5.40	0.00
10.00	1.72	0.20	0.15	62.00	8.66	5.40	0.00
11.00	2.25	0.44	0.33	63.00	8.66	5.40	0.00
12.00	4.15	1.64	2.34	64.00	8.66	5.40	0.00
13.00	6.41	3.43	0.81	65.00	8.66	5.40	0.00
14.00	6.94	3.89	0.39	66.00	8.66	5.40	0.00
15.00	7.29	4.18	0.27	67.00	8.66	5.40	0.00
16.00	7.54	4.40	0.22	68.00	8.66	5.40	0.00
17.00	7.75	4.59	0.19	69.00	8.66	5.40	0.00
18.00	7.92	4.74	0.15	70.00	8.66	5.40	0.00
19.00	8.07	4.87	0.14	71.00	8.66	5.40	0.00
20.00	8.21	4.99	0.13	72.00	8.66	5.40	0.00
21.00	8.33	5.11	0.12				
22.00	8.45	5.21	0.11				
23.00	8.56	5.31	0.10				
24.00	8.66	5.40	0.09				
25.00	8.66	5.40	0.00				
26.00	8.66	5.40	0.00				
27.00	8.66	5.40	0.00				
28.00	8.66	5.40	0.00				
29.00	8.66	5.40	0.00				
30.00	8.66	5.40	0.00				
31.00	8.66	5.40	0.00				
32.00	8.66	5.40	0.00				
33.00	8.66	5.40	0.00				
34.00	8.66	5.40	0.00				
35.00	8.66	5.40	0.00				
36.00	8.66	5.40	0.00				
37.00	8.66	5.40	0.00				
38.00	8.66	5.40	0.00				
39.00	8.66	5.40	0.00				
40.00	8.66	5.40	0.00				
41.00	8.66	5.40	0.00				
42.00	8.66	5.40	0.00				
43.00	8.66	5.40	0.00				
44.00	8.66	5.40	0.00				
45.00	8.66	5.40	0.00				
46.00	8.66	5.40	0.00				
47.00	8.66	5.40	0.00				
48.00	8.66	5.40	0.00				
49.00	8.66	5.40	0.00				
50.00	8.66	5.40	0.00				
51.00	8.66	5.40	0.00				

2023-01 Proposed Hydrology

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NOAA 24-hr D 100-Year Rainfall=8.66"

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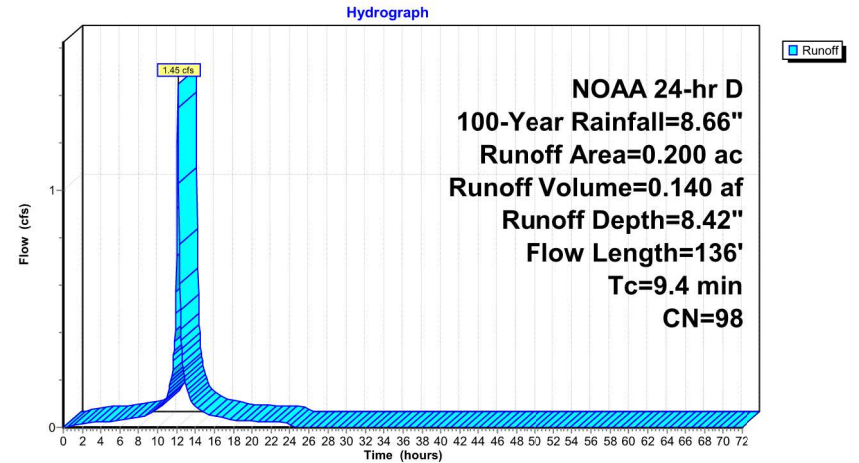
Summary for Subcatchment 11S: Basin D - Imp.

Runoff = 1.45 cfs @ 12.16 hrs, Volume= 0.140 af, Depth= 8.42"
Routed to Pond 6P : Basin D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.200	98	Unconnected pavement, HSG C
0.200		100.00% Impervious Area
0.200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.4	111	0.0720	4.32		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.4	136	Total			

Subcatchment 11S: Basin D - Imp.

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NOAA 24-hr D 100-Year Rainfall=8.66"

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Hydrograph for Subcatchment 11S: Basin D - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.66	8.42	0.00
1.00	0.10	0.01	0.01	53.00	8.66	8.42	0.00
2.00	0.21	0.08	0.02	54.00	8.66	8.42	0.00
3.00	0.33	0.17	0.02	55.00	8.66	8.42	0.00
4.00	0.45	0.28	0.02	56.00	8.66	8.42	0.00
5.00	0.59	0.40	0.03	57.00	8.66	8.42	0.00
6.00	0.74	0.54	0.03	58.00	8.66	8.42	0.00
7.00	0.91	0.71	0.04	59.00	8.66	8.42	0.00
8.00	1.12	0.91	0.04	60.00	8.66	8.42	0.00
9.00	1.37	1.16	0.05	61.00	8.66	8.42	0.00
10.00	1.72	1.49	0.08	62.00	8.66	8.42	0.00
11.00	2.25	2.02	0.14	63.00	8.66	8.42	0.00
12.00	4.15	3.91	0.72	64.00	8.66	8.42	0.00
13.00	6.41	6.17	0.18	65.00	8.66	8.42	0.00
14.00	6.94	6.70	0.09	66.00	8.66	8.42	0.00
15.00	7.29	7.05	0.06	67.00	8.66	8.42	0.00
16.00	7.54	7.30	0.05	68.00	8.66	8.42	0.00
17.00	7.75	7.51	0.04	69.00	8.66	8.42	0.00
18.00	7.92	7.68	0.03	70.00	8.66	8.42	0.00
19.00	8.07	7.83	0.03	71.00	8.66	8.42	0.00
20.00	8.21	7.97	0.03	72.00	8.66	8.42	0.00
21.00	8.33	8.09	0.03				
22.00	8.45	8.21	0.02				
23.00	8.56	8.32	0.02				
24.00	8.66	8.42	0.02				
25.00	8.66	8.42	0.00				
26.00	8.66	8.42	0.00				
27.00	8.66	8.42	0.00				
28.00	8.66	8.42	0.00				
29.00	8.66	8.42	0.00				
30.00	8.66	8.42	0.00				
31.00	8.66	8.42	0.00				
32.00	8.66	8.42	0.00				
33.00	8.66	8.42	0.00				
34.00	8.66	8.42	0.00				
35.00	8.66	8.42	0.00				
36.00	8.66	8.42	0.00				
37.00	8.66	8.42	0.00				
38.00	8.66	8.42	0.00				
39.00	8.66	8.42	0.00				
40.00	8.66	8.42	0.00				
41.00	8.66	8.42	0.00				
42.00	8.66	8.42	0.00				
43.00	8.66	8.42	0.00				
44.00	8.66	8.42	0.00				
45.00	8.66	8.42	0.00				
46.00	8.66	8.42	0.00				
47.00	8.66	8.42	0.00				
48.00	8.66	8.42	0.00				
49.00	8.66	8.42	0.00				
50.00	8.66	8.42	0.00				
51.00	8.66	8.42	0.00				

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NOAA 24-hr D 100-Year Rainfall=8.66"

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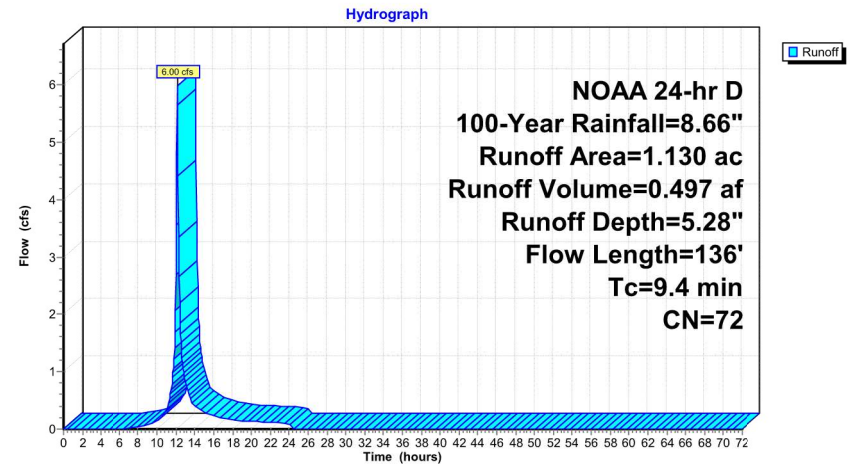
Summary for Subcatchment 12S: Basin D - Perv.

Runoff = 6.00 cfs @ 12.17 hrs, Volume= 0.497 af, Depth= 5.28"
 Routed to Pond 6P : Basin D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.470	74	>75% Grass cover, Good, HSG C
0.650	70	Woods, Good, HSG C
* 0.010	55	Woods, Good, HSG B
1.130	72	Weighted Average
1.130		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.4	111	0.0720	4.32		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.4	136	Total			

Subcatchment 12S: Basin D - Perv.

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Hydrograph for Subcatchment 12S: Basin D - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.66	5.28	0.00
1.00	0.10	0.00	0.00	53.00	8.66	5.28	0.00
2.00	0.21	0.00	0.00	54.00	8.66	5.28	0.00
3.00	0.33	0.00	0.00	55.00	8.66	5.28	0.00
4.00	0.45	0.00	0.00	56.00	8.66	5.28	0.00
5.00	0.59	0.00	0.00	57.00	8.66	5.28	0.00
6.00	0.74	0.00	0.00	58.00	8.66	5.28	0.00
7.00	0.91	0.00	0.01	59.00	8.66	5.28	0.00
8.00	1.12	0.03	0.04	60.00	8.66	5.28	0.00
9.00	1.37	0.08	0.07	61.00	8.66	5.28	0.00
10.00	1.72	0.18	0.15	62.00	8.66	5.28	0.00
11.00	2.25	0.40	0.35	63.00	8.66	5.28	0.00
12.00	4.15	1.57	2.69	64.00	8.66	5.28	0.00
13.00	6.41	3.33	0.85	65.00	8.66	5.28	0.00
14.00	6.94	3.78	0.42	66.00	8.66	5.28	0.00
15.00	7.29	4.07	0.29	67.00	8.66	5.28	0.00
16.00	7.54	4.29	0.23	68.00	8.66	5.28	0.00
17.00	7.75	4.47	0.20	69.00	8.66	5.28	0.00
18.00	7.92	4.62	0.16	70.00	8.66	5.28	0.00
19.00	8.07	4.75	0.14	71.00	8.66	5.28	0.00
20.00	8.21	4.88	0.13	72.00	8.66	5.28	0.00
21.00	8.33	4.99	0.13				
22.00	8.45	5.09	0.12				
23.00	8.56	5.19	0.11				
24.00	8.66	5.28	0.10				
25.00	8.66	5.28	0.00				
26.00	8.66	5.28	0.00				
27.00	8.66	5.28	0.00				
28.00	8.66	5.28	0.00				
29.00	8.66	5.28	0.00				
30.00	8.66	5.28	0.00				
31.00	8.66	5.28	0.00				
32.00	8.66	5.28	0.00				
33.00	8.66	5.28	0.00				
34.00	8.66	5.28	0.00				
35.00	8.66	5.28	0.00				
36.00	8.66	5.28	0.00				
37.00	8.66	5.28	0.00				
38.00	8.66	5.28	0.00				
39.00	8.66	5.28	0.00				
40.00	8.66	5.28	0.00				
41.00	8.66	5.28	0.00				
42.00	8.66	5.28	0.00				
43.00	8.66	5.28	0.00				
44.00	8.66	5.28	0.00				
45.00	8.66	5.28	0.00				
46.00	8.66	5.28	0.00				
47.00	8.66	5.28	0.00				
48.00	8.66	5.28	0.00				
49.00	8.66	5.28	0.00				
50.00	8.66	5.28	0.00				
51.00	8.66	5.28	0.00				

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Summary for Pond 3P: Basin A

Inflow Area = 1.130 ac, 18.58% Impervious, Inflow Depth = 5.86" for 100-Year event
 Inflow = 6.47 cfs @ 12.16 hrs, Volume= 0.552 af
 Outflow = 1.24 cfs @ 12.67 hrs, Volume= 0.529 af, Atten= 81%, Lag= 30.6 min
 Primary = 1.24 cfs @ 12.67 hrs, Volume= 0.529 af
 Routed to Link 2L : DA 1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 621.25' @ 12.67 hrs Surf.Area= 0.120 ac Storage= 0.200 af

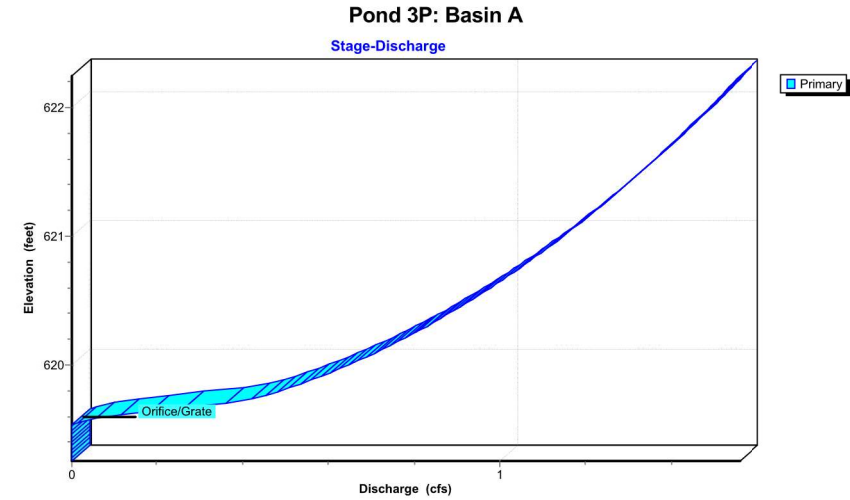
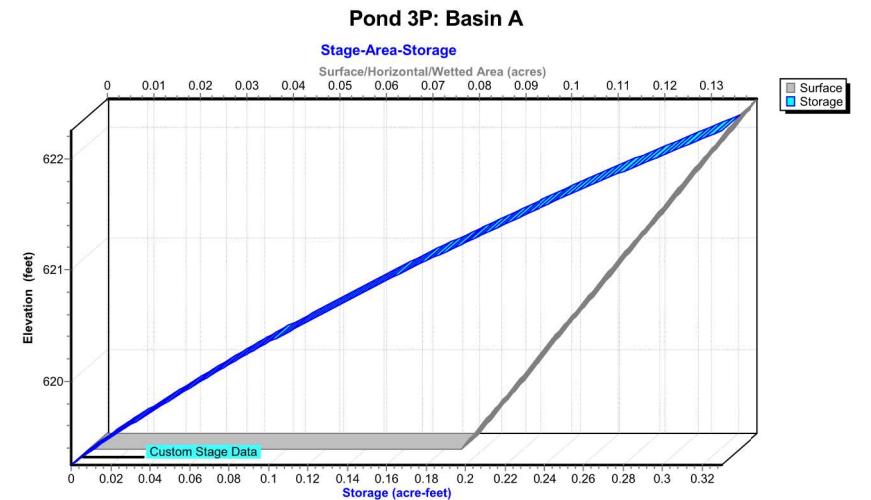
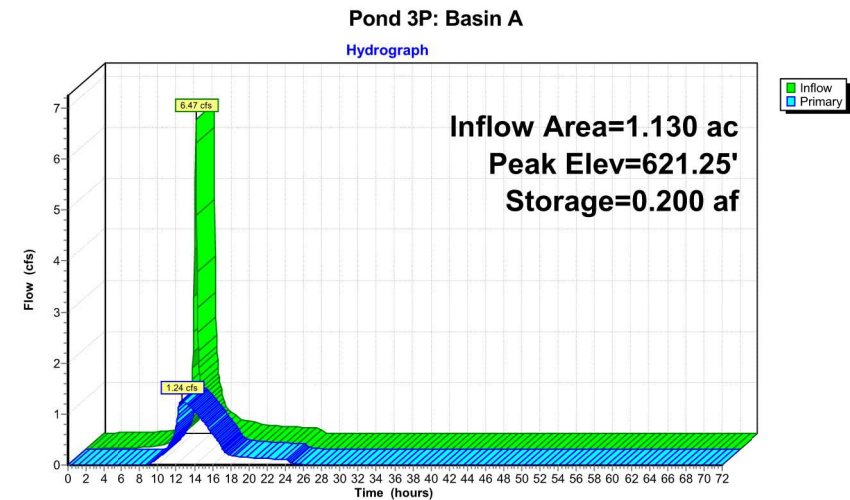
Plug-Flow detention time= 109.7 min calculated for 0.528 af (96% of inflow)
 Center-of-Mass det. time= 85.4 min (891.6 - 806.1)

Volume	Invert	Avail.Storage	Storage Description
#1	619.25'	0.330 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
619.25	0.080	0.000	0.000
620.25	0.100	0.090	0.090
621.25	0.120	0.110	0.200
622.25	0.140	0.130	0.330

Device	Routing	Invert	Outlet Devices
#1	Primary	619.53'	6.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.24 cfs @ 12.67 hrs HW=621.25' (Free Discharge)

1=Orifice/Grate (Orifice Controls 1.24 cfs @ 6.31 fps)



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Hydrograph for Pond 3P: Basin A

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	619.25	0.00
2.50	0.02	0.002	619.27	0.00
5.00	0.03	0.007	619.33	0.00
7.50	0.06	0.014	619.43	0.00
10.00	0.20	0.031	619.62	0.14
12.50	1.71	0.196	621.22	1.23
15.00	0.30	0.098	620.33	0.85
17.50	0.18	0.034	619.66	0.23
20.00	0.14	0.031	619.62	0.14
22.50	0.11	0.030	619.61	0.12
25.00	0.00	0.026	619.56	0.03
27.50	0.00	0.024	619.53	0.00
30.00	0.00	0.023	619.53	0.00
32.50	0.00	0.023	619.53	0.00
35.00	0.00	0.023	619.53	0.00
37.50	0.00	0.023	619.53	0.00
40.00	0.00	0.023	619.53	0.00
42.50	0.00	0.023	619.53	0.00
45.00	0.00	0.023	619.53	0.00
47.50	0.00	0.023	619.53	0.00
50.00	0.00	0.023	619.53	0.00
52.50	0.00	0.023	619.53	0.00
55.00	0.00	0.023	619.53	0.00
57.50	0.00	0.023	619.53	0.00
60.00	0.00	0.023	619.53	0.00
62.50	0.00	0.023	619.53	0.00
65.00	0.00	0.023	619.53	0.00
67.50	0.00	0.023	619.53	0.00
70.00	0.00	0.023	619.53	0.00

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Stage-Discharge for Pond 3P: Basin A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
619.25	0.00	620.29	0.82	621.33	1.27
619.27	0.00	620.31	0.83	621.35	1.28
619.29	0.00	620.33	0.85	621.37	1.28
619.31	0.00	620.35	0.86	621.39	1.29
619.33	0.00	620.37	0.87	621.41	1.30
619.35	0.00	620.39	0.88	621.43	1.30
619.37	0.00	620.41	0.89	621.45	1.31
619.39	0.00	620.43	0.90	621.47	1.32
619.41	0.00	620.45	0.91	621.49	1.32
619.43	0.00	620.47	0.92	621.51	1.33
619.45	0.00	620.49	0.93	621.53	1.34
619.47	0.00	620.51	0.94	621.55	1.34
619.49	0.00	620.53	0.95	621.57	1.35
619.51	0.00	620.55	0.95	621.59	1.36
619.53	0.00	620.57	0.96	621.61	1.36
619.55	0.01	620.59	0.97	621.63	1.37
619.57	0.04	620.61	0.98	621.65	1.38
619.59	0.08	620.63	0.99	621.67	1.38
619.61	0.12	620.65	1.00	621.69	1.39
619.63	0.16	620.67	1.01	621.71	1.40
619.65	0.21	620.69	1.02	621.73	1.40
619.67	0.27	620.71	1.03	621.75	1.41
619.69	0.33	620.73	1.04	621.77	1.41
619.71	0.39	620.75	1.04	621.79	1.42
619.73	0.42	620.77	1.05	621.81	1.43
619.75	0.44	620.79	1.06	621.83	1.43
619.77	0.46	620.81	1.07	621.85	1.44
619.79	0.48	620.83	1.08	621.87	1.45
619.81	0.50	620.85	1.09	621.89	1.45
619.83	0.52	620.87	1.09	621.91	1.46
619.85	0.53	620.89	1.10	621.93	1.46
619.87	0.55	620.91	1.11	621.95	1.47
619.89	0.57	620.93	1.12	621.97	1.48
619.91	0.58	620.95	1.13	621.99	1.48
619.93	0.60	620.97	1.13	622.01	1.49
619.95	0.61	620.99	1.14	622.03	1.49
619.97	0.63	621.01	1.15	622.05	1.50
619.99	0.64	621.03	1.16	622.07	1.51
620.01	0.66	621.05	1.17	622.09	1.51
620.03	0.67	621.07	1.17	622.11	1.52
620.05	0.68	621.09	1.18	622.13	1.52
620.07	0.69	621.11	1.19	622.15	1.53
620.09	0.71	621.13	1.20	622.17	1.54
620.11	0.72	621.15	1.20	622.19	1.54
620.13	0.73	621.17	1.21	622.21	1.55
620.15	0.74	621.19	1.22	622.23	1.55
620.17	0.76	621.21	1.23	622.25	1.56
620.19	0.77	621.23	1.23		
620.21	0.78	621.25	1.24		
620.23	0.79	621.27	1.25		
620.25	0.80	621.29	1.25		
620.27	0.81	621.31	1.26		

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Stage-Area-Storage for Pond 3P: Basin A

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
619.25	0.080	0.000	621.85	0.132	0.276
619.30	0.081	0.004	621.90	0.133	0.282
619.35	0.082	0.008	621.95	0.134	0.289
619.40	0.083	0.012	622.00	0.135	0.296
619.45	0.084	0.016	622.05	0.136	0.302
619.50	0.085	0.021	622.10	0.137	0.309
619.55	0.086	0.025	622.15	0.138	0.316
619.60	0.087	0.029	622.20	0.139	0.323
619.65	0.088	0.034	622.25	0.140	0.330
619.70	0.089	0.038			
619.75	0.090	0.043			
619.80	0.091	0.047			
619.85	0.092	0.052			
619.90	0.093	0.056			
619.95	0.094	0.061			
620.00	0.095	0.066			
620.05	0.096	0.070			
620.10	0.097	0.075			
620.15	0.098	0.080			
620.20	0.099	0.085			
620.25	0.100	0.090			
620.30	0.101	0.095			
620.35	0.102	0.100			
620.40	0.103	0.105			
620.45	0.104	0.110			
620.50	0.105	0.116			
620.55	0.106	0.121			
620.60	0.107	0.126			
620.65	0.108	0.132			
620.70	0.109	0.137			
620.75	0.110	0.142			
620.80	0.111	0.148			
620.85	0.112	0.154			
620.90	0.113	0.159			
620.95	0.114	0.165			
621.00	0.115	0.171			
621.05	0.116	0.176			
621.10	0.117	0.182			
621.15	0.118	0.188			
621.20	0.119	0.194			
621.25	0.120	0.200			
621.30	0.121	0.206			
621.35	0.122	0.212			
621.40	0.123	0.218			
621.45	0.124	0.224			
621.50	0.125	0.231			
621.55	0.126	0.237			
621.60	0.127	0.243			
621.65	0.128	0.250			
621.70	0.129	0.256			
621.75	0.130	0.262			
621.80	0.131	0.269			

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Summary for Pond 4P: Basin B

Inflow Area = 0.960 ac, 19.79% Impervious, Inflow Depth = 5.90" for 100-Year event
 Inflow = 5.38 cfs @ 12.17 hrs, Volume= 0.472 af
 Outflow = 1.10 cfs @ 12.66 hrs, Volume= 0.417 af, Atten= 79%, Lag= 29.4 min
 Primary = 1.10 cfs @ 12.66 hrs, Volume= 0.417 af
 Routed to Link 2L : DA 1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 620.75' @ 12.66 hrs Surf.Area= 0.120 ac Storage= 0.201 af

Plug-Flow detention time= 162.5 min calculated for 0.417 af (88% of inflow)
 Center-of-Mass det. time= 103.0 min (908.3 - 805.3)

Volume	Invert	Avail.Storage	Storage Description
#1	618.75'	0.330 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
618.75	0.080	0.000	0.000
619.75	0.100	0.090	0.090
620.75	0.120	0.110	0.200
621.75	0.140	0.130	0.330

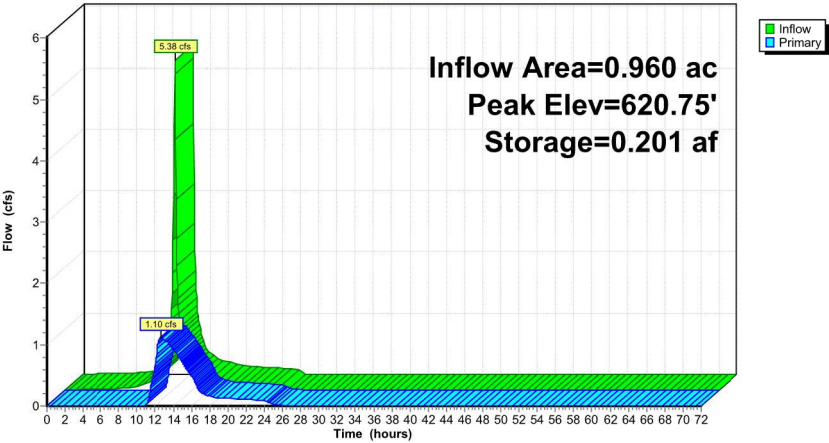
Device	Routing	Invert	Outlet Devices
#1	Primary	619.39'	6.0" Horiz. Orifice C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.10 cfs @ 12.66 hrs HW=620.75' (Free Discharge)

1=Orifice (Orifice Controls 1.10 cfs @ 5.62 fps)

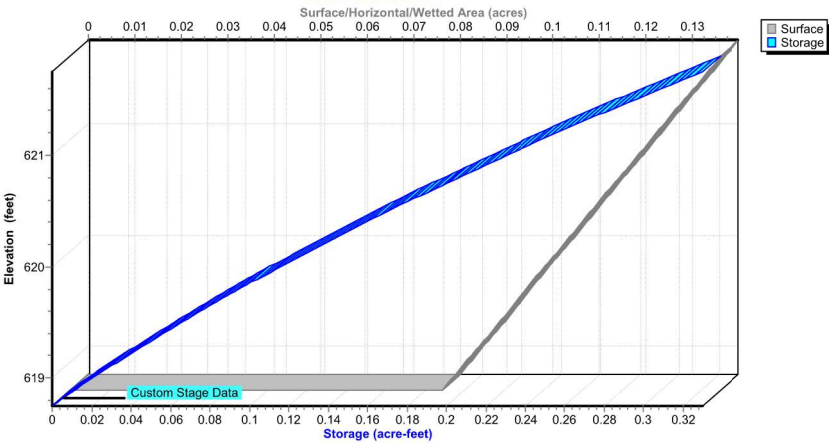
Pond 4P: Basin B

Hydrograph



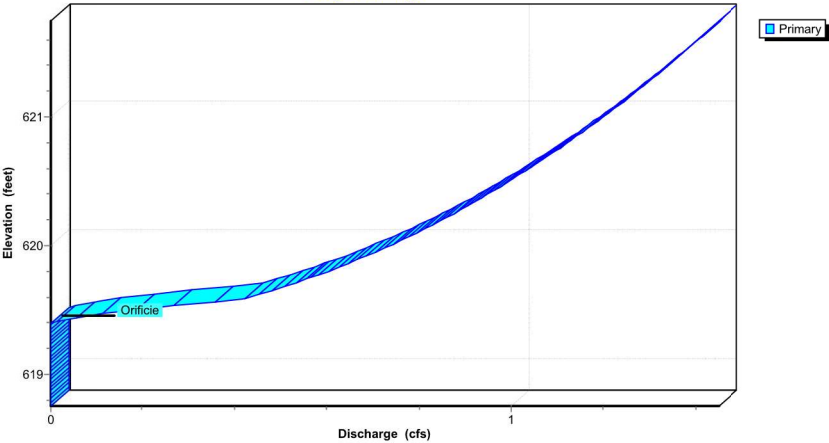
Pond 4P: Basin B

Stage-Area-Storage



Pond 4P: Basin B

Stage-Discharge



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Hydrograph for Pond 4P: Basin B

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	618.75	0.00
2.50	0.02	0.002	618.77	0.00
5.00	0.02	0.006	618.82	0.00
7.50	0.05	0.013	618.91	0.00
10.00	0.18	0.033	619.14	0.00
12.50	1.50	0.198	620.73	1.10
15.00	0.25	0.111	619.95	0.71
17.50	0.16	0.065	619.50	0.18
20.00	0.12	0.063	619.47	0.12
22.50	0.10	0.062	619.46	0.10
25.00	0.00	0.058	619.42	0.03
27.50	0.00	0.056	619.40	0.00
30.00	0.00	0.055	619.39	0.00
32.50	0.00	0.055	619.39	0.00
35.00	0.00	0.055	619.39	0.00
37.50	0.00	0.055	619.39	0.00
40.00	0.00	0.055	619.39	0.00
42.50	0.00	0.055	619.39	0.00
45.00	0.00	0.055	619.39	0.00
47.50	0.00	0.055	619.39	0.00
50.00	0.00	0.055	619.39	0.00
52.50	0.00	0.055	619.39	0.00
55.00	0.00	0.055	619.39	0.00
57.50	0.00	0.055	619.39	0.00
60.00	0.00	0.055	619.39	0.00
62.50	0.00	0.055	619.39	0.00
65.00	0.00	0.055	619.39	0.00
67.50	0.00	0.055	619.39	0.00
70.00	0.00	0.055	619.39	0.00

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Stage-Discharge for Pond 4P: Basin B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
618.75	0.00	619.79	0.60	620.83	1.13
618.77	0.00	619.81	0.61	620.85	1.14
618.79	0.00	619.83	0.63	620.87	1.15
618.81	0.00	619.85	0.64	620.89	1.16
618.83	0.00	619.87	0.66	620.91	1.17
618.85	0.00	619.89	0.67	620.93	1.17
618.87	0.00	619.91	0.68	620.95	1.18
618.89	0.00	619.93	0.69	620.97	1.19
618.91	0.00	619.95	0.71	620.99	1.20
618.93	0.00	619.97	0.72	621.01	1.20
618.95	0.00	619.99	0.73	621.03	1.21
618.97	0.00	620.01	0.74	621.05	1.22
618.99	0.00	620.03	0.76	621.07	1.23
619.01	0.00	620.05	0.77	621.09	1.23
619.03	0.00	620.07	0.78	621.11	1.24
619.05	0.00	620.09	0.79	621.13	1.25
619.07	0.00	620.11	0.80	621.15	1.25
619.09	0.00	620.13	0.81	621.17	1.26
619.11	0.00	620.15	0.82	621.19	1.27
619.13	0.00	620.17	0.83	621.21	1.28
619.15	0.00	620.19	0.85	621.23	1.28
619.17	0.00	620.21	0.86	621.25	1.29
619.19	0.00	620.23	0.87	621.27	1.30
619.21	0.00	620.25	0.88	621.29	1.30
619.23	0.00	620.27	0.89	621.31	1.31
619.25	0.00	620.29	0.90	621.33	1.32
619.27	0.00	620.31	0.91	621.35	1.32
619.29	0.00	620.33	0.92	621.37	1.33
619.31	0.00	620.35	0.93	621.39	1.34
619.33	0.00	620.37	0.94	621.41	1.34
619.35	0.00	620.39	0.95	621.43	1.35
619.37	0.00	620.41	0.95	621.45	1.36
619.39	0.00	620.43	0.96	621.47	1.36
619.41	0.01	620.45	0.97	621.49	1.37
619.43	0.04	620.47	0.98	621.51	1.38
619.45	0.08	620.49	0.99	621.53	1.38
619.47	0.12	620.51	1.00	621.55	1.39
619.49	0.16	620.53	1.01	621.57	1.40
619.51	0.21	620.55	1.02	621.59	1.40
619.53	0.27	620.57	1.03	621.61	1.41
619.55	0.33	620.59	1.04	621.63	1.41
619.57	0.39	620.61	1.04	621.65	1.42
619.59	0.42	620.63	1.05	621.67	1.43
619.61	0.44	620.65	1.06	621.69	1.43
619.63	0.46	620.67	1.07	621.71	1.44
619.65	0.48	620.69	1.08	621.73	1.45
619.67	0.50	620.71	1.09	621.75	1.45
619.69	0.52	620.73	1.09		
619.71	0.53	620.75	1.10		
619.73	0.55	620.77	1.11		
619.75	0.57	620.79	1.12		
619.77	0.58	620.81	1.13		

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Stage-Area-Storage for Pond 4P: Basin B

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
618.75	0.080	0.000	621.35	0.132	0.276
618.80	0.081	0.004	621.40	0.133	0.282
618.85	0.082	0.008	621.45	0.134	0.289
618.90	0.083	0.012	621.50	0.135	0.296
618.95	0.084	0.016	621.55	0.136	0.302
619.00	0.085	0.021	621.60	0.137	0.309
619.05	0.086	0.025	621.65	0.138	0.316
619.10	0.087	0.029	621.70	0.139	0.323
619.15	0.088	0.034	621.75	0.140	0.330
619.20	0.089	0.038			
619.25	0.090	0.043			
619.30	0.091	0.047			
619.35	0.092	0.052			
619.40	0.093	0.056			
619.45	0.094	0.061			
619.50	0.095	0.066			
619.55	0.096	0.070			
619.60	0.097	0.075			
619.65	0.098	0.080			
619.70	0.099	0.085			
619.75	0.100	0.090			
619.80	0.101	0.095			
619.85	0.102	0.100			
619.90	0.103	0.105			
619.95	0.104	0.110			
620.00	0.105	0.116			
620.05	0.106	0.121			
620.10	0.107	0.126			
620.15	0.108	0.132			
620.20	0.109	0.137			
620.25	0.110	0.142			
620.30	0.111	0.148			
620.35	0.112	0.154			
620.40	0.113	0.159			
620.45	0.114	0.165			
620.50	0.115	0.171			
620.55	0.116	0.176			
620.60	0.117	0.182			
620.65	0.118	0.188			
620.70	0.119	0.194			
620.75	0.120	0.200			
620.80	0.121	0.206			
620.85	0.122	0.212			
620.90	0.123	0.218			
620.95	0.124	0.224			
621.00	0.125	0.231			
621.05	0.126	0.237			
621.10	0.127	0.243			
621.15	0.128	0.250			
621.20	0.129	0.256			
621.25	0.130	0.262			
621.30	0.131	0.269			

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Summary for Pond 5P: Basin C

Inflow Area = 1.380 ac, 14.49% Impervious, Inflow Depth = 5.73" for 100-Year event
 Inflow = 7.79 cfs @ 12.16 hrs, Volume= 0.659 af
 Outflow = 2.00 cfs @ 12.52 hrs, Volume= 0.597 af, Atten= 74%, Lag= 21.7 min
 Primary = 2.00 cfs @ 12.52 hrs, Volume= 0.597 af
 Routed to Link 2L : DA 1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 619.00' @ 12.52 hrs Surf.Area= 0.140 ac Storage= 0.241 af

Plug-Flow detention time= 125.3 min calculated for 0.596 af (90% of inflow)
 Center-of-Mass det. time= 76.1 min (886.8 - 810.7)

Volume	Invert	Avail.Storage	Storage Description
#1	617.00'	0.390 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
617.00	0.100	0.000	0.000
618.00	0.120	0.110	0.110
619.00	0.140	0.130	0.240
620.00	0.160	0.150	0.390

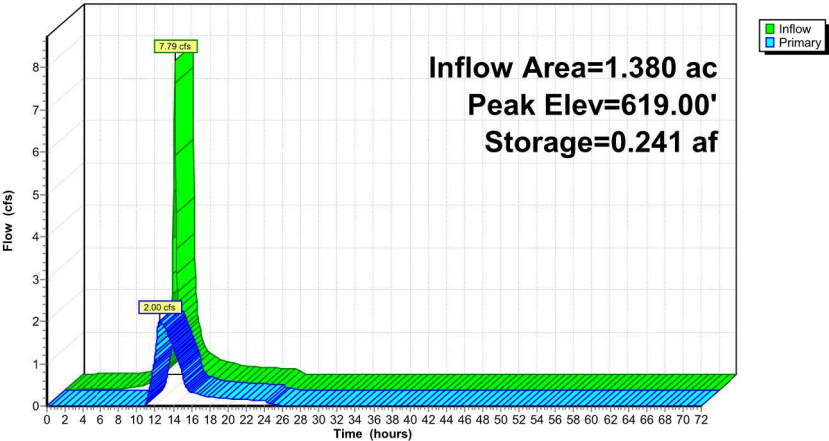
Device	Routing	Invert	Outlet Devices
#1	Primary	617.59'	8.0" Horiz. Orifice/Gate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.00 cfs @ 12.52 hrs HW=619.00' (Free Discharge)

1=Orifice/Gate (Orifice Controls 2.00 cfs @ 5.73 fps)

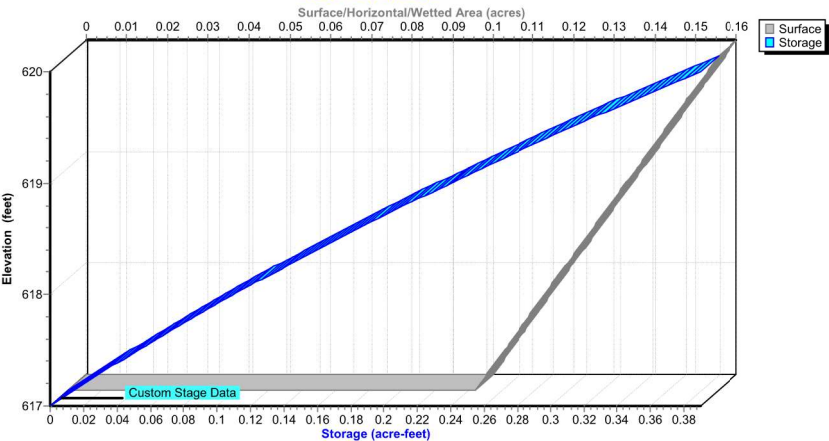
Pond 5P: Basin C

Hydrograph



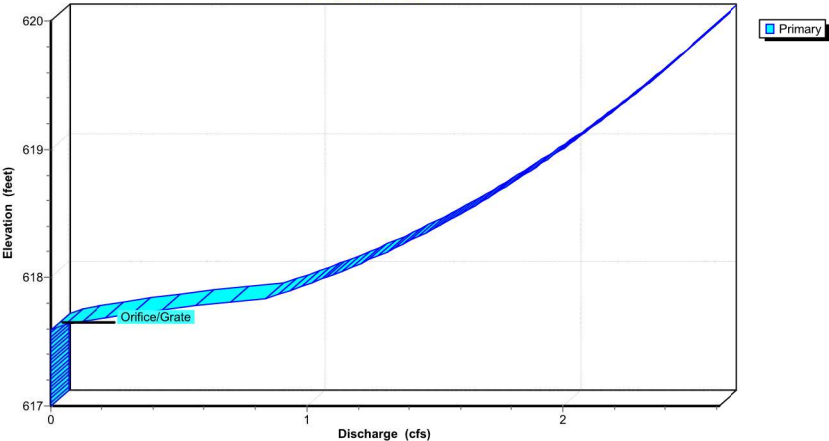
Pond 5P: Basin C

Stage-Area-Storage



Pond 5P: Basin C

Stage-Discharge



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Hydrograph for Pond 5P: Basin C

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	617.00	0.00
2.50	0.02	0.002	617.02	0.00
5.00	0.03	0.006	617.06	0.00
7.50	0.06	0.014	617.14	0.00
10.00	0.23	0.040	617.39	0.00
12.50	2.07	0.241	619.00	2.00
15.00	0.36	0.089	617.82	0.75
17.50	0.22	0.075	617.70	0.24
20.00	0.17	0.072	617.68	0.17
22.50	0.14	0.071	617.67	0.14
25.00	0.00	0.066	617.62	0.03
27.50	0.00	0.063	617.60	0.00
30.00	0.00	0.063	617.59	0.00
32.50	0.00	0.063	617.59	0.00
35.00	0.00	0.062	617.59	0.00
37.50	0.00	0.062	617.59	0.00
40.00	0.00	0.062	617.59	0.00
42.50	0.00	0.062	617.59	0.00
45.00	0.00	0.062	617.59	0.00
47.50	0.00	0.062	617.59	0.00
50.00	0.00	0.062	617.59	0.00
52.50	0.00	0.062	617.59	0.00
55.00	0.00	0.062	617.59	0.00
57.50	0.00	0.062	617.59	0.00
60.00	0.00	0.062	617.59	0.00
62.50	0.00	0.062	617.59	0.00
65.00	0.00	0.062	617.59	0.00
67.50	0.00	0.062	617.59	0.00
70.00	0.00	0.062	617.59	0.00

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Stage-Discharge for Pond 5P: Basin C

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
617.00	0.00	618.04	1.13	619.08	2.05
617.02	0.00	618.06	1.15	619.10	2.07
617.04	0.00	618.08	1.18	619.12	2.08
617.06	0.00	618.10	1.20	619.14	2.09
617.08	0.00	618.12	1.22	619.16	2.11
617.10	0.00	618.14	1.25	619.18	2.12
617.12	0.00	618.16	1.27	619.20	2.13
617.14	0.00	618.18	1.29	619.22	2.15
617.16	0.00	618.20	1.31	619.24	2.16
617.18	0.00	618.22	1.33	619.26	2.17
617.20	0.00	618.24	1.36	619.28	2.18
617.22	0.00	618.26	1.38	619.30	2.20
617.24	0.00	618.28	1.40	619.32	2.21
617.26	0.00	618.30	1.42	619.34	2.22
617.28	0.00	618.32	1.44	619.36	2.24
617.30	0.00	618.34	1.46	619.38	2.25
617.32	0.00	618.36	1.47	619.40	2.26
617.34	0.00	618.38	1.49	619.42	2.27
617.36	0.00	618.40	1.51	619.44	2.29
617.38	0.00	618.42	1.53	619.46	2.30
617.40	0.00	618.44	1.55	619.48	2.31
617.42	0.00	618.46	1.57	619.50	2.32
617.44	0.00	618.48	1.59	619.52	2.33
617.46	0.00	618.50	1.60	619.54	2.35
617.48	0.00	618.52	1.62	619.56	2.36
617.50	0.00	618.54	1.64	619.58	2.37
617.52	0.00	618.56	1.66	619.60	2.38
617.54	0.00	618.58	1.67	619.62	2.39
617.56	0.00	618.60	1.69	619.64	2.41
617.58	0.00	618.62	1.71	619.66	2.42
617.60	0.01	618.64	1.72	619.68	2.43
617.62	0.04	618.66	1.74	619.70	2.44
617.64	0.08	618.68	1.75	619.72	2.45
617.66	0.13	618.70	1.77	619.74	2.46
617.68	0.18	618.72	1.79	619.76	2.48
617.70	0.25	618.74	1.80	619.78	2.49
617.72	0.32	618.76	1.82	619.80	2.50
617.74	0.40	618.78	1.83	619.82	2.51
617.76	0.48	618.80	1.85	619.84	2.52
617.78	0.57	618.82	1.86	619.86	2.53
617.80	0.66	618.84	1.88	619.88	2.54
617.82	0.76	618.86	1.89	619.90	2.55
617.84	0.84	618.88	1.91	619.92	2.57
617.86	0.87	618.90	1.92	619.94	2.58
617.88	0.91	618.92	1.94	619.96	2.59
617.90	0.94	618.94	1.95	619.98	2.60
617.92	0.97	618.96	1.97	620.00	2.61
617.94	0.99	618.98	1.98		
617.96	1.02	619.00	2.00		
617.98	1.05	619.02	2.01		
618.00	1.08	619.04	2.02		
618.02	1.10	619.06	2.04		

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Stage-Area-Storage for Pond 5P: Basin C

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
617.00	0.100	0.000	619.60	0.152	0.328
617.05	0.101	0.005	619.65	0.153	0.335
617.10	0.102	0.010	619.70	0.154	0.343
617.15	0.103	0.015	619.75	0.155	0.351
617.20	0.104	0.020	619.80	0.156	0.358
617.25	0.105	0.026	619.85	0.157	0.366
617.30	0.106	0.031	619.90	0.158	0.374
617.35	0.107	0.036	619.95	0.159	0.382
617.40	0.108	0.042	620.00	0.160	0.390
617.45	0.109	0.047			
617.50	0.110	0.052			
617.55	0.111	0.058			
617.60	0.112	0.064			
617.65	0.113	0.069			
617.70	0.114	0.075			
617.75	0.115	0.081			
617.80	0.116	0.086			
617.85	0.117	0.092			
617.90	0.118	0.098			
617.95	0.119	0.104			
618.00	0.120	0.110			
618.05	0.121	0.116			
618.10	0.122	0.122			
618.15	0.123	0.128			
618.20	0.124	0.134			
618.25	0.125	0.141			
618.30	0.126	0.147			
618.35	0.127	0.153			
618.40	0.128	0.160			
618.45	0.129	0.166			
618.50	0.130	0.173			
618.55	0.131	0.179			
618.60	0.132	0.186			
618.65	0.133	0.192			
618.70	0.134	0.199			
618.75	0.135	0.206			
618.80	0.136	0.212			
618.85	0.137	0.219			
618.90	0.138	0.226			
618.95	0.139	0.233			
619.00	0.140	0.240			
619.05	0.141	0.247			
619.10	0.142	0.254			
619.15	0.143	0.261			
619.20	0.144	0.268			
619.25	0.145	0.276			
619.30	0.146	0.283			
619.35	0.147	0.290			
619.40	0.148	0.298			
619.45	0.149	0.305			
619.50	0.150	0.312			
619.55	0.151	0.320			

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Summary for Pond 6P: Basin D

Inflow Area = 1.330 ac, 15.04% Impervious, Inflow Depth = 5.75" for 100-Year event
 Inflow = 7.44 cfs @ 12.16 hrs, Volume= 0.637 af
 Outflow = 2.17 cfs @ 12.47 hrs, Volume= 0.612 af, Atten= 71%, Lag= 18.4 min
 Primary = 2.17 cfs @ 12.47 hrs, Volume= 0.612 af
 Routed to Link 2L : DA 1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 613.50' @ 12.47 hrs Surf.Area= 0.110 ac Storage= 0.180 af

Plug-Flow detention time= 74.0 min calculated for 0.612 af (96% of inflow)
 Center-of-Mass det. time= 50.7 min (861.0 - 810.3)

Volume	Invert	Avail.Storage	Storage Description
#1	611.50'	0.300 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
611.50	0.070	0.000	0.000
612.50	0.090	0.080	0.080
613.50	0.110	0.100	0.180
614.50	0.130	0.120	0.300

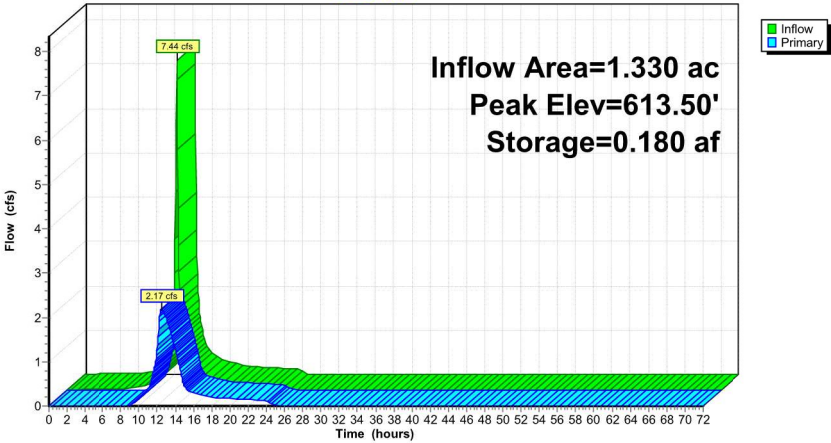
Device	Routing	Invert	Outlet Devices
#1	Primary	611.84'	8.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.17 cfs @ 12.47 hrs HW=613.50' (Free Discharge)

1=Orifice/Grate (Orifice Controls 2.17 cfs @ 6.21 fps)

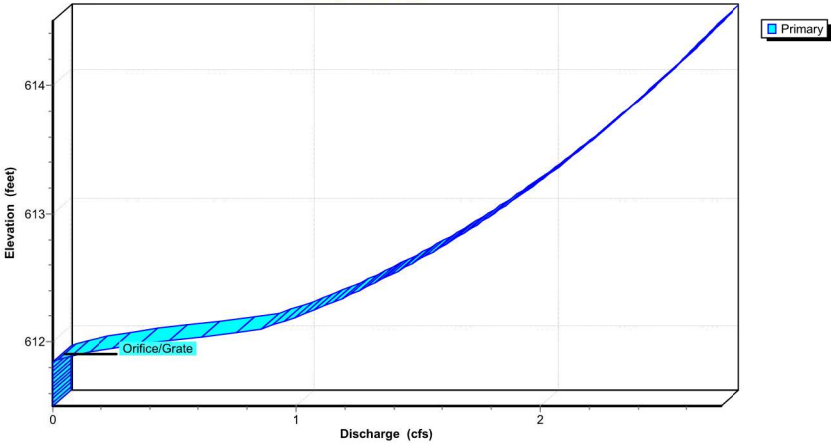
Pond 6P: Basin D

Hydrograph



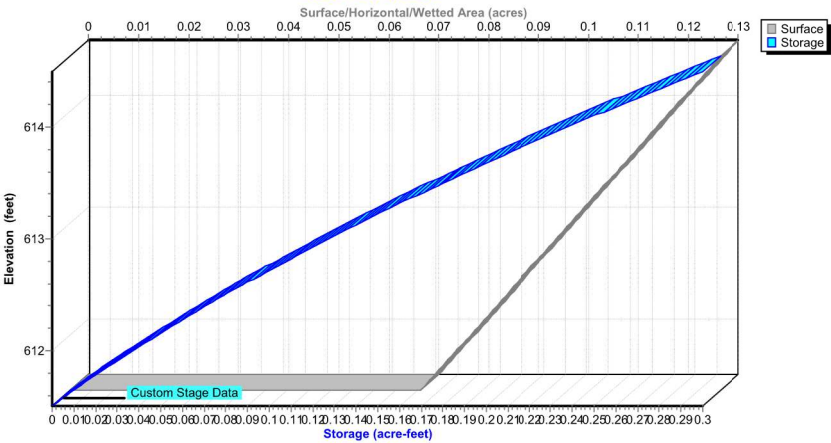
Pond 6P: Basin D

Stage-Discharge



Pond 6P: Basin D

Stage-Area-Storage



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Hydrograph for Pond 6P: Basin D

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	611.50	0.00
2.50	0.02	0.002	611.52	0.00
5.00	0.03	0.006	611.59	0.00
7.50	0.06	0.014	611.69	0.00
10.00	0.23	0.032	611.93	0.18
12.50	2.02	0.180	613.50	2.17
15.00	0.35	0.037	612.00	0.44
17.50	0.21	0.033	611.94	0.23
20.00	0.16	0.031	611.92	0.17
22.50	0.13	0.031	611.91	0.14
25.00	0.00	0.026	611.86	0.02
27.50	0.00	0.025	611.84	0.00
30.00	0.00	0.025	611.84	0.00
32.50	0.00	0.025	611.84	0.00
35.00	0.00	0.025	611.84	0.00
37.50	0.00	0.025	611.84	0.00
40.00	0.00	0.025	611.84	0.00
42.50	0.00	0.025	611.84	0.00
45.00	0.00	0.025	611.84	0.00
47.50	0.00	0.025	611.84	0.00
50.00	0.00	0.025	611.84	0.00
52.50	0.00	0.025	611.84	0.00
55.00	0.00	0.025	611.84	0.00
57.50	0.00	0.025	611.84	0.00
60.00	0.00	0.025	611.84	0.00
62.50	0.00	0.025	611.84	0.00
65.00	0.00	0.025	611.84	0.00
67.50	0.00	0.025	611.84	0.00
70.00	0.00	0.025	611.84	0.00

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Stage-Discharge for Pond 6P: Basin D

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
611.50	0.00	612.54	1.41	613.58	2.22
611.52	0.00	612.56	1.43	613.60	2.23
611.54	0.00	612.58	1.45	613.62	2.24
611.56	0.00	612.60	1.47	613.64	2.25
611.58	0.00	612.62	1.48	613.66	2.27
611.60	0.00	612.64	1.50	613.68	2.28
611.62	0.00	612.66	1.52	613.70	2.29
611.64	0.00	612.68	1.54	613.72	2.30
611.66	0.00	612.70	1.56	613.74	2.32
611.68	0.00	612.72	1.58	613.76	2.33
611.70	0.00	612.74	1.59	613.78	2.34
611.72	0.00	612.76	1.61	613.80	2.35
611.74	0.00	612.78	1.63	613.82	2.37
611.76	0.00	612.80	1.65	613.84	2.38
611.78	0.00	612.82	1.66	613.86	2.39
611.80	0.00	612.84	1.68	613.88	2.40
611.82	0.00	612.86	1.70	613.90	2.41
611.84	0.00	612.88	1.71	613.92	2.42
611.86	0.02	612.90	1.73	613.94	2.44
611.88	0.05	612.92	1.75	613.96	2.45
611.90	0.10	612.94	1.76	613.98	2.46
611.92	0.15	612.96	1.78	614.00	2.47
611.94	0.22	612.98	1.79	614.02	2.48
611.96	0.28	613.00	1.81	614.04	2.49
611.98	0.36	613.02	1.83	614.06	2.50
612.00	0.44	613.04	1.84	614.08	2.52
612.02	0.52	613.06	1.86	614.10	2.53
612.04	0.61	613.08	1.87	614.12	2.54
612.06	0.71	613.10	1.89	614.14	2.55
612.08	0.81	613.12	1.90	614.16	2.56
612.10	0.86	613.14	1.92	614.18	2.57
612.12	0.89	613.16	1.93	614.20	2.58
612.14	0.92	613.18	1.95	614.22	2.59
612.16	0.95	613.20	1.96	614.24	2.60
612.18	0.98	613.22	1.97	614.26	2.61
612.20	1.01	613.24	1.99	614.28	2.63
612.22	1.04	613.26	2.00	614.30	2.64
612.24	1.06	613.28	2.02	614.32	2.65
612.26	1.09	613.30	2.03	614.34	2.66
612.28	1.11	613.32	2.04	614.36	2.67
612.30	1.14	613.34	2.06	614.38	2.68
612.32	1.16	613.36	2.07	614.40	2.69
612.34	1.19	613.38	2.09	614.42	2.70
612.36	1.21	613.40	2.10	614.44	2.71
612.38	1.24	613.42	2.11	614.46	2.72
612.40	1.26	613.44	2.13	614.48	2.73
612.42	1.28	613.46	2.14	614.50	2.74
612.44	1.30	613.48	2.15		
612.46	1.32	613.50	2.17		
612.48	1.34	613.52	2.18		
612.50	1.37	613.54	2.19		
612.52	1.39	613.56	2.20		

2023-01 Proposed Hydrology

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Stage-Area-Storage for Pond 6P: Basin D

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
611.50	0.070	0.000	614.10	0.122	0.250
611.55	0.071	0.004	614.15	0.123	0.256
611.60	0.072	0.007	614.20	0.124	0.262
611.65	0.073	0.011	614.25	0.125	0.268
611.70	0.074	0.014	614.30	0.126	0.274
611.75	0.075	0.018	614.35	0.127	0.281
611.80	0.076	0.022	614.40	0.128	0.287
611.85	0.077	0.026	614.45	0.129	0.294
611.90	0.078	0.030	614.50	0.130	0.300
611.95	0.079	0.034			
612.00	0.080	0.037			
612.05	0.081	0.042			
612.10	0.082	0.046			
612.15	0.083	0.050			
612.20	0.084	0.054			
612.25	0.085	0.058			
612.30	0.086	0.062			
612.35	0.087	0.067			
612.40	0.088	0.071			
612.45	0.089	0.076			
612.50	0.090	0.080			
612.55	0.091	0.085			
612.60	0.092	0.089			
612.65	0.093	0.094			
612.70	0.094	0.098			
612.75	0.095	0.103			
612.80	0.096	0.108			
612.85	0.097	0.113			
612.90	0.098	0.118			
612.95	0.099	0.123			
613.00	0.100	0.127			
613.05	0.101	0.133			
613.10	0.102	0.138			
613.15	0.103	0.143			
613.20	0.104	0.148			
613.25	0.105	0.153			
613.30	0.106	0.158			
613.35	0.107	0.164			
613.40	0.108	0.169			
613.45	0.109	0.175			
613.50	0.110	0.180			
613.55	0.111	0.186			
613.60	0.112	0.191			
613.65	0.113	0.197			
613.70	0.114	0.202			
613.75	0.115	0.208			
613.80	0.116	0.214			
613.85	0.117	0.220			
613.90	0.118	0.226			
613.95	0.119	0.232			
614.00	0.120	0.237			
614.05	0.121	0.244			

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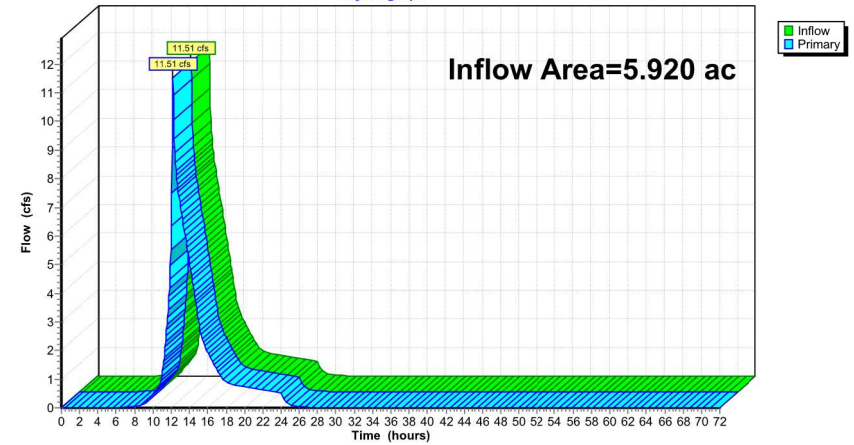
Summary for Link 2L: DA 1

Inflow Area = 5.920 ac, 14.70% Impervious, Inflow Depth = 5.42" for 100-Year event
Inflow = 11.51 cfs @ 12.20 hrs, Volume= 2.676 af
Primary = 11.51 cfs @ 12.20 hrs, Volume= 2.676 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 2L: DA 1

Hydrograph



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Hydrograph for Link 2L: DA 1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.01	0.00	0.01	54.00	0.00	0.00	0.00
3.00	0.01	0.00	0.01	55.00	0.00	0.00	0.00
4.00	0.01	0.00	0.01	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.03	0.00	0.03	59.00	0.00	0.00	0.00
8.00	0.05	0.00	0.05	60.00	0.00	0.00	0.00
9.00	0.11	0.00	0.11	61.00	0.00	0.00	0.00
10.00	0.50	0.00	0.50	62.00	0.00	0.00	0.00
11.00	1.14	0.00	1.14	63.00	0.00	0.00	0.00
12.00	6.36	0.00	6.36	64.00	0.00	0.00	0.00
13.00	7.05	0.00	7.05	65.00	0.00	0.00	0.00
14.00	5.05	0.00	5.05	66.00	0.00	0.00	0.00
15.00	3.03	0.00	3.03	67.00	0.00	0.00	0.00
16.00	1.95	0.00	1.95	68.00	0.00	0.00	0.00
17.00	1.29	0.00	1.29	69.00	0.00	0.00	0.00
18.00	0.93	0.00	0.93	70.00	0.00	0.00	0.00
19.00	0.80	0.00	0.80	71.00	0.00	0.00	0.00
20.00	0.74	0.00	0.74	72.00	0.00	0.00	0.00
21.00	0.69	0.00	0.69				
22.00	0.64	0.00	0.64				
23.00	0.59	0.00	0.59				
24.00	0.54	0.00	0.54				
25.00	0.11	0.00	0.11				
26.00	0.04	0.00	0.04				
27.00	0.02	0.00	0.02				
28.00	0.01	0.00	0.01				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

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NOAA 24-hr D 100-Year Rainfall=8.66"

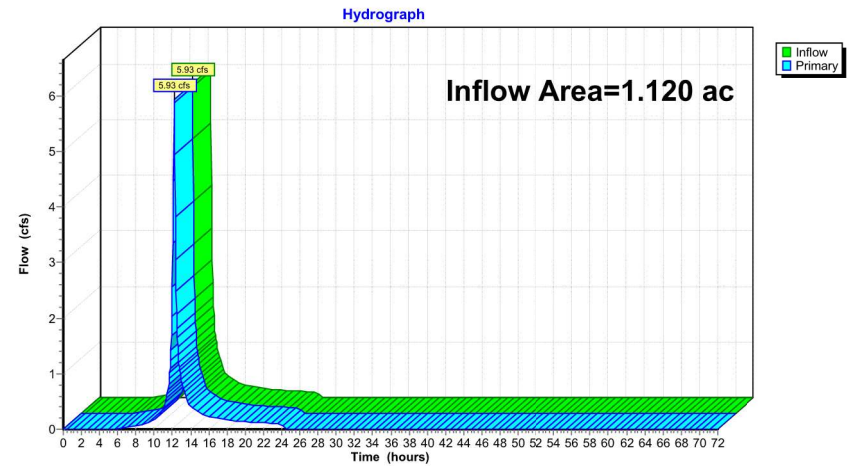
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Summary for Link 3L: DA 1. - Undetained

Inflow Area = 1.120 ac, 6.25% Impervious, Inflow Depth = 5.59" for 100-Year event
 Inflow = 5.93 cfs @ 12.18 hrs, Volume= 0.522 af
 Primary = 5.93 cfs @ 12.18 hrs, Volume= 0.522 af, Atten= 0%, Lag= 0.0 min
 Routed to Link 2L : DA 1

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 3L: DA 1. - Undetained

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Hydrograph for Link 3L: DA 1. - Undetained

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.01	0.00	0.01	54.00	0.00	0.00	0.00
3.00	0.01	0.00	0.01	55.00	0.00	0.00	0.00
4.00	0.01	0.00	0.01	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.03	0.00	0.03	59.00	0.00	0.00	0.00
8.00	0.05	0.00	0.05	60.00	0.00	0.00	0.00
9.00	0.09	0.00	0.09	61.00	0.00	0.00	0.00
10.00	0.17	0.00	0.17	62.00	0.00	0.00	0.00
11.00	0.38	0.00	0.38	63.00	0.00	0.00	0.00
12.00	2.57	0.00	2.57	64.00	0.00	0.00	0.00
13.00	0.88	0.00	0.88	65.00	0.00	0.00	0.00
14.00	0.43	0.00	0.43	66.00	0.00	0.00	0.00
15.00	0.29	0.00	0.29	67.00	0.00	0.00	0.00
16.00	0.24	0.00	0.24	68.00	0.00	0.00	0.00
17.00	0.20	0.00	0.20	69.00	0.00	0.00	0.00
18.00	0.16	0.00	0.16	70.00	0.00	0.00	0.00
19.00	0.15	0.00	0.15	71.00	0.00	0.00	0.00
20.00	0.14	0.00	0.14	72.00	0.00	0.00	0.00
21.00	0.13	0.00	0.13				
22.00	0.12	0.00	0.12				
23.00	0.11	0.00	0.11				
24.00	0.10	0.00	0.10				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

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Multi-Event Tables

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Events for Subcatchment 1S: Basin A - Imp.

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	0.60	0.056	3.21
10-Year	5.22	0.92	0.087	4.98
25-Year	6.44	1.14	0.109	6.20
100-Year	8.66	1.53	0.147	8.42

Events for Subcatchment 3S: Basin A - Perv.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	0.97	0.083	1.08
10-Year	5.22	2.22	0.182	2.37
25-Year	6.44	3.16	0.257	3.36
100-Year	8.66	4.93	0.405	5.28

Events for Subcatchment 4S: Basin B - Imp.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	0.53	0.051	3.21
10-Year	5.22	0.81	0.079	4.98
25-Year	6.44	1.01	0.098	6.20
100-Year	8.66	1.35	0.133	8.42

Events for Subcatchment 5S: Basin B - Perv.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	0.79	0.069	1.08
10-Year	5.22	1.81	0.152	2.37
25-Year	6.44	2.58	0.215	3.36
100-Year	8.66	4.03	0.339	5.28

Events for Subcatchment 6S: Undetained - Imp.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	0.19	0.019	3.21
10-Year	5.22	0.29	0.029	4.98
25-Year	6.44	0.36	0.036	6.20
100-Year	8.66	0.48	0.049	8.42

Events for Subcatchment 7S: Basin C - Imp.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	0.57	0.053	3.21
10-Year	5.22	0.88	0.083	4.98
25-Year	6.44	1.08	0.103	6.20
100-Year	8.66	1.46	0.140	8.42

Events for Subcatchment 8S: Basin C - Perv.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	1.25	0.106	1.08
10-Year	5.22	2.85	0.233	2.37
25-Year	6.44	4.05	0.330	3.36
100-Year	8.66	6.33	0.519	5.28

Events for Subcatchment 9S: Undetained - Perv.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	1.12	0.100	1.14
10-Year	5.22	2.49	0.215	2.45
25-Year	6.44	3.52	0.302	3.46
100-Year	8.66	5.45	0.472	5.40

Events for Subcatchment 11S: Basin D - Imp.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	0.57	0.053	3.21
10-Year	5.22	0.87	0.083	4.98
25-Year	6.44	1.07	0.103	6.20
100-Year	8.66	1.45	0.140	8.42

Events for Subcatchment 12S: Basin D - Perv.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	1.18	0.102	1.08
10-Year	5.22	2.70	0.223	2.37
25-Year	6.44	3.84	0.316	3.36
100-Year	8.66	6.00	0.497	5.28

Events for Pond 3P: Basin A				
Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2-Year	1.57	0.52	619.84	0.050
10-Year	3.14	0.83	620.29	0.094
25-Year	4.30	0.99	620.62	0.129
100-Year	6.47	1.24	621.25	0.200

Events for Pond 4P: Basin B				
Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2-Year	1.32	0.18	619.50	0.065
10-Year	2.62	0.65	619.86	0.101
25-Year	3.58	0.84	620.19	0.136
100-Year	5.38	1.10	620.75	0.201

Events for Pond 5P: Basin C				
Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2-Year	1.82	0.31	617.72	0.077
10-Year	3.73	1.20	618.10	0.122
25-Year	5.13	1.54	618.43	0.163
100-Year	7.79	2.00	619.00	0.241

Events for Pond 6P: Basin D				
Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2-Year	1.75	0.90	612.12	0.048
10-Year	3.57	1.42	612.56	0.085
25-Year	4.91	1.71	612.88	0.116
100-Year	7.44	2.17	613.50	0.180

Events for Link 2L: DA 1			
Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
2-Year	2.55	2.55	0.00
10-Year	6.28	6.28	0.00
25-Year	8.25	8.25	0.00
100-Year	11.51	11.51	0.00

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Multi-Event Tables

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Events for Link 3L: DA 1. - Undetained

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
2-Year	1.31	1.31	0.00
10-Year	2.78	2.78	0.00
25-Year	3.87	3.87	0.00
100-Year	5.93	5.93	0.00

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- 58 Node Listing
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- 62 Subcat 3S: Basin A - Perv.
- 64 Subcat 4S: Basin B - Imp.
- 66 Subcat 5S: Basin B - Perv.
- 68 Subcat 6S: Undetained - Imp.
- 70 Subcat 7S: Basin C - Imp.
- 72 Subcat 8S: Basin C - Perv.
- 74 Subcat 9S: Undetained - Perv.
- 76 Subcat 11S: Basin D - Imp.
- 78 Subcat 12S: Basin D - Perv.
- 80 Pond 3P: Basin A
- 86 Pond 4P: Basin B
- 92 Pond 5P: Basin C
- 98 Pond 6P: Basin D
- 104 Link 2L: DA 1
- 106 Link 3L: DA 1. - Undetained

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- 108 Node Listing
- 110 Subcat 1S: Basin A - Imp.

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170 Subcat 7S: Basin C - Imp.
172 Subcat 8S: Basin C - Perv.
174 Subcat 9S: Undetained - Perv.
176 Subcat 11S: Basin D - Imp.
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Multi-Event Tables

208 Subcat 1S: Basin A - Imp.
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211 Subcat 5S: Basin B - Perv.
212 Subcat 6S: Undetained - Imp.
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214 Subcat 8S: Basin C - Perv.
215 Subcat 9S: Undetained - Perv.
216 Subcat 11S: Basin D - Imp.
217 Subcat 12S: Basin D - Perv.
218 Pond 3P: Basin A
219 Pond 4P: Basin B
220 Pond 5P: Basin C
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**HYDROGRAPH SUMMARY REPORTS -
WATER QUALITY STORM**

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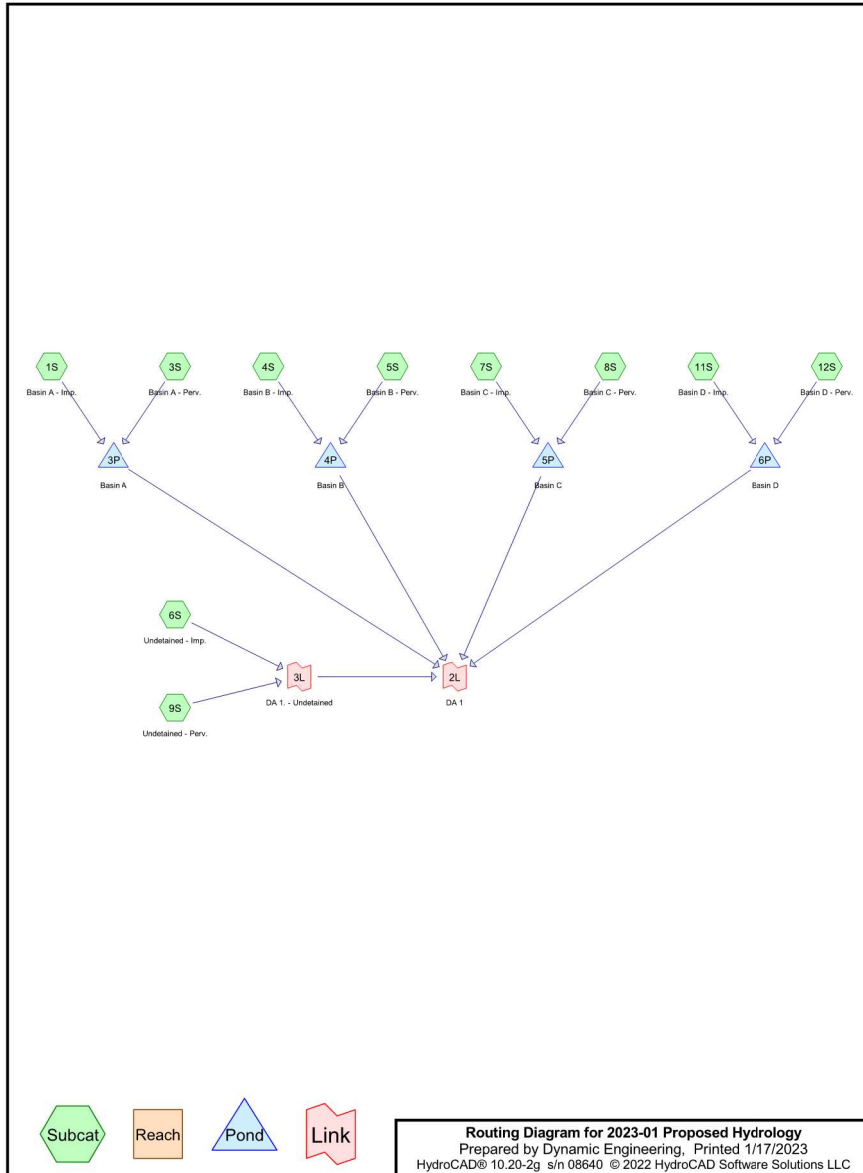
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Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 6606 NJ Essex-D
Rainfall events imported from "2022-04-05 Proposed Conditions.hcp"
Rainfall events imported from "NRCS-Rain.txt" for 6606 NJ Essex-D



Rainfall Events Listing (selected events)								
Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	WQ	NJ DEP 2-hr		Default	2.00	1	1.25	2

Area Listing (all nodes)		
Area (acres)	CN	Description (subcatchment-numbers)
0.070	61	>75% Grass cover, Good, HSG B (9S)
2.800	74	>75% Grass cover, Good, HSG C (3S, 5S, 8S, 9S, 12S)
0.010	98	Paved parking, HSG B (6S)
0.060	98	Paved parking, HSG C (6S)
0.800	98	Unconnected pavement, HSG C (1S, 4S, 7S, 11S)
0.010	55	Woods, Good, HSG B (12S)
2.170	70	Woods, Good, HSG C (3S, 5S, 8S, 9S, 12S)
5.920	76	TOTAL AREA

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Soil Listing (all nodes)		
Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.090	HSG B	6S, 9S, 12S
5.830	HSG C	1S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 11S, 12S
0.000	HSG D	
0.000	Other	
5.920		TOTAL AREA

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Ground Covers (all nodes)							
HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.070	2.800	0.000	0.000	2.870	>75% Grass cover, Good	3S, 5S, 8S, 9S, 12S
0.000	0.010	0.060	0.000	0.000	0.070	Paved parking	6S
0.000	0.000	0.800	0.000	0.000	0.800	Unconnected pavement	1S, 4S, 7S, 11S
0.000	0.010	2.170	0.000	0.000	2.180	Woods, Good	3S, 5S, 8S, 9S, 12S
0.000	0.090	5.830	0.000	0.000	5.920	TOTAL AREA	

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Notes Listing (all nodes)

Line#	Node Number	Notes
1	Project	Rainfall events imported from "NRCS-Rain.txt" for 6606 NJ Essex-D
2		Rainfall events imported from "2022-04-05 Proposed Conditions.hcp"
3		Rainfall events imported from "NRCS-Rain.txt" for 6606 NJ Essex-D

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NJ DEP 2-hr WQ Rainfall=1.25"

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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

Subcatchment 1S: Basin A - Imp.	Runoff Area=0.210 ac 100.00% Impervious Runoff Depth=1.03" Flow Length=90' Tc=9.2 min CN=98 Runoff=0.56 cfs 0.018 af
Subcatchment 3S: Basin A - Perv.	Runoff Area=0.920 ac 0.00% Impervious Runoff Depth=0.05" Flow Length=90' Tc=9.2 min CN=72 Runoff=0.07 cfs 0.004 af
Subcatchment 4S: Basin B - Imp.	Runoff Area=0.190 ac 100.00% Impervious Runoff Depth=1.03" Flow Length=133' Tc=9.8 min CN=98 Runoff=0.49 cfs 0.016 af
Subcatchment 5S: Basin B - Perv.	Runoff Area=0.770 ac 0.00% Impervious Runoff Depth=0.05" Flow Length=133' Tc=9.8 min CN=72 Runoff=0.06 cfs 0.003 af
Subcatchment 6S: Undetained - Imp.	Runoff Area=0.070 ac 100.00% Impervious Runoff Depth=1.03" Flow Length=391' Tc=10.8 min CN=98 Runoff=0.18 cfs 0.006 af
Subcatchment 7S: Basin C - Imp.	Runoff Area=0.200 ac 100.00% Impervious Runoff Depth=1.03" Flow Length=78' Tc=9.2 min CN=98 Runoff=0.53 cfs 0.017 af
Subcatchment 8S: Basin C - Perv.	Runoff Area=1.180 ac 0.00% Impervious Runoff Depth=0.05" Flow Length=78' Tc=9.2 min CN=72 Runoff=0.10 cfs 0.005 af
Subcatchment 9S: Undetained - Perv.	Runoff Area=1.050 ac 0.00% Impervious Runoff Depth=0.06" Flow Length=391' Tc=10.8 min CN=73 Runoff=0.11 cfs 0.005 af
Subcatchment 11S: Basin D - Imp.	Runoff Area=0.200 ac 100.00% Impervious Runoff Depth=1.03" Flow Length=136' Tc=9.4 min CN=98 Runoff=0.53 cfs 0.017 af
Subcatchment 12S: Basin D - Perv.	Runoff Area=1.130 ac 0.00% Impervious Runoff Depth=0.05" Flow Length=136' Tc=9.4 min CN=72 Runoff=0.09 cfs 0.005 af
Pond 3P: Basin A	Peak Elev=619.52' Storage=0.022 af Inflow=0.58 cfs 0.022 af Outflow=0.00 cfs 0.000 af
Pond 4P: Basin B	Peak Elev=618.99' Storage=0.020 af Inflow=0.51 cfs 0.020 af Outflow=0.00 cfs 0.000 af
Pond 5P: Basin C	Peak Elev=617.22' Storage=0.022 af Inflow=0.56 cfs 0.022 af Outflow=0.00 cfs 0.000 af
Pond 6P: Basin D	Peak Elev=611.80' Storage=0.022 af Inflow=0.55 cfs 0.022 af Outflow=0.00 cfs 0.000 af
Link 2L: DA 1	Inflow=0.23 cfs 0.011 af Primary=0.23 cfs 0.011 af
Link 3L: DA 1. - Undetained	Inflow=0.23 cfs 0.011 af Primary=0.23 cfs 0.011 af

Total Runoff Area = 5.920 ac Runoff Volume = 0.097 af Average Runoff Depth = 0.20"
85.30% Pervious = 5.050 ac 14.70% Impervious = 0.870 ac

Summary for Subcatchment 1S: Basin A - Imp.

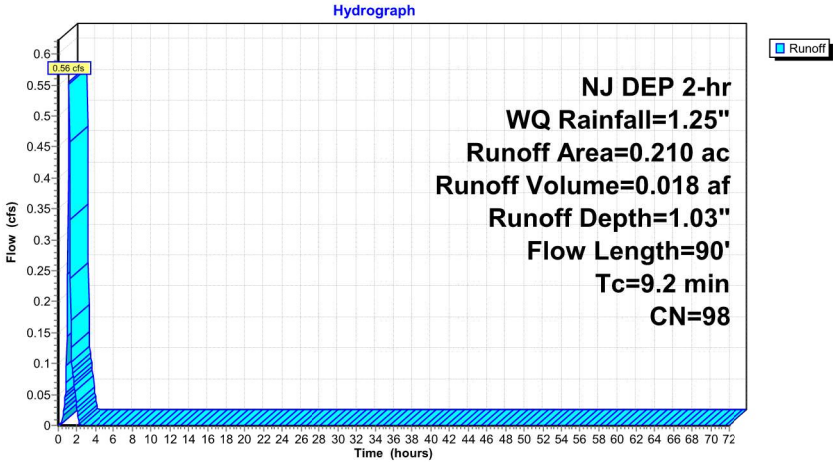
Runoff = 0.56 cfs @ 1.14 hrs, Volume= 0.018 af, Depth= 1.03"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.210	98	Unconnected pavement, HSG C
0.210		100.00% Impervious Area
0.210		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	65	0.1690	6.62		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	90	Total			

Subcatchment 1S: Basin A - Imp.



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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Subcatchment 1S: Basin A - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	1.03	0.00
1.00	0.63	0.43	0.24	53.00	1.25	1.03	0.00
2.00	1.25	1.03	0.02	54.00	1.25	1.03	0.00
3.00	1.25	1.03	0.00	55.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00	56.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00	57.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00	58.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00	59.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00	60.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00	61.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00	62.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00	63.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00	64.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00	65.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00	66.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00	67.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00	68.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00	69.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00	70.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00	71.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00	72.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00				
22.00	1.25	1.03	0.00				
23.00	1.25	1.03	0.00				
24.00	1.25	1.03	0.00				
25.00	1.25	1.03	0.00				
26.00	1.25	1.03	0.00				
27.00	1.25	1.03	0.00				
28.00	1.25	1.03	0.00				
29.00	1.25	1.03	0.00				
30.00	1.25	1.03	0.00				
31.00	1.25	1.03	0.00				
32.00	1.25	1.03	0.00				
33.00	1.25	1.03	0.00				
34.00	1.25	1.03	0.00				
35.00	1.25	1.03	0.00				
36.00	1.25	1.03	0.00				
37.00	1.25	1.03	0.00				
38.00	1.25	1.03	0.00				
39.00	1.25	1.03	0.00				
40.00	1.25	1.03	0.00				
41.00	1.25	1.03	0.00				
42.00	1.25	1.03	0.00				
43.00	1.25	1.03	0.00				
44.00	1.25	1.03	0.00				
45.00	1.25	1.03	0.00				
46.00	1.25	1.03	0.00				
47.00	1.25	1.03	0.00				
48.00	1.25	1.03	0.00				
49.00	1.25	1.03	0.00				
50.00	1.25	1.03	0.00				
51.00	1.25	1.03	0.00				

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NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Subcatchment 3S: Basin A - Perv.

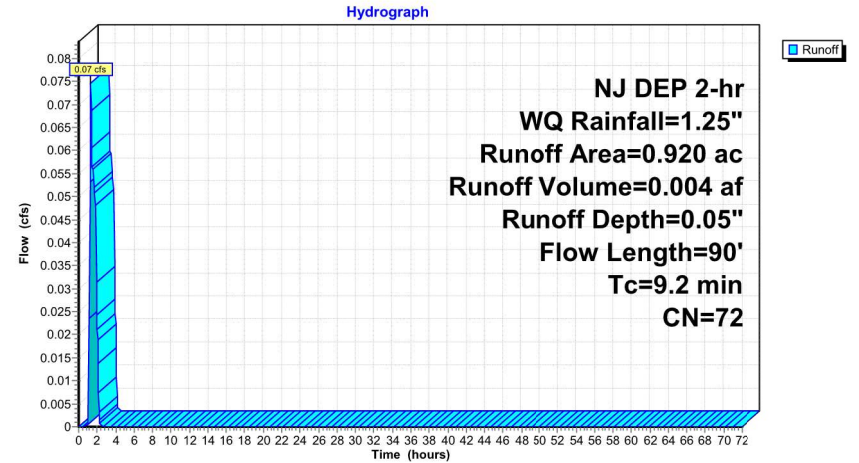
Runoff = 0.07 cfs @ 1.29 hrs, Volume= 0.004 af, Depth= 0.05"

Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.470	74	>75% Grass cover, Good, HSG C
0.450	70	Woods, Good, HSG C
0.920	72	Weighted Average
0.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	65	0.1690	6.62		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	90	Total			

Subcatchment 3S: Basin A - Perv.

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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Subcatchment 3S: Basin A - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.05	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.05	0.00
2.00	1.25	0.05	0.02	54.00	1.25	0.05	0.00
3.00	1.25	0.05	0.00	55.00	1.25	0.05	0.00
4.00	1.25	0.05	0.00	56.00	1.25	0.05	0.00
5.00	1.25	0.05	0.00	57.00	1.25	0.05	0.00
6.00	1.25	0.05	0.00	58.00	1.25	0.05	0.00
7.00	1.25	0.05	0.00	59.00	1.25	0.05	0.00
8.00	1.25	0.05	0.00	60.00	1.25	0.05	0.00
9.00	1.25	0.05	0.00	61.00	1.25	0.05	0.00
10.00	1.25	0.05	0.00	62.00	1.25	0.05	0.00
11.00	1.25	0.05	0.00	63.00	1.25	0.05	0.00
12.00	1.25	0.05	0.00	64.00	1.25	0.05	0.00
13.00	1.25	0.05	0.00	65.00	1.25	0.05	0.00
14.00	1.25	0.05	0.00	66.00	1.25	0.05	0.00
15.00	1.25	0.05	0.00	67.00	1.25	0.05	0.00
16.00	1.25	0.05	0.00	68.00	1.25	0.05	0.00
17.00	1.25	0.05	0.00	69.00	1.25	0.05	0.00
18.00	1.25	0.05	0.00	70.00	1.25	0.05	0.00
19.00	1.25	0.05	0.00	71.00	1.25	0.05	0.00
20.00	1.25	0.05	0.00	72.00	1.25	0.05	0.00
21.00	1.25	0.05	0.00				
22.00	1.25	0.05	0.00				
23.00	1.25	0.05	0.00				
24.00	1.25	0.05	0.00				
25.00	1.25	0.05	0.00				
26.00	1.25	0.05	0.00				
27.00	1.25	0.05	0.00				
28.00	1.25	0.05	0.00				
29.00	1.25	0.05	0.00				
30.00	1.25	0.05	0.00				
31.00	1.25	0.05	0.00				
32.00	1.25	0.05	0.00				
33.00	1.25	0.05	0.00				
34.00	1.25	0.05	0.00				
35.00	1.25	0.05	0.00				
36.00	1.25	0.05	0.00				
37.00	1.25	0.05	0.00				
38.00	1.25	0.05	0.00				
39.00	1.25	0.05	0.00				
40.00	1.25	0.05	0.00				
41.00	1.25	0.05	0.00				
42.00	1.25	0.05	0.00				
43.00	1.25	0.05	0.00				
44.00	1.25	0.05	0.00				
45.00	1.25	0.05	0.00				
46.00	1.25	0.05	0.00				
47.00	1.25	0.05	0.00				
48.00	1.25	0.05	0.00				
49.00	1.25	0.05	0.00				
50.00	1.25	0.05	0.00				
51.00	1.25	0.05	0.00				

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NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Subcatchment 4S: Basin B - Imp.

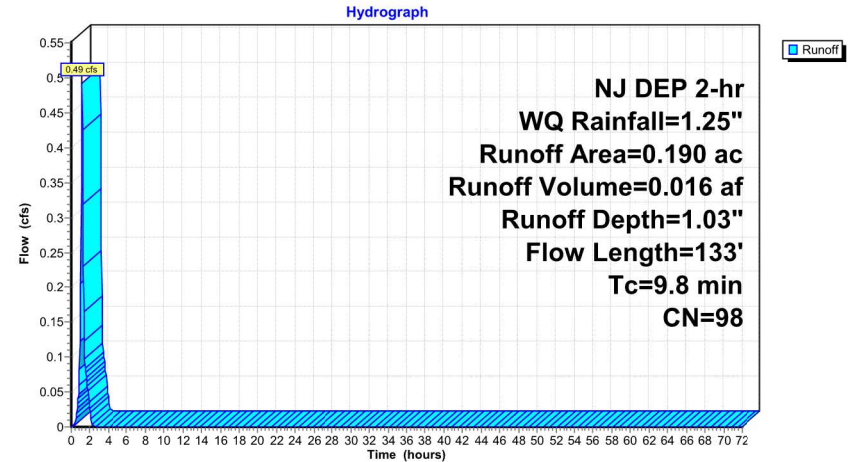
Runoff = 0.49 cfs @ 1.14 hrs, Volume= 0.016 af, Depth= 1.03"

Routed to Pond 4P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.190	98	Unconnected pavement, HSG C
0.190		100.00% Impervious Area
0.190		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.3	48	0.0310	2.83		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.0	15	0.4000	10.18		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.5	45	0.0100	1.61		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.8	133	Total			

Subcatchment 4S: Basin B - Imp.

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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Subcatchment 4S: Basin B - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	1.03	0.00
1.00	0.63	0.43	0.21	53.00	1.25	1.03	0.00
2.00	1.25	1.03	0.02	54.00	1.25	1.03	0.00
3.00	1.25	1.03	0.00	55.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00	56.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00	57.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00	58.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00	59.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00	60.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00	61.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00	62.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00	63.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00	64.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00	65.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00	66.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00	67.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00	68.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00	69.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00	70.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00	71.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00	72.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00				
22.00	1.25	1.03	0.00				
23.00	1.25	1.03	0.00				
24.00	1.25	1.03	0.00				
25.00	1.25	1.03	0.00				
26.00	1.25	1.03	0.00				
27.00	1.25	1.03	0.00				
28.00	1.25	1.03	0.00				
29.00	1.25	1.03	0.00				
30.00	1.25	1.03	0.00				
31.00	1.25	1.03	0.00				
32.00	1.25	1.03	0.00				
33.00	1.25	1.03	0.00				
34.00	1.25	1.03	0.00				
35.00	1.25	1.03	0.00				
36.00	1.25	1.03	0.00				
37.00	1.25	1.03	0.00				
38.00	1.25	1.03	0.00				
39.00	1.25	1.03	0.00				
40.00	1.25	1.03	0.00				
41.00	1.25	1.03	0.00				
42.00	1.25	1.03	0.00				
43.00	1.25	1.03	0.00				
44.00	1.25	1.03	0.00				
45.00	1.25	1.03	0.00				
46.00	1.25	1.03	0.00				
47.00	1.25	1.03	0.00				
48.00	1.25	1.03	0.00				
49.00	1.25	1.03	0.00				
50.00	1.25	1.03	0.00				
51.00	1.25	1.03	0.00				

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NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Subcatchment 5S: Basin B - Perv.

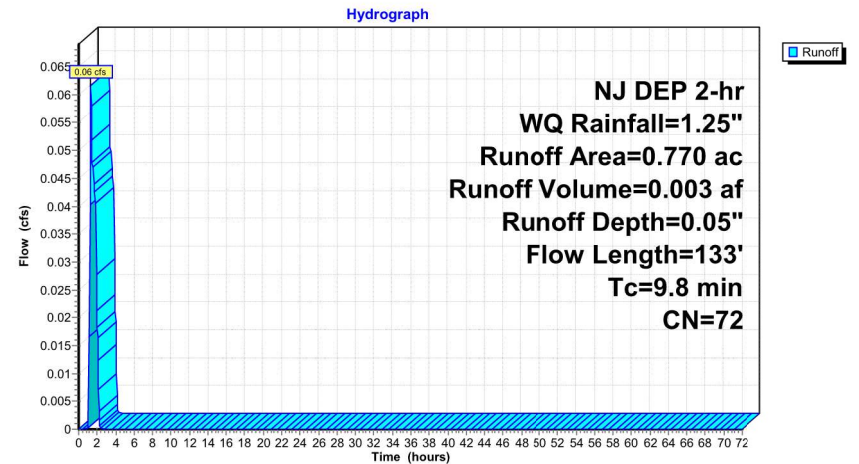
Runoff = 0.06 cfs @ 1.30 hrs, Volume= 0.003 af, Depth= 0.05"

Routed to Pond 4P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.390	74	>75% Grass cover, Good, HSG C
0.380	70	Woods, Good, HSG C
0.770	72	Weighted Average
0.770		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.3	48	0.0310	2.83		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.0	15	0.4000	10.18		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.5	45	0.0100	1.61		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.8	133	Total			

Subcatchment 5S: Basin B - Perv.

2023-01 Proposed Hydrology

Prepared by Dynamic Engineering

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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Subcatchment 5S: Basin B - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.05	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.05	0.00
2.00	1.25	0.05	0.02	54.00	1.25	0.05	0.00
3.00	1.25	0.05	0.00	55.00	1.25	0.05	0.00
4.00	1.25	0.05	0.00	56.00	1.25	0.05	0.00
5.00	1.25	0.05	0.00	57.00	1.25	0.05	0.00
6.00	1.25	0.05	0.00	58.00	1.25	0.05	0.00
7.00	1.25	0.05	0.00	59.00	1.25	0.05	0.00
8.00	1.25	0.05	0.00	60.00	1.25	0.05	0.00
9.00	1.25	0.05	0.00	61.00	1.25	0.05	0.00
10.00	1.25	0.05	0.00	62.00	1.25	0.05	0.00
11.00	1.25	0.05	0.00	63.00	1.25	0.05	0.00
12.00	1.25	0.05	0.00	64.00	1.25	0.05	0.00
13.00	1.25	0.05	0.00	65.00	1.25	0.05	0.00
14.00	1.25	0.05	0.00	66.00	1.25	0.05	0.00
15.00	1.25	0.05	0.00	67.00	1.25	0.05	0.00
16.00	1.25	0.05	0.00	68.00	1.25	0.05	0.00
17.00	1.25	0.05	0.00	69.00	1.25	0.05	0.00
18.00	1.25	0.05	0.00	70.00	1.25	0.05	0.00
19.00	1.25	0.05	0.00	71.00	1.25	0.05	0.00
20.00	1.25	0.05	0.00	72.00	1.25	0.05	0.00
21.00	1.25	0.05	0.00				
22.00	1.25	0.05	0.00				
23.00	1.25	0.05	0.00				
24.00	1.25	0.05	0.00				
25.00	1.25	0.05	0.00				
26.00	1.25	0.05	0.00				
27.00	1.25	0.05	0.00				
28.00	1.25	0.05	0.00				
29.00	1.25	0.05	0.00				
30.00	1.25	0.05	0.00				
31.00	1.25	0.05	0.00				
32.00	1.25	0.05	0.00				
33.00	1.25	0.05	0.00				
34.00	1.25	0.05	0.00				
35.00	1.25	0.05	0.00				
36.00	1.25	0.05	0.00				
37.00	1.25	0.05	0.00				
38.00	1.25	0.05	0.00				
39.00	1.25	0.05	0.00				
40.00	1.25	0.05	0.00				
41.00	1.25	0.05	0.00				
42.00	1.25	0.05	0.00				
43.00	1.25	0.05	0.00				
44.00	1.25	0.05	0.00				
45.00	1.25	0.05	0.00				
46.00	1.25	0.05	0.00				
47.00	1.25	0.05	0.00				
48.00	1.25	0.05	0.00				
49.00	1.25	0.05	0.00				
50.00	1.25	0.05	0.00				
51.00	1.25	0.05	0.00				

2023-01 Proposed Hydrology

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NJ DEP 2-hr WQ Rainfall=1.25"

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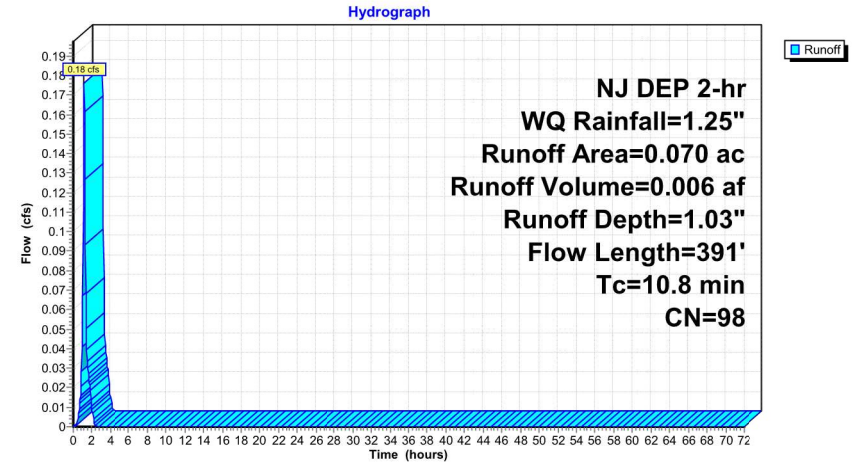
Summary for Subcatchment 6S: Undetained - Imp.

Runoff = 0.18 cfs @ 1.15 hrs, Volume= 0.006 af, Depth= 1.03"
 Routed to Link 3L : DA 1. - Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.060	98	Paved parking, HSG C
0.010	98	Paved parking, HSG B
0.070	98	Weighted Average
0.070		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	59	0.0200	0.11		Sheet Flow, Sheet Flow - Grass Grass: Dense n= 0.240 P2= 3.44" Using McCuen-Spiess flow length
1.8	332	0.0360	3.05		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
10.8	391	Total			

Subcatchment 6S: Undetained - Imp.

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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Subcatchment 6S: Undetained - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	1.03	0.00
1.00	0.63	0.43	0.07	53.00	1.25	1.03	0.00
2.00	1.25	1.03	0.01	54.00	1.25	1.03	0.00
3.00	1.25	1.03	0.00	55.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00	56.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00	57.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00	58.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00	59.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00	60.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00	61.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00	62.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00	63.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00	64.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00	65.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00	66.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00	67.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00	68.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00	69.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00	70.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00	71.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00	72.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00				
22.00	1.25	1.03	0.00				
23.00	1.25	1.03	0.00				
24.00	1.25	1.03	0.00				
25.00	1.25	1.03	0.00				
26.00	1.25	1.03	0.00				
27.00	1.25	1.03	0.00				
28.00	1.25	1.03	0.00				
29.00	1.25	1.03	0.00				
30.00	1.25	1.03	0.00				
31.00	1.25	1.03	0.00				
32.00	1.25	1.03	0.00				
33.00	1.25	1.03	0.00				
34.00	1.25	1.03	0.00				
35.00	1.25	1.03	0.00				
36.00	1.25	1.03	0.00				
37.00	1.25	1.03	0.00				
38.00	1.25	1.03	0.00				
39.00	1.25	1.03	0.00				
40.00	1.25	1.03	0.00				
41.00	1.25	1.03	0.00				
42.00	1.25	1.03	0.00				
43.00	1.25	1.03	0.00				
44.00	1.25	1.03	0.00				
45.00	1.25	1.03	0.00				
46.00	1.25	1.03	0.00				
47.00	1.25	1.03	0.00				
48.00	1.25	1.03	0.00				
49.00	1.25	1.03	0.00				
50.00	1.25	1.03	0.00				
51.00	1.25	1.03	0.00				

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NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Subcatchment 7S: Basin C - Imp.

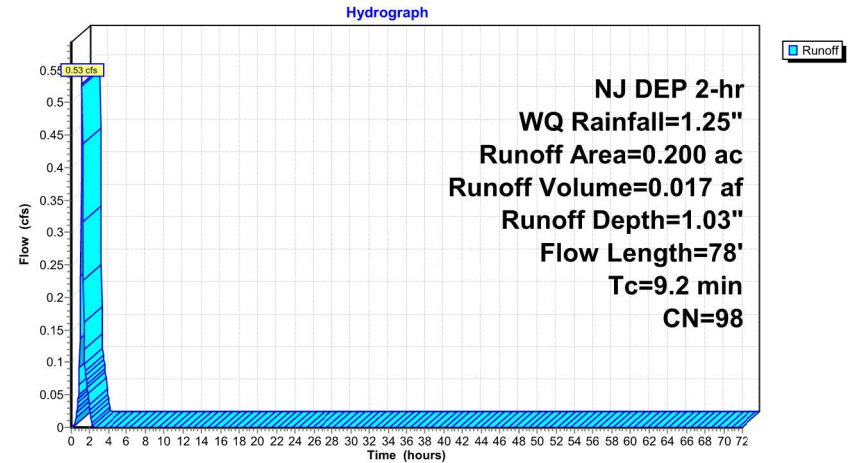
Runoff = 0.53 cfs @ 1.14 hrs, Volume= 0.017 af, Depth= 1.03"

Routed to Pond 5P : Basin C

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.200	98	Unconnected pavement, HSG C
0.200		100.00% Impervious Area
0.200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Shhet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	53	0.1070	5.27		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	78	Total			

Subcatchment 7S: Basin C - Imp.

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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Subcatchment 7S: Basin C - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	1.03	0.00
1.00	0.63	0.43	0.23	53.00	1.25	1.03	0.00
2.00	1.25	1.03	0.02	54.00	1.25	1.03	0.00
3.00	1.25	1.03	0.00	55.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00	56.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00	57.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00	58.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00	59.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00	60.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00	61.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00	62.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00	63.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00	64.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00	65.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00	66.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00	67.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00	68.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00	69.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00	70.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00	71.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00	72.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00				
22.00	1.25	1.03	0.00				
23.00	1.25	1.03	0.00				
24.00	1.25	1.03	0.00				
25.00	1.25	1.03	0.00				
26.00	1.25	1.03	0.00				
27.00	1.25	1.03	0.00				
28.00	1.25	1.03	0.00				
29.00	1.25	1.03	0.00				
30.00	1.25	1.03	0.00				
31.00	1.25	1.03	0.00				
32.00	1.25	1.03	0.00				
33.00	1.25	1.03	0.00				
34.00	1.25	1.03	0.00				
35.00	1.25	1.03	0.00				
36.00	1.25	1.03	0.00				
37.00	1.25	1.03	0.00				
38.00	1.25	1.03	0.00				
39.00	1.25	1.03	0.00				
40.00	1.25	1.03	0.00				
41.00	1.25	1.03	0.00				
42.00	1.25	1.03	0.00				
43.00	1.25	1.03	0.00				
44.00	1.25	1.03	0.00				
45.00	1.25	1.03	0.00				
46.00	1.25	1.03	0.00				
47.00	1.25	1.03	0.00				
48.00	1.25	1.03	0.00				
49.00	1.25	1.03	0.00				
50.00	1.25	1.03	0.00				
51.00	1.25	1.03	0.00				

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NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Subcatchment 8S: Basin C - Perv.

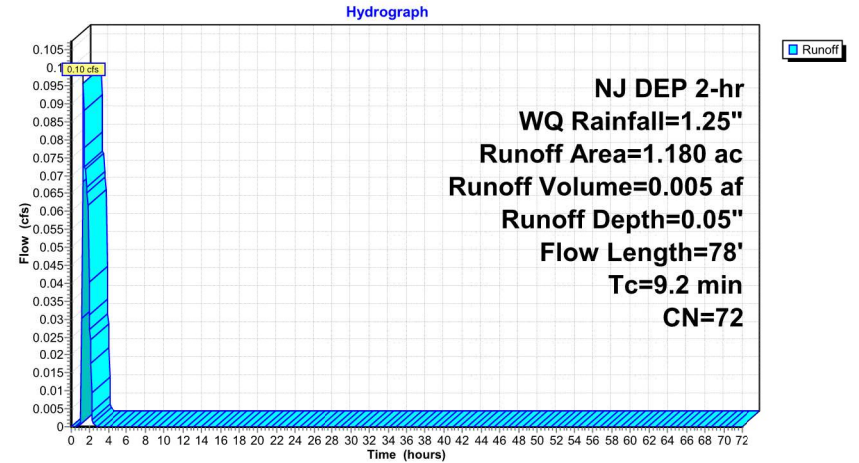
Runoff = 0.10 cfs @ 1.29 hrs, Volume= 0.005 af, Depth= 0.05"

Routed to Pond 5P : Basin C

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.560	74	>75% Grass cover, Good, HSG C
0.620	70	Woods, Good, HSG C
1.180	72	Weighted Average
1.180		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	53	0.1070	5.27		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	78	Total			

Subcatchment 8S: Basin C - Perv.

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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Subcatchment 8S: Basin C - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.05	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.05	0.00
2.00	1.25	0.05	0.03	54.00	1.25	0.05	0.00
3.00	1.25	0.05	0.00	55.00	1.25	0.05	0.00
4.00	1.25	0.05	0.00	56.00	1.25	0.05	0.00
5.00	1.25	0.05	0.00	57.00	1.25	0.05	0.00
6.00	1.25	0.05	0.00	58.00	1.25	0.05	0.00
7.00	1.25	0.05	0.00	59.00	1.25	0.05	0.00
8.00	1.25	0.05	0.00	60.00	1.25	0.05	0.00
9.00	1.25	0.05	0.00	61.00	1.25	0.05	0.00
10.00	1.25	0.05	0.00	62.00	1.25	0.05	0.00
11.00	1.25	0.05	0.00	63.00	1.25	0.05	0.00
12.00	1.25	0.05	0.00	64.00	1.25	0.05	0.00
13.00	1.25	0.05	0.00	65.00	1.25	0.05	0.00
14.00	1.25	0.05	0.00	66.00	1.25	0.05	0.00
15.00	1.25	0.05	0.00	67.00	1.25	0.05	0.00
16.00	1.25	0.05	0.00	68.00	1.25	0.05	0.00
17.00	1.25	0.05	0.00	69.00	1.25	0.05	0.00
18.00	1.25	0.05	0.00	70.00	1.25	0.05	0.00
19.00	1.25	0.05	0.00	71.00	1.25	0.05	0.00
20.00	1.25	0.05	0.00	72.00	1.25	0.05	0.00
21.00	1.25	0.05	0.00				
22.00	1.25	0.05	0.00				
23.00	1.25	0.05	0.00				
24.00	1.25	0.05	0.00				
25.00	1.25	0.05	0.00				
26.00	1.25	0.05	0.00				
27.00	1.25	0.05	0.00				
28.00	1.25	0.05	0.00				
29.00	1.25	0.05	0.00				
30.00	1.25	0.05	0.00				
31.00	1.25	0.05	0.00				
32.00	1.25	0.05	0.00				
33.00	1.25	0.05	0.00				
34.00	1.25	0.05	0.00				
35.00	1.25	0.05	0.00				
36.00	1.25	0.05	0.00				
37.00	1.25	0.05	0.00				
38.00	1.25	0.05	0.00				
39.00	1.25	0.05	0.00				
40.00	1.25	0.05	0.00				
41.00	1.25	0.05	0.00				
42.00	1.25	0.05	0.00				
43.00	1.25	0.05	0.00				
44.00	1.25	0.05	0.00				
45.00	1.25	0.05	0.00				
46.00	1.25	0.05	0.00				
47.00	1.25	0.05	0.00				
48.00	1.25	0.05	0.00				
49.00	1.25	0.05	0.00				
50.00	1.25	0.05	0.00				
51.00	1.25	0.05	0.00				

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NJ DEP 2-hr WQ Rainfall=1.25"

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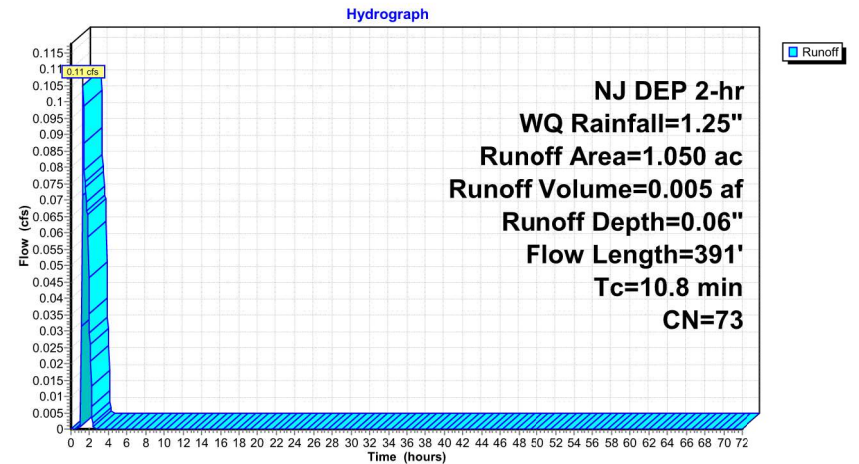
Summary for Subcatchment 9S: Undetained - Perv.

Runoff = 0.11 cfs @ 1.30 hrs, Volume= 0.005 af, Depth= 0.06"
 Routed to Link 3L : DA 1. - Undetained

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.910	74	>75% Grass cover, Good, HSG C
0.070	61	>75% Grass cover, Good, HSG B
0.070	70	Woods, Good, HSG C
1.050	73	Weighted Average
1.050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	59	0.0200	0.11		Sheet Flow, Sheet Flow - Grass Grass: Dense n= 0.240 P2= 3.44" Using McCuen-Spiess flow length
1.8	332	0.0360	3.05		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 15.1 fps
10.8	391	Total			

Subcatchment 9S: Undetained - Perv.

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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Subcatchment 9S: Undetained - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.06	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.06	0.00
2.00	1.25	0.06	0.03	54.00	1.25	0.06	0.00
3.00	1.25	0.06	0.00	55.00	1.25	0.06	0.00
4.00	1.25	0.06	0.00	56.00	1.25	0.06	0.00
5.00	1.25	0.06	0.00	57.00	1.25	0.06	0.00
6.00	1.25	0.06	0.00	58.00	1.25	0.06	0.00
7.00	1.25	0.06	0.00	59.00	1.25	0.06	0.00
8.00	1.25	0.06	0.00	60.00	1.25	0.06	0.00
9.00	1.25	0.06	0.00	61.00	1.25	0.06	0.00
10.00	1.25	0.06	0.00	62.00	1.25	0.06	0.00
11.00	1.25	0.06	0.00	63.00	1.25	0.06	0.00
12.00	1.25	0.06	0.00	64.00	1.25	0.06	0.00
13.00	1.25	0.06	0.00	65.00	1.25	0.06	0.00
14.00	1.25	0.06	0.00	66.00	1.25	0.06	0.00
15.00	1.25	0.06	0.00	67.00	1.25	0.06	0.00
16.00	1.25	0.06	0.00	68.00	1.25	0.06	0.00
17.00	1.25	0.06	0.00	69.00	1.25	0.06	0.00
18.00	1.25	0.06	0.00	70.00	1.25	0.06	0.00
19.00	1.25	0.06	0.00	71.00	1.25	0.06	0.00
20.00	1.25	0.06	0.00	72.00	1.25	0.06	0.00
21.00	1.25	0.06	0.00				
22.00	1.25	0.06	0.00				
23.00	1.25	0.06	0.00				
24.00	1.25	0.06	0.00				
25.00	1.25	0.06	0.00				
26.00	1.25	0.06	0.00				
27.00	1.25	0.06	0.00				
28.00	1.25	0.06	0.00				
29.00	1.25	0.06	0.00				
30.00	1.25	0.06	0.00				
31.00	1.25	0.06	0.00				
32.00	1.25	0.06	0.00				
33.00	1.25	0.06	0.00				
34.00	1.25	0.06	0.00				
35.00	1.25	0.06	0.00				
36.00	1.25	0.06	0.00				
37.00	1.25	0.06	0.00				
38.00	1.25	0.06	0.00				
39.00	1.25	0.06	0.00				
40.00	1.25	0.06	0.00				
41.00	1.25	0.06	0.00				
42.00	1.25	0.06	0.00				
43.00	1.25	0.06	0.00				
44.00	1.25	0.06	0.00				
45.00	1.25	0.06	0.00				
46.00	1.25	0.06	0.00				
47.00	1.25	0.06	0.00				
48.00	1.25	0.06	0.00				
49.00	1.25	0.06	0.00				
50.00	1.25	0.06	0.00				
51.00	1.25	0.06	0.00				

2023-01 Proposed Hydrology

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NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Subcatchment 11S: Basin D - Imp.

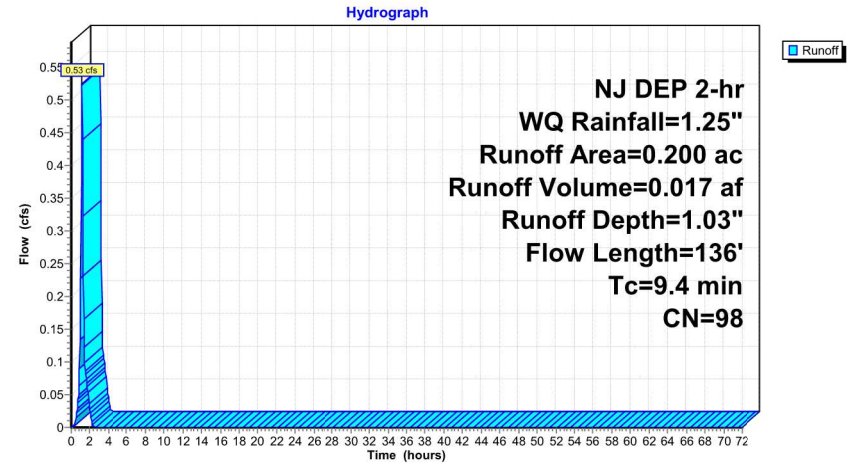
Runoff = 0.53 cfs @ 1.14 hrs, Volume= 0.017 af, Depth= 1.03"

Routed to Pond 6P : Basin D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.200	98	Unconnected pavement, HSG C
0.200		100.00% Impervious Area
0.200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.4	111	0.0720	4.32		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.4	136	Total			

Subcatchment 11S: Basin D - Imp.

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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Subcatchment 11S: Basin D - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	1.03	0.00
1.00	0.63	0.43	0.23	53.00	1.25	1.03	0.00
2.00	1.25	1.03	0.02	54.00	1.25	1.03	0.00
3.00	1.25	1.03	0.00	55.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00	56.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00	57.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00	58.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00	59.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00	60.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00	61.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00	62.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00	63.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00	64.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00	65.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00	66.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00	67.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00	68.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00	69.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00	70.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00	71.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00	72.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00				
22.00	1.25	1.03	0.00				
23.00	1.25	1.03	0.00				
24.00	1.25	1.03	0.00				
25.00	1.25	1.03	0.00				
26.00	1.25	1.03	0.00				
27.00	1.25	1.03	0.00				
28.00	1.25	1.03	0.00				
29.00	1.25	1.03	0.00				
30.00	1.25	1.03	0.00				
31.00	1.25	1.03	0.00				
32.00	1.25	1.03	0.00				
33.00	1.25	1.03	0.00				
34.00	1.25	1.03	0.00				
35.00	1.25	1.03	0.00				
36.00	1.25	1.03	0.00				
37.00	1.25	1.03	0.00				
38.00	1.25	1.03	0.00				
39.00	1.25	1.03	0.00				
40.00	1.25	1.03	0.00				
41.00	1.25	1.03	0.00				
42.00	1.25	1.03	0.00				
43.00	1.25	1.03	0.00				
44.00	1.25	1.03	0.00				
45.00	1.25	1.03	0.00				
46.00	1.25	1.03	0.00				
47.00	1.25	1.03	0.00				
48.00	1.25	1.03	0.00				
49.00	1.25	1.03	0.00				
50.00	1.25	1.03	0.00				
51.00	1.25	1.03	0.00				

2023-01 Proposed Hydrology

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NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Subcatchment 12S: Basin D - Perv.

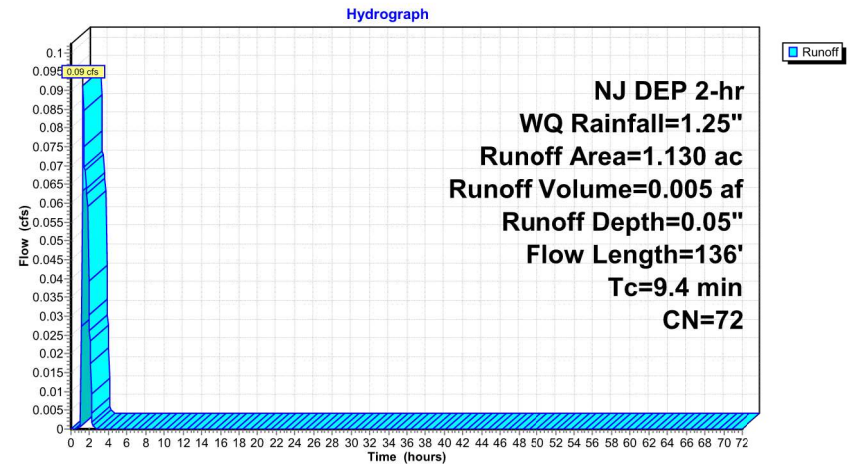
Runoff = 0.09 cfs @ 1.30 hrs, Volume= 0.005 af, Depth= 0.05"

Routed to Pond 6P : Basin D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr WQ Rainfall=1.25"

Area (ac)	CN	Description
0.470	74	>75% Grass cover, Good, HSG C
0.650	70	Woods, Good, HSG C
* 0.010	55	Woods, Good, HSG B
1.130	72	Weighted Average
1.130		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.4	111	0.0720	4.32		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.4	136	Total			

Subcatchment 12S: Basin D - Perv.

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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Subcatchment 12S: Basin D - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.05	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.05	0.00
2.00	1.25	0.05	0.03	54.00	1.25	0.05	0.00
3.00	1.25	0.05	0.00	55.00	1.25	0.05	0.00
4.00	1.25	0.05	0.00	56.00	1.25	0.05	0.00
5.00	1.25	0.05	0.00	57.00	1.25	0.05	0.00
6.00	1.25	0.05	0.00	58.00	1.25	0.05	0.00
7.00	1.25	0.05	0.00	59.00	1.25	0.05	0.00
8.00	1.25	0.05	0.00	60.00	1.25	0.05	0.00
9.00	1.25	0.05	0.00	61.00	1.25	0.05	0.00
10.00	1.25	0.05	0.00	62.00	1.25	0.05	0.00
11.00	1.25	0.05	0.00	63.00	1.25	0.05	0.00
12.00	1.25	0.05	0.00	64.00	1.25	0.05	0.00
13.00	1.25	0.05	0.00	65.00	1.25	0.05	0.00
14.00	1.25	0.05	0.00	66.00	1.25	0.05	0.00
15.00	1.25	0.05	0.00	67.00	1.25	0.05	0.00
16.00	1.25	0.05	0.00	68.00	1.25	0.05	0.00
17.00	1.25	0.05	0.00	69.00	1.25	0.05	0.00
18.00	1.25	0.05	0.00	70.00	1.25	0.05	0.00
19.00	1.25	0.05	0.00	71.00	1.25	0.05	0.00
20.00	1.25	0.05	0.00	72.00	1.25	0.05	0.00
21.00	1.25	0.05	0.00				
22.00	1.25	0.05	0.00				
23.00	1.25	0.05	0.00				
24.00	1.25	0.05	0.00				
25.00	1.25	0.05	0.00				
26.00	1.25	0.05	0.00				
27.00	1.25	0.05	0.00				
28.00	1.25	0.05	0.00				
29.00	1.25	0.05	0.00				
30.00	1.25	0.05	0.00				
31.00	1.25	0.05	0.00				
32.00	1.25	0.05	0.00				
33.00	1.25	0.05	0.00				
34.00	1.25	0.05	0.00				
35.00	1.25	0.05	0.00				
36.00	1.25	0.05	0.00				
37.00	1.25	0.05	0.00				
38.00	1.25	0.05	0.00				
39.00	1.25	0.05	0.00				
40.00	1.25	0.05	0.00				
41.00	1.25	0.05	0.00				
42.00	1.25	0.05	0.00				
43.00	1.25	0.05	0.00				
44.00	1.25	0.05	0.00				
45.00	1.25	0.05	0.00				
46.00	1.25	0.05	0.00				
47.00	1.25	0.05	0.00				
48.00	1.25	0.05	0.00				
49.00	1.25	0.05	0.00				
50.00	1.25	0.05	0.00				
51.00	1.25	0.05	0.00				

2023-01 Proposed Hydrology

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NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Pond 3P: Basin A

Inflow Area = 1.130 ac, 18.58% Impervious, Inflow Depth = 0.23" for WQ event
 Inflow = 0.58 cfs @ 1.15 hrs, Volume= 0.022 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 2L : DA 1

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 619.52' @ 2.55 hrs Surf.Area= 0.085 ac Storage= 0.022 af

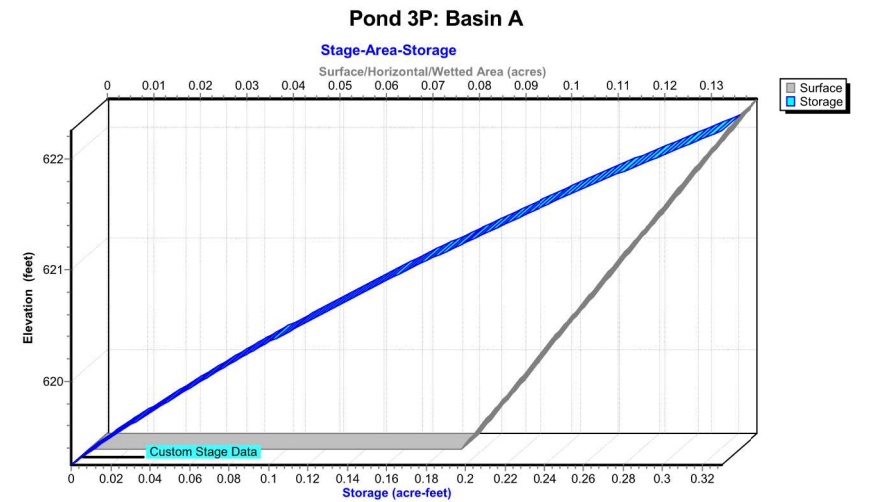
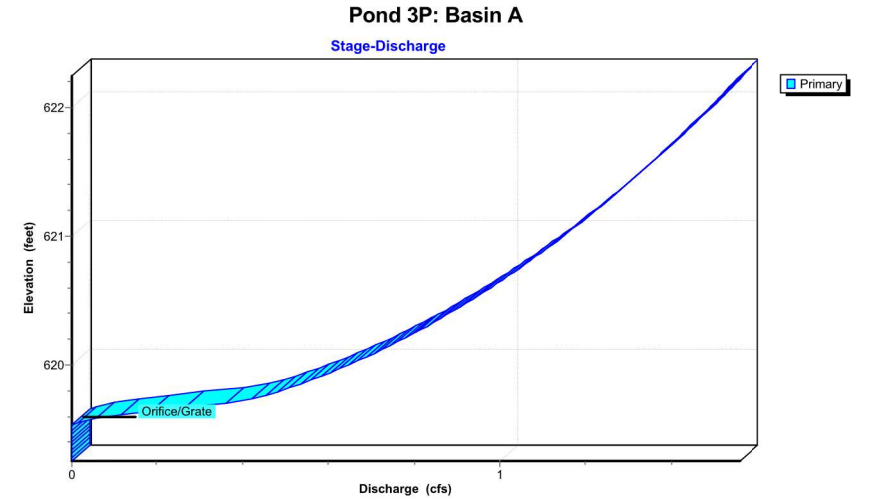
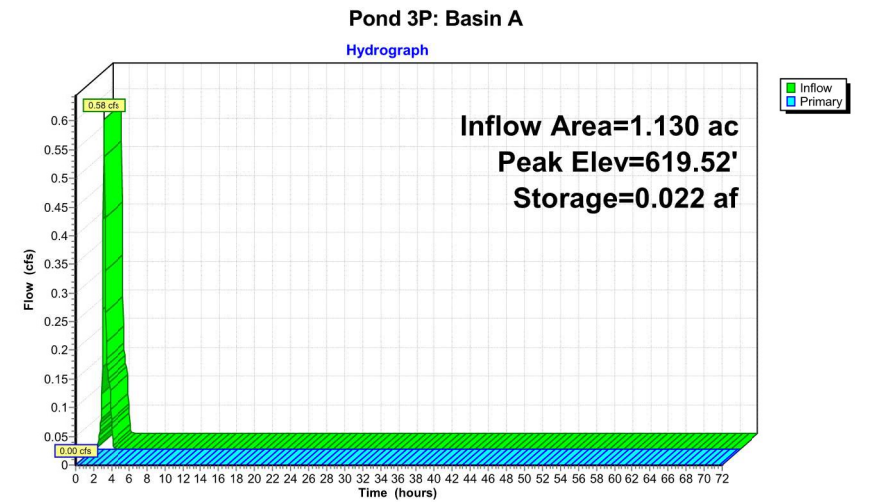
Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	619.25'	0.330 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
619.25	0.080	0.000	0.000
620.25	0.100	0.090	0.090
621.25	0.120	0.110	0.200
622.25	0.140	0.130	0.330

Device	Routing	Invert	Outlet Devices
#1	Primary	619.53'	6.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=619.25' (Free Discharge)

1=Orifice/Grate (Controls 0.00 cfs)



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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Pond 3P: Basin A

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	619.25	0.00
2.50	0.00	0.022	619.52	0.00
5.00	0.00	0.022	619.52	0.00
7.50	0.00	0.022	619.52	0.00
10.00	0.00	0.022	619.52	0.00
12.50	0.00	0.022	619.52	0.00
15.00	0.00	0.022	619.52	0.00
17.50	0.00	0.022	619.52	0.00
20.00	0.00	0.022	619.52	0.00
22.50	0.00	0.022	619.52	0.00
25.00	0.00	0.022	619.52	0.00
27.50	0.00	0.022	619.52	0.00
30.00	0.00	0.022	619.52	0.00
32.50	0.00	0.022	619.52	0.00
35.00	0.00	0.022	619.52	0.00
37.50	0.00	0.022	619.52	0.00
40.00	0.00	0.022	619.52	0.00
42.50	0.00	0.022	619.52	0.00
45.00	0.00	0.022	619.52	0.00
47.50	0.00	0.022	619.52	0.00
50.00	0.00	0.022	619.52	0.00
52.50	0.00	0.022	619.52	0.00
55.00	0.00	0.022	619.52	0.00
57.50	0.00	0.022	619.52	0.00
60.00	0.00	0.022	619.52	0.00
62.50	0.00	0.022	619.52	0.00
65.00	0.00	0.022	619.52	0.00
67.50	0.00	0.022	619.52	0.00
70.00	0.00	0.022	619.52	0.00

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Stage-Discharge for Pond 3P: Basin A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
619.25	0.00	620.29	0.82	621.33	1.27
619.27	0.00	620.31	0.83	621.35	1.28
619.29	0.00	620.33	0.85	621.37	1.28
619.31	0.00	620.35	0.86	621.39	1.29
619.33	0.00	620.37	0.87	621.41	1.30
619.35	0.00	620.39	0.88	621.43	1.30
619.37	0.00	620.41	0.89	621.45	1.31
619.39	0.00	620.43	0.90	621.47	1.32
619.41	0.00	620.45	0.91	621.49	1.32
619.43	0.00	620.47	0.92	621.51	1.33
619.45	0.00	620.49	0.93	621.53	1.34
619.47	0.00	620.51	0.94	621.55	1.34
619.49	0.00	620.53	0.95	621.57	1.35
619.51	0.00	620.55	0.95	621.59	1.36
619.53	0.00	620.57	0.96	621.61	1.36
619.55	0.01	620.59	0.97	621.63	1.37
619.57	0.04	620.61	0.98	621.65	1.38
619.59	0.08	620.63	0.99	621.67	1.38
619.61	0.12	620.65	1.00	621.69	1.39
619.63	0.16	620.67	1.01	621.71	1.40
619.65	0.21	620.69	1.02	621.73	1.40
619.67	0.27	620.71	1.03	621.75	1.41
619.69	0.33	620.73	1.04	621.77	1.41
619.71	0.39	620.75	1.04	621.79	1.42
619.73	0.42	620.77	1.05	621.81	1.43
619.75	0.44	620.79	1.06	621.83	1.43
619.77	0.46	620.81	1.07	621.85	1.44
619.79	0.48	620.83	1.08	621.87	1.45
619.81	0.50	620.85	1.09	621.89	1.45
619.83	0.52	620.87	1.09	621.91	1.46
619.85	0.53	620.89	1.10	621.93	1.46
619.87	0.55	620.91	1.11	621.95	1.47
619.89	0.57	620.93	1.12	621.97	1.48
619.91	0.58	620.95	1.13	621.99	1.48
619.93	0.60	620.97	1.13	622.01	1.49
619.95	0.61	620.99	1.14	622.03	1.49
619.97	0.63	621.01	1.15	622.05	1.50
619.99	0.64	621.03	1.16	622.07	1.51
620.01	0.66	621.05	1.17	622.09	1.51
620.03	0.67	621.07	1.17	622.11	1.52
620.05	0.68	621.09	1.18	622.13	1.52
620.07	0.69	621.11	1.19	622.15	1.53
620.09	0.71	621.13	1.20	622.17	1.54
620.11	0.72	621.15	1.20	622.19	1.54
620.13	0.73	621.17	1.21	622.21	1.55
620.15	0.74	621.19	1.22	622.23	1.55
620.17	0.76	621.21	1.23	622.25	1.56
620.19	0.77	621.23	1.23		
620.21	0.78	621.25	1.24		
620.23	0.79	621.27	1.25		
620.25	0.80	621.29	1.25		
620.27	0.81	621.31	1.26		

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NJ DEP 2-hr WQ Rainfall=1.25"

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Stage-Area-Storage for Pond 3P: Basin A

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
619.25	0.080	0.000	621.85	0.132	0.276
619.30	0.081	0.004	621.90	0.133	0.282
619.35	0.082	0.008	621.95	0.134	0.289
619.40	0.083	0.012	622.00	0.135	0.296
619.45	0.084	0.016	622.05	0.136	0.302
619.50	0.085	0.021	622.10	0.137	0.309
619.55	0.086	0.025	622.15	0.138	0.316
619.60	0.087	0.029	622.20	0.139	0.323
619.65	0.088	0.034	622.25	0.140	0.330
619.70	0.089	0.038			
619.75	0.090	0.043			
619.80	0.091	0.047			
619.85	0.092	0.052			
619.90	0.093	0.056			
619.95	0.094	0.061			
620.00	0.095	0.066			
620.05	0.096	0.070			
620.10	0.097	0.075			
620.15	0.098	0.080			
620.20	0.099	0.085			
620.25	0.100	0.090			
620.30	0.101	0.095			
620.35	0.102	0.100			
620.40	0.103	0.105			
620.45	0.104	0.110			
620.50	0.105	0.116			
620.55	0.106	0.121			
620.60	0.107	0.126			
620.65	0.108	0.132			
620.70	0.109	0.137			
620.75	0.110	0.142			
620.80	0.111	0.148			
620.85	0.112	0.154			
620.90	0.113	0.159			
620.95	0.114	0.165			
621.00	0.115	0.171			
621.05	0.116	0.176			
621.10	0.117	0.182			
621.15	0.118	0.188			
621.20	0.119	0.194			
621.25	0.120	0.200			
621.30	0.121	0.206			
621.35	0.122	0.212			
621.40	0.123	0.218			
621.45	0.124	0.224			
621.50	0.125	0.231			
621.55	0.126	0.237			
621.60	0.127	0.243			
621.65	0.128	0.250			
621.70	0.129	0.256			
621.75	0.130	0.262			
621.80	0.131	0.269			

2023-01 Proposed Hydrology

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NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Pond 4P: Basin B

Inflow Area = 0.960 ac, 19.79% Impervious, Inflow Depth = 0.25" for WQ event
 Inflow = 0.51 cfs @ 1.15 hrs, Volume= 0.020 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 2L : DA 1

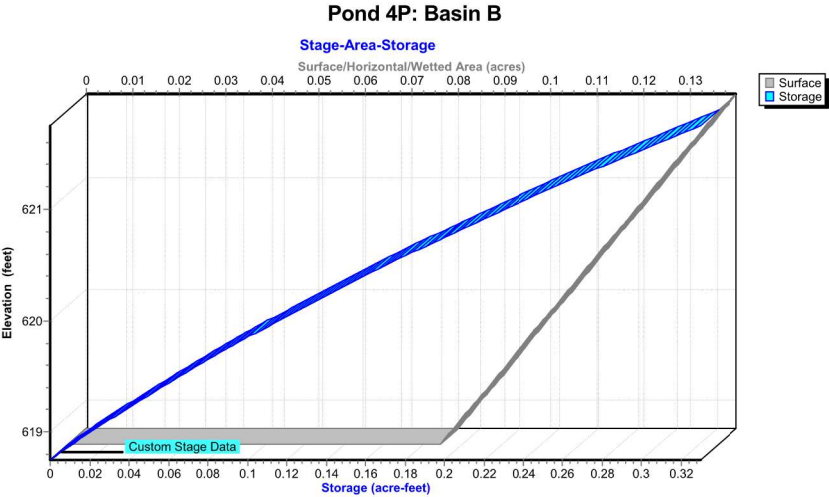
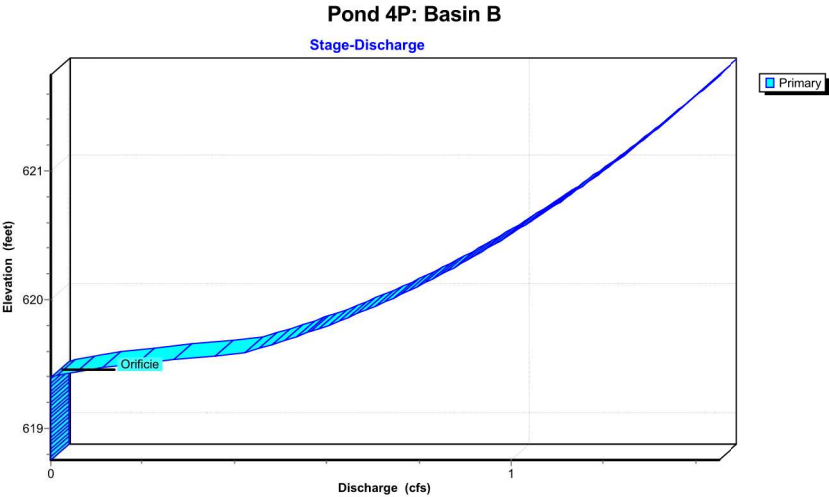
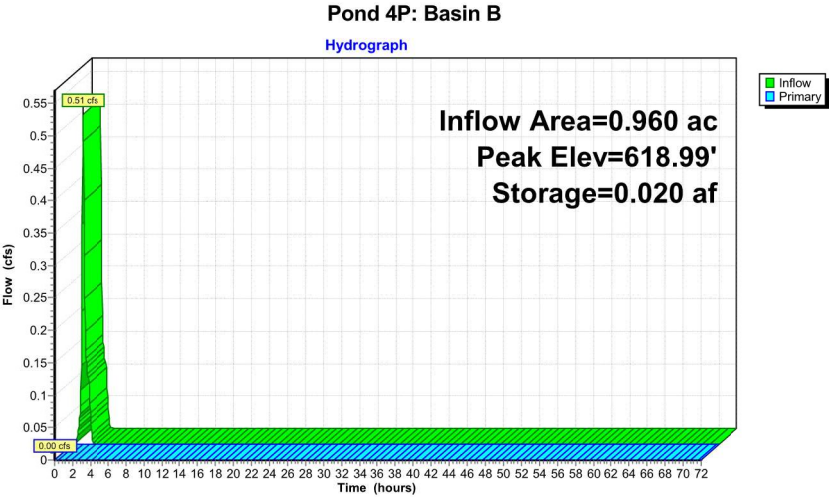
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 618.99' @ 2.60 hrs Surf.Area= 0.085 ac Storage= 0.020 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	618.75'	0.330 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
618.75	0.080	0.000	0.000
619.75	0.100	0.090	0.090
620.75	0.120	0.110	0.200
621.75	0.140	0.130	0.330

Device	Routing	Invert	Outlet Devices
#1	Primary	619.39'	6.0" Horiz. Orifice C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=618.75' (Free Discharge)
 1=Orifice (Controls 0.00 cfs)



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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Pond 4P: Basin B

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	618.75	0.00
2.50	0.00	0.020	618.99	0.00
5.00	0.00	0.020	618.99	0.00
7.50	0.00	0.020	618.99	0.00
10.00	0.00	0.020	618.99	0.00
12.50	0.00	0.020	618.99	0.00
15.00	0.00	0.020	618.99	0.00
17.50	0.00	0.020	618.99	0.00
20.00	0.00	0.020	618.99	0.00
22.50	0.00	0.020	618.99	0.00
25.00	0.00	0.020	618.99	0.00
27.50	0.00	0.020	618.99	0.00
30.00	0.00	0.020	618.99	0.00
32.50	0.00	0.020	618.99	0.00
35.00	0.00	0.020	618.99	0.00
37.50	0.00	0.020	618.99	0.00
40.00	0.00	0.020	618.99	0.00
42.50	0.00	0.020	618.99	0.00
45.00	0.00	0.020	618.99	0.00
47.50	0.00	0.020	618.99	0.00
50.00	0.00	0.020	618.99	0.00
52.50	0.00	0.020	618.99	0.00
55.00	0.00	0.020	618.99	0.00
57.50	0.00	0.020	618.99	0.00
60.00	0.00	0.020	618.99	0.00
62.50	0.00	0.020	618.99	0.00
65.00	0.00	0.020	618.99	0.00
67.50	0.00	0.020	618.99	0.00
70.00	0.00	0.020	618.99	0.00

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NJ DEP 2-hr WQ Rainfall=1.25"

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Stage-Discharge for Pond 4P: Basin B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
618.75	0.00	619.79	0.60	620.83	1.13
618.77	0.00	619.81	0.61	620.85	1.14
618.79	0.00	619.83	0.63	620.87	1.15
618.81	0.00	619.85	0.64	620.89	1.16
618.83	0.00	619.87	0.66	620.91	1.17
618.85	0.00	619.89	0.67	620.93	1.17
618.87	0.00	619.91	0.68	620.95	1.18
618.89	0.00	619.93	0.69	620.97	1.19
618.91	0.00	619.95	0.71	620.99	1.20
618.93	0.00	619.97	0.72	621.01	1.20
618.95	0.00	619.99	0.73	621.03	1.21
618.97	0.00	620.01	0.74	621.05	1.22
618.99	0.00	620.03	0.76	621.07	1.23
619.01	0.00	620.05	0.77	621.09	1.23
619.03	0.00	620.07	0.78	621.11	1.24
619.05	0.00	620.09	0.79	621.13	1.25
619.07	0.00	620.11	0.80	621.15	1.25
619.09	0.00	620.13	0.81	621.17	1.26
619.11	0.00	620.15	0.82	621.19	1.27
619.13	0.00	620.17	0.83	621.21	1.28
619.15	0.00	620.19	0.85	621.23	1.28
619.17	0.00	620.21	0.86	621.25	1.29
619.19	0.00	620.23	0.87	621.27	1.30
619.21	0.00	620.25	0.88	621.29	1.30
619.23	0.00	620.27	0.89	621.31	1.31
619.25	0.00	620.29	0.90	621.33	1.32
619.27	0.00	620.31	0.91	621.35	1.32
619.29	0.00	620.33	0.92	621.37	1.33
619.31	0.00	620.35	0.93	621.39	1.34
619.33	0.00	620.37	0.94	621.41	1.34
619.35	0.00	620.39	0.95	621.43	1.35
619.37	0.00	620.41	0.95	621.45	1.36
619.39	0.00	620.43	0.96	621.47	1.36
619.41	0.01	620.45	0.97	621.49	1.37
619.43	0.04	620.47	0.98	621.51	1.38
619.45	0.08	620.49	0.99	621.53	1.38
619.47	0.12	620.51	1.00	621.55	1.39
619.49	0.16	620.53	1.01	621.57	1.40
619.51	0.21	620.55	1.02	621.59	1.40
619.53	0.27	620.57	1.03	621.61	1.41
619.55	0.33	620.59	1.04	621.63	1.41
619.57	0.39	620.61	1.04	621.65	1.42
619.59	0.42	620.63	1.05	621.67	1.43
619.61	0.44	620.65	1.06	621.69	1.43
619.63	0.46	620.67	1.07	621.71	1.44
619.65	0.48	620.69	1.08	621.73	1.45
619.67	0.50	620.71	1.09	621.75	1.45
619.69	0.52	620.73	1.09		
619.71	0.53	620.75	1.10		
619.73	0.55	620.77	1.11		
619.75	0.57	620.79	1.12		
619.77	0.58	620.81	1.13		

2023-01 Proposed Hydrology

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NJ DEP 2-hr WQ Rainfall=1.25"

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Stage-Area-Storage for Pond 4P: Basin B

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
618.75	0.080	0.000	621.35	0.132	0.276
618.80	0.081	0.004	621.40	0.133	0.282
618.85	0.082	0.008	621.45	0.134	0.289
618.90	0.083	0.012	621.50	0.135	0.296
618.95	0.084	0.016	621.55	0.136	0.302
619.00	0.085	0.021	621.60	0.137	0.309
619.05	0.086	0.025	621.65	0.138	0.316
619.10	0.087	0.029	621.70	0.139	0.323
619.15	0.088	0.034	621.75	0.140	0.330
619.20	0.089	0.038			
619.25	0.090	0.043			
619.30	0.091	0.047			
619.35	0.092	0.052			
619.40	0.093	0.056			
619.45	0.094	0.061			
619.50	0.095	0.066			
619.55	0.096	0.070			
619.60	0.097	0.075			
619.65	0.098	0.080			
619.70	0.099	0.085			
619.75	0.100	0.090			
619.80	0.101	0.095			
619.85	0.102	0.100			
619.90	0.103	0.105			
619.95	0.104	0.110			
620.00	0.105	0.116			
620.05	0.106	0.121			
620.10	0.107	0.126			
620.15	0.108	0.132			
620.20	0.109	0.137			
620.25	0.110	0.142			
620.30	0.111	0.148			
620.35	0.112	0.154			
620.40	0.113	0.159			
620.45	0.114	0.165			
620.50	0.115	0.171			
620.55	0.116	0.176			
620.60	0.117	0.182			
620.65	0.118	0.188			
620.70	0.119	0.194			
620.75	0.120	0.200			
620.80	0.121	0.206			
620.85	0.122	0.212			
620.90	0.123	0.218			
620.95	0.124	0.224			
621.00	0.125	0.231			
621.05	0.126	0.237			
621.10	0.127	0.243			
621.15	0.128	0.250			
621.20	0.129	0.256			
621.25	0.130	0.262			
621.30	0.131	0.269			

2023-01 Proposed Hydrology

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NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Pond 5P: Basin C

Inflow Area = 1.380 ac, 14.49% Impervious, Inflow Depth = 0.19" for WQ event
 Inflow = 0.56 cfs @ 1.15 hrs, Volume= 0.022 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 2L : DA 1

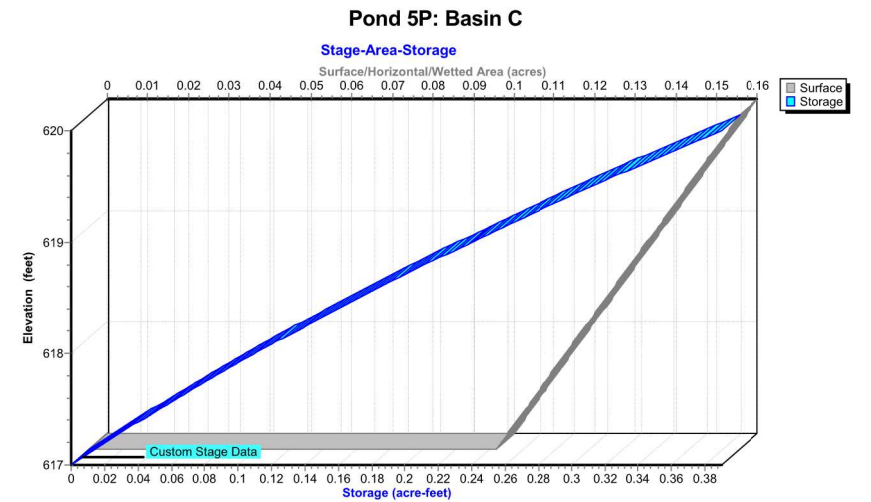
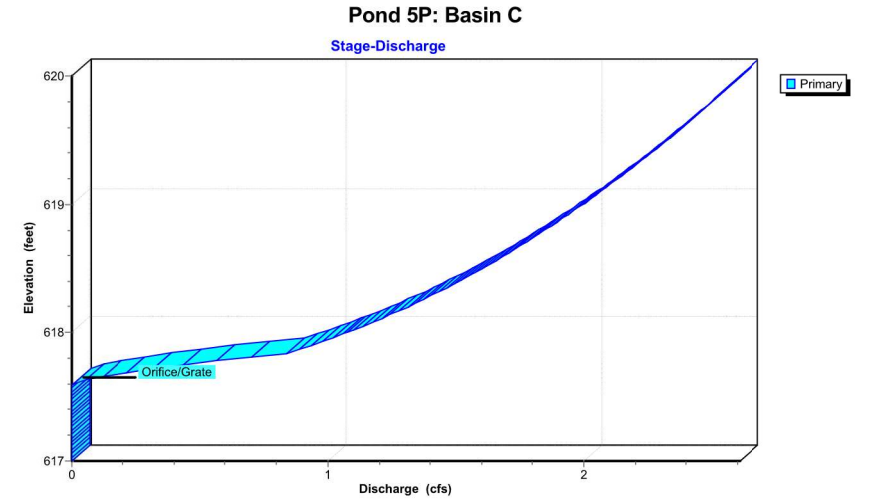
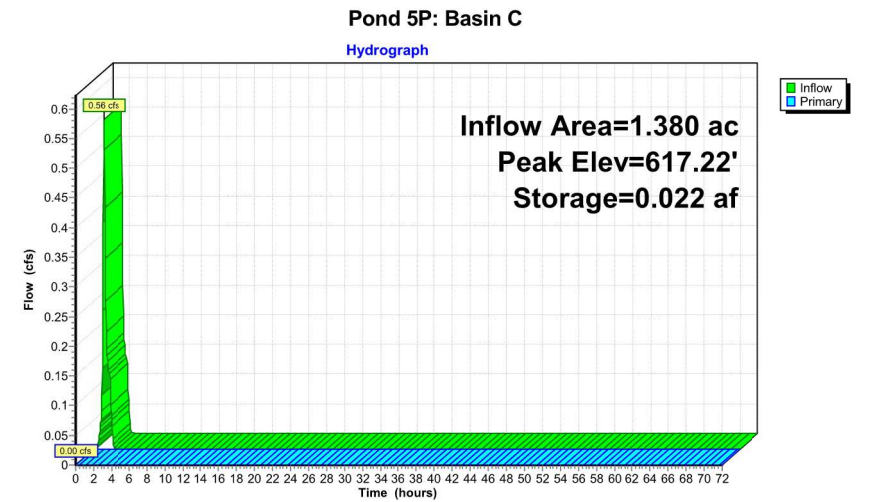
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 617.22' @ 2.55 hrs Surf.Area= 0.104 ac Storage= 0.022 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	617.00'	0.390 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
617.00	0.100	0.000	0.000
618.00	0.120	0.110	0.110
619.00	0.140	0.130	0.240
620.00	0.160	0.150	0.390

Device	Routing	Invert	Outlet Devices
#1	Primary	617.59'	8.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=617.00' (Free Discharge)
 1=Orifice/Grate (Controls 0.00 cfs)



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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Pond 5P: Basin C

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	617.00	0.00
2.50	0.00	0.022	617.22	0.00
5.00	0.00	0.022	617.22	0.00
7.50	0.00	0.022	617.22	0.00
10.00	0.00	0.022	617.22	0.00
12.50	0.00	0.022	617.22	0.00
15.00	0.00	0.022	617.22	0.00
17.50	0.00	0.022	617.22	0.00
20.00	0.00	0.022	617.22	0.00
22.50	0.00	0.022	617.22	0.00
25.00	0.00	0.022	617.22	0.00
27.50	0.00	0.022	617.22	0.00
30.00	0.00	0.022	617.22	0.00
32.50	0.00	0.022	617.22	0.00
35.00	0.00	0.022	617.22	0.00
37.50	0.00	0.022	617.22	0.00
40.00	0.00	0.022	617.22	0.00
42.50	0.00	0.022	617.22	0.00
45.00	0.00	0.022	617.22	0.00
47.50	0.00	0.022	617.22	0.00
50.00	0.00	0.022	617.22	0.00
52.50	0.00	0.022	617.22	0.00
55.00	0.00	0.022	617.22	0.00
57.50	0.00	0.022	617.22	0.00
60.00	0.00	0.022	617.22	0.00
62.50	0.00	0.022	617.22	0.00
65.00	0.00	0.022	617.22	0.00
67.50	0.00	0.022	617.22	0.00
70.00	0.00	0.022	617.22	0.00

2023-01 Proposed Hydrology

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NJ DEP 2-hr WQ Rainfall=1.25"

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Stage-Discharge for Pond 5P: Basin C

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
617.00	0.00	618.04	1.13	619.08	2.05
617.02	0.00	618.06	1.15	619.10	2.07
617.04	0.00	618.08	1.18	619.12	2.08
617.06	0.00	618.10	1.20	619.14	2.09
617.08	0.00	618.12	1.22	619.16	2.11
617.10	0.00	618.14	1.25	619.18	2.12
617.12	0.00	618.16	1.27	619.20	2.13
617.14	0.00	618.18	1.29	619.22	2.15
617.16	0.00	618.20	1.31	619.24	2.16
617.18	0.00	618.22	1.33	619.26	2.17
617.20	0.00	618.24	1.36	619.28	2.18
617.22	0.00	618.26	1.38	619.30	2.20
617.24	0.00	618.28	1.40	619.32	2.21
617.26	0.00	618.30	1.42	619.34	2.22
617.28	0.00	618.32	1.44	619.36	2.24
617.30	0.00	618.34	1.46	619.38	2.25
617.32	0.00	618.36	1.47	619.40	2.26
617.34	0.00	618.38	1.49	619.42	2.27
617.36	0.00	618.40	1.51	619.44	2.29
617.38	0.00	618.42	1.53	619.46	2.30
617.40	0.00	618.44	1.55	619.48	2.31
617.42	0.00	618.46	1.57	619.50	2.32
617.44	0.00	618.48	1.59	619.52	2.33
617.46	0.00	618.50	1.60	619.54	2.35
617.48	0.00	618.52	1.62	619.56	2.36
617.50	0.00	618.54	1.64	619.58	2.37
617.52	0.00	618.56	1.66	619.60	2.38
617.54	0.00	618.58	1.67	619.62	2.39
617.56	0.00	618.60	1.69	619.64	2.41
617.58	0.00	618.62	1.71	619.66	2.42
617.60	0.01	618.64	1.72	619.68	2.43
617.62	0.04	618.66	1.74	619.70	2.44
617.64	0.08	618.68	1.75	619.72	2.45
617.66	0.13	618.70	1.77	619.74	2.46
617.68	0.18	618.72	1.79	619.76	2.48
617.70	0.25	618.74	1.80	619.78	2.49
617.72	0.32	618.76	1.82	619.80	2.50
617.74	0.40	618.78	1.83	619.82	2.51
617.76	0.48	618.80	1.85	619.84	2.52
617.78	0.57	618.82	1.86	619.86	2.53
617.80	0.66	618.84	1.88	619.88	2.54
617.82	0.76	618.86	1.89	619.90	2.55
617.84	0.84	618.88	1.91	619.92	2.57
617.86	0.87	618.90	1.92	619.94	2.58
617.88	0.91	618.92	1.94	619.96	2.59
617.90	0.94	618.94	1.95	619.98	2.60
617.92	0.97	618.96	1.97	620.00	2.61
617.94	0.99	618.98	1.98		
617.96	1.02	619.00	2.00		
617.98	1.05	619.02	2.01		
618.00	1.08	619.04	2.02		
618.02	1.10	619.06	2.04		

2023-01 Proposed Hydrology

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NJ DEP 2-hr WQ Rainfall=1.25"

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Stage-Area-Storage for Pond 5P: Basin C

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
617.00	0.100	0.000	619.60	0.152	0.328
617.05	0.101	0.005	619.65	0.153	0.335
617.10	0.102	0.010	619.70	0.154	0.343
617.15	0.103	0.015	619.75	0.155	0.351
617.20	0.104	0.020	619.80	0.156	0.358
617.25	0.105	0.026	619.85	0.157	0.366
617.30	0.106	0.031	619.90	0.158	0.374
617.35	0.107	0.036	619.95	0.159	0.382
617.40	0.108	0.042	620.00	0.160	0.390
617.45	0.109	0.047			
617.50	0.110	0.052			
617.55	0.111	0.058			
617.60	0.112	0.064			
617.65	0.113	0.069			
617.70	0.114	0.075			
617.75	0.115	0.081			
617.80	0.116	0.086			
617.85	0.117	0.092			
617.90	0.118	0.098			
617.95	0.119	0.104			
618.00	0.120	0.110			
618.05	0.121	0.116			
618.10	0.122	0.122			
618.15	0.123	0.128			
618.20	0.124	0.134			
618.25	0.125	0.141			
618.30	0.126	0.147			
618.35	0.127	0.153			
618.40	0.128	0.160			
618.45	0.129	0.166			
618.50	0.130	0.173			
618.55	0.131	0.179			
618.60	0.132	0.186			
618.65	0.133	0.192			
618.70	0.134	0.199			
618.75	0.135	0.206			
618.80	0.136	0.212			
618.85	0.137	0.219			
618.90	0.138	0.226			
618.95	0.139	0.233			
619.00	0.140	0.240			
619.05	0.141	0.247			
619.10	0.142	0.254			
619.15	0.143	0.261			
619.20	0.144	0.268			
619.25	0.145	0.276			
619.30	0.146	0.283			
619.35	0.147	0.290			
619.40	0.148	0.298			
619.45	0.149	0.305			
619.50	0.150	0.312			
619.55	0.151	0.320			

2023-01 Proposed Hydrology

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NJ DEP 2-hr WQ Rainfall=1.25"

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Summary for Pond 6P: Basin D

Inflow Area = 1.330 ac, 15.04% Impervious, Inflow Depth = 0.20" for WQ event
 Inflow = 0.55 cfs @ 1.15 hrs, Volume= 0.022 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Link 2L : DA 1

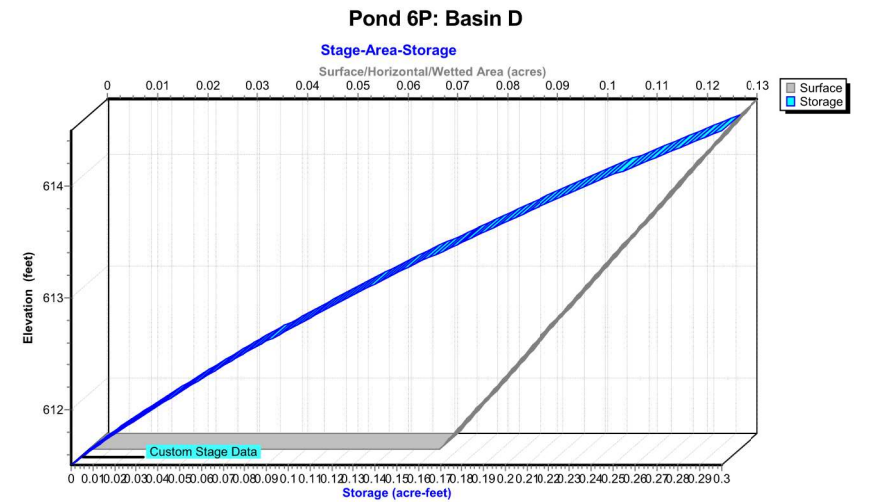
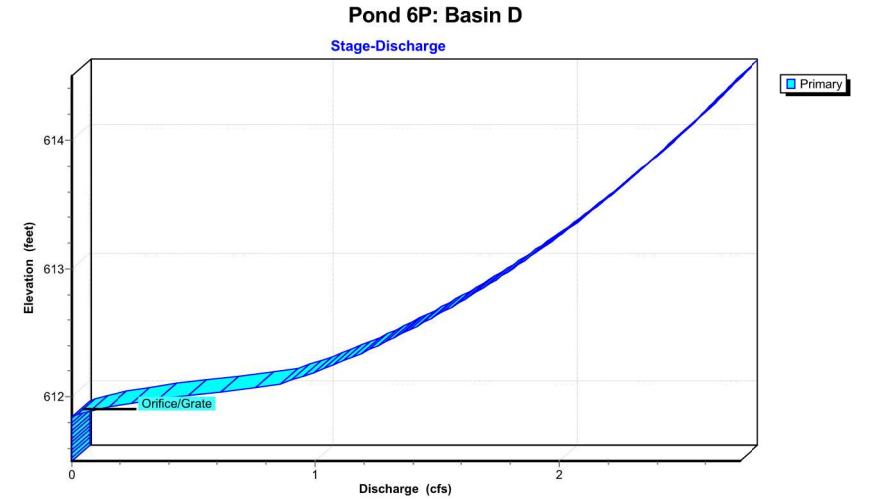
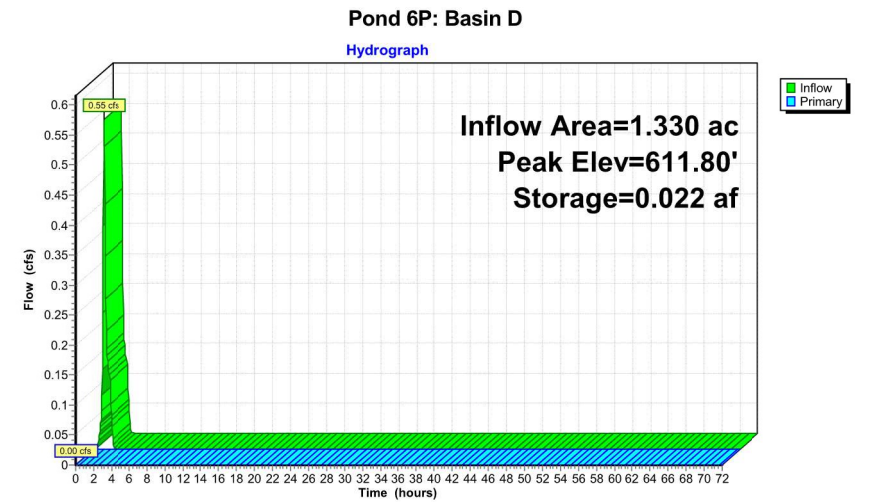
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Peak Elev= 611.80' @ 2.60 hrs Surf.Area= 0.076 ac Storage= 0.022 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	611.50'	0.300 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
611.50	0.070	0.000	0.000
612.50	0.090	0.080	0.080
613.50	0.110	0.100	0.180
614.50	0.130	0.120	0.300

Device	Routing	Invert	Outlet Devices
#1	Primary	611.84'	8.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=611.50' (Free Discharge)
1=Orifice/Grate (Controls 0.00 cfs)



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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Pond 6P: Basin D

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	611.50	0.00
2.50	0.00	0.022	611.80	0.00
5.00	0.00	0.022	611.80	0.00
7.50	0.00	0.022	611.80	0.00
10.00	0.00	0.022	611.80	0.00
12.50	0.00	0.022	611.80	0.00
15.00	0.00	0.022	611.80	0.00
17.50	0.00	0.022	611.80	0.00
20.00	0.00	0.022	611.80	0.00
22.50	0.00	0.022	611.80	0.00
25.00	0.00	0.022	611.80	0.00
27.50	0.00	0.022	611.80	0.00
30.00	0.00	0.022	611.80	0.00
32.50	0.00	0.022	611.80	0.00
35.00	0.00	0.022	611.80	0.00
37.50	0.00	0.022	611.80	0.00
40.00	0.00	0.022	611.80	0.00
42.50	0.00	0.022	611.80	0.00
45.00	0.00	0.022	611.80	0.00
47.50	0.00	0.022	611.80	0.00
50.00	0.00	0.022	611.80	0.00
52.50	0.00	0.022	611.80	0.00
55.00	0.00	0.022	611.80	0.00
57.50	0.00	0.022	611.80	0.00
60.00	0.00	0.022	611.80	0.00
62.50	0.00	0.022	611.80	0.00
65.00	0.00	0.022	611.80	0.00
67.50	0.00	0.022	611.80	0.00
70.00	0.00	0.022	611.80	0.00

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NJ DEP 2-hr WQ Rainfall=1.25"

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Stage-Discharge for Pond 6P: Basin D

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
611.50	0.00	612.54	1.41	613.58	2.22
611.52	0.00	612.56	1.43	613.60	2.23
611.54	0.00	612.58	1.45	613.62	2.24
611.56	0.00	612.60	1.47	613.64	2.25
611.58	0.00	612.62	1.48	613.66	2.27
611.60	0.00	612.64	1.50	613.68	2.28
611.62	0.00	612.66	1.52	613.70	2.29
611.64	0.00	612.68	1.54	613.72	2.30
611.66	0.00	612.70	1.56	613.74	2.32
611.68	0.00	612.72	1.58	613.76	2.33
611.70	0.00	612.74	1.59	613.78	2.34
611.72	0.00	612.76	1.61	613.80	2.35
611.74	0.00	612.78	1.63	613.82	2.37
611.76	0.00	612.80	1.65	613.84	2.38
611.78	0.00	612.82	1.66	613.86	2.39
611.80	0.00	612.84	1.68	613.88	2.40
611.82	0.00	612.86	1.70	613.90	2.41
611.84	0.00	612.88	1.71	613.92	2.42
611.86	0.02	612.90	1.73	613.94	2.44
611.88	0.05	612.92	1.75	613.96	2.45
611.90	0.10	612.94	1.76	613.98	2.46
611.92	0.15	612.96	1.78	614.00	2.47
611.94	0.22	612.98	1.79	614.02	2.48
611.96	0.28	613.00	1.81	614.04	2.49
611.98	0.36	613.02	1.83	614.06	2.50
612.00	0.44	613.04	1.84	614.08	2.52
612.02	0.52	613.06	1.86	614.10	2.53
612.04	0.61	613.08	1.87	614.12	2.54
612.06	0.71	613.10	1.89	614.14	2.55
612.08	0.81	613.12	1.90	614.16	2.56
612.10	0.86	613.14	1.92	614.18	2.57
612.12	0.89	613.16	1.93	614.20	2.58
612.14	0.92	613.18	1.95	614.22	2.59
612.16	0.95	613.20	1.96	614.24	2.60
612.18	0.98	613.22	1.97	614.26	2.61
612.20	1.01	613.24	1.99	614.28	2.63
612.22	1.04	613.26	2.00	614.30	2.64
612.24	1.06	613.28	2.02	614.32	2.65
612.26	1.09	613.30	2.03	614.34	2.66
612.28	1.11	613.32	2.04	614.36	2.67
612.30	1.14	613.34	2.06	614.38	2.68
612.32	1.16	613.36	2.07	614.40	2.69
612.34	1.19	613.38	2.09	614.42	2.70
612.36	1.21	613.40	2.10	614.44	2.71
612.38	1.24	613.42	2.11	614.46	2.72
612.40	1.26	613.44	2.13	614.48	2.73
612.42	1.28	613.46	2.14	614.50	2.74
612.44	1.30	613.48	2.15		
612.46	1.32	613.50	2.17		
612.48	1.34	613.52	2.18		
612.50	1.37	613.54	2.19		
612.52	1.39	613.56	2.20		

2023-01 Proposed Hydrology

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NJ DEP 2-hr WQ Rainfall=1.25"

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Stage-Area-Storage for Pond 6P: Basin D

Elevation (feet)	Surface (acres)	Storage (acre-feet)	Elevation (feet)	Surface (acres)	Storage (acre-feet)
611.50	0.070	0.000	614.10	0.122	0.250
611.55	0.071	0.004	614.15	0.123	0.256
611.60	0.072	0.007	614.20	0.124	0.262
611.65	0.073	0.011	614.25	0.125	0.268
611.70	0.074	0.014	614.30	0.126	0.274
611.75	0.075	0.018	614.35	0.127	0.281
611.80	0.076	0.022	614.40	0.128	0.287
611.85	0.077	0.026	614.45	0.129	0.294
611.90	0.078	0.030	614.50	0.130	0.300
611.95	0.079	0.034			
612.00	0.080	0.037			
612.05	0.081	0.042			
612.10	0.082	0.046			
612.15	0.083	0.050			
612.20	0.084	0.054			
612.25	0.085	0.058			
612.30	0.086	0.062			
612.35	0.087	0.067			
612.40	0.088	0.071			
612.45	0.089	0.076			
612.50	0.090	0.080			
612.55	0.091	0.085			
612.60	0.092	0.089			
612.65	0.093	0.094			
612.70	0.094	0.098			
612.75	0.095	0.103			
612.80	0.096	0.108			
612.85	0.097	0.113			
612.90	0.098	0.118			
612.95	0.099	0.123			
613.00	0.100	0.127			
613.05	0.101	0.133			
613.10	0.102	0.138			
613.15	0.103	0.143			
613.20	0.104	0.148			
613.25	0.105	0.153			
613.30	0.106	0.158			
613.35	0.107	0.164			
613.40	0.108	0.169			
613.45	0.109	0.175			
613.50	0.110	0.180			
613.55	0.111	0.186			
613.60	0.112	0.191			
613.65	0.113	0.197			
613.70	0.114	0.202			
613.75	0.115	0.208			
613.80	0.116	0.214			
613.85	0.117	0.220			
613.90	0.118	0.226			
613.95	0.119	0.232			
614.00	0.120	0.237			
614.05	0.121	0.244			

2023-01 Proposed Hydrology

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NJ DEP 2-hr WQ Rainfall=1.25"

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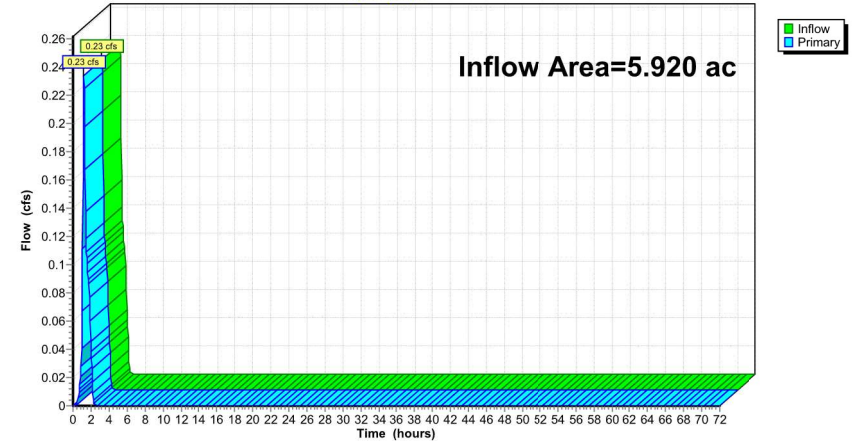
Summary for Link 2L: DA 1

Inflow Area = 5.920 ac, 14.70% Impervious, Inflow Depth = 0.02" for WQ event
 Inflow = 0.23 cfs @ 1.21 hrs, Volume= 0.011 af
 Primary = 0.23 cfs @ 1.21 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 2L: DA 1

Hydrograph



2023-01 Proposed Hydrology

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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Link 2L: DA 1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.07	0.00	0.07	53.00	0.00	0.00	0.00
2.00	0.04	0.00	0.04	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	64.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	65.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	66.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	67.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	68.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

2023-01 Proposed Hydrology

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NJ DEP 2-hr WQ Rainfall=1.25"

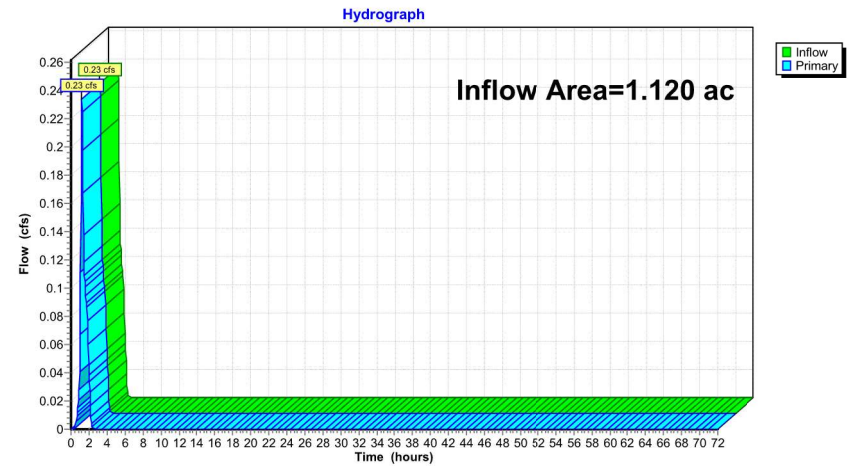
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Summary for Link 3L: DA 1. - Undetained

Inflow Area = 1.120 ac, 6.25% Impervious, Inflow Depth = 0.12" for WQ event
 Inflow = 0.23 cfs @ 1.21 hrs, Volume= 0.011 af
 Primary = 0.23 cfs @ 1.21 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min
 Routed to Link 2L : DA 1

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Link 3L: DA 1. - Undetained

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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Link 3L: DA 1. - Undetained

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.07	0.00	0.07	53.00	0.00	0.00	0.00
2.00	0.04	0.00	0.04	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	64.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	65.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	66.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	67.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	68.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

2023-01 Proposed Hydrology

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Multi-Event Tables

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Events for Subcatchment 1S: Basin A - Imp.

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
WQ	1.25	0.56	0.018	1.03

Events for Subcatchment 3S: Basin A - Perv.				
Event	Rainfall	Runoff	Volume	Depth
	(inches)	(cfs)	(acre-feet)	(inches)
WQ	1.25	0.07	0.004	0.05

Events for Subcatchment 4S: Basin B - Imp.				
Event	Rainfall	Runoff	Volume	Depth
	(inches)	(cfs)	(acre-feet)	(inches)
WQ	1.25	0.49	0.016	1.03

Events for Subcatchment 5S: Basin B - Perv.				
Event	Rainfall	Runoff	Volume	Depth
	(inches)	(cfs)	(acre-feet)	(inches)
WQ	1.25	0.06	0.003	0.05

Events for Subcatchment 6S: Undetained - Imp.				
Event	Rainfall	Runoff	Volume	Depth
	(inches)	(cfs)	(acre-feet)	(inches)
WQ	1.25	0.18	0.006	1.03

Events for Subcatchment 7S: Basin C - Imp.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
WQ	1.25	0.53	0.017	1.03

Events for Subcatchment 8S: Basin C - Perv.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
WQ	1.25	0.10	0.005	0.05

Events for Subcatchment 9S: Undetained - Perv.				
Event	Rainfall	Runoff	Volume	Depth
	(inches)	(cfs)	(acre-feet)	(inches)
WQ	1.25	0.11	0.005	0.06

Events for Subcatchment 11S: Basin D - Imp.				
Event	Rainfall	Runoff	Volume	Depth
	(inches)	(cfs)	(acre-feet)	(inches)
WQ	1.25	0.53	0.017	1.03

Events for Subcatchment 12S: Basin D - Perv.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
WQ	1.25	0.09	0.005	0.05

Events for Pond 3P: Basin A				
Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
WQ	0.58	0.00	619.52	0.022

Events for Pond 4P: Basin B				
Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
WQ	0.51	0.00	618.99	0.020

Events for Pond 5P: Basin C				
Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
WQ	0.56	0.00	617.22	0.022

Events for Pond 6P: Basin D				
Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
WQ	0.55	0.00	611.80	0.022

Events for Link 2L: DA 1			
Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
WQ	0.23	0.23	0.00

2023-01 Proposed Hydrology

Prepared by Dynamic Engineering

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Multi-Event Tables

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Events for Link 3L: DA 1. - Undetained

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)
WQ	0.23	0.23	0.00

2023-01 Proposed Hydrology

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STORMWATER COLLECTION SYSTEM CALCULATIONS (PIPE SIZING)



Stormwater Collection System Calculations

Project: Residential Subdivision

Job #: 4266-99-001

Location: West Orange Township

Design Storm: 25-Yr

Computed By: RMW

Checked By: RPF

Date: 1/16/2023

NOTES:

- 1) Design method used is Rational Method, unless otherwise noted.
- 2) Refer to Weighted Runoff Coefficient table for calculation of incremental areas and C values

*Basin outfall based on 100-YR design storm

PIPE SECTION		SUBCATCHMENT AREA	INCREMENTAL		CUMULATIVE	TIME OF CONCENTRATION			I	PEAK RUNOFF		PIPING INPUT			PIPING DATA		
FROM	TO	Area (Acres)	"C"	A x C Ac	A x C (acres)	Tc to Inlet (min)	Tc in Pipe (min.)	Final Tc (min)	(In/Hr)	Q to Inlet (CFS)	Q cum. for Pipe (CFS)	Dia. (In)	Length (Ft)	Man. "n"	Slope (ft/ft)	Pipe Capacity (cfs)	Pipe Velocity (fps)
RL #A-110	FES #A-100	0.05	0.95	0.05	0.05	10.00	0.65	10.00	6.80	0.34	0.34	6	86.0	0.012	0.0050	0.43	2.19
RL #B-110	FES #B-100	0.05	0.95	0.05	0.05	10.00	0.62	10.00	6.80	0.34	0.34	6	81.0	0.012	0.0050	0.43	2.19
RL #C-110	FES #C-100	0.05	0.95	0.05	0.05	10.00	0.81	10.00	6.80	0.34	0.34	6	106.0	0.012	0.0050	0.43	2.19
Inlet #C-210	FES #C-200	0.14	0.35	0.05	0.05	10.00	0.33	10.00	6.80	0.34	0.34	15	61.0	0.012	0.0030	3.83	3.12
RL #D-110	FES #D-100	0.05	0.95	0.05	0.05	10.00	0.67	10.00	6.80	0.34	0.34	6	88.0	0.012	0.0050	0.43	2.19
Inlet #D-210	FES #D-200	0.05	0.35	0.02	0.02	10.00	0.31	10.00	6.80	0.14	0.14	15	76.0	0.012	0.0050	4.95	4.04
OCS #140	MH #130	0.19	0.95	0.18	0.18	10.00	0.35	10.00	6.80	1.22	1.22	15	65.0	0.012	0.0030	3.83	3.12
MH #130	MH #120	0.00	0.95	0.00	0.18	10.00	0.72	10.35	6.80	0.00	1.22	15	156.0	0.012	0.0040	4.42	3.60
MH #120	MH #110	0.00	0.95	0.00	0.18	10.00	0.96	11.07	6.56	0.00	1.18	15	180.0	0.012	0.0030	3.83	3.12
OCS #111	MH #110	0.17	0.95	0.16	0.16	10.00	1.18	10.00	6.80	1.09	1.09	15	220.0	0.012	0.0030	3.83	3.12
MH #110	FES #100	0.00	0.95	0.00	0.34	10.00	1.46	12.03	6.32	0.00	2.15	15	274.0	0.012	0.0030	3.83	3.12
OCS #220	MH #210	0.31	0.95	0.29	0.29	10.00	1.25	10.00	6.80	1.97	1.97	15	234.0	0.012	0.0030	3.83	3.12
MH #210	FES #200	0.00	0.95	0.00	0.29	10.00	0.19	11.25	6.56	0.00	1.90	15	35.0	0.012	0.0030	3.83	3.12
OCS #310	FES #300	0.34	0.95	0.32	0.32	10.00	0.19	10.00	6.80	2.18	2.18	15	57.0	0.012	0.0075	6.06	4.94

CONDUIT OUTLET PROTECTION CALCULATIONS



DYNAMIC ENGINEERING

Stormwater Collection System Calculations

Project: Residential Subdivision

Job #: 4266-99-001

Location: West Orange Township

Design Storm: 25-Yr

Computed By: RMW

Checked By: RPF

Date: 1/16/2023

NOTES:

- 1) Design method used is Rational Method, unless otherwise noted.
- 2) Refer to Weighted Runoff Coefficient table for calculation of incremental areas and C values

*Basin outfall based on 100-YR design storm

PIPE SECTION		SUBCATCHMENT AREA	INCREMENTAL		CUMULATIVE	TIME OF CONCENTRATION			I	PEAK RUNOFF		PIPING INPUT			PIPING DATA		
FROM	TO	Area (Acres)	"C"	A x C Ac	A x C (acres)	Tc to Inlet (min)	Tc in Pipe (min.)	Final Tc (min)	(In/Hr)	Q to Inlet (CFS)	Q cum. for Pipe (CFS)	Dia. (In)	Length (Ft)	Man. "n"	Slope (ft/ft)	Pipe Capacity (cfs)	Pipe Velocity (fps)
Building A	FES #A-100	0.05	0.95	0.05	0.05	10.00	0.62	10.00	6.80	0.34	0.34	6	82.0	0.012	0.0050	0.43	2.19
Building B	FES #B-100	0.05	0.95	0.05	0.05	10.00	0.62	10.00	6.80	0.34	0.34	6	82.0	0.012	0.0050	0.43	2.19
Building C	FES #C-100	0.05	0.95	0.05	0.05	10.00	0.81	10.00	6.80	0.34	0.34	6	107.0	0.012	0.0050	0.43	2.19
Inlet #48	FES #C-200	0.14	0.35	0.05	0.05	10.00	0.29	10.00	6.80	0.34	0.34	15	57.0	0.012	0.0032	3.96	3.23
Building D	FES #D-100	0.05	0.95	0.05	0.05	10.00	0.65	10.00	6.80	0.34	0.34	6	86.0	0.012	0.0050	0.43	2.19
Inlet #50	FES #D-200	0.05	0.35	0.02	0.02	10.00	0.31	10.00	6.80	0.14	0.14	15	76.0	0.012	0.0050	4.95	4.04
OCS #31	MH #32	0.19	0.95	0.18	0.18	10.00	0.38	10.00	6.80	1.22	1.22	15	71.0	0.012	0.0030	3.83	3.12
MH #32	MH #33	0.00	0.95	0.00	0.18	10.00	0.66	10.38	6.80	0.00	1.22	15	143.0	0.012	0.0040	4.42	3.60
MH #33	MH #34	0.00	0.95	0.00	0.18	10.00	0.89	11.04	6.56	0.00	1.18	15	167.0	0.012	0.0030	3.83	3.12
OCS #36	MH #34	0.17	0.95	0.16	0.16	10.00	1.21	10.00	6.80	1.09	1.09	15	227.0	0.012	0.0030	3.83	3.12
MH #34	FES #100	0.00	0.95	0.00	0.34	10.00	1.52	11.93	6.44	0.00	2.19	15	285.0	0.012	0.0030	3.83	3.12
OCS #39	MH #40	0.31	0.95	0.29	0.29	10.00	1.30	10.00	6.80	1.97	1.97	15	243.0	0.012	0.0030	3.83	3.12
MH #40	FES #200	0.00	0.95	0.00	0.29	10.00	0.19	11.30	6.56	0.00	1.90	15	35.0	0.012	0.0030	3.83	3.12
OCS #46	FES #300	0.34	0.95	0.32	0.32	10.00	0.22	10.00	6.80	2.18	2.18	15	64.0	0.012	0.0075	6.06	4.94

OVERFLOW SPILLWAY CALCULATIONS



Overflow Spillway Calculations

Project: Residential Subdivision
Job #: 4266-99-001
Location: West Orange Township
Computed By: RMW
Checked By: RPF
Date: 1/16/2023

BIORETENTION BASIN A

To Size Spillway:

- Assume complete blockage of the outlet control structure and no infiltration
- Route 2 ,10 & 100 year storm through basin assuming that the basin is filled with water up to the Emergency Spillway Elevation

	2 Year	10 Year	100 Year
Spillway Width (ft.)	10.00	10.00	10.00
Spillway Elevation (ft.)	622.35	622.35	622.35
Flow through Spillway (Q) (cfs)	1.170	2.460	5.270
Water Surface Elevation (ft)	622.46	622.53	622.65
Depth of Flow (ft)	0.11	0.18	0.30
Area of Flow (A) (sf)*	1.11	1.83	3.09

Velocity (V) = Q / A (ft/sec) **1.05 1.34 1.71**

** V = < 2.0 FPS ** Stability Achieved



Overflow Spillway Calculations

Project: Residential Subdivision
Job #: 4266-99-001
Location: West Orange Township
Computed By: RMW
Checked By: RPF
Date: 1/16/2023

BIORETENTION BASIN B

To Size Spillway:

- Assume complete blockage of the outlet control structure and no infiltration
- Route 2 ,10 & 100 year storm through basin assuming that the basin is filled with water up to the Emergency Spillway Elevation

	2 Year	10 Year	100 Year
Spillway Width (ft.)	10.00	10.00	10.00
Spillway Elevation (ft.)	621.85	621.85	621.85
Flow through Spillway (Q) (cfs)	0.980	2.070	4.420
Water Surface Elevation (ft)	621.95	622.01	622.11
Depth of Flow (ft)	0.10	0.16	0.26
Area of Flow (A) (sf)*	1.01	1.63	2.67

Velocity (V) = Q / A (ft/sec) **0.97** **1.27** **1.66**

** V = < 2.0 FPS ** Stability Achieved



Overflow Spillway Calculations

Project: Residential Subdivision
Job #: 4266-99-001
Location: West Orange Township
Computed By: RMW
Checked By: RPF
Date: 1/16/2023

BIORETENTION BASIN C

To Size Spillway:

- Assume complete blockage of the outlet control structure and no infiltration
- Route 2 ,10 & 100 year storm through basin assuming that the basin is filled with water up to the Emergency Spillway Elevation

	2 Year	10 Year	100 Year
Spillway Width (ft.)	12.00	12.00	12.00
Spillway Elevation (ft.)	620.10	620.10	620.10
Flow through Spillway (Q) (cfs)	1.370	2.970	6.460
Water Surface Elevation (ft)	620.21	620.28	620.40
Depth of Flow (ft)	0.11	0.18	0.30
Area of Flow (A) (sf)*	1.33	2.19	3.69

Velocity (V) = Q / A (ft/sec) **1.03** **1.35** **1.75**

** V = < 2.0 FPS ** Stability Achieved



Overflow Spillway Calculations

Project: Residential Subdivision
Job #: 4266-99-001
Location: West Orange Township
Computed By: RMW
Checked By: RPF
Date: 1/16/2023

BIORETENTION BASIN D

To Size Spillway:

- Assume complete blockage of the outlet control structure and no infiltration
- Route 2 ,10 & 100 year storm through basin assuming that the basin is filled with water up to the Emergency Spillway Elevation

	2 Year	10 Year	100 Year
Spillway Width (ft.)	12.00	12.00	12.00
Spillway Elevation (ft.)	614.60	614.60	614.60
Flow through Spillway (Q) (cfs)	1.370	2.900	6.190
Water Surface Elevation (ft)	614.71	614.78	614.89
Depth of Flow (ft)	0.11	0.18	0.29
Area of Flow (A) (sf)*	1.33	2.19	3.56

Velocity (V) = Q / A (ft/sec) 1.03 1.32 1.74

** V = < 2.0 FPS ** Stability Achieved

2023-01 Overflow Spillway Calcs

Prepared by Dynamic Engineering

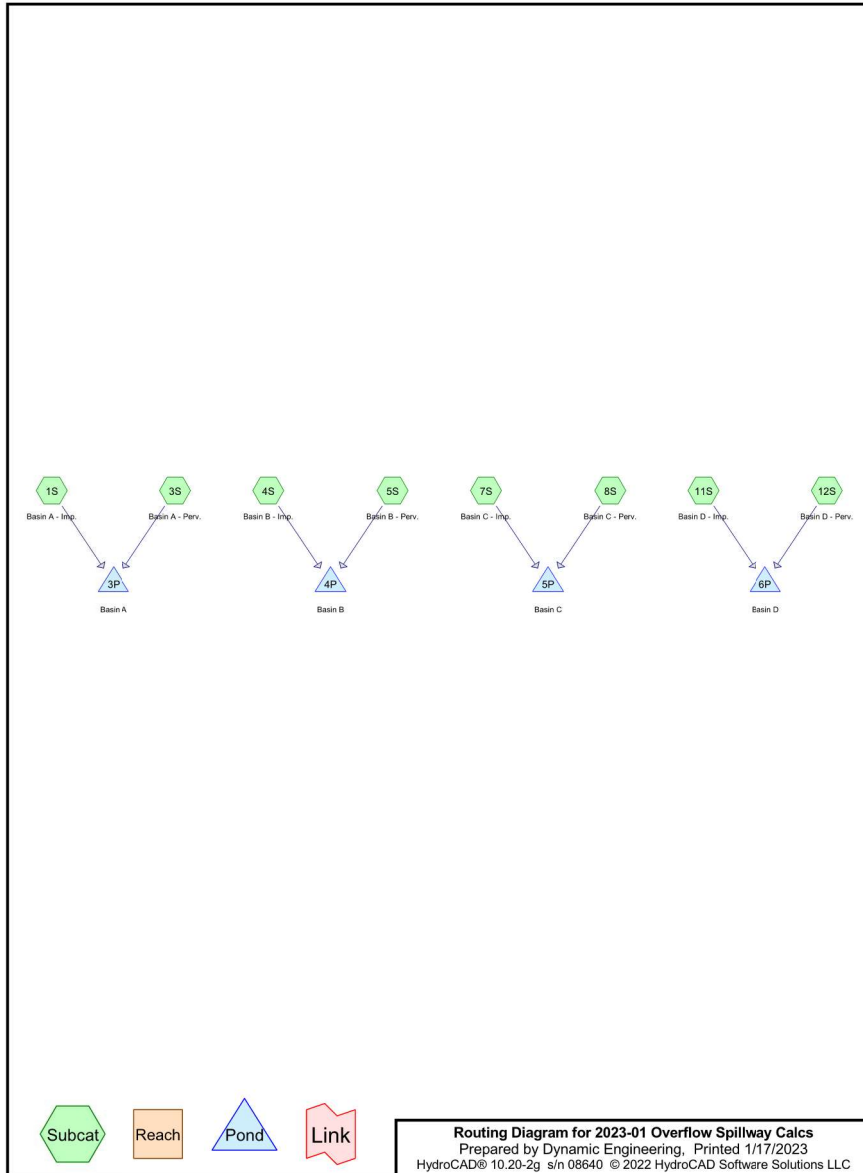
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Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 6606 NJ Essex-D
Rainfall events imported from "2022-04-05 Proposed Conditions.hcp"
Rainfall events imported from "NRCS-Rain.txt" for 6606 NJ Essex-D



2023-01 Overflow Spillway Calcs

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NOAA 24-hr	D	Default	24.00	1	3.44	2
2	10-Year	NOAA 24-hr	D	Default	24.00	1	5.22	2
3	100-Year	NOAA 24-hr	D	Default	24.00	1	8.66	2

2023-01 Overflow Spillway Calcs

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.890	74	>75% Grass cover, Good, HSG C (3S, 5S, 8S, 12S)
0.800	98	Unconnected pavement, HSG C (1S, 4S, 7S, 11S)
0.010	55	Woods, Good, HSG B (12S)
2.100	70	Woods, Good, HSG C (3S, 5S, 8S, 12S)
4.800	76	TOTAL AREA

Soil Listing (all nodes)			Ground Covers (all nodes)							
Area (acres)	Soil Group	Subcatchment Numbers	HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	HSG A		0.000	0.000	1.890	0.000	0.000	1.890	>75% Grass cover, Good	3S, 5S,
0.010	HSG B	12S								8S, 12S
4.790	HSG C	1S, 3S, 4S, 5S, 7S, 8S, 11S, 12S	0.000	0.000	0.800	0.000	0.000	0.800	Unconnected pavement	1S, 4S,
0.000	HSG D									7S, 11S
0.000	Other		0.000	0.010	2.100	0.000	0.000	2.110	Woods, Good	3S, 5S,
4.800		TOTAL AREA	0.000	0.010	4.790	0.000	0.000	4.800	TOTAL AREA	8S, 12S

2023-01 Overflow Spillway Calcs

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Notes Listing (all nodes)

Line#	Node Number	Notes
1	Project	Rainfall events imported from "NRCS-Rain.txt" for 6606 NJ Essex-D
2		Rainfall events imported from "2022-04-05 Proposed Conditions.hcp"
3		Rainfall events imported from "NRCS-Rain.txt" for 6606 NJ Essex-D

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 2-Year Rainfall=3.44"

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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

Subcatchment 1S: Basin A - Imp.	Runoff Area=0.210 ac 100.00% Impervious Runoff Depth=3.21" Flow Length=90' Tc=9.2 min CN=98 Runoff=0.60 cfs 0.056 af
Subcatchment 3S: Basin A - Perv.	Runoff Area=0.920 ac 0.00% Impervious Runoff Depth=1.08" Flow Length=90' Tc=9.2 min CN=72 Runoff=0.97 cfs 0.083 af
Subcatchment 4S: Basin B - Imp.	Runoff Area=0.190 ac 100.00% Impervious Runoff Depth=3.21" Flow Length=133' Tc=9.8 min CN=98 Runoff=0.53 cfs 0.051 af
Subcatchment 5S: Basin B - Perv.	Runoff Area=0.770 ac 0.00% Impervious Runoff Depth=1.08" Flow Length=133' Tc=9.8 min CN=72 Runoff=0.79 cfs 0.069 af
Subcatchment 7S: Basin C - Imp.	Runoff Area=0.200 ac 100.00% Impervious Runoff Depth=3.21" Flow Length=78' Tc=9.2 min CN=98 Runoff=0.57 cfs 0.053 af
Subcatchment 8S: Basin C - Perv.	Runoff Area=1.180 ac 0.00% Impervious Runoff Depth=1.08" Flow Length=78' Tc=9.2 min CN=72 Runoff=1.25 cfs 0.106 af
Subcatchment 11S: Basin D - Imp.	Runoff Area=0.200 ac 100.00% Impervious Runoff Depth=3.21" Flow Length=136' Tc=9.4 min CN=98 Runoff=0.57 cfs 0.053 af
Subcatchment 12S: Basin D - Perv.	Runoff Area=1.130 ac 0.00% Impervious Runoff Depth=1.08" Flow Length=136' Tc=9.4 min CN=72 Runoff=1.18 cfs 0.102 af
Pond 3P: Basin A	Peak Elev=622.46' Storage=0.016 af Inflow=1.57 cfs 0.139 af Outflow=1.17 cfs 0.139 af
Pond 4P: Basin B	Peak Elev=621.95' Storage=0.014 af Inflow=1.32 cfs 0.120 af Outflow=0.98 cfs 0.120 af
Pond 5P: Basin C	Peak Elev=620.21' Storage=0.018 af Inflow=1.82 cfs 0.160 af Outflow=1.37 cfs 0.160 af
Pond 6P: Basin D	Peak Elev=614.71' Storage=0.016 af Inflow=1.75 cfs 0.155 af Outflow=1.37 cfs 0.155 af

Total Runoff Area = 4.800 ac Runoff Volume = 0.574 af Average Runoff Depth = 1.44"
83.33% Pervious = 4.000 ac 16.67% Impervious = 0.800 ac

2023-01 Overflow Spillway Calcs

Prepared by Dynamic Engineering

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NOAA 24-hr D 2-Year Rainfall=3.44"

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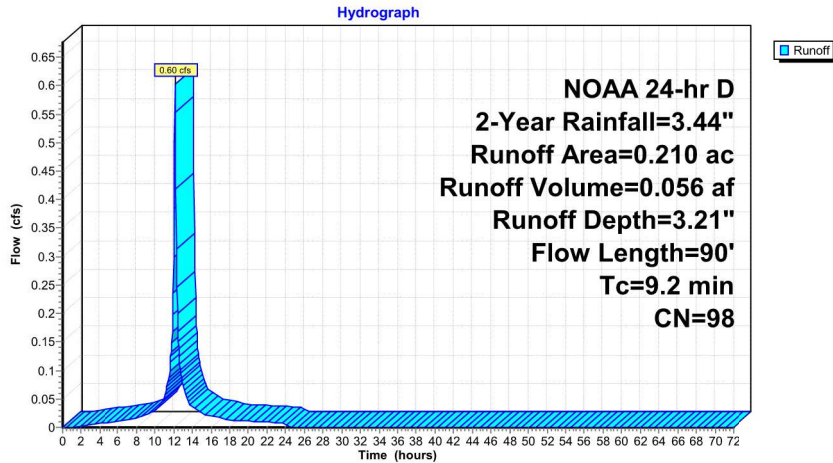
Summary for Subcatchment 1S: Basin A - Imp.

Runoff = 0.60 cfs @ 12.16 hrs, Volume= 0.056 af, Depth= 3.21"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.210	98	Unconnected pavement, HSG C
0.210		100.00% Impervious Area
0.210		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	65	0.1690	6.62		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	90	Total			

Subcatchment 1S: Basin A - Imp.**2023-01 Overflow Spillway Calcs**

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NOAA 24-hr D 2-Year Rainfall=3.44"

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Hydrograph for Subcatchment 1S: Basin A - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	3.21	0.00
1.00	0.04	0.00	0.00	53.00	3.44	3.21	0.00
2.00	0.08	0.01	0.00	54.00	3.44	3.21	0.00
3.00	0.13	0.03	0.01	55.00	3.44	3.21	0.00
4.00	0.18	0.06	0.01	56.00	3.44	3.21	0.00
5.00	0.24	0.09	0.01	57.00	3.44	3.21	0.00
6.00	0.29	0.14	0.01	58.00	3.44	3.21	0.00
7.00	0.36	0.20	0.01	59.00	3.44	3.21	0.00
8.00	0.45	0.27	0.02	60.00	3.44	3.21	0.00
9.00	0.55	0.36	0.02	61.00	3.44	3.21	0.00
10.00	0.68	0.49	0.03	62.00	3.44	3.21	0.00
11.00	0.89	0.69	0.05	63.00	3.44	3.21	0.00
12.00	1.65	1.43	0.30	64.00	3.44	3.21	0.00
13.00	2.55	2.32	0.07	65.00	3.44	3.21	0.00
14.00	2.76	2.53	0.04	66.00	3.44	3.21	0.00
15.00	2.89	2.66	0.02	67.00	3.44	3.21	0.00
16.00	2.99	2.76	0.02	68.00	3.44	3.21	0.00
17.00	3.08	2.85	0.02	69.00	3.44	3.21	0.00
18.00	3.15	2.91	0.01	70.00	3.44	3.21	0.00
19.00	3.20	2.97	0.01	71.00	3.44	3.21	0.00
20.00	3.26	3.03	0.01	72.00	3.44	3.21	0.00
21.00	3.31	3.08	0.01				
22.00	3.36	3.12	0.01				
23.00	3.40	3.17	0.01				
24.00	3.44	3.21	0.01				
25.00	3.44	3.21	0.00				
26.00	3.44	3.21	0.00				
27.00	3.44	3.21	0.00				
28.00	3.44	3.21	0.00				
29.00	3.44	3.21	0.00				
30.00	3.44	3.21	0.00				
31.00	3.44	3.21	0.00				
32.00	3.44	3.21	0.00				
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34.00	3.44	3.21	0.00				
35.00	3.44	3.21	0.00				
36.00	3.44	3.21	0.00				
37.00	3.44	3.21	0.00				
38.00	3.44	3.21	0.00				
39.00	3.44	3.21	0.00				
40.00	3.44	3.21	0.00				
41.00	3.44	3.21	0.00				
42.00	3.44	3.21	0.00				
43.00	3.44	3.21	0.00				
44.00	3.44	3.21	0.00				
45.00	3.44	3.21	0.00				
46.00	3.44	3.21	0.00				
47.00	3.44	3.21	0.00				
48.00	3.44	3.21	0.00				
49.00	3.44	3.21	0.00				
50.00	3.44	3.21	0.00				
51.00	3.44	3.21	0.00				

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 2-Year Rainfall=3.44"

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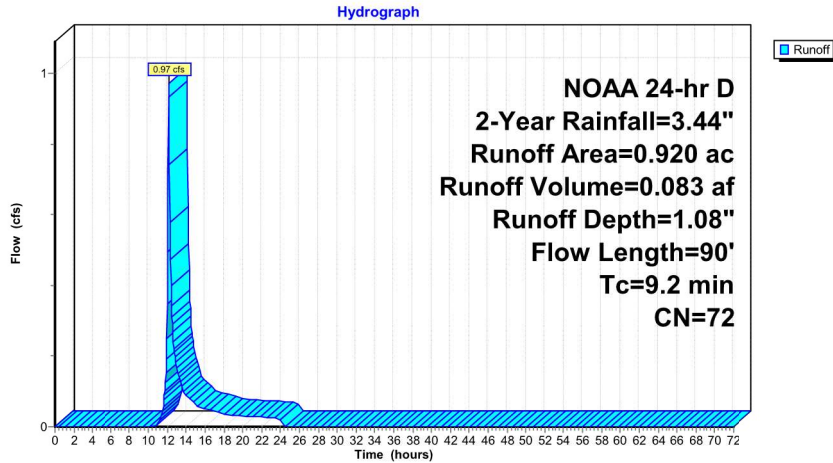
Summary for Subcatchment 3S: Basin A - Perv.

Runoff = 0.97 cfs @ 12.17 hrs, Volume= 0.083 af, Depth= 1.08"
 Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.470	74	>75% Grass cover, Good, HSG C
0.450	70	Woods, Good, HSG C
0.920	72	Weighted Average
0.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	65	0.1690	6.62		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	90	Total			

Subcatchment 3S: Basin A - Perv.**2023-01 Overflow Spillway Calcs**

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Hydrograph for Subcatchment 3S: Basin A - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	1.08	0.00
1.00	0.04	0.00	0.00	53.00	3.44	1.08	0.00
2.00	0.08	0.00	0.00	54.00	3.44	1.08	0.00
3.00	0.13	0.00	0.00	55.00	3.44	1.08	0.00
4.00	0.18	0.00	0.00	56.00	3.44	1.08	0.00
5.00	0.24	0.00	0.00	57.00	3.44	1.08	0.00
6.00	0.29	0.00	0.00	58.00	3.44	1.08	0.00
7.00	0.36	0.00	0.00	59.00	3.44	1.08	0.00
8.00	0.45	0.00	0.00	60.00	3.44	1.08	0.00
9.00	0.55	0.00	0.00	61.00	3.44	1.08	0.00
10.00	0.68	0.00	0.00	62.00	3.44	1.08	0.00
11.00	0.89	0.00	0.01	63.00	3.44	1.08	0.00
12.00	1.65	0.16	0.35	64.00	3.44	1.08	0.00
13.00	2.55	0.55	0.17	65.00	3.44	1.08	0.00
14.00	2.76	0.67	0.09	66.00	3.44	1.08	0.00
15.00	2.89	0.75	0.06	67.00	3.44	1.08	0.00
16.00	2.99	0.80	0.05	68.00	3.44	1.08	0.00
17.00	3.08	0.85	0.04	69.00	3.44	1.08	0.00
18.00	3.15	0.90	0.04	70.00	3.44	1.08	0.00
19.00	3.20	0.93	0.03	71.00	3.44	1.08	0.00
20.00	3.26	0.97	0.03	72.00	3.44	1.08	0.00
21.00	3.31	1.00	0.03				
22.00	3.36	1.03	0.03				
23.00	3.40	1.06	0.02				
24.00	3.44	1.08	0.02				
25.00	3.44	1.08	0.00				
26.00	3.44	1.08	0.00				
27.00	3.44	1.08	0.00				
28.00	3.44	1.08	0.00				
29.00	3.44	1.08	0.00				
30.00	3.44	1.08	0.00				
31.00	3.44	1.08	0.00				
32.00	3.44	1.08	0.00				
33.00	3.44	1.08	0.00				
34.00	3.44	1.08	0.00				
35.00	3.44	1.08	0.00				
36.00	3.44	1.08	0.00				
37.00	3.44	1.08	0.00				
38.00	3.44	1.08	0.00				
39.00	3.44	1.08	0.00				
40.00	3.44	1.08	0.00				
41.00	3.44	1.08	0.00				
42.00	3.44	1.08	0.00				
43.00	3.44	1.08	0.00				
44.00	3.44	1.08	0.00				
45.00	3.44	1.08	0.00				
46.00	3.44	1.08	0.00				
47.00	3.44	1.08	0.00				
48.00	3.44	1.08	0.00				
49.00	3.44	1.08	0.00				
50.00	3.44	1.08	0.00				
51.00	3.44	1.08	0.00				

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 2-Year Rainfall=3.44"

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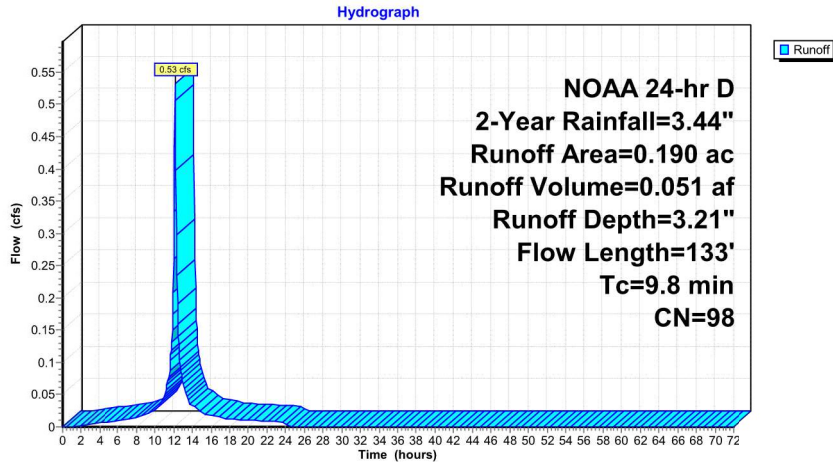
Summary for Subcatchment 4S: Basin B - Imp.

Runoff = 0.53 cfs @ 12.17 hrs, Volume= 0.051 af, Depth= 3.21"
 Routed to Pond 4P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.190	98	Unconnected pavement, HSG C
0.190		100.00% Impervious Area
0.190		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.3	48	0.0310	2.83		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.0	15	0.4000	10.18		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.5	45	0.0100	1.61		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.8	133	Total			

Subcatchment 4S: Basin B - Imp.**2023-01 Overflow Spillway Calcs**

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Hydrograph for Subcatchment 4S: Basin B - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	3.21	0.00
1.00	0.04	0.00	0.00	53.00	3.44	3.21	0.00
2.00	0.08	0.01	0.00	54.00	3.44	3.21	0.00
3.00	0.13	0.03	0.00	55.00	3.44	3.21	0.00
4.00	0.18	0.06	0.01	56.00	3.44	3.21	0.00
5.00	0.24	0.09	0.01	57.00	3.44	3.21	0.00
6.00	0.29	0.14	0.01	58.00	3.44	3.21	0.00
7.00	0.36	0.20	0.01	59.00	3.44	3.21	0.00
8.00	0.45	0.27	0.02	60.00	3.44	3.21	0.00
9.00	0.55	0.36	0.02	61.00	3.44	3.21	0.00
10.00	0.68	0.49	0.03	62.00	3.44	3.21	0.00
11.00	0.89	0.69	0.05	63.00	3.44	3.21	0.00
12.00	1.65	1.43	0.26	64.00	3.44	3.21	0.00
13.00	2.55	2.32	0.07	65.00	3.44	3.21	0.00
14.00	2.76	2.53	0.03	66.00	3.44	3.21	0.00
15.00	2.89	2.66	0.02	67.00	3.44	3.21	0.00
16.00	2.99	2.76	0.02	68.00	3.44	3.21	0.00
17.00	3.08	2.85	0.02	69.00	3.44	3.21	0.00
18.00	3.15	2.91	0.01	70.00	3.44	3.21	0.00
19.00	3.20	2.97	0.01	71.00	3.44	3.21	0.00
20.00	3.26	3.03	0.01	72.00	3.44	3.21	0.00
21.00	3.31	3.08	0.01				
22.00	3.36	3.12	0.01				
23.00	3.40	3.17	0.01				
24.00	3.44	3.21	0.01				
25.00	3.44	3.21	0.00				
26.00	3.44	3.21	0.00				
27.00	3.44	3.21	0.00				
28.00	3.44	3.21	0.00				
29.00	3.44	3.21	0.00				
30.00	3.44	3.21	0.00				
31.00	3.44	3.21	0.00				
32.00	3.44	3.21	0.00				
33.00	3.44	3.21	0.00				
34.00	3.44	3.21	0.00				
35.00	3.44	3.21	0.00				
36.00	3.44	3.21	0.00				
37.00	3.44	3.21	0.00				
38.00	3.44	3.21	0.00				
39.00	3.44	3.21	0.00				
40.00	3.44	3.21	0.00				
41.00	3.44	3.21	0.00				
42.00	3.44	3.21	0.00				
43.00	3.44	3.21	0.00				
44.00	3.44	3.21	0.00				
45.00	3.44	3.21	0.00				
46.00	3.44	3.21	0.00				
47.00	3.44	3.21	0.00				
48.00	3.44	3.21	0.00				
49.00	3.44	3.21	0.00				
50.00	3.44	3.21	0.00				
51.00	3.44	3.21	0.00				

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 2-Year Rainfall=3.44"

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Summary for Subcatchment 5S: Basin B - Perv.

Runoff = 0.79 cfs @ 12.18 hrs, Volume= 0.069 af, Depth= 1.08"
Routed to Pond 4P : Basin B

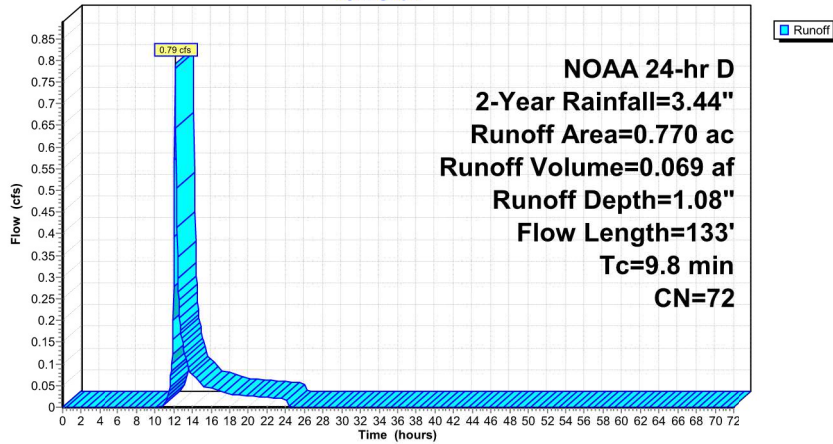
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.390	74	>75% Grass cover, Good, HSG C
0.380	70	Woods, Good, HSG C
0.770	72	Weighted Average
0.770		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.3	48	0.0310	2.83		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.0	15	0.4000	10.18		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.5	45	0.0100	1.61		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.8	133	Total			

Subcatchment 5S: Basin B - Perv.

Hydrograph

**2023-01 Overflow Spillway Calcs**

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Hydrograph for Subcatchment 5S: Basin B - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.13	0.00	0.00
4.00	0.18	0.00	0.00
5.00	0.24	0.00	0.00
6.00	0.29	0.00	0.00
7.00	0.36	0.00	0.00
8.00	0.45	0.00	0.00
9.00	0.55	0.00	0.00
10.00	0.68	0.00	0.00
11.00	0.89	0.00	0.01
12.00	1.65	0.16	0.28
13.00	2.55	0.55	0.14
14.00	2.76	0.67	0.07
15.00	2.89	0.75	0.05
16.00	2.99	0.80	0.04
17.00	3.08	0.85	0.04
18.00	3.15	0.90	0.03
19.00	3.20	0.93	0.03
20.00	3.26	0.97	0.03
21.00	3.31	1.00	0.02
22.00	3.36	1.03	0.02
23.00	3.40	1.06	0.02
24.00	3.44	1.08	0.02
25.00	3.44	1.08	0.00
26.00	3.44	1.08	0.00
27.00	3.44	1.08	0.00
28.00	3.44	1.08	0.00
29.00	3.44	1.08	0.00
30.00	3.44	1.08	0.00
31.00	3.44	1.08	0.00
32.00	3.44	1.08	0.00
33.00	3.44	1.08	0.00
34.00	3.44	1.08	0.00
35.00	3.44	1.08	0.00
36.00	3.44	1.08	0.00
37.00	3.44	1.08	0.00
38.00	3.44	1.08	0.00
39.00	3.44	1.08	0.00
40.00	3.44	1.08	0.00
41.00	3.44	1.08	0.00
42.00	3.44	1.08	0.00
43.00	3.44	1.08	0.00
44.00	3.44	1.08	0.00
45.00	3.44	1.08	0.00
46.00	3.44	1.08	0.00
47.00	3.44	1.08	0.00
48.00	3.44	1.08	0.00
49.00	3.44	1.08	0.00
50.00	3.44	1.08	0.00
51.00	3.44	1.08	0.00

2023-01 Overflow Spillway Calcs

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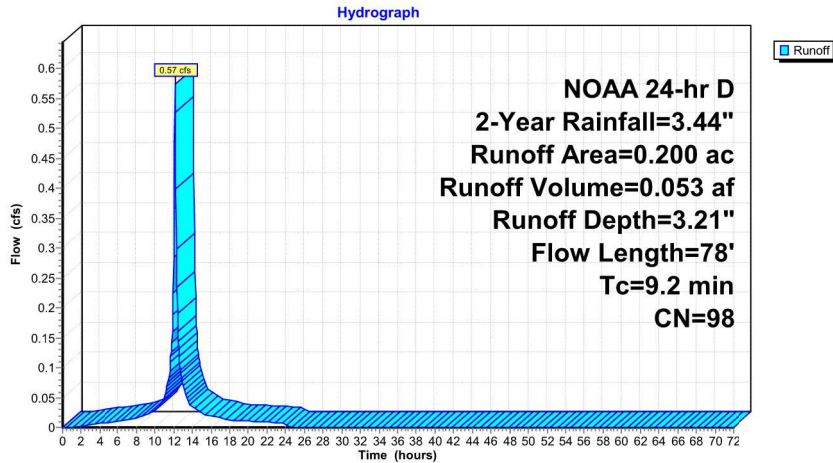
Summary for Subcatchment 7S: Basin C - Imp.

Runoff = 0.57 cfs @ 12.16 hrs, Volume= 0.053 af, Depth= 3.21"
 Routed to Pond 5P : Basin C

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.200	98	Unconnected pavement, HSG C
0.200		100.00% Impervious Area
0.200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Shhet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	53	0.1070	5.27		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	78	Total			

Subcatchment 7S: Basin C - Imp.**2023-01 Overflow Spillway Calcs**

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NOAA 24-hr D 2-Year Rainfall=3.44"

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Hydrograph for Subcatchment 7S: Basin C - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	3.21	0.00
1.00	0.04	0.00	0.00	53.00	3.44	3.21	0.00
2.00	0.08	0.01	0.00	54.00	3.44	3.21	0.00
3.00	0.13	0.03	0.00	55.00	3.44	3.21	0.00
4.00	0.18	0.06	0.01	56.00	3.44	3.21	0.00
5.00	0.24	0.09	0.01	57.00	3.44	3.21	0.00
6.00	0.29	0.14	0.01	58.00	3.44	3.21	0.00
7.00	0.36	0.20	0.01	59.00	3.44	3.21	0.00
8.00	0.45	0.27	0.02	60.00	3.44	3.21	0.00
9.00	0.55	0.36	0.02	61.00	3.44	3.21	0.00
10.00	0.68	0.49	0.03	62.00	3.44	3.21	0.00
11.00	0.89	0.69	0.05	63.00	3.44	3.21	0.00
12.00	1.65	1.43	0.29	64.00	3.44	3.21	0.00
13.00	2.55	2.32	0.07	65.00	3.44	3.21	0.00
14.00	2.76	2.53	0.03	66.00	3.44	3.21	0.00
15.00	2.89	2.66	0.02	67.00	3.44	3.21	0.00
16.00	2.99	2.76	0.02	68.00	3.44	3.21	0.00
17.00	3.08	2.85	0.02	69.00	3.44	3.21	0.00
18.00	3.15	2.91	0.01	70.00	3.44	3.21	0.00
19.00	3.20	2.97	0.01	71.00	3.44	3.21	0.00
20.00	3.26	3.03	0.01	72.00	3.44	3.21	0.00
21.00	3.31	3.08	0.01				
22.00	3.36	3.12	0.01				
23.00	3.40	3.17	0.01				
24.00	3.44	3.21	0.01				
25.00	3.44	3.21	0.00				
26.00	3.44	3.21	0.00				
27.00	3.44	3.21	0.00				
28.00	3.44	3.21	0.00				
29.00	3.44	3.21	0.00				
30.00	3.44	3.21	0.00				
31.00	3.44	3.21	0.00				
32.00	3.44	3.21	0.00				
33.00	3.44	3.21	0.00				
34.00	3.44	3.21	0.00				
35.00	3.44	3.21	0.00				
36.00	3.44	3.21	0.00				
37.00	3.44	3.21	0.00				
38.00	3.44	3.21	0.00				
39.00	3.44	3.21	0.00				
40.00	3.44	3.21	0.00				
41.00	3.44	3.21	0.00				
42.00	3.44	3.21	0.00				
43.00	3.44	3.21	0.00				
44.00	3.44	3.21	0.00				
45.00	3.44	3.21	0.00				
46.00	3.44	3.21	0.00				
47.00	3.44	3.21	0.00				
48.00	3.44	3.21	0.00				
49.00	3.44	3.21	0.00				
50.00	3.44	3.21	0.00				
51.00	3.44	3.21	0.00				

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 2-Year Rainfall=3.44"

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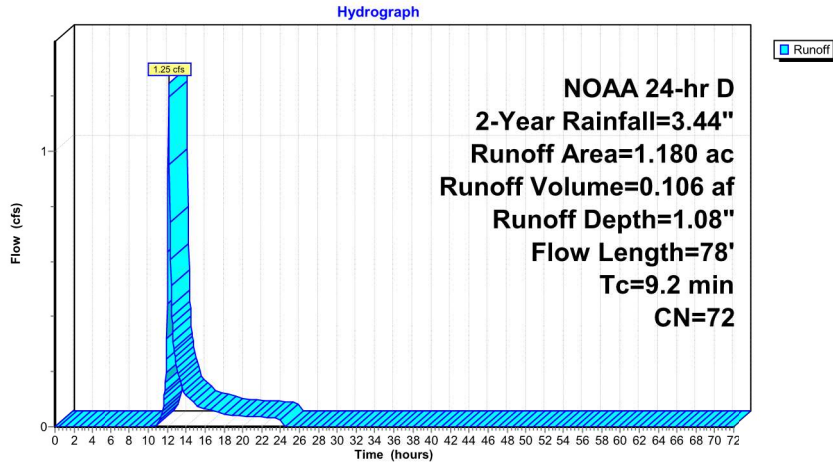
Summary for Subcatchment 8S: Basin C - Perv.

Runoff = 1.25 cfs @ 12.17 hrs, Volume= 0.106 af, Depth= 1.08"
 Routed to Pond 5P : Basin C

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.560	74	>75% Grass cover, Good, HSG C
0.620	70	Woods, Good, HSG C
1.180	72	Weighted Average
1.180		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	53	0.1070	5.27		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	78	Total			

Subcatchment 8S: Basin C - Perv.**2023-01 Overflow Spillway Calcs**

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Hydrograph for Subcatchment 8S: Basin C - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	1.08	0.00
1.00	0.04	0.00	0.00	53.00	3.44	1.08	0.00
2.00	0.08	0.00	0.00	54.00	3.44	1.08	0.00
3.00	0.13	0.00	0.00	55.00	3.44	1.08	0.00
4.00	0.18	0.00	0.00	56.00	3.44	1.08	0.00
5.00	0.24	0.00	0.00	57.00	3.44	1.08	0.00
6.00	0.29	0.00	0.00	58.00	3.44	1.08	0.00
7.00	0.36	0.00	0.00	59.00	3.44	1.08	0.00
8.00	0.45	0.00	0.00	60.00	3.44	1.08	0.00
9.00	0.55	0.00	0.00	61.00	3.44	1.08	0.00
10.00	0.68	0.00	0.00	62.00	3.44	1.08	0.00
11.00	0.89	0.00	0.01	63.00	3.44	1.08	0.00
12.00	1.65	0.16	0.45	64.00	3.44	1.08	0.00
13.00	2.55	0.55	0.22	65.00	3.44	1.08	0.00
14.00	2.76	0.67	0.11	66.00	3.44	1.08	0.00
15.00	2.89	0.75	0.08	67.00	3.44	1.08	0.00
16.00	2.99	0.80	0.07	68.00	3.44	1.08	0.00
17.00	3.08	0.85	0.06	69.00	3.44	1.08	0.00
18.00	3.15	0.90	0.05	70.00	3.44	1.08	0.00
19.00	3.20	0.93	0.04	71.00	3.44	1.08	0.00
20.00	3.26	0.97	0.04	72.00	3.44	1.08	0.00
21.00	3.31	1.00	0.04				
22.00	3.36	1.03	0.03				
23.00	3.40	1.06	0.03				
24.00	3.44	1.08	0.03				
25.00	3.44	1.08	0.00				
26.00	3.44	1.08	0.00				
27.00	3.44	1.08	0.00				
28.00	3.44	1.08	0.00				
29.00	3.44	1.08	0.00				
30.00	3.44	1.08	0.00				
31.00	3.44	1.08	0.00				
32.00	3.44	1.08	0.00				
33.00	3.44	1.08	0.00				
34.00	3.44	1.08	0.00				
35.00	3.44	1.08	0.00				
36.00	3.44	1.08	0.00				
37.00	3.44	1.08	0.00				
38.00	3.44	1.08	0.00				
39.00	3.44	1.08	0.00				
40.00	3.44	1.08	0.00				
41.00	3.44	1.08	0.00				
42.00	3.44	1.08	0.00				
43.00	3.44	1.08	0.00				
44.00	3.44	1.08	0.00				
45.00	3.44	1.08	0.00				
46.00	3.44	1.08	0.00				
47.00	3.44	1.08	0.00				
48.00	3.44	1.08	0.00				
49.00	3.44	1.08	0.00				
50.00	3.44	1.08	0.00				
51.00	3.44	1.08	0.00				

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 2-Year Rainfall=3.44"

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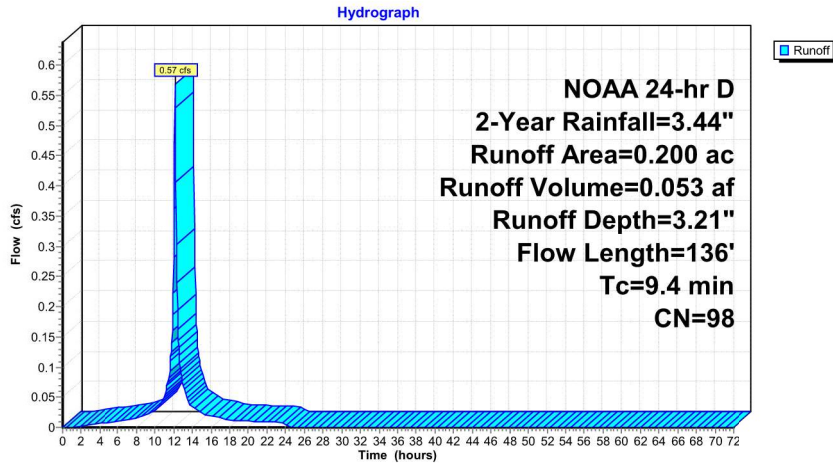
Summary for Subcatchment 11S: Basin D - Imp.

Runoff = 0.57 cfs @ 12.16 hrs, Volume= 0.053 af, Depth= 3.21"
 Routed to Pond 6P : Basin D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.200	98	Unconnected pavement, HSG C
0.200		100.00% Impervious Area
0.200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.4	111	0.0720	4.32		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.4	136	Total			

Subcatchment 11S: Basin D - Imp.**2023-01 Overflow Spillway Calcs**

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NOAA 24-hr D 2-Year Rainfall=3.44"

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Hydrograph for Subcatchment 11S: Basin D - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	3.21	0.00
1.00	0.04	0.00	0.00	53.00	3.44	3.21	0.00
2.00	0.08	0.01	0.00	54.00	3.44	3.21	0.00
3.00	0.13	0.03	0.00	55.00	3.44	3.21	0.00
4.00	0.18	0.06	0.01	56.00	3.44	3.21	0.00
5.00	0.24	0.09	0.01	57.00	3.44	3.21	0.00
6.00	0.29	0.14	0.01	58.00	3.44	3.21	0.00
7.00	0.36	0.20	0.01	59.00	3.44	3.21	0.00
8.00	0.45	0.27	0.02	60.00	3.44	3.21	0.00
9.00	0.55	0.36	0.02	61.00	3.44	3.21	0.00
10.00	0.68	0.49	0.03	62.00	3.44	3.21	0.00
11.00	0.89	0.69	0.05	63.00	3.44	3.21	0.00
12.00	1.65	1.43	0.28	64.00	3.44	3.21	0.00
13.00	2.55	2.32	0.07	65.00	3.44	3.21	0.00
14.00	2.76	2.53	0.03	66.00	3.44	3.21	0.00
15.00	2.89	2.66	0.02	67.00	3.44	3.21	0.00
16.00	2.99	2.76	0.02	68.00	3.44	3.21	0.00
17.00	3.08	2.85	0.02	69.00	3.44	3.21	0.00
18.00	3.15	2.91	0.01	70.00	3.44	3.21	0.00
19.00	3.20	2.97	0.01	71.00	3.44	3.21	0.00
20.00	3.26	3.03	0.01	72.00	3.44	3.21	0.00
21.00	3.31	3.08	0.01				
22.00	3.36	3.12	0.01				
23.00	3.40	3.17	0.01				
24.00	3.44	3.21	0.01				
25.00	3.44	3.21	0.00				
26.00	3.44	3.21	0.00				
27.00	3.44	3.21	0.00				
28.00	3.44	3.21	0.00				
29.00	3.44	3.21	0.00				
30.00	3.44	3.21	0.00				
31.00	3.44	3.21	0.00				
32.00	3.44	3.21	0.00				
33.00	3.44	3.21	0.00				
34.00	3.44	3.21	0.00				
35.00	3.44	3.21	0.00				
36.00	3.44	3.21	0.00				
37.00	3.44	3.21	0.00				
38.00	3.44	3.21	0.00				
39.00	3.44	3.21	0.00				
40.00	3.44	3.21	0.00				
41.00	3.44	3.21	0.00				
42.00	3.44	3.21	0.00				
43.00	3.44	3.21	0.00				
44.00	3.44	3.21	0.00				
45.00	3.44	3.21	0.00				
46.00	3.44	3.21	0.00				
47.00	3.44	3.21	0.00				
48.00	3.44	3.21	0.00				
49.00	3.44	3.21	0.00				
50.00	3.44	3.21	0.00				
51.00	3.44	3.21	0.00				

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 2-Year Rainfall=3.44"

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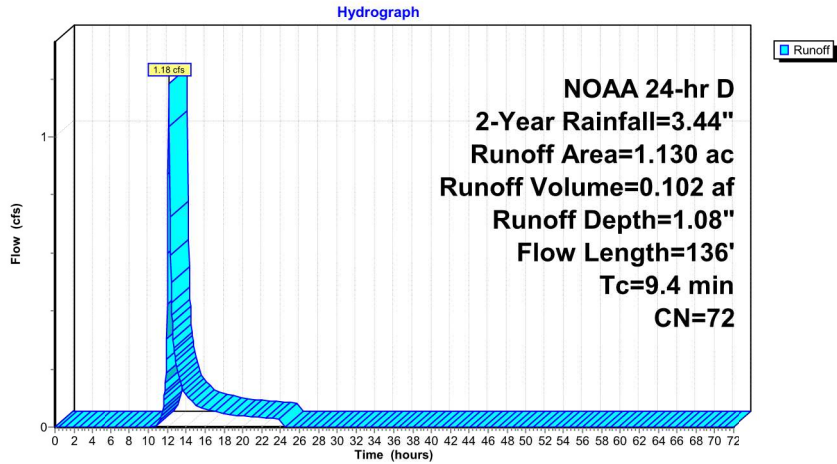
Summary for Subcatchment 12S: Basin D - Perv.

Runoff = 1.18 cfs @ 12.17 hrs, Volume= 0.102 af, Depth= 1.08"
 Routed to Pond 6P : Basin D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 2-Year Rainfall=3.44"

Area (ac)	CN	Description
0.470	74	>75% Grass cover, Good, HSG C
0.650	70	Woods, Good, HSG C
* 0.010	55	Woods, Good, HSG B
1.130	72	Weighted Average
1.130		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.4	111	0.0720	4.32		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.4	136	Total			

Subcatchment 12S: Basin D - Perv.**2023-01 Overflow Spillway Calcs**

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Hydrograph for Subcatchment 12S: Basin D - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.44	1.08	0.00
1.00	0.04	0.00	0.00	53.00	3.44	1.08	0.00
2.00	0.08	0.00	0.00	54.00	3.44	1.08	0.00
3.00	0.13	0.00	0.00	55.00	3.44	1.08	0.00
4.00	0.18	0.00	0.00	56.00	3.44	1.08	0.00
5.00	0.24	0.00	0.00	57.00	3.44	1.08	0.00
6.00	0.29	0.00	0.00	58.00	3.44	1.08	0.00
7.00	0.36	0.00	0.00	59.00	3.44	1.08	0.00
8.00	0.45	0.00	0.00	60.00	3.44	1.08	0.00
9.00	0.55	0.00	0.00	61.00	3.44	1.08	0.00
10.00	0.68	0.00	0.00	62.00	3.44	1.08	0.00
11.00	0.89	0.00	0.01	63.00	3.44	1.08	0.00
12.00	1.65	0.16	0.42	64.00	3.44	1.08	0.00
13.00	2.55	0.55	0.21	65.00	3.44	1.08	0.00
14.00	2.76	0.67	0.11	66.00	3.44	1.08	0.00
15.00	2.89	0.75	0.08	67.00	3.44	1.08	0.00
16.00	2.99	0.80	0.06	68.00	3.44	1.08	0.00
17.00	3.08	0.85	0.05	69.00	3.44	1.08	0.00
18.00	3.15	0.90	0.04	70.00	3.44	1.08	0.00
19.00	3.20	0.93	0.04	71.00	3.44	1.08	0.00
20.00	3.26	0.97	0.04	72.00	3.44	1.08	0.00
21.00	3.31	1.00	0.04				
22.00	3.36	1.03	0.03				
23.00	3.40	1.06	0.03				
24.00	3.44	1.08	0.03				
25.00	3.44	1.08	0.00				
26.00	3.44	1.08	0.00				
27.00	3.44	1.08	0.00				
28.00	3.44	1.08	0.00				
29.00	3.44	1.08	0.00				
30.00	3.44	1.08	0.00				
31.00	3.44	1.08	0.00				
32.00	3.44	1.08	0.00				
33.00	3.44	1.08	0.00				
34.00	3.44	1.08	0.00				
35.00	3.44	1.08	0.00				
36.00	3.44	1.08	0.00				
37.00	3.44	1.08	0.00				
38.00	3.44	1.08	0.00				
39.00	3.44	1.08	0.00				
40.00	3.44	1.08	0.00				
41.00	3.44	1.08	0.00				
42.00	3.44	1.08	0.00				
43.00	3.44	1.08	0.00				
44.00	3.44	1.08	0.00				
45.00	3.44	1.08	0.00				
46.00	3.44	1.08	0.00				
47.00	3.44	1.08	0.00				
48.00	3.44	1.08	0.00				
49.00	3.44	1.08	0.00				
50.00	3.44	1.08	0.00				
51.00	3.44	1.08	0.00				

Summary for Pond 3P: Basin A

Inflow Area = 1.130 ac, 18.58% Impervious, Inflow Depth = 1.48" for 2-Year event
Inflow = 1.57 cfs @ 12.17 hrs, Volume= 0.139 af
Outflow = 1.17 cfs @ 12.26 hrs, Volume= 0.139 af, Atten= 26%, Lag= 5.4 min
Primary = 1.17 cfs @ 12.26 hrs, Volume= 0.139 af
Routed to nonexistent node 2L

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Starting Elev= 621.80' Storage= 0.000 af
Peak Elev= 622.46' @ 12.26 hrs Surf.Area= 0.162 ac Storage= 0.016 af

Plug-Flow detention time= 19.9 min calculated for 0.139 af (100% of inflow)
Center-of-Mass det. time= 20.0 min (851.5 - 831.5)

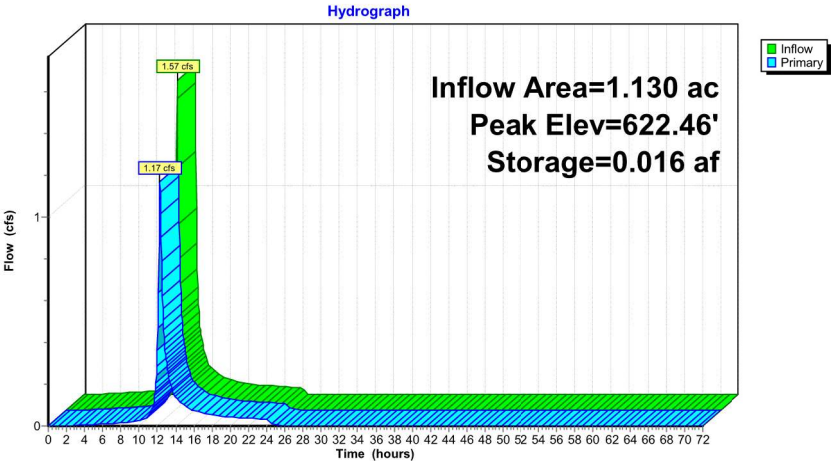
Volume	Invert	Avail.Storage	Storage Description
#1	622.35'	0.051 af	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
622.35	0.140	0.000	0.000
622.65	0.200	0.051	0.051

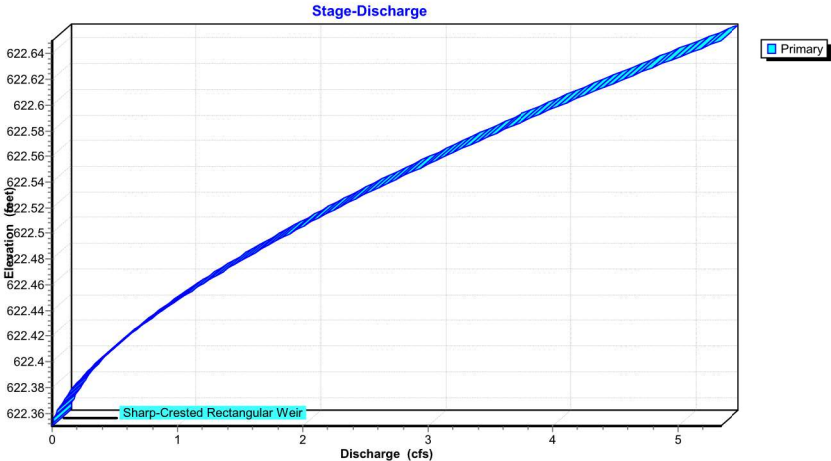
Device	Routing	Invert	Outlet Devices
#1	Primary	622.35'	10.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=1.16 cfs @ 12.26 hrs HW=622.46' (Free Discharge)
1=Sharp-Crested Rectangular Weir (Weir Controls 1.16 cfs @ 1.07 fps)

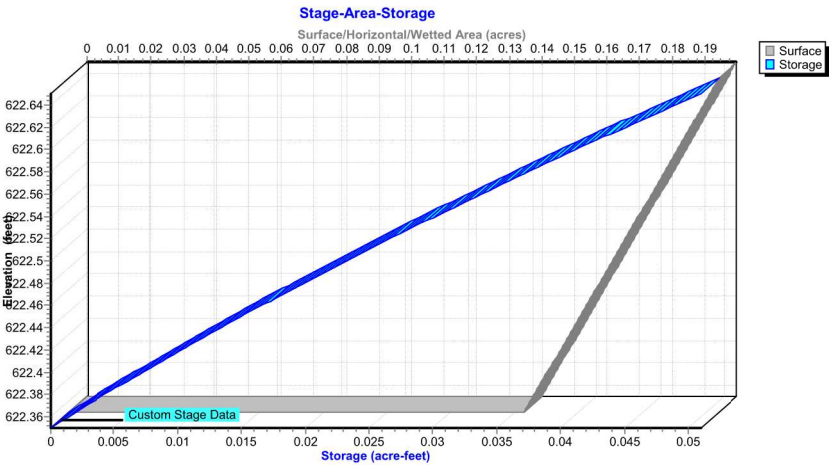
Pond 3P: Basin A



Pond 3P: Basin A



Pond 3P: Basin A



Hydrograph for Pond 3P: Basin A

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	622.35	0.00
2.50	0.00	0.000	622.35	0.00
5.00	0.01	0.001	622.35	0.01
7.50	0.01	0.001	622.36	0.01
10.00	0.03	0.001	622.36	0.03
12.50	0.46	0.011	622.43	0.70
15.00	0.09	0.003	622.37	0.10
17.50	0.05	0.002	622.36	0.06
20.00	0.04	0.002	622.36	0.04
22.50	0.04	0.002	622.36	0.04
25.00	0.00	0.000	622.35	0.01
27.50	0.00	0.000	622.35	0.00
30.00	0.00	0.000	622.35	0.00
32.50	0.00	0.000	622.35	0.00
35.00	0.00	0.000	622.35	0.00
37.50	0.00	0.000	622.35	0.00
40.00	0.00	0.000	622.35	0.00
42.50	0.00	0.000	622.35	0.00
45.00	0.00	0.000	622.35	0.00
47.50	0.00	0.000	622.35	0.00
50.00	0.00	0.000	622.35	0.00
52.50	0.00	0.000	622.35	0.00
55.00	0.00	0.000	622.35	0.00
57.50	0.00	0.000	622.35	0.00
60.00	0.00	0.000	622.35	0.00
62.50	0.00	0.000	622.35	0.00
65.00	0.00	0.000	622.35	0.00
67.50	0.00	0.000	622.35	0.00
70.00	0.00	0.000	622.35	0.00

2023-01 Overflow Spillway Calcs

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Stage-Discharge for Pond 3P: Basin A

Elevation (feet)	Primary (cfs)
622.35	0.00
622.36	0.03
622.37	0.09
622.38	0.17
622.39	0.26
622.40	0.37
622.41	0.48
622.42	0.60
622.43	0.74
622.44	0.88
622.45	1.03
622.46	1.19
622.47	1.36
622.48	1.53
622.49	1.71
622.50	1.89
622.51	2.09
622.52	2.28
622.53	2.49
622.54	2.70
622.55	2.91
622.56	3.13
622.57	3.36
622.58	3.59
622.59	3.83
622.60	4.07
622.61	4.31
622.62	4.56
622.63	4.82
622.64	5.08
622.65	5.34

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Stage-Area-Storage for Pond 3P: Basin A

Elevation (feet)	Surface (acres)	Storage (acre-feet)
622.35	0.140	0.000
622.36	0.142	0.001
622.37	0.144	0.003
622.38	0.146	0.004
622.39	0.148	0.006
622.40	0.150	0.007
622.41	0.152	0.009
622.42	0.154	0.010
622.43	0.156	0.012
622.44	0.158	0.013
622.45	0.160	0.015
622.46	0.162	0.017
622.47	0.164	0.018
622.48	0.166	0.020
622.49	0.168	0.022
622.50	0.170	0.023
622.51	0.172	0.025
622.52	0.174	0.027
622.53	0.176	0.028
622.54	0.178	0.030
622.55	0.180	0.032
622.56	0.182	0.034
622.57	0.184	0.036
622.58	0.186	0.037
622.59	0.188	0.039
622.60	0.190	0.041
622.61	0.192	0.043
622.62	0.194	0.045
622.63	0.196	0.047
622.64	0.198	0.049
622.65	0.200	0.051

Summary for Pond 4P: Basin B

Inflow Area = 0.960 ac, 19.79% Impervious, Inflow Depth = 1.50" for 2-Year event
Inflow = 1.32 cfs @ 12.18 hrs, Volume= 0.120 af
Outflow = 0.98 cfs @ 12.27 hrs, Volume= 0.120 af, Atten= 25%, Lag= 5.5 min
Primary = 0.98 cfs @ 12.27 hrs, Volume= 0.120 af
Routed to nonexistent node 2L

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Starting Elev= 621.25' Storage= 0.000 af
Peak Elev= 621.95' @ 12.27 hrs Surf.Area= 0.159 ac Storage= 0.014 af

Plug-Flow detention time= 20.9 min calculated for 0.120 af (100% of inflow)
Center-of-Mass det. time= 21.0 min (850.8 - 829.8)

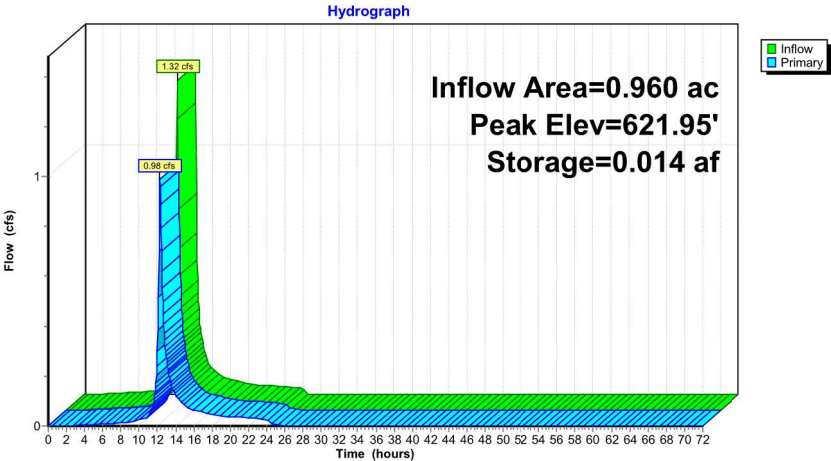
Volume	Invert	Avail.Storage	Storage Description
#1	621.85'	0.051 af	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
621.85	0.140	0.000	0.000
622.15	0.200	0.051	0.051

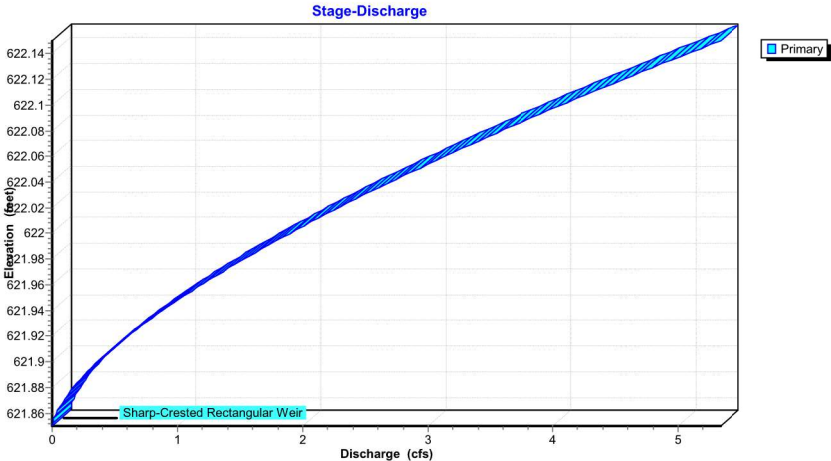
Device	Routing	Invert	Outlet Devices
#1	Primary	621.85'	10.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.97 cfs @ 12.27 hrs HW=621.95' (Free Discharge)
1=Sharp-Crested Rectangular Weir (Weir Controls 0.97 cfs @ 1.01 fps)

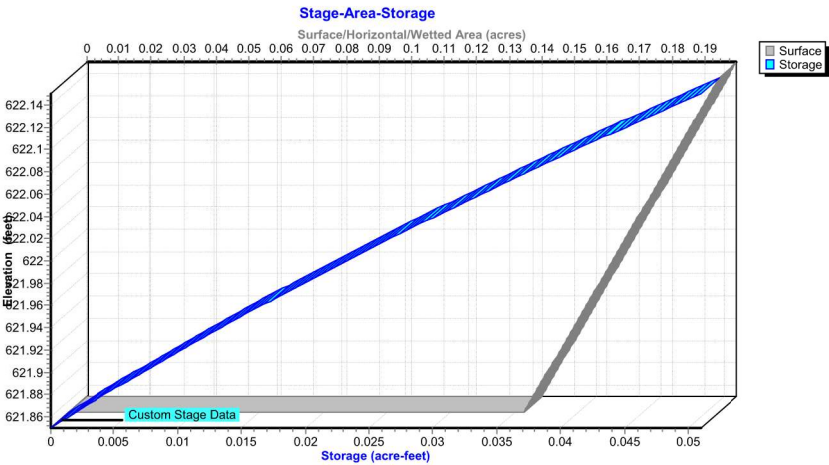
Pond 4P: Basin B



Pond 4P: Basin B



Pond 4P: Basin B



Hydrograph for Pond 4P: Basin B

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	621.85	0.00
2.50	0.00	0.000	621.85	0.00
5.00	0.01	0.000	621.85	0.01
7.50	0.01	0.001	621.86	0.01
10.00	0.03	0.001	621.86	0.02
12.50	0.41	0.010	621.92	0.62
15.00	0.07	0.003	621.87	0.08
17.50	0.05	0.002	621.86	0.05
20.00	0.04	0.002	621.86	0.04
22.50	0.03	0.001	621.86	0.03
25.00	0.00	0.000	621.85	0.01
27.50	0.00	0.000	621.85	0.00
30.00	0.00	0.000	621.85	0.00
32.50	0.00	0.000	621.85	0.00
35.00	0.00	0.000	621.85	0.00
37.50	0.00	0.000	621.85	0.00
40.00	0.00	0.000	621.85	0.00
42.50	0.00	0.000	621.85	0.00
45.00	0.00	0.000	621.85	0.00
47.50	0.00	0.000	621.85	0.00
50.00	0.00	0.000	621.85	0.00
52.50	0.00	0.000	621.85	0.00
55.00	0.00	0.000	621.85	0.00
57.50	0.00	0.000	621.85	0.00
60.00	0.00	0.000	621.85	0.00
62.50	0.00	0.000	621.85	0.00
65.00	0.00	0.000	621.85	0.00
67.50	0.00	0.000	621.85	0.00
70.00	0.00	0.000	621.85	0.00

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 2-Year Rainfall=3.44"

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Stage-Discharge for Pond 4P: Basin B

Elevation (feet)	Primary (cfs)
621.85	0.00
621.86	0.03
621.87	0.09
621.88	0.17
621.89	0.26
621.90	0.37
621.91	0.48
621.92	0.60
621.93	0.74
621.94	0.88
621.95	1.03
621.96	1.19
621.97	1.36
621.98	1.53
621.99	1.71
622.00	1.89
622.01	2.09
622.02	2.28
622.03	2.49
622.04	2.70
622.05	2.91
622.06	3.13
622.07	3.36
622.08	3.59
622.09	3.83
622.10	4.07
622.11	4.31
622.12	4.56
622.13	4.82
622.14	5.08
622.15	5.34

2023-01 Overflow Spillway Calcs

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Stage-Area-Storage for Pond 4P: Basin B

Elevation (feet)	Surface (acres)	Storage (acre-feet)
621.85	0.140	0.000
621.86	0.142	0.001
621.87	0.144	0.003
621.88	0.146	0.004
621.89	0.148	0.006
621.90	0.150	0.007
621.91	0.152	0.009
621.92	0.154	0.010
621.93	0.156	0.012
621.94	0.158	0.013
621.95	0.160	0.015
621.96	0.162	0.017
621.97	0.164	0.018
621.98	0.166	0.020
621.99	0.168	0.022
622.00	0.170	0.023
622.01	0.172	0.025
622.02	0.174	0.027
622.03	0.176	0.028
622.04	0.178	0.030
622.05	0.180	0.032
622.06	0.182	0.034
622.07	0.184	0.036
622.08	0.186	0.037
622.09	0.188	0.039
622.10	0.190	0.041
622.11	0.192	0.043
622.12	0.194	0.045
622.13	0.196	0.047
622.14	0.198	0.049
622.15	0.200	0.051

Summary for Pond 5P: Basin C

Inflow Area = 1.380 ac, 14.49% Impervious, Inflow Depth = 1.39" for 2-Year event
Inflow = 1.82 cfs @ 12.17 hrs, Volume= 0.160 af
Outflow = 1.37 cfs @ 12.26 hrs, Volume= 0.160 af, Atten= 25%, Lag= 5.3 min
Primary = 1.37 cfs @ 12.26 hrs, Volume= 0.160 af
Routed to nonexistent node 2L

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Starting Elev= 619.40' Storage= 0.000 af
Peak Elev= 620.21' @ 12.26 hrs Surf.Area= 0.181 ac Storage= 0.018 af

Plug-Flow detention time= 19.5 min calculated for 0.160 af (100% of inflow)
Center-of-Mass det. time= 19.1 min (859.0 - 839.9)

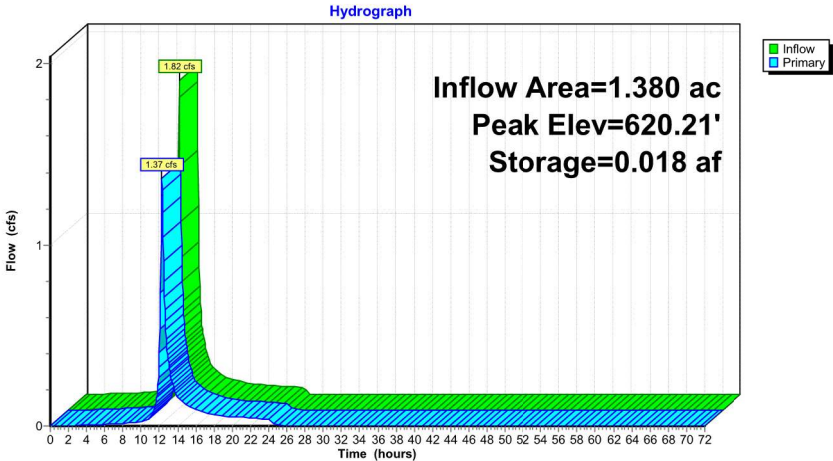
Volume	Invert	Avail.Storage	Storage Description
#1	620.10'	0.057 af	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
620.10	0.160	0.000	0.000
620.40	0.220	0.057	0.057

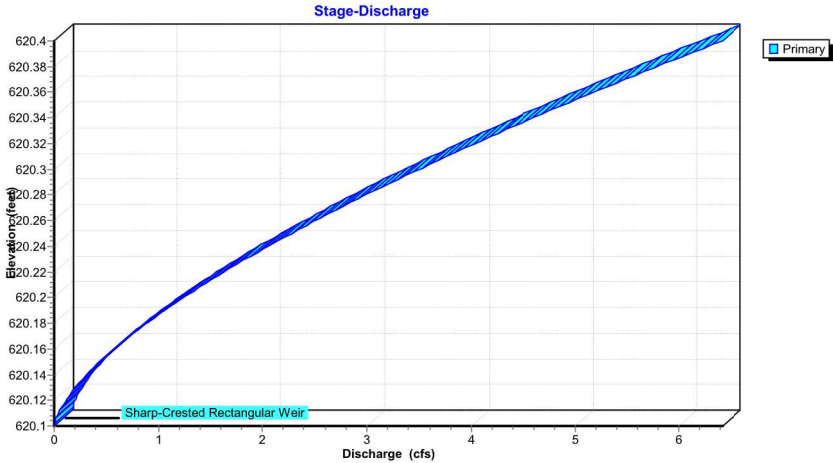
Device	Routing	Invert	Outlet Devices
#1	Primary	620.10'	12.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=1.36 cfs @ 12.26 hrs HW=620.21' (Free Discharge)
1=Sharp-Crested Rectangular Weir (Weir Controls 1.36 cfs @ 1.07 fps)

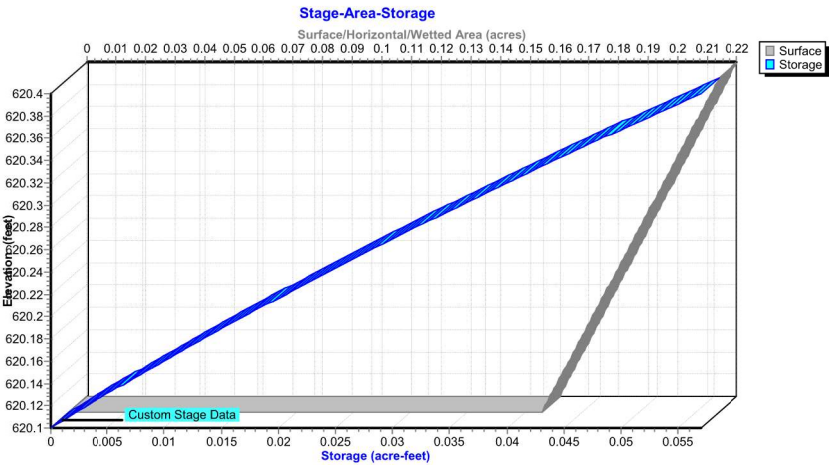
Pond 5P: Basin C



Pond 5P: Basin C



Pond 5P: Basin C



Hydrograph for Pond 5P: Basin C

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	620.10	0.00
2.50	0.00	0.000	620.10	0.00
5.00	0.01	0.000	620.10	0.01
7.50	0.01	0.001	620.10	0.01
10.00	0.03	0.001	620.11	0.03
12.50	0.54	0.013	620.17	0.80
15.00	0.10	0.003	620.12	0.11
17.50	0.07	0.002	620.11	0.07
20.00	0.05	0.002	620.11	0.05
22.50	0.04	0.002	620.11	0.04
25.00	0.00	0.000	620.10	0.01
27.50	0.00	0.000	620.10	0.00
30.00	0.00	0.000	620.10	0.00
32.50	0.00	0.000	620.10	0.00
35.00	0.00	0.000	620.10	0.00
37.50	0.00	0.000	620.10	0.00
40.00	0.00	0.000	620.10	0.00
42.50	0.00	0.000	620.10	0.00
45.00	0.00	0.000	620.10	0.00
47.50	0.00	0.000	620.10	0.00
50.00	0.00	0.000	620.10	0.00
52.50	0.00	0.000	620.10	0.00
55.00	0.00	0.000	620.10	0.00
57.50	0.00	0.000	620.10	0.00
60.00	0.00	0.000	620.10	0.00
62.50	0.00	0.000	620.10	0.00
65.00	0.00	0.000	620.10	0.00
67.50	0.00	0.000	620.10	0.00
70.00	0.00	0.000	620.10	0.00

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 2-Year Rainfall=3.44"

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Stage-Discharge for Pond 5P: Basin C

Elevation (feet)	Primary (cfs)
620.10	0.00
620.11	0.04
620.12	0.11
620.13	0.20
620.14	0.31
620.15	0.44
620.16	0.58
620.17	0.73
620.18	0.89
620.19	1.06
620.20	1.24
620.21	1.43
620.22	1.63
620.23	1.84
620.24	2.05
620.25	2.27
620.26	2.50
620.27	2.74
620.28	2.99
620.29	3.24
620.30	3.50
620.31	3.76
620.32	4.03
620.33	4.31
620.34	4.60
620.35	4.88
620.36	5.18
620.37	5.48
620.38	5.79
620.39	6.10
620.40	6.42

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Stage-Area-Storage for Pond 5P: Basin C

Elevation (feet)	Surface (acres)	Storage (acre-feet)
620.10	0.160	0.000
620.11	0.162	0.002
620.12	0.164	0.003
620.13	0.166	0.005
620.14	0.168	0.007
620.15	0.170	0.008
620.16	0.172	0.010
620.17	0.174	0.012
620.18	0.176	0.013
620.19	0.178	0.015
620.20	0.180	0.017
620.21	0.182	0.019
620.22	0.184	0.021
620.23	0.186	0.022
620.24	0.188	0.024
620.25	0.190	0.026
620.26	0.192	0.028
620.27	0.194	0.030
620.28	0.196	0.032
620.29	0.198	0.034
620.30	0.200	0.036
620.31	0.202	0.038
620.32	0.204	0.040
620.33	0.206	0.042
620.34	0.208	0.044
620.35	0.210	0.046
620.36	0.212	0.048
620.37	0.214	0.050
620.38	0.216	0.053
620.39	0.218	0.055
620.40	0.220	0.057

Summary for Pond 6P: Basin D

Inflow Area = 1.330 ac, 15.04% Impervious, Inflow Depth = 1.40" for 2-Year event
Inflow = 1.75 cfs @ 12.17 hrs, Volume= 0.155 af
Outflow = 1.37 cfs @ 12.25 hrs, Volume= 0.155 af, Atten= 22%, Lag= 4.9 min
Primary = 1.37 cfs @ 12.25 hrs, Volume= 0.155 af
Routed to nonexistent node 2L

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Starting Elev= 614.15' Storage= 0.000 af
Peak Elev= 614.71' @ 12.25 hrs Surf.Area= 0.166 ac Storage= 0.016 af

Plug-Flow detention time= 15.9 min calculated for 0.155 af (100% of inflow)
Center-of-Mass det. time= 15.9 min (854.8 - 838.9)

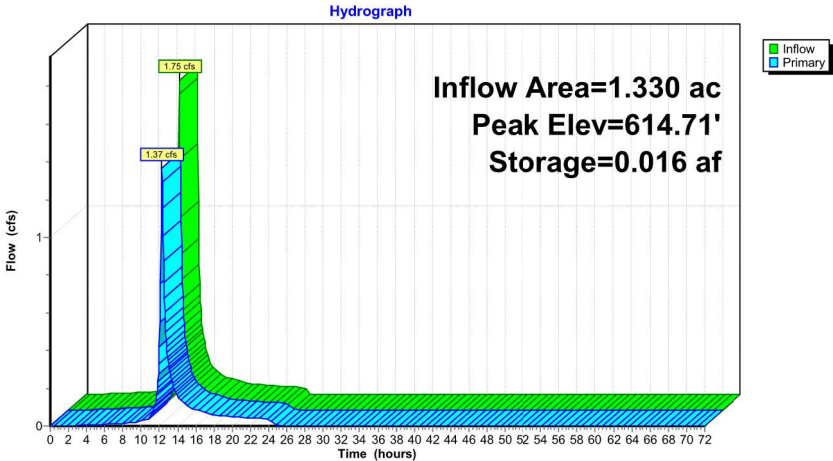
Volume	Invert	Avail.Storage	Storage Description
#1	614.60'	0.054 af	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
614.60	0.130	0.000	0.000
614.90	0.230	0.054	0.054

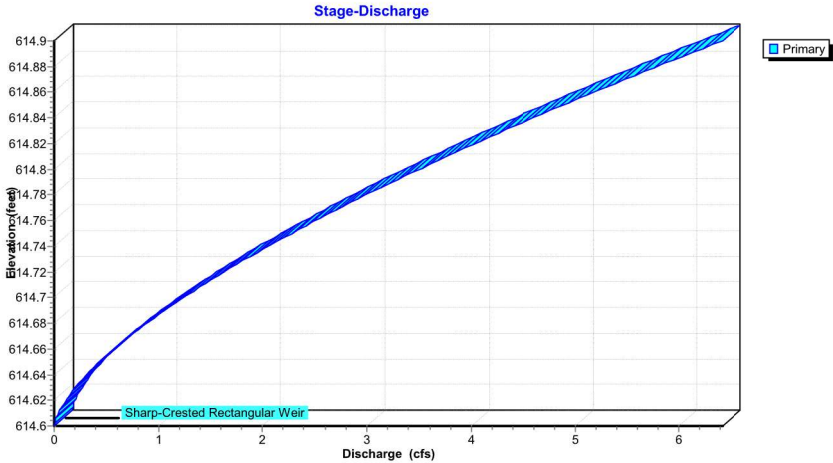
Device	Routing	Invert	Outlet Devices
#1	Primary	614.60'	12.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=1.36 cfs @ 12.25 hrs HW=614.71' (Free Discharge)
1=Sharp-Crested Rectangular Weir (Weir Controls 1.36 cfs @ 1.07 fps)

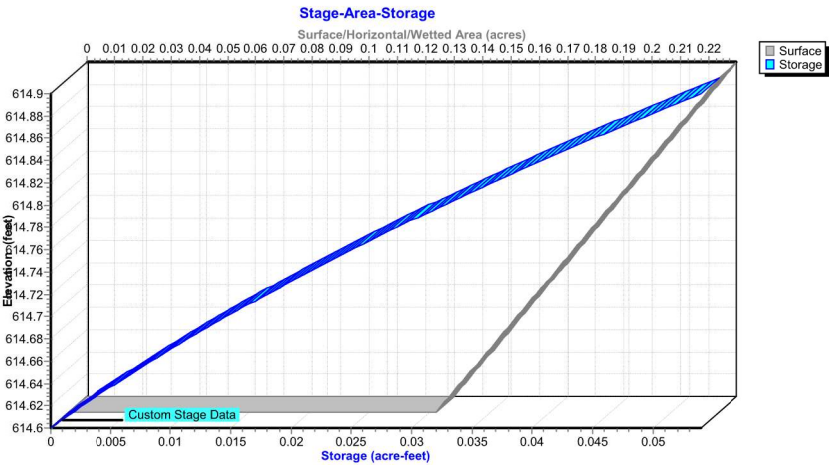
Pond 6P: Basin D



Pond 6P: Basin D



Pond 6P: Basin D



Hydrograph for Pond 6P: Basin D

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	614.60	0.00
2.50	0.00	0.000	614.60	0.00
5.00	0.01	0.000	614.60	0.01
7.50	0.01	0.001	614.60	0.01
10.00	0.03	0.001	614.61	0.03
12.50	0.53	0.010	614.67	0.76
15.00	0.10	0.003	614.62	0.11
17.50	0.06	0.002	614.61	0.07
20.00	0.05	0.002	614.61	0.05
22.50	0.04	0.001	614.61	0.04
25.00	0.00	0.000	614.60	0.00
27.50	0.00	0.000	614.60	0.00
30.00	0.00	0.000	614.60	0.00
32.50	0.00	0.000	614.60	0.00
35.00	0.00	0.000	614.60	0.00
37.50	0.00	0.000	614.60	0.00
40.00	0.00	0.000	614.60	0.00
42.50	0.00	0.000	614.60	0.00
45.00	0.00	0.000	614.60	0.00
47.50	0.00	0.000	614.60	0.00
50.00	0.00	0.000	614.60	0.00
52.50	0.00	0.000	614.60	0.00
55.00	0.00	0.000	614.60	0.00
57.50	0.00	0.000	614.60	0.00
60.00	0.00	0.000	614.60	0.00
62.50	0.00	0.000	614.60	0.00
65.00	0.00	0.000	614.60	0.00
67.50	0.00	0.000	614.60	0.00
70.00	0.00	0.000	614.60	0.00

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 2-Year Rainfall=3.44"

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Stage-Discharge for Pond 6P: Basin D

Elevation (feet)	Primary (cfs)
614.60	0.00
614.61	0.04
614.62	0.11
614.63	0.20
614.64	0.31
614.65	0.44
614.66	0.58
614.67	0.73
614.68	0.89
614.69	1.06
614.70	1.24
614.71	1.43
614.72	1.63
614.73	1.84
614.74	2.05
614.75	2.27
614.76	2.50
614.77	2.74
614.78	2.99
614.79	3.24
614.80	3.50
614.81	3.76
614.82	4.03
614.83	4.31
614.84	4.60
614.85	4.88
614.86	5.18
614.87	5.48
614.88	5.79
614.89	6.10
614.90	6.42

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 2-Year Rainfall=3.44"

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Stage-Area-Storage for Pond 6P: Basin D

Elevation (feet)	Surface (acres)	Storage (acre-feet)
614.60	0.130	0.000
614.61	0.133	0.001
614.62	0.137	0.003
614.63	0.140	0.004
614.64	0.143	0.005
614.65	0.147	0.007
614.66	0.150	0.008
614.67	0.153	0.010
614.68	0.157	0.011
614.69	0.160	0.013
614.70	0.163	0.015
614.71	0.167	0.016
614.72	0.170	0.018
614.73	0.173	0.020
614.74	0.177	0.021
614.75	0.180	0.023
614.76	0.183	0.025
614.77	0.187	0.027
614.78	0.190	0.029
614.79	0.193	0.031
614.80	0.197	0.033
614.81	0.200	0.035
614.82	0.203	0.037
614.83	0.207	0.039
614.84	0.210	0.041
614.85	0.213	0.043
614.86	0.217	0.045
614.87	0.220	0.047
614.88	0.223	0.049
614.89	0.227	0.052
614.90	0.230	0.054

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

Subcatchment 1S: Basin A - Imp.	Runoff Area=0.210 ac 100.00% Impervious Runoff Depth=4.98" Flow Length=90' Tc=9.2 min CN=98 Runoff=0.92 cfs 0.087 af
Subcatchment 3S: Basin A - Perv.	Runoff Area=0.920 ac 0.00% Impervious Runoff Depth=2.37" Flow Length=90' Tc=9.2 min CN=72 Runoff=2.22 cfs 0.182 af
Subcatchment 4S: Basin B - Imp.	Runoff Area=0.190 ac 100.00% Impervious Runoff Depth=4.98" Flow Length=133' Tc=9.8 min CN=98 Runoff=0.81 cfs 0.079 af
Subcatchment 5S: Basin B - Perv.	Runoff Area=0.770 ac 0.00% Impervious Runoff Depth=2.37" Flow Length=133' Tc=9.8 min CN=72 Runoff=1.81 cfs 0.152 af
Subcatchment 7S: Basin C - Imp.	Runoff Area=0.200 ac 100.00% Impervious Runoff Depth=4.98" Flow Length=78' Tc=9.2 min CN=98 Runoff=0.88 cfs 0.083 af
Subcatchment 8S: Basin C - Perv.	Runoff Area=1.180 ac 0.00% Impervious Runoff Depth=2.37" Flow Length=78' Tc=9.2 min CN=72 Runoff=2.85 cfs 0.233 af
Subcatchment 11S: Basin D - Imp.	Runoff Area=0.200 ac 100.00% Impervious Runoff Depth=4.98" Flow Length=136' Tc=9.4 min CN=98 Runoff=0.87 cfs 0.083 af
Subcatchment 12S: Basin D - Perv.	Runoff Area=1.130 ac 0.00% Impervious Runoff Depth=2.37" Flow Length=136' Tc=9.4 min CN=72 Runoff=2.70 cfs 0.223 af
Pond 3P: Basin A	Peak Elev=622.53' Storage=0.028 af Inflow=3.14 cfs 0.269 af Outflow=2.46 cfs 0.269 af
Pond 4P: Basin B	Peak Elev=622.01' Storage=0.025 af Inflow=2.62 cfs 0.231 af Outflow=2.07 cfs 0.231 af
Pond 5P: Basin C	Peak Elev=620.28' Storage=0.032 af Inflow=3.73 cfs 0.316 af Outflow=2.97 cfs 0.316 af
Pond 6P: Basin D	Peak Elev=614.78' Storage=0.028 af Inflow=3.57 cfs 0.306 af Outflow=2.90 cfs 0.306 af
Total Runoff Area = 4.800 ac Runoff Volume = 1.122 af Average Runoff Depth = 2.80" 83.33% Pervious = 4.000 ac 16.67% Impervious = 0.800 ac	

Summary for Subcatchment 1S: Basin A - Imp.

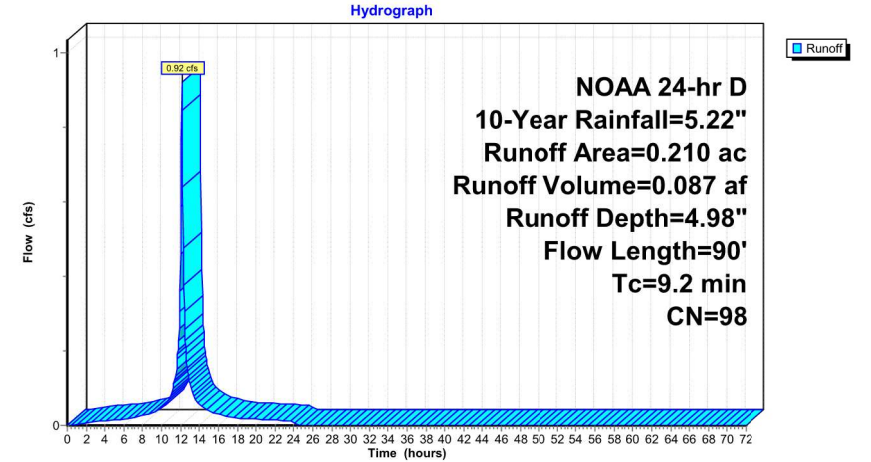
Runoff = 0.92 cfs @ 12.16 hrs, Volume= 0.087 af, Depth= 4.98"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.210	98	Unconnected pavement, HSG C
0.210		100.00% Impervious Area
0.210		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	65	0.1690	6.62		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	90	Total			

Subcatchment 1S: Basin A - Imp.



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NOAA 24-hr D 10-Year Rainfall=5.22"

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Hydrograph for Subcatchment 1S: Basin A - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	4.98	0.00
1.00	0.06	0.00	0.00	53.00	5.22	4.98	0.00
2.00	0.13	0.02	0.01	54.00	5.22	4.98	0.00
3.00	0.20	0.07	0.01	55.00	5.22	4.98	0.00
4.00	0.27	0.12	0.01	56.00	5.22	4.98	0.00
5.00	0.36	0.19	0.02	57.00	5.22	4.98	0.00
6.00	0.45	0.27	0.02	58.00	5.22	4.98	0.00
7.00	0.55	0.36	0.02	59.00	5.22	4.98	0.00
8.00	0.68	0.48	0.03	60.00	5.22	4.98	0.00
9.00	0.83	0.63	0.03	61.00	5.22	4.98	0.00
10.00	1.03	0.82	0.05	62.00	5.22	4.98	0.00
11.00	1.36	1.14	0.08	63.00	5.22	4.98	0.00
12.00	2.50	2.27	0.46	64.00	5.22	4.98	0.00
13.00	3.86	3.63	0.11	65.00	5.22	4.98	0.00
14.00	4.19	3.95	0.05	66.00	5.22	4.98	0.00
15.00	4.39	4.16	0.04	67.00	5.22	4.98	0.00
16.00	4.54	4.31	0.03	68.00	5.22	4.98	0.00
17.00	4.67	4.43	0.03	69.00	5.22	4.98	0.00
18.00	4.77	4.54	0.02	70.00	5.22	4.98	0.00
19.00	4.86	4.63	0.02	71.00	5.22	4.98	0.00
20.00	4.95	4.71	0.02	72.00	5.22	4.98	0.00
21.00	5.02	4.79	0.02				
22.00	5.09	4.86	0.01				
23.00	5.16	4.92	0.01				
24.00	5.22	4.98	0.01				
25.00	5.22	4.98	0.00				
26.00	5.22	4.98	0.00				
27.00	5.22	4.98	0.00				
28.00	5.22	4.98	0.00				
29.00	5.22	4.98	0.00				
30.00	5.22	4.98	0.00				
31.00	5.22	4.98	0.00				
32.00	5.22	4.98	0.00				
33.00	5.22	4.98	0.00				
34.00	5.22	4.98	0.00				
35.00	5.22	4.98	0.00				
36.00	5.22	4.98	0.00				
37.00	5.22	4.98	0.00				
38.00	5.22	4.98	0.00				
39.00	5.22	4.98	0.00				
40.00	5.22	4.98	0.00				
41.00	5.22	4.98	0.00				
42.00	5.22	4.98	0.00				
43.00	5.22	4.98	0.00				
44.00	5.22	4.98	0.00				
45.00	5.22	4.98	0.00				
46.00	5.22	4.98	0.00				
47.00	5.22	4.98	0.00				
48.00	5.22	4.98	0.00				
49.00	5.22	4.98	0.00				
50.00	5.22	4.98	0.00				
51.00	5.22	4.98	0.00				

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 10-Year Rainfall=5.22"

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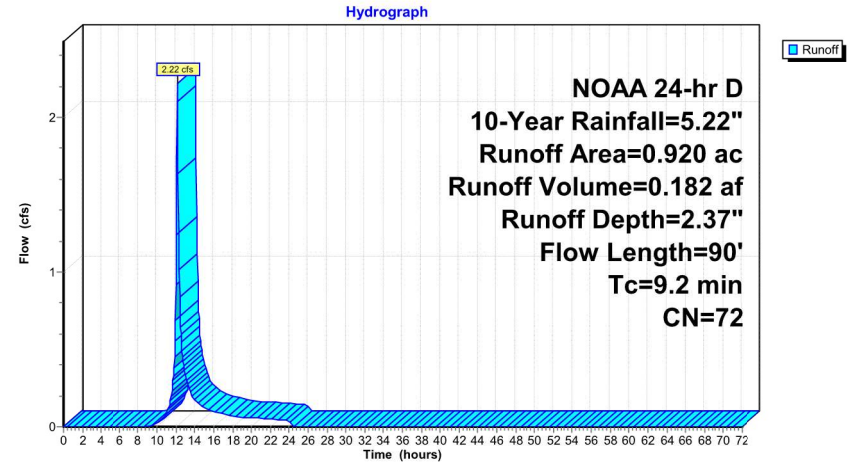
Summary for Subcatchment 3S: Basin A - Perv.

Runoff = 2.22 cfs @ 12.17 hrs, Volume= 0.182 af, Depth= 2.37"
 Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.470	74	>75% Grass cover, Good, HSG C
0.450	70	Woods, Good, HSG C
0.920	72	Weighted Average
0.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	65	0.1690	6.62		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	90	Total			

Subcatchment 3S: Basin A - Perv.

2023-01 Overflow Spillway Calcs

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Hydrograph for Subcatchment 3S: Basin A - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	2.37	0.00
1.00	0.06	0.00	0.00	53.00	5.22	2.37	0.00
2.00	0.13	0.00	0.00	54.00	5.22	2.37	0.00
3.00	0.20	0.00	0.00	55.00	5.22	2.37	0.00
4.00	0.27	0.00	0.00	56.00	5.22	2.37	0.00
5.00	0.36	0.00	0.00	57.00	5.22	2.37	0.00
6.00	0.45	0.00	0.00	58.00	5.22	2.37	0.00
7.00	0.55	0.00	0.00	59.00	5.22	2.37	0.00
8.00	0.68	0.00	0.00	60.00	5.22	2.37	0.00
9.00	0.83	0.00	0.00	61.00	5.22	2.37	0.00
10.00	1.03	0.02	0.02	62.00	5.22	2.37	0.00
11.00	1.36	0.08	0.08	63.00	5.22	2.37	0.00
12.00	2.50	0.53	0.92	64.00	5.22	2.37	0.00
13.00	3.86	1.36	0.34	65.00	5.22	2.37	0.00
14.00	4.19	1.59	0.17	66.00	5.22	2.37	0.00
15.00	4.39	1.74	0.12	67.00	5.22	2.37	0.00
16.00	4.54	1.85	0.10	68.00	5.22	2.37	0.00
17.00	4.67	1.95	0.08	69.00	5.22	2.37	0.00
18.00	4.77	2.03	0.07	70.00	5.22	2.37	0.00
19.00	4.86	2.09	0.06	71.00	5.22	2.37	0.00
20.00	4.95	2.16	0.06	72.00	5.22	2.37	0.00
21.00	5.02	2.22	0.05				
22.00	5.09	2.27	0.05				
23.00	5.16	2.32	0.05				
24.00	5.22	2.37	0.04				
25.00	5.22	2.37	0.00				
26.00	5.22	2.37	0.00				
27.00	5.22	2.37	0.00				
28.00	5.22	2.37	0.00				
29.00	5.22	2.37	0.00				
30.00	5.22	2.37	0.00				
31.00	5.22	2.37	0.00				
32.00	5.22	2.37	0.00				
33.00	5.22	2.37	0.00				
34.00	5.22	2.37	0.00				
35.00	5.22	2.37	0.00				
36.00	5.22	2.37	0.00				
37.00	5.22	2.37	0.00				
38.00	5.22	2.37	0.00				
39.00	5.22	2.37	0.00				
40.00	5.22	2.37	0.00				
41.00	5.22	2.37	0.00				
42.00	5.22	2.37	0.00				
43.00	5.22	2.37	0.00				
44.00	5.22	2.37	0.00				
45.00	5.22	2.37	0.00				
46.00	5.22	2.37	0.00				
47.00	5.22	2.37	0.00				
48.00	5.22	2.37	0.00				
49.00	5.22	2.37	0.00				
50.00	5.22	2.37	0.00				
51.00	5.22	2.37	0.00				

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 10-Year Rainfall=5.22"

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Summary for Subcatchment 4S: Basin B - Imp.

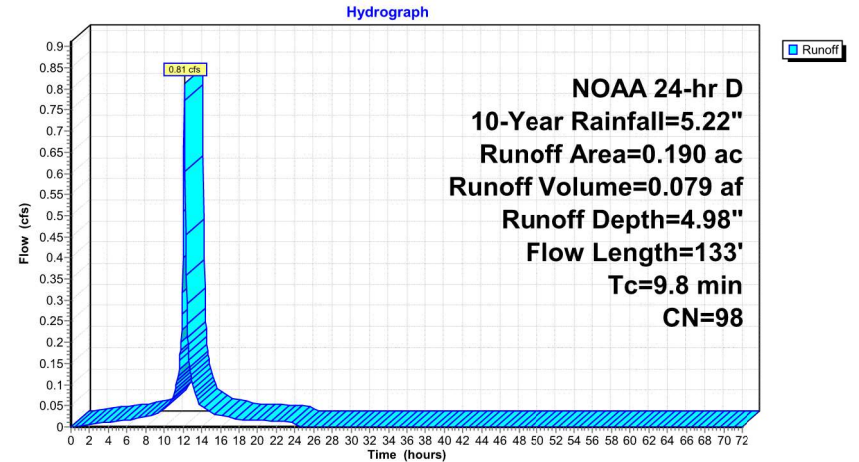
Runoff = 0.81 cfs @ 12.17 hrs, Volume= 0.079 af, Depth= 4.98"

Routed to Pond 4P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.190	98	Unconnected pavement, HSG C
0.190		100.00% Impervious Area
0.190		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.3	48	0.0310	2.83		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.0	15	0.4000	10.18		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.5	45	0.0100	1.61		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.8	133	Total			

Subcatchment 4S: Basin B - Imp.

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 10-Year Rainfall=5.22"

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Hydrograph for Subcatchment 4S: Basin B - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	4.98	0.00
1.00	0.06	0.00	0.00	53.00	5.22	4.98	0.00
2.00	0.13	0.02	0.01	54.00	5.22	4.98	0.00
3.00	0.20	0.07	0.01	55.00	5.22	4.98	0.00
4.00	0.27	0.12	0.01	56.00	5.22	4.98	0.00
5.00	0.36	0.19	0.01	57.00	5.22	4.98	0.00
6.00	0.45	0.27	0.02	58.00	5.22	4.98	0.00
7.00	0.55	0.36	0.02	59.00	5.22	4.98	0.00
8.00	0.68	0.48	0.02	60.00	5.22	4.98	0.00
9.00	0.83	0.63	0.03	61.00	5.22	4.98	0.00
10.00	1.03	0.82	0.04	62.00	5.22	4.98	0.00
11.00	1.36	1.14	0.08	63.00	5.22	4.98	0.00
12.00	2.50	2.27	0.40	64.00	5.22	4.98	0.00
13.00	3.86	3.63	0.10	65.00	5.22	4.98	0.00
14.00	4.19	3.95	0.05	66.00	5.22	4.98	0.00
15.00	4.39	4.16	0.03	67.00	5.22	4.98	0.00
16.00	4.54	4.31	0.03	68.00	5.22	4.98	0.00
17.00	4.67	4.43	0.02	69.00	5.22	4.98	0.00
18.00	4.77	4.54	0.02	70.00	5.22	4.98	0.00
19.00	4.86	4.63	0.02	71.00	5.22	4.98	0.00
20.00	4.95	4.71	0.02	72.00	5.22	4.98	0.00
21.00	5.02	4.79	0.01				
22.00	5.09	4.86	0.01				
23.00	5.16	4.92	0.01				
24.00	5.22	4.98	0.01				
25.00	5.22	4.98	0.00				
26.00	5.22	4.98	0.00				
27.00	5.22	4.98	0.00				
28.00	5.22	4.98	0.00				
29.00	5.22	4.98	0.00				
30.00	5.22	4.98	0.00				
31.00	5.22	4.98	0.00				
32.00	5.22	4.98	0.00				
33.00	5.22	4.98	0.00				
34.00	5.22	4.98	0.00				
35.00	5.22	4.98	0.00				
36.00	5.22	4.98	0.00				
37.00	5.22	4.98	0.00				
38.00	5.22	4.98	0.00				
39.00	5.22	4.98	0.00				
40.00	5.22	4.98	0.00				
41.00	5.22	4.98	0.00				
42.00	5.22	4.98	0.00				
43.00	5.22	4.98	0.00				
44.00	5.22	4.98	0.00				
45.00	5.22	4.98	0.00				
46.00	5.22	4.98	0.00				
47.00	5.22	4.98	0.00				
48.00	5.22	4.98	0.00				
49.00	5.22	4.98	0.00				
50.00	5.22	4.98	0.00				
51.00	5.22	4.98	0.00				

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 10-Year Rainfall=5.22"

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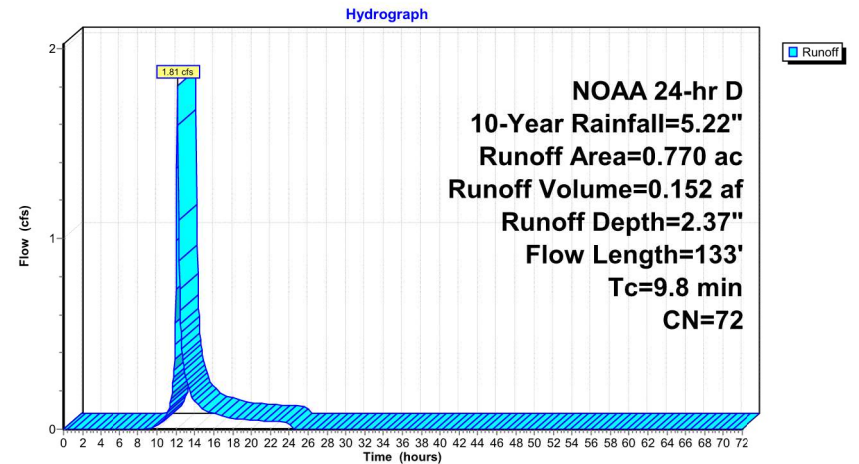
Summary for Subcatchment 5S: Basin B - Perv.

Runoff = 1.81 cfs @ 12.18 hrs, Volume= 0.152 af, Depth= 2.37"
 Routed to Pond 4P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.390	74	>75% Grass cover, Good, HSG C
0.380	70	Woods, Good, HSG C
0.770	72	Weighted Average
0.770		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.3	48	0.0310	2.83		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.0	15	0.4000	10.18		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.5	45	0.0100	1.61		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.8	133	Total			

Subcatchment 5S: Basin B - Perv.

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 10-Year Rainfall=5.22"

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Hydrograph for Subcatchment 5S: Basin B - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	2.37	0.00
1.00	0.06	0.00	0.00	53.00	5.22	2.37	0.00
2.00	0.13	0.00	0.00	54.00	5.22	2.37	0.00
3.00	0.20	0.00	0.00	55.00	5.22	2.37	0.00
4.00	0.27	0.00	0.00	56.00	5.22	2.37	0.00
5.00	0.36	0.00	0.00	57.00	5.22	2.37	0.00
6.00	0.45	0.00	0.00	58.00	5.22	2.37	0.00
7.00	0.55	0.00	0.00	59.00	5.22	2.37	0.00
8.00	0.68	0.00	0.00	60.00	5.22	2.37	0.00
9.00	0.83	0.00	0.00	61.00	5.22	2.37	0.00
10.00	1.03	0.02	0.02	62.00	5.22	2.37	0.00
11.00	1.36	0.08	0.07	63.00	5.22	2.37	0.00
12.00	2.50	0.53	0.74	64.00	5.22	2.37	0.00
13.00	3.86	1.36	0.29	65.00	5.22	2.37	0.00
14.00	4.19	1.59	0.14	66.00	5.22	2.37	0.00
15.00	4.39	1.74	0.10	67.00	5.22	2.37	0.00
16.00	4.54	1.85	0.08	68.00	5.22	2.37	0.00
17.00	4.67	1.95	0.07	69.00	5.22	2.37	0.00
18.00	4.77	2.03	0.06	70.00	5.22	2.37	0.00
19.00	4.86	2.09	0.05	71.00	5.22	2.37	0.00
20.00	4.95	2.16	0.05	72.00	5.22	2.37	0.00
21.00	5.02	2.22	0.04				
22.00	5.09	2.27	0.04				
23.00	5.16	2.32	0.04				
24.00	5.22	2.37	0.04				
25.00	5.22	2.37	0.00				
26.00	5.22	2.37	0.00				
27.00	5.22	2.37	0.00				
28.00	5.22	2.37	0.00				
29.00	5.22	2.37	0.00				
30.00	5.22	2.37	0.00				
31.00	5.22	2.37	0.00				
32.00	5.22	2.37	0.00				
33.00	5.22	2.37	0.00				
34.00	5.22	2.37	0.00				
35.00	5.22	2.37	0.00				
36.00	5.22	2.37	0.00				
37.00	5.22	2.37	0.00				
38.00	5.22	2.37	0.00				
39.00	5.22	2.37	0.00				
40.00	5.22	2.37	0.00				
41.00	5.22	2.37	0.00				
42.00	5.22	2.37	0.00				
43.00	5.22	2.37	0.00				
44.00	5.22	2.37	0.00				
45.00	5.22	2.37	0.00				
46.00	5.22	2.37	0.00				
47.00	5.22	2.37	0.00				
48.00	5.22	2.37	0.00				
49.00	5.22	2.37	0.00				
50.00	5.22	2.37	0.00				
51.00	5.22	2.37	0.00				

2023-01 Overflow Spillway Calcs

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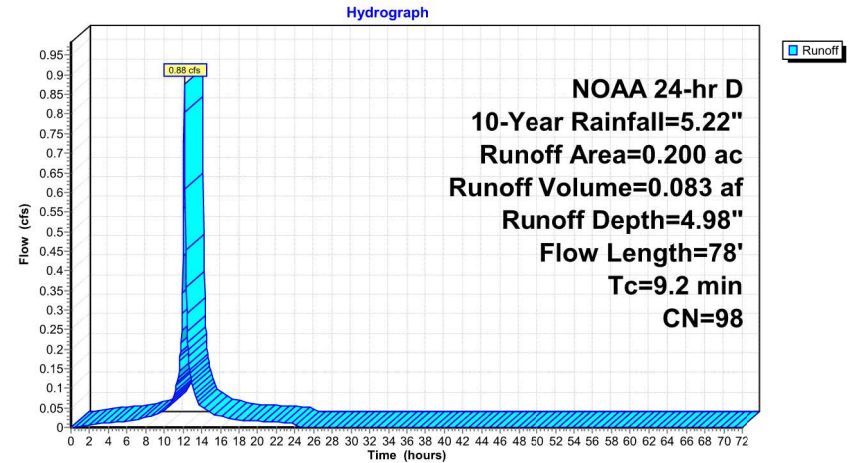
Summary for Subcatchment 7S: Basin C - Imp.

Runoff = 0.88 cfs @ 12.16 hrs, Volume= 0.083 af, Depth= 4.98"
 Routed to Pond 5P : Basin C

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.200	98	Unconnected pavement, HSG C
0.200		100.00% Impervious Area
0.200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Shhet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	53	0.1070	5.27		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	78	Total			

Subcatchment 7S: Basin C - Imp.

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 10-Year Rainfall=5.22"

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Hydrograph for Subcatchment 7S: Basin C - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	4.98	0.00
1.00	0.06	0.00	0.00	53.00	5.22	4.98	0.00
2.00	0.13	0.02	0.01	54.00	5.22	4.98	0.00
3.00	0.20	0.07	0.01	55.00	5.22	4.98	0.00
4.00	0.27	0.12	0.01	56.00	5.22	4.98	0.00
5.00	0.36	0.19	0.01	57.00	5.22	4.98	0.00
6.00	0.45	0.27	0.02	58.00	5.22	4.98	0.00
7.00	0.55	0.36	0.02	59.00	5.22	4.98	0.00
8.00	0.68	0.48	0.03	60.00	5.22	4.98	0.00
9.00	0.83	0.63	0.03	61.00	5.22	4.98	0.00
10.00	1.03	0.82	0.05	62.00	5.22	4.98	0.00
11.00	1.36	1.14	0.08	63.00	5.22	4.98	0.00
12.00	2.50	2.27	0.44	64.00	5.22	4.98	0.00
13.00	3.86	3.63	0.11	65.00	5.22	4.98	0.00
14.00	4.19	3.95	0.05	66.00	5.22	4.98	0.00
15.00	4.39	4.16	0.04	67.00	5.22	4.98	0.00
16.00	4.54	4.31	0.03	68.00	5.22	4.98	0.00
17.00	4.67	4.43	0.02	69.00	5.22	4.98	0.00
18.00	4.77	4.54	0.02	70.00	5.22	4.98	0.00
19.00	4.86	4.63	0.02	71.00	5.22	4.98	0.00
20.00	4.95	4.71	0.02	72.00	5.22	4.98	0.00
21.00	5.02	4.79	0.02				
22.00	5.09	4.86	0.01				
23.00	5.16	4.92	0.01				
24.00	5.22	4.98	0.01				
25.00	5.22	4.98	0.00				
26.00	5.22	4.98	0.00				
27.00	5.22	4.98	0.00				
28.00	5.22	4.98	0.00				
29.00	5.22	4.98	0.00				
30.00	5.22	4.98	0.00				
31.00	5.22	4.98	0.00				
32.00	5.22	4.98	0.00				
33.00	5.22	4.98	0.00				
34.00	5.22	4.98	0.00				
35.00	5.22	4.98	0.00				
36.00	5.22	4.98	0.00				
37.00	5.22	4.98	0.00				
38.00	5.22	4.98	0.00				
39.00	5.22	4.98	0.00				
40.00	5.22	4.98	0.00				
41.00	5.22	4.98	0.00				
42.00	5.22	4.98	0.00				
43.00	5.22	4.98	0.00				
44.00	5.22	4.98	0.00				
45.00	5.22	4.98	0.00				
46.00	5.22	4.98	0.00				
47.00	5.22	4.98	0.00				
48.00	5.22	4.98	0.00				
49.00	5.22	4.98	0.00				
50.00	5.22	4.98	0.00				
51.00	5.22	4.98	0.00				

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 10-Year Rainfall=5.22"

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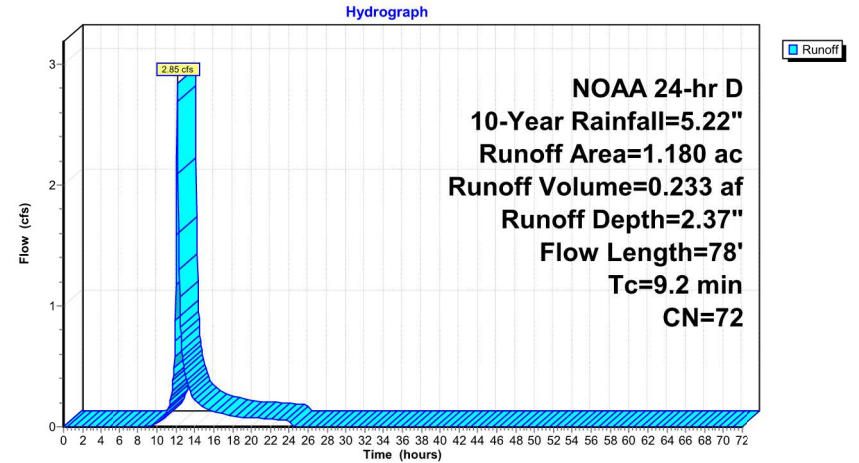
Summary for Subcatchment 8S: Basin C - Perv.

Runoff = 2.85 cfs @ 12.17 hrs, Volume= 0.233 af, Depth= 2.37"
 Routed to Pond 5P : Basin C

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.560	74	>75% Grass cover, Good, HSG C
0.620	70	Woods, Good, HSG C
1.180	72	Weighted Average
1.180		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	53	0.1070	5.27		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	78	Total			

Subcatchment 8S: Basin C - Perv.

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Hydrograph for Subcatchment 8S: Basin C - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	2.37	0.00
1.00	0.06	0.00	0.00	53.00	5.22	2.37	0.00
2.00	0.13	0.00	0.00	54.00	5.22	2.37	0.00
3.00	0.20	0.00	0.00	55.00	5.22	2.37	0.00
4.00	0.27	0.00	0.00	56.00	5.22	2.37	0.00
5.00	0.36	0.00	0.00	57.00	5.22	2.37	0.00
6.00	0.45	0.00	0.00	58.00	5.22	2.37	0.00
7.00	0.55	0.00	0.00	59.00	5.22	2.37	0.00
8.00	0.68	0.00	0.00	60.00	5.22	2.37	0.00
9.00	0.83	0.00	0.00	61.00	5.22	2.37	0.00
10.00	1.03	0.02	0.03	62.00	5.22	2.37	0.00
11.00	1.36	0.08	0.11	63.00	5.22	2.37	0.00
12.00	2.50	0.53	1.18	64.00	5.22	2.37	0.00
13.00	3.86	1.36	0.44	65.00	5.22	2.37	0.00
14.00	4.19	1.59	0.22	66.00	5.22	2.37	0.00
15.00	4.39	1.74	0.15	67.00	5.22	2.37	0.00
16.00	4.54	1.85	0.13	68.00	5.22	2.37	0.00
17.00	4.67	1.95	0.11	69.00	5.22	2.37	0.00
18.00	4.77	2.03	0.09	70.00	5.22	2.37	0.00
19.00	4.86	2.09	0.08	71.00	5.22	2.37	0.00
20.00	4.95	2.16	0.07	72.00	5.22	2.37	0.00
21.00	5.02	2.22	0.07				
22.00	5.09	2.27	0.06				
23.00	5.16	2.32	0.06				
24.00	5.22	2.37	0.05				
25.00	5.22	2.37	0.00				
26.00	5.22	2.37	0.00				
27.00	5.22	2.37	0.00				
28.00	5.22	2.37	0.00				
29.00	5.22	2.37	0.00				
30.00	5.22	2.37	0.00				
31.00	5.22	2.37	0.00				
32.00	5.22	2.37	0.00				
33.00	5.22	2.37	0.00				
34.00	5.22	2.37	0.00				
35.00	5.22	2.37	0.00				
36.00	5.22	2.37	0.00				
37.00	5.22	2.37	0.00				
38.00	5.22	2.37	0.00				
39.00	5.22	2.37	0.00				
40.00	5.22	2.37	0.00				
41.00	5.22	2.37	0.00				
42.00	5.22	2.37	0.00				
43.00	5.22	2.37	0.00				
44.00	5.22	2.37	0.00				
45.00	5.22	2.37	0.00				
46.00	5.22	2.37	0.00				
47.00	5.22	2.37	0.00				
48.00	5.22	2.37	0.00				
49.00	5.22	2.37	0.00				
50.00	5.22	2.37	0.00				
51.00	5.22	2.37	0.00				

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 10-Year Rainfall=5.22"

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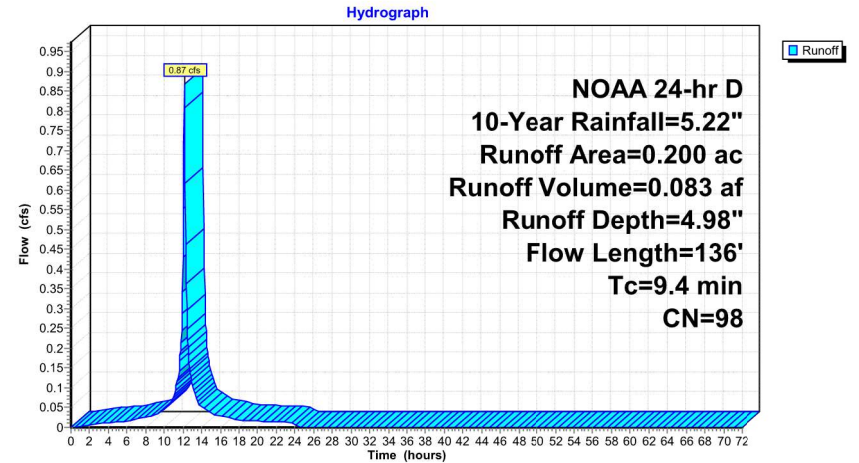
Summary for Subcatchment 11S: Basin D - Imp.

Runoff = 0.87 cfs @ 12.16 hrs, Volume= 0.083 af, Depth= 4.98"
Routed to Pond 6P : Basin D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.200	98	Unconnected pavement, HSG C
0.200		100.00% Impervious Area
0.200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.4	111	0.0720	4.32		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.4	136	Total			

Subcatchment 11S: Basin D - Imp.

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Hydrograph for Subcatchment 11S: Basin D - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	4.98	0.00
1.00	0.06	0.00	0.00	53.00	5.22	4.98	0.00
2.00	0.13	0.02	0.01	54.00	5.22	4.98	0.00
3.00	0.20	0.07	0.01	55.00	5.22	4.98	0.00
4.00	0.27	0.12	0.01	56.00	5.22	4.98	0.00
5.00	0.36	0.19	0.01	57.00	5.22	4.98	0.00
6.00	0.45	0.27	0.02	58.00	5.22	4.98	0.00
7.00	0.55	0.36	0.02	59.00	5.22	4.98	0.00
8.00	0.68	0.48	0.03	60.00	5.22	4.98	0.00
9.00	0.83	0.63	0.03	61.00	5.22	4.98	0.00
10.00	1.03	0.82	0.05	62.00	5.22	4.98	0.00
11.00	1.36	1.14	0.08	63.00	5.22	4.98	0.00
12.00	2.50	2.27	0.43	64.00	5.22	4.98	0.00
13.00	3.86	3.63	0.11	65.00	5.22	4.98	0.00
14.00	4.19	3.95	0.05	66.00	5.22	4.98	0.00
15.00	4.39	4.16	0.04	67.00	5.22	4.98	0.00
16.00	4.54	4.31	0.03	68.00	5.22	4.98	0.00
17.00	4.67	4.43	0.02	69.00	5.22	4.98	0.00
18.00	4.77	4.54	0.02	70.00	5.22	4.98	0.00
19.00	4.86	4.63	0.02	71.00	5.22	4.98	0.00
20.00	4.95	4.71	0.02	72.00	5.22	4.98	0.00
21.00	5.02	4.79	0.02				
22.00	5.09	4.86	0.01				
23.00	5.16	4.92	0.01				
24.00	5.22	4.98	0.01				
25.00	5.22	4.98	0.00				
26.00	5.22	4.98	0.00				
27.00	5.22	4.98	0.00				
28.00	5.22	4.98	0.00				
29.00	5.22	4.98	0.00				
30.00	5.22	4.98	0.00				
31.00	5.22	4.98	0.00				
32.00	5.22	4.98	0.00				
33.00	5.22	4.98	0.00				
34.00	5.22	4.98	0.00				
35.00	5.22	4.98	0.00				
36.00	5.22	4.98	0.00				
37.00	5.22	4.98	0.00				
38.00	5.22	4.98	0.00				
39.00	5.22	4.98	0.00				
40.00	5.22	4.98	0.00				
41.00	5.22	4.98	0.00				
42.00	5.22	4.98	0.00				
43.00	5.22	4.98	0.00				
44.00	5.22	4.98	0.00				
45.00	5.22	4.98	0.00				
46.00	5.22	4.98	0.00				
47.00	5.22	4.98	0.00				
48.00	5.22	4.98	0.00				
49.00	5.22	4.98	0.00				
50.00	5.22	4.98	0.00				
51.00	5.22	4.98	0.00				

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 10-Year Rainfall=5.22"

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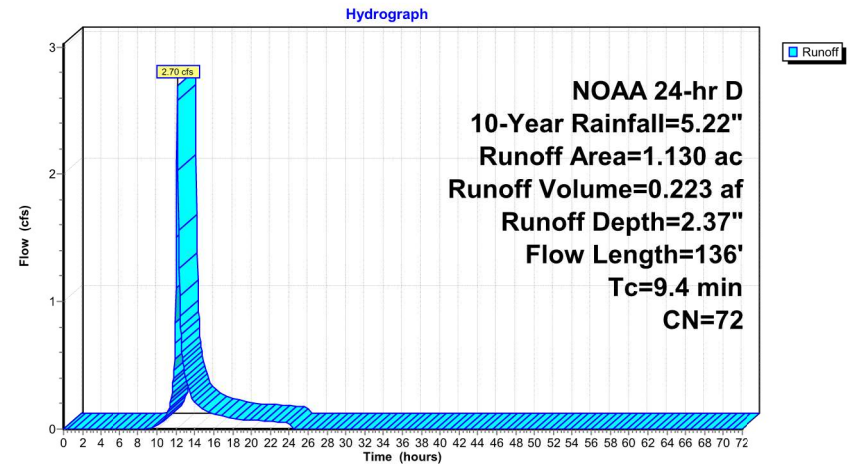
Summary for Subcatchment 12S: Basin D - Perv.

Runoff = 2.70 cfs @ 12.17 hrs, Volume= 0.223 af, Depth= 2.37"
Routed to Pond 6P : Basin D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 10-Year Rainfall=5.22"

Area (ac)	CN	Description
0.470	74	>75% Grass cover, Good, HSG C
0.650	70	Woods, Good, HSG C
* 0.010	55	Woods, Good, HSG B
1.130	72	Weighted Average
1.130		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.4	111	0.0720	4.32		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.4	136	Total			

Subcatchment 12S: Basin D - Perv.

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Hydrograph for Subcatchment 12S: Basin D - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	5.22	2.37	0.00
1.00	0.06	0.00	0.00	53.00	5.22	2.37	0.00
2.00	0.13	0.00	0.00	54.00	5.22	2.37	0.00
3.00	0.20	0.00	0.00	55.00	5.22	2.37	0.00
4.00	0.27	0.00	0.00	56.00	5.22	2.37	0.00
5.00	0.36	0.00	0.00	57.00	5.22	2.37	0.00
6.00	0.45	0.00	0.00	58.00	5.22	2.37	0.00
7.00	0.55	0.00	0.00	59.00	5.22	2.37	0.00
8.00	0.68	0.00	0.00	60.00	5.22	2.37	0.00
9.00	0.83	0.00	0.00	61.00	5.22	2.37	0.00
10.00	1.03	0.02	0.03	62.00	5.22	2.37	0.00
11.00	1.36	0.08	0.10	63.00	5.22	2.37	0.00
12.00	2.50	0.53	1.11	64.00	5.22	2.37	0.00
13.00	3.86	1.36	0.42	65.00	5.22	2.37	0.00
14.00	4.19	1.59	0.21	66.00	5.22	2.37	0.00
15.00	4.39	1.74	0.15	67.00	5.22	2.37	0.00
16.00	4.54	1.85	0.12	68.00	5.22	2.37	0.00
17.00	4.67	1.95	0.10	69.00	5.22	2.37	0.00
18.00	4.77	2.03	0.08	70.00	5.22	2.37	0.00
19.00	4.86	2.09	0.08	71.00	5.22	2.37	0.00
20.00	4.95	2.16	0.07	72.00	5.22	2.37	0.00
21.00	5.02	2.22	0.07				
22.00	5.09	2.27	0.06				
23.00	5.16	2.32	0.06				
24.00	5.22	2.37	0.05				
25.00	5.22	2.37	0.00				
26.00	5.22	2.37	0.00				
27.00	5.22	2.37	0.00				
28.00	5.22	2.37	0.00				
29.00	5.22	2.37	0.00				
30.00	5.22	2.37	0.00				
31.00	5.22	2.37	0.00				
32.00	5.22	2.37	0.00				
33.00	5.22	2.37	0.00				
34.00	5.22	2.37	0.00				
35.00	5.22	2.37	0.00				
36.00	5.22	2.37	0.00				
37.00	5.22	2.37	0.00				
38.00	5.22	2.37	0.00				
39.00	5.22	2.37	0.00				
40.00	5.22	2.37	0.00				
41.00	5.22	2.37	0.00				
42.00	5.22	2.37	0.00				
43.00	5.22	2.37	0.00				
44.00	5.22	2.37	0.00				
45.00	5.22	2.37	0.00				
46.00	5.22	2.37	0.00				
47.00	5.22	2.37	0.00				
48.00	5.22	2.37	0.00				
49.00	5.22	2.37	0.00				
50.00	5.22	2.37	0.00				
51.00	5.22	2.37	0.00				

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 10-Year Rainfall=5.22"

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Summary for Pond 3P: Basin A

Inflow Area = 1.130 ac, 18.58% Impervious, Inflow Depth = 2.85" for 10-Year event
 Inflow = 3.14 cfs @ 12.16 hrs, Volume= 0.269 af
 Outflow = 2.46 cfs @ 12.24 hrs, Volume= 0.269 af, Atten= 22%, Lag= 4.7 min
 Primary = 2.46 cfs @ 12.24 hrs, Volume= 0.269 af
 Routed to nonexistent node 2L

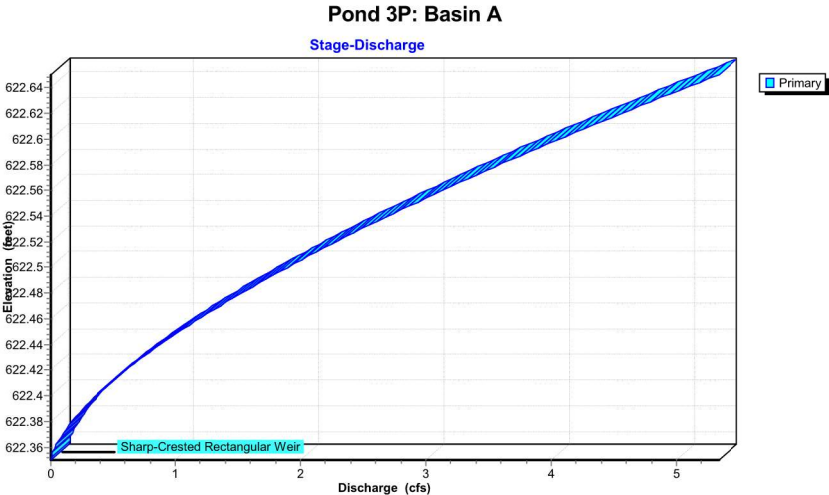
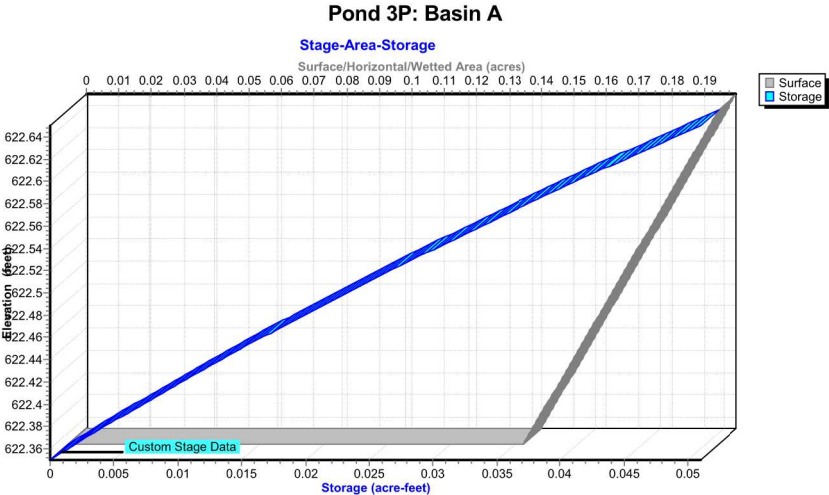
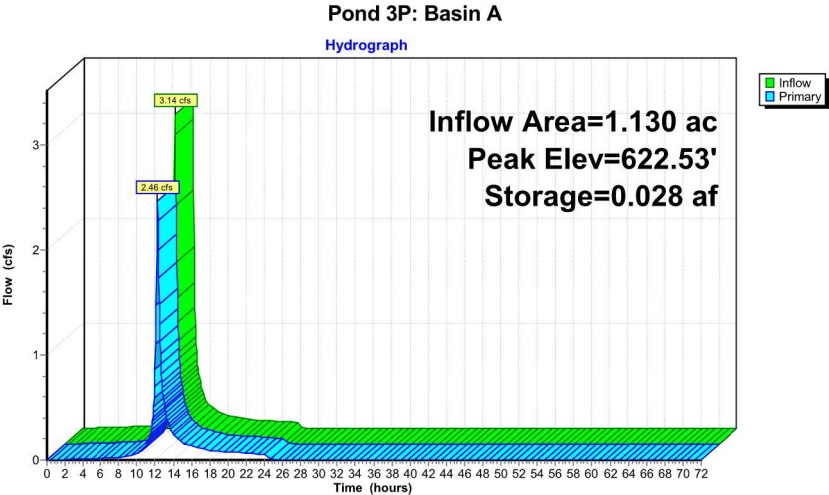
Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 Starting Elev= 621.80' Storage= 0.000 af
 Peak Elev= 622.53' @ 12.24 hrs Surf.Area= 0.176 ac Storage= 0.028 af

Plug-Flow detention time= 16.6 min calculated for 0.269 af (100% of inflow)
 Center-of-Mass det. time= 16.1 min (837.1 - 820.9)

Volume	Invert	Avail.Storage	Storage Description
#1	622.35'	0.051 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
622.35	0.140	0.000	0.000
622.65	0.200	0.051	0.051

Device	Routing	Invert	Outlet Devices
#1	Primary	622.35'	10.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=2.45 cfs @ 12.24 hrs HW=622.53' (Free Discharge)
 1=Sharp-Crested Rectangular Weir (Weir Controls 2.45 cfs @ 1.38 fps)



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Hydrograph for Pond 3P: Basin A

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	622.35	0.00
2.50	0.01	0.000	622.35	0.00
5.00	0.02	0.001	622.36	0.01
7.50	0.02	0.001	622.36	0.02
10.00	0.07	0.002	622.36	0.06
12.50	0.87	0.018	622.47	1.29
15.00	0.16	0.004	622.38	0.17
17.50	0.10	0.003	622.37	0.10
20.00	0.07	0.002	622.37	0.08
22.50	0.06	0.002	622.37	0.06
25.00	0.00	0.001	622.35	0.01
27.50	0.00	0.000	622.35	0.00
30.00	0.00	0.000	622.35	0.00
32.50	0.00	0.000	622.35	0.00
35.00	0.00	0.000	622.35	0.00
37.50	0.00	0.000	622.35	0.00
40.00	0.00	0.000	622.35	0.00
42.50	0.00	0.000	622.35	0.00
45.00	0.00	0.000	622.35	0.00
47.50	0.00	0.000	622.35	0.00
50.00	0.00	0.000	622.35	0.00
52.50	0.00	0.000	622.35	0.00
55.00	0.00	0.000	622.35	0.00
57.50	0.00	0.000	622.35	0.00
60.00	0.00	0.000	622.35	0.00
62.50	0.00	0.000	622.35	0.00
65.00	0.00	0.000	622.35	0.00
67.50	0.00	0.000	622.35	0.00
70.00	0.00	0.000	622.35	0.00

2023-01 Overflow Spillway Calcs

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Stage-Discharge for Pond 3P: Basin A

Elevation (feet)	Primary (cfs)
622.35	0.00
622.36	0.03
622.37	0.09
622.38	0.17
622.39	0.26
622.40	0.37
622.41	0.48
622.42	0.60
622.43	0.74
622.44	0.88
622.45	1.03
622.46	1.19
622.47	1.36
622.48	1.53
622.49	1.71
622.50	1.89
622.51	2.09
622.52	2.28
622.53	2.49
622.54	2.70
622.55	2.91
622.56	3.13
622.57	3.36
622.58	3.59
622.59	3.83
622.60	4.07
622.61	4.31
622.62	4.56
622.63	4.82
622.64	5.08
622.65	5.34

2023-01 Overflow Spillway Calcs

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Stage-Area-Storage for Pond 3P: Basin A

Elevation (feet)	Surface (acres)	Storage (acre-feet)
622.35	0.140	0.000
622.36	0.142	0.001
622.37	0.144	0.003
622.38	0.146	0.004
622.39	0.148	0.006
622.40	0.150	0.007
622.41	0.152	0.009
622.42	0.154	0.010
622.43	0.156	0.012
622.44	0.158	0.013
622.45	0.160	0.015
622.46	0.162	0.017
622.47	0.164	0.018
622.48	0.166	0.020
622.49	0.168	0.022
622.50	0.170	0.023
622.51	0.172	0.025
622.52	0.174	0.027
622.53	0.176	0.028
622.54	0.178	0.030
622.55	0.180	0.032
622.56	0.182	0.034
622.57	0.184	0.036
622.58	0.186	0.037
622.59	0.188	0.039
622.60	0.190	0.041
622.61	0.192	0.043
622.62	0.194	0.045
622.63	0.196	0.047
622.64	0.198	0.049
622.65	0.200	0.051

2023-01 Overflow Spillway Calcs

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Summary for Pond 4P: Basin B

Inflow Area = 0.960 ac, 19.79% Impervious, Inflow Depth = 2.89" for 10-Year event
 Inflow = 2.62 cfs @ 12.17 hrs, Volume= 0.231 af
 Outflow = 2.07 cfs @ 12.25 hrs, Volume= 0.231 af, Atten= 21%, Lag= 4.8 min
 Primary = 2.07 cfs @ 12.25 hrs, Volume= 0.231 af
 Routed to nonexistent node 2L

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Starting Elev= 621.25' Storage= 0.000 af

Peak Elev= 622.01' @ 12.25 hrs Surf.Area= 0.172 ac Storage= 0.025 af

Plug-Flow detention time= 16.8 min calculated for 0.231 af (100% of inflow)

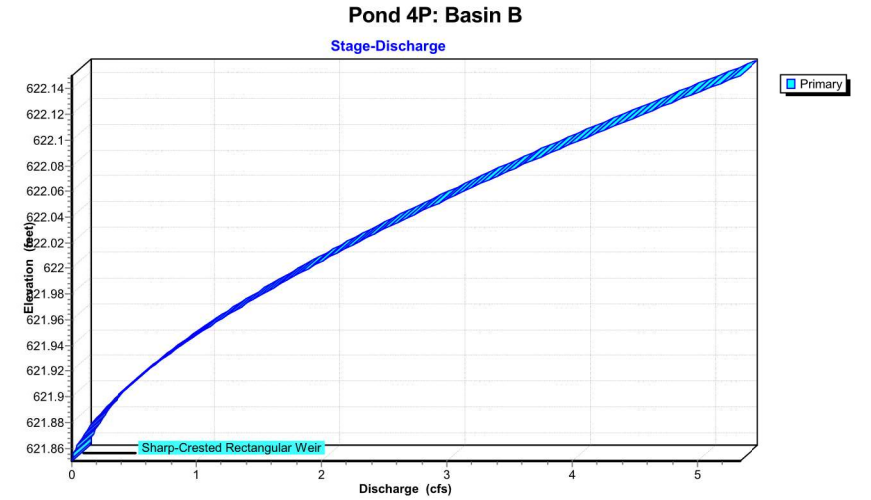
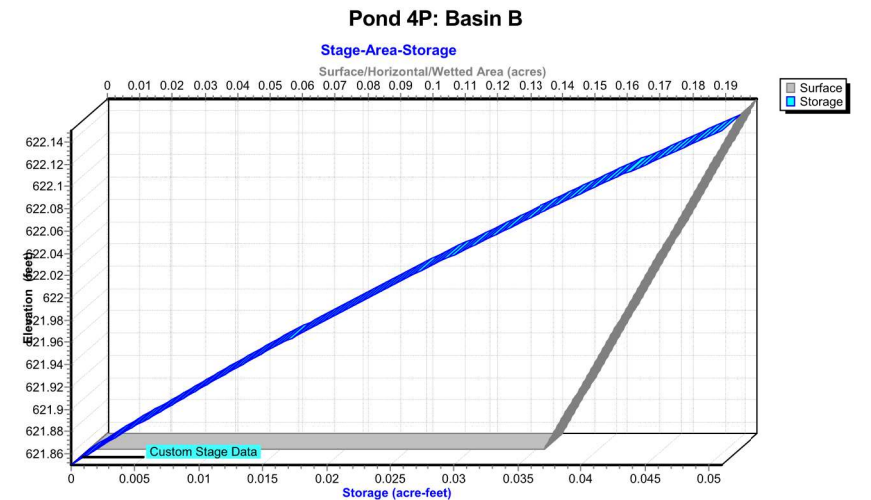
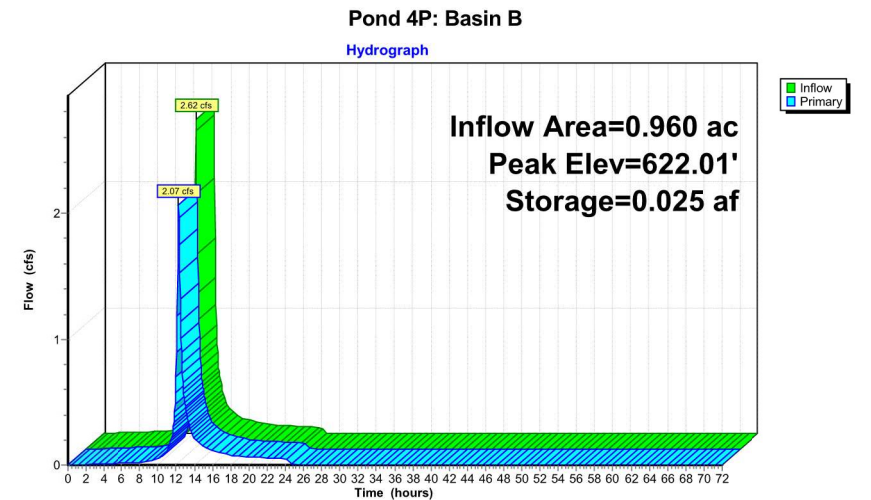
Center-of-Mass det. time= 17.0 min (836.7 - 819.7)

Volume	Invert	Avail.Storage	Storage Description
#1	621.85'	0.051 af	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
621.85	0.140	0.000	0.000
622.15	0.200	0.051	0.051

Device	Routing	Invert	Outlet Devices
#1	Primary	621.85'	10.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=2.06 cfs @ 12.25 hrs HW=622.01' (Free Discharge)**1=Sharp-Crested Rectangular Weir** (Weir Controls 2.06 cfs @ 1.30 fps)



2023-01 Overflow Spillway Calcs

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Hydrograph for Pond 4P: Basin B

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	621.85	0.00
2.50	0.01	0.000	621.85	0.00
5.00	0.01	0.001	621.86	0.01
7.50	0.02	0.001	621.86	0.02
10.00	0.06	0.002	621.86	0.05
12.50	0.76	0.016	621.96	1.15
15.00	0.13	0.004	621.88	0.15
17.50	0.08	0.003	621.87	0.09
20.00	0.06	0.002	621.87	0.06
22.50	0.05	0.002	621.86	0.05
25.00	0.00	0.000	621.85	0.01
27.50	0.00	0.000	621.85	0.00
30.00	0.00	0.000	621.85	0.00
32.50	0.00	0.000	621.85	0.00
35.00	0.00	0.000	621.85	0.00
37.50	0.00	0.000	621.85	0.00
40.00	0.00	0.000	621.85	0.00
42.50	0.00	0.000	621.85	0.00
45.00	0.00	0.000	621.85	0.00
47.50	0.00	0.000	621.85	0.00
50.00	0.00	0.000	621.85	0.00
52.50	0.00	0.000	621.85	0.00
55.00	0.00	0.000	621.85	0.00
57.50	0.00	0.000	621.85	0.00
60.00	0.00	0.000	621.85	0.00
62.50	0.00	0.000	621.85	0.00
65.00	0.00	0.000	621.85	0.00
67.50	0.00	0.000	621.85	0.00
70.00	0.00	0.000	621.85	0.00

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Stage-Discharge for Pond 4P: Basin B

Elevation (feet)	Primary (cfs)
621.85	0.00
621.86	0.03
621.87	0.09
621.88	0.17
621.89	0.26
621.90	0.37
621.91	0.48
621.92	0.60
621.93	0.74
621.94	0.88
621.95	1.03
621.96	1.19
621.97	1.36
621.98	1.53
621.99	1.71
622.00	1.89
622.01	2.09
622.02	2.28
622.03	2.49
622.04	2.70
622.05	2.91
622.06	3.13
622.07	3.36
622.08	3.59
622.09	3.83
622.10	4.07
622.11	4.31
622.12	4.56
622.13	4.82
622.14	5.08
622.15	5.34

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Stage-Area-Storage for Pond 4P: Basin B

Elevation (feet)	Surface (acres)	Storage (acre-feet)
621.85	0.140	0.000
621.86	0.142	0.001
621.87	0.144	0.003
621.88	0.146	0.004
621.89	0.148	0.006
621.90	0.150	0.007
621.91	0.152	0.009
621.92	0.154	0.010
621.93	0.156	0.012
621.94	0.158	0.013
621.95	0.160	0.015
621.96	0.162	0.017
621.97	0.164	0.018
621.98	0.166	0.020
621.99	0.168	0.022
622.00	0.170	0.023
622.01	0.172	0.025
622.02	0.174	0.027
622.03	0.176	0.028
622.04	0.178	0.030
622.05	0.180	0.032
622.06	0.182	0.034
622.07	0.184	0.036
622.08	0.186	0.037
622.09	0.188	0.039
622.10	0.190	0.041
622.11	0.192	0.043
622.12	0.194	0.045
622.13	0.196	0.047
622.14	0.198	0.049
622.15	0.200	0.051

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Summary for Pond 5P: Basin C

Inflow Area = 1.380 ac, 14.49% Impervious, Inflow Depth = 2.75" for 10-Year event
 Inflow = 3.73 cfs @ 12.16 hrs, Volume= 0.316 af
 Outflow = 2.97 cfs @ 12.24 hrs, Volume= 0.316 af, Atten= 20%, Lag= 4.5 min
 Primary = 2.97 cfs @ 12.24 hrs, Volume= 0.316 af
 Routed to nonexistent node 2L

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Starting Elev= 619.40' Storage= 0.000 af

Peak Elev= 620.28' @ 12.24 hrs Surf.Area= 0.196 ac Storage= 0.032 af

Plug-Flow detention time= 15.2 min calculated for 0.316 af (100% of inflow)

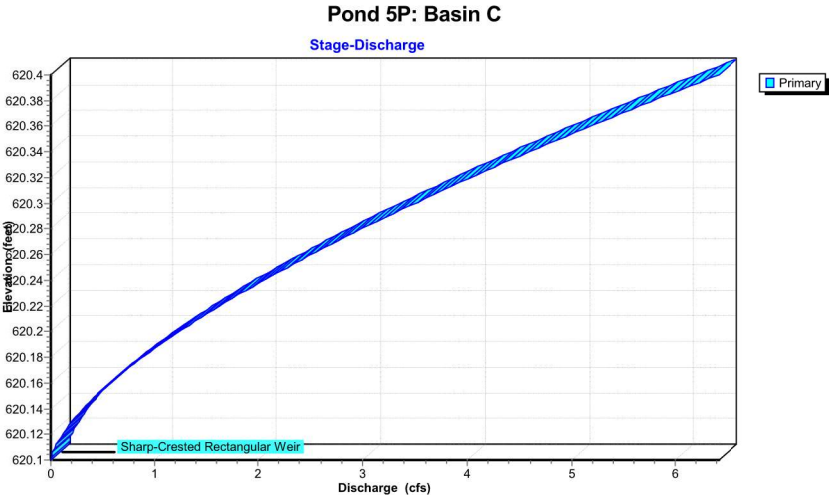
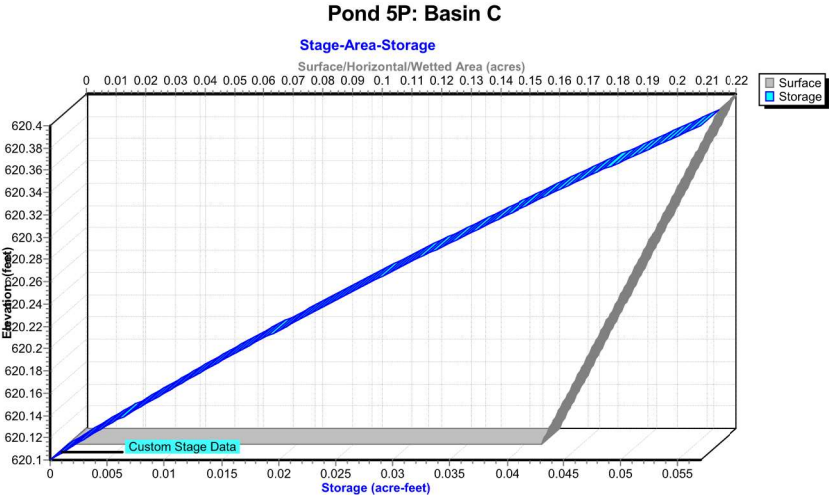
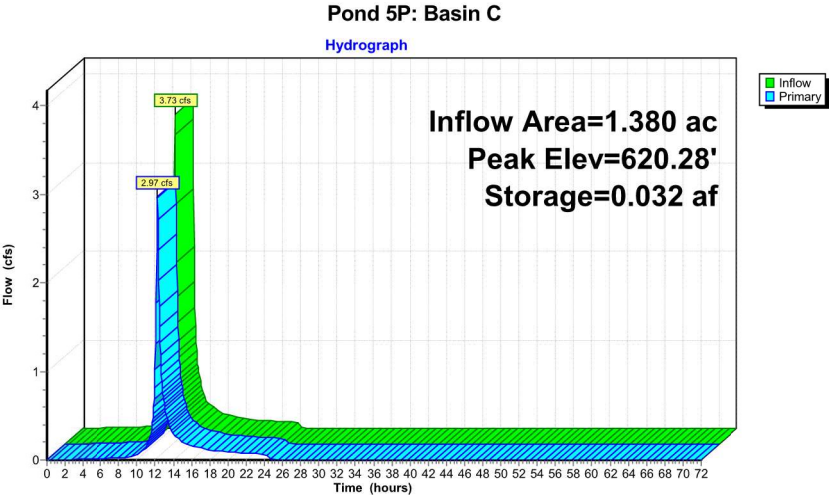
Center-of-Mass det. time= 15.3 min (842.5 - 827.3)

Volume	Invert	Avail.Storage	Storage Description
#1	620.10'	0.057 af	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
620.10	0.160	0.000	0.000
620.40	0.220	0.057	0.057

Device	Routing	Invert	Outlet Devices
#1	Primary	620.10'	12.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=2.94 cfs @ 12.24 hrs HW=620.28' (Free Discharge)**1=Sharp-Crested Rectangular Weir** (Weir Controls 2.94 cfs @ 1.38 fps)



2023-01 Overflow Spillway Calcs

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Hydrograph for Pond 5P: Basin C

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	620.10	0.00
2.50	0.01	0.000	620.10	0.00
5.00	0.01	0.001	620.10	0.01
7.50	0.02	0.001	620.11	0.02
10.00	0.08	0.002	620.11	0.06
12.50	1.04	0.020	620.21	1.50
15.00	0.19	0.005	620.13	0.21
17.50	0.12	0.003	620.12	0.12
20.00	0.09	0.003	620.12	0.09
22.50	0.07	0.003	620.12	0.08
25.00	0.00	0.001	620.10	0.01
27.50	0.00	0.000	620.10	0.00
30.00	0.00	0.000	620.10	0.00
32.50	0.00	0.000	620.10	0.00
35.00	0.00	0.000	620.10	0.00
37.50	0.00	0.000	620.10	0.00
40.00	0.00	0.000	620.10	0.00
42.50	0.00	0.000	620.10	0.00
45.00	0.00	0.000	620.10	0.00
47.50	0.00	0.000	620.10	0.00
50.00	0.00	0.000	620.10	0.00
52.50	0.00	0.000	620.10	0.00
55.00	0.00	0.000	620.10	0.00
57.50	0.00	0.000	620.10	0.00
60.00	0.00	0.000	620.10	0.00
62.50	0.00	0.000	620.10	0.00
65.00	0.00	0.000	620.10	0.00
67.50	0.00	0.000	620.10	0.00
70.00	0.00	0.000	620.10	0.00

2023-01 Overflow Spillway Calcs

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Stage-Discharge for Pond 5P: Basin C

Elevation (feet)	Primary (cfs)
620.10	0.00
620.11	0.04
620.12	0.11
620.13	0.20
620.14	0.31
620.15	0.44
620.16	0.58
620.17	0.73
620.18	0.89
620.19	1.06
620.20	1.24
620.21	1.43
620.22	1.63
620.23	1.84
620.24	2.05
620.25	2.27
620.26	2.50
620.27	2.74
620.28	2.99
620.29	3.24
620.30	3.50
620.31	3.76
620.32	4.03
620.33	4.31
620.34	4.60
620.35	4.88
620.36	5.18
620.37	5.48
620.38	5.79
620.39	6.10
620.40	6.42

2023-01 Overflow Spillway Calcs

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Stage-Area-Storage for Pond 5P: Basin C

Elevation (feet)	Surface (acres)	Storage (acre-feet)
620.10	0.160	0.000
620.11	0.162	0.002
620.12	0.164	0.003
620.13	0.166	0.005
620.14	0.168	0.007
620.15	0.170	0.008
620.16	0.172	0.010
620.17	0.174	0.012
620.18	0.176	0.013
620.19	0.178	0.015
620.20	0.180	0.017
620.21	0.182	0.019
620.22	0.184	0.021
620.23	0.186	0.022
620.24	0.188	0.024
620.25	0.190	0.026
620.26	0.192	0.028
620.27	0.194	0.030
620.28	0.196	0.032
620.29	0.198	0.034
620.30	0.200	0.036
620.31	0.202	0.038
620.32	0.204	0.040
620.33	0.206	0.042
620.34	0.208	0.044
620.35	0.210	0.046
620.36	0.212	0.048
620.37	0.214	0.050
620.38	0.216	0.053
620.39	0.218	0.055
620.40	0.220	0.057

2023-01 Overflow Spillway Calcs

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Summary for Pond 6P: Basin D

Inflow Area = 1.330 ac, 15.04% Impervious, Inflow Depth = 2.76" for 10-Year event
 Inflow = 3.57 cfs @ 12.17 hrs, Volume= 0.306 af
 Outflow = 2.90 cfs @ 12.24 hrs, Volume= 0.306 af, Atten= 19%, Lag= 4.3 min
 Primary = 2.90 cfs @ 12.24 hrs, Volume= 0.306 af
 Routed to nonexistent node 2L

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Starting Elev= 614.15' Storage= 0.000 af

Peak Elev= 614.78' @ 12.24 hrs Surf.Area= 0.189 ac Storage= 0.028 af

Plug-Flow detention time= 13.2 min calculated for 0.306 af (100% of inflow)

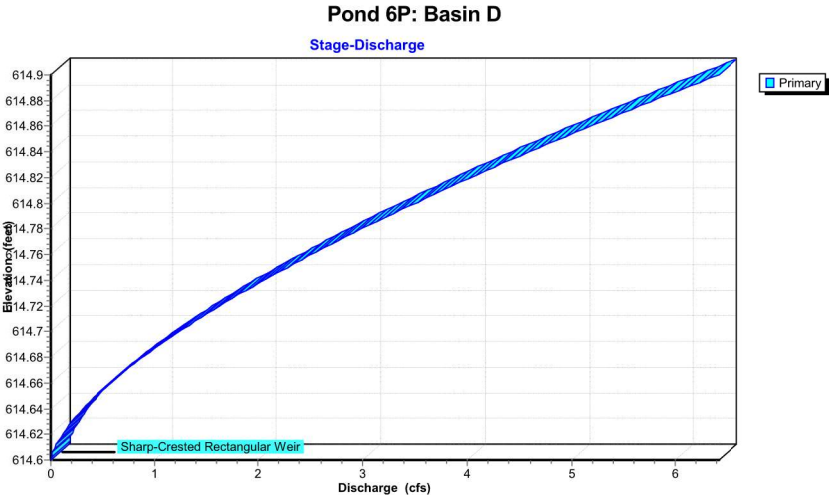
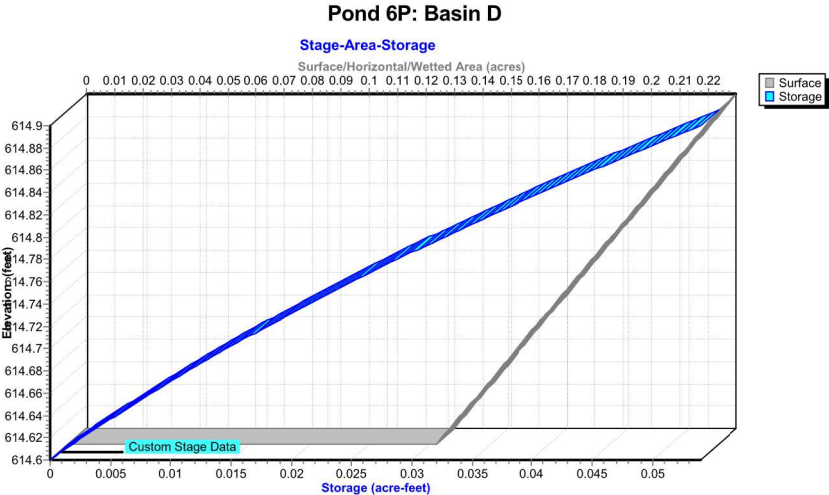
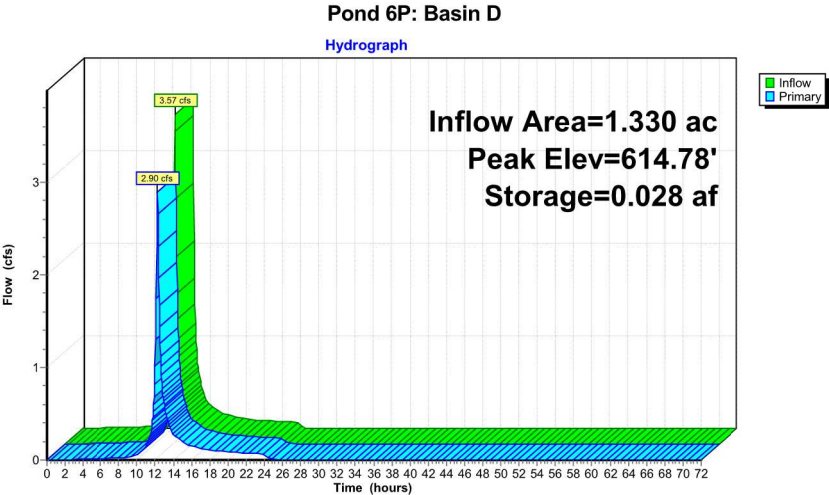
Center-of-Mass det. time= 12.9 min (839.5 - 826.6)

Volume	Invert	Avail.Storage	Storage Description
#1	614.60'	0.054 af	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
614.60	0.130	0.000	0.000
614.90	0.230	0.054	0.054

Device	Routing	Invert	Outlet Devices
#1	Primary	614.60'	12.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=2.87 cfs @ 12.24 hrs HW=614.78' (Free Discharge)**1=Sharp-Crested Rectangular Weir** (Weir Controls 2.87 cfs @ 1.37 fps)



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Hydrograph for Pond 6P: Basin D

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	614.60	0.00
2.50	0.01	0.000	614.60	0.01
5.00	0.01	0.001	614.60	0.01
7.50	0.02	0.001	614.61	0.02
10.00	0.07	0.002	614.61	0.06
12.50	1.02	0.016	614.71	1.44
15.00	0.18	0.004	614.63	0.20
17.50	0.11	0.003	614.62	0.12
20.00	0.09	0.002	614.62	0.09
22.50	0.07	0.002	614.62	0.07
25.00	0.00	0.000	614.60	0.01
27.50	0.00	0.000	614.60	0.00
30.00	0.00	0.000	614.60	0.00
32.50	0.00	0.000	614.60	0.00
35.00	0.00	0.000	614.60	0.00
37.50	0.00	0.000	614.60	0.00
40.00	0.00	0.000	614.60	0.00
42.50	0.00	0.000	614.60	0.00
45.00	0.00	0.000	614.60	0.00
47.50	0.00	0.000	614.60	0.00
50.00	0.00	0.000	614.60	0.00
52.50	0.00	0.000	614.60	0.00
55.00	0.00	0.000	614.60	0.00
57.50	0.00	0.000	614.60	0.00
60.00	0.00	0.000	614.60	0.00
62.50	0.00	0.000	614.60	0.00
65.00	0.00	0.000	614.60	0.00
67.50	0.00	0.000	614.60	0.00
70.00	0.00	0.000	614.60	0.00

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Stage-Discharge for Pond 6P: Basin D

Elevation (feet)	Primary (cfs)
614.60	0.00
614.61	0.04
614.62	0.11
614.63	0.20
614.64	0.31
614.65	0.44
614.66	0.58
614.67	0.73
614.68	0.89
614.69	1.06
614.70	1.24
614.71	1.43
614.72	1.63
614.73	1.84
614.74	2.05
614.75	2.27
614.76	2.50
614.77	2.74
614.78	2.99
614.79	3.24
614.80	3.50
614.81	3.76
614.82	4.03
614.83	4.31
614.84	4.60
614.85	4.88
614.86	5.18
614.87	5.48
614.88	5.79
614.89	6.10
614.90	6.42

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Stage-Area-Storage for Pond 6P: Basin D

Elevation (feet)	Surface (acres)	Storage (acre-feet)
614.60	0.130	0.000
614.61	0.133	0.001
614.62	0.137	0.003
614.63	0.140	0.004
614.64	0.143	0.005
614.65	0.147	0.007
614.66	0.150	0.008
614.67	0.153	0.010
614.68	0.157	0.011
614.69	0.160	0.013
614.70	0.163	0.015
614.71	0.167	0.016
614.72	0.170	0.018
614.73	0.173	0.020
614.74	0.177	0.021
614.75	0.180	0.023
614.76	0.183	0.025
614.77	0.187	0.027
614.78	0.190	0.029
614.79	0.193	0.031
614.80	0.197	0.033
614.81	0.200	0.035
614.82	0.203	0.037
614.83	0.207	0.039
614.84	0.210	0.041
614.85	0.213	0.043
614.86	0.217	0.045
614.87	0.220	0.047
614.88	0.223	0.049
614.89	0.227	0.052
614.90	0.230	0.054

2023-01 Overflow Spillway Calcs

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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

Subcatchment 1S: Basin A - Imp.	Runoff Area=0.210 ac 100.00% Impervious Runoff Depth=8.42" Flow Length=90' Tc=9.2 min CN=98 Runoff=1.53 cfs 0.147 af
Subcatchment 3S: Basin A - Perv.	Runoff Area=0.920 ac 0.00% Impervious Runoff Depth=5.28" Flow Length=90' Tc=9.2 min CN=72 Runoff=4.93 cfs 0.405 af
Subcatchment 4S: Basin B - Imp.	Runoff Area=0.190 ac 100.00% Impervious Runoff Depth=8.42" Flow Length=133' Tc=9.8 min CN=98 Runoff=1.35 cfs 0.133 af
Subcatchment 5S: Basin B - Perv.	Runoff Area=0.770 ac 0.00% Impervious Runoff Depth=5.28" Flow Length=133' Tc=9.8 min CN=72 Runoff=4.03 cfs 0.339 af
Subcatchment 7S: Basin C - Imp.	Runoff Area=0.200 ac 100.00% Impervious Runoff Depth=8.42" Flow Length=78' Tc=9.2 min CN=98 Runoff=1.46 cfs 0.140 af
Subcatchment 8S: Basin C - Perv.	Runoff Area=1.180 ac 0.00% Impervious Runoff Depth=5.28" Flow Length=78' Tc=9.2 min CN=72 Runoff=6.33 cfs 0.519 af
Subcatchment 11S: Basin D - Imp.	Runoff Area=0.200 ac 100.00% Impervious Runoff Depth=8.42" Flow Length=136' Tc=9.4 min CN=98 Runoff=1.45 cfs 0.140 af
Subcatchment 12S: Basin D - Perv.	Runoff Area=1.130 ac 0.00% Impervious Runoff Depth=5.28" Flow Length=136' Tc=9.4 min CN=72 Runoff=6.00 cfs 0.497 af
Pond 3P: Basin A	Peak Elev=622.65' Storage=0.050 af Inflow=6.47 cfs 0.552 af Outflow=5.27 cfs 0.552 af
Pond 4P: Basin B	Peak Elev=622.11' Storage=0.044 af Inflow=5.38 cfs 0.472 af Outflow=4.42 cfs 0.472 af
Pond 5P: Basin C	Peak Elev=620.40' Storage=0.057 af Inflow=7.79 cfs 0.659 af Outflow=6.46 cfs 0.659 af
Pond 6P: Basin D	Peak Elev=614.89' Storage=0.052 af Inflow=7.44 cfs 0.637 af Outflow=6.19 cfs 0.637 af

Total Runoff Area = 4.800 ac Runoff Volume = 2.321 af Average Runoff Depth = 5.80"
83.33% Pervious = 4.000 ac 16.67% Impervious = 0.800 ac

2023-01 Overflow Spillway Calcs

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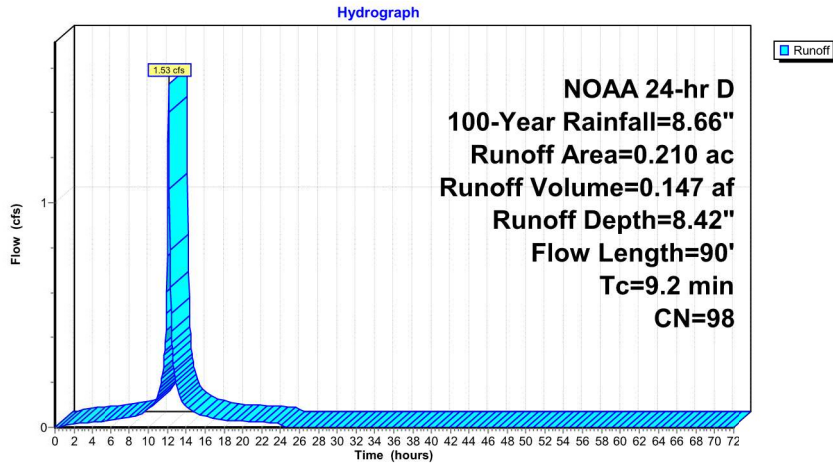
Summary for Subcatchment 1S: Basin A - Imp.

Runoff = 1.53 cfs @ 12.16 hrs, Volume= 0.147 af, Depth= 8.42"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.210	98	Unconnected pavement, HSG C
0.210		100.00% Impervious Area
0.210		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	65	0.1690	6.62		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	90	Total			

Subcatchment 1S: Basin A - Imp.**2023-01 Overflow Spillway Calcs**

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Hydrograph for Subcatchment 1S: Basin A - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.01
2.00	0.21	0.08	0.02
3.00	0.33	0.17	0.02
4.00	0.45	0.28	0.02
5.00	0.59	0.40	0.03
6.00	0.74	0.54	0.03
7.00	0.91	0.71	0.04
8.00	1.12	0.91	0.05
9.00	1.37	1.16	0.05
10.00	1.72	1.49	0.08
11.00	2.25	2.02	0.14
12.00	4.15	3.91	0.77
13.00	6.41	6.17	0.19
14.00	6.94	6.70	0.09
15.00	7.29	7.05	0.06
16.00	7.54	7.30	0.05
17.00	7.75	7.51	0.04
18.00	7.92	7.68	0.03
19.00	8.07	7.83	0.03
20.00	8.21	7.97	0.03
21.00	8.33	8.09	0.03
22.00	8.45	8.21	0.02
23.00	8.56	8.32	0.02
24.00	8.66	8.42	0.02
25.00	8.66	8.42	0.00
26.00	8.66	8.42	0.00
27.00	8.66	8.42	0.00
28.00	8.66	8.42	0.00
29.00	8.66	8.42	0.00
30.00	8.66	8.42	0.00
31.00	8.66	8.42	0.00
32.00	8.66	8.42	0.00
33.00	8.66	8.42	0.00
34.00	8.66	8.42	0.00
35.00	8.66	8.42	0.00
36.00	8.66	8.42	0.00
37.00	8.66	8.42	0.00
38.00	8.66	8.42	0.00
39.00	8.66	8.42	0.00
40.00	8.66	8.42	0.00
41.00	8.66	8.42	0.00
42.00	8.66	8.42	0.00
43.00	8.66	8.42	0.00
44.00	8.66	8.42	0.00
45.00	8.66	8.42	0.00
46.00	8.66	8.42	0.00
47.00	8.66	8.42	0.00
48.00	8.66	8.42	0.00
49.00	8.66	8.42	0.00
50.00	8.66	8.42	0.00
51.00	8.66	8.42	0.00

2023-01 Overflow Spillway Calcs

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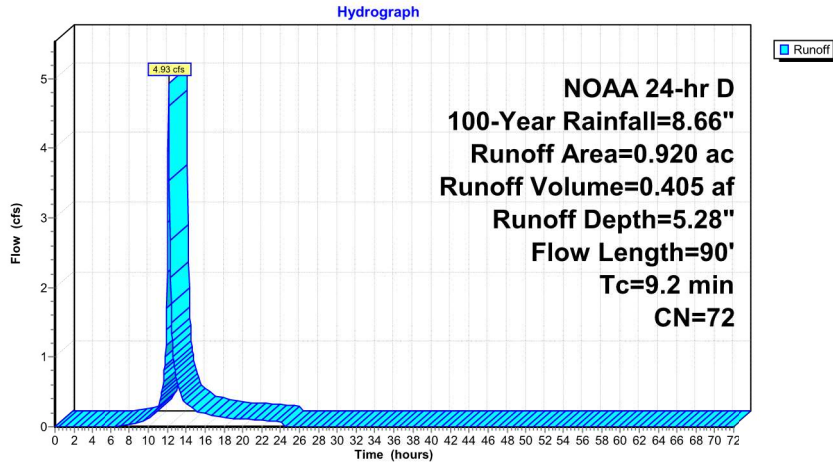
Summary for Subcatchment 3S: Basin A - Perv.

Runoff = 4.93 cfs @ 12.16 hrs, Volume= 0.405 af, Depth= 5.28"
 Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.470	74	>75% Grass cover, Good, HSG C
0.450	70	Woods, Good, HSG C
0.920	72	Weighted Average
0.920		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	65	0.1690	6.62		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	90	Total			

Subcatchment 3S: Basin A - Perv.**2023-01 Overflow Spillway Calcs**

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Hydrograph for Subcatchment 3S: Basin A - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.66	5.28	0.00
1.00	0.10	0.00	0.00	53.00	8.66	5.28	0.00
2.00	0.21	0.00	0.00	54.00	8.66	5.28	0.00
3.00	0.33	0.00	0.00	55.00	8.66	5.28	0.00
4.00	0.45	0.00	0.00	56.00	8.66	5.28	0.00
5.00	0.59	0.00	0.00	57.00	8.66	5.28	0.00
6.00	0.74	0.00	0.00	58.00	8.66	5.28	0.00
7.00	0.91	0.00	0.01	59.00	8.66	5.28	0.00
8.00	1.12	0.03	0.03	60.00	8.66	5.28	0.00
9.00	1.37	0.08	0.06	61.00	8.66	5.28	0.00
10.00	1.72	0.18	0.12	62.00	8.66	5.28	0.00
11.00	2.25	0.40	0.29	63.00	8.66	5.28	0.00
12.00	4.15	1.57	2.22	64.00	8.66	5.28	0.00
13.00	6.41	3.33	0.69	65.00	8.66	5.28	0.00
14.00	6.94	3.78	0.34	66.00	8.66	5.28	0.00
15.00	7.29	4.07	0.23	67.00	8.66	5.28	0.00
16.00	7.54	4.29	0.19	68.00	8.66	5.28	0.00
17.00	7.75	4.47	0.16	69.00	8.66	5.28	0.00
18.00	7.92	4.62	0.13	70.00	8.66	5.28	0.00
19.00	8.07	4.75	0.12	71.00	8.66	5.28	0.00
20.00	8.21	4.88	0.11	72.00	8.66	5.28	0.00
21.00	8.33	4.99	0.10				
22.00	8.45	5.09	0.09				
23.00	8.56	5.19	0.09				
24.00	8.66	5.28	0.08				
25.00	8.66	5.28	0.00				
26.00	8.66	5.28	0.00				
27.00	8.66	5.28	0.00				
28.00	8.66	5.28	0.00				
29.00	8.66	5.28	0.00				
30.00	8.66	5.28	0.00				
31.00	8.66	5.28	0.00				
32.00	8.66	5.28	0.00				
33.00	8.66	5.28	0.00				
34.00	8.66	5.28	0.00				
35.00	8.66	5.28	0.00				
36.00	8.66	5.28	0.00				
37.00	8.66	5.28	0.00				
38.00	8.66	5.28	0.00				
39.00	8.66	5.28	0.00				
40.00	8.66	5.28	0.00				
41.00	8.66	5.28	0.00				
42.00	8.66	5.28	0.00				
43.00	8.66	5.28	0.00				
44.00	8.66	5.28	0.00				
45.00	8.66	5.28	0.00				
46.00	8.66	5.28	0.00				
47.00	8.66	5.28	0.00				
48.00	8.66	5.28	0.00				
49.00	8.66	5.28	0.00				
50.00	8.66	5.28	0.00				
51.00	8.66	5.28	0.00				

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 100-Year Rainfall=8.66"

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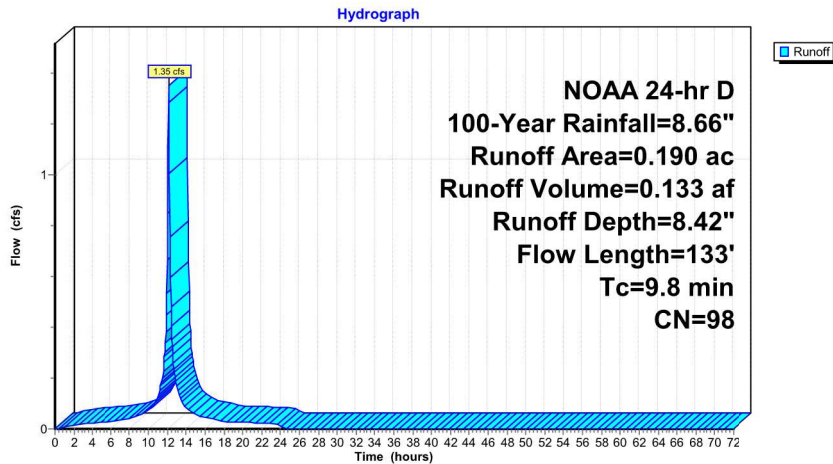
Summary for Subcatchment 4S: Basin B - Imp.

Runoff = 1.35 cfs @ 12.17 hrs, Volume= 0.133 af, Depth= 8.42"
Routed to Pond 4P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.190	98	Unconnected pavement, HSG C
0.190		100.00% Impervious Area
0.190		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.3	48	0.0310	2.83		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.0	15	0.4000	10.18		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.5	45	0.0100	1.61		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.8	133	Total			

Subcatchment 4S: Basin B - Imp.**2023-01 Overflow Spillway Calcs**

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Hydrograph for Subcatchment 4S: Basin B - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.01
2.00	0.21	0.08	0.01
3.00	0.33	0.17	0.02
4.00	0.45	0.28	0.02
5.00	0.59	0.40	0.02
6.00	0.74	0.54	0.03
7.00	0.91	0.71	0.03
8.00	1.12	0.91	0.04
9.00	1.37	1.16	0.05
10.00	1.72	1.49	0.07
11.00	2.25	2.02	0.13
12.00	4.15	3.91	0.67
13.00	6.41	6.17	0.17
14.00	6.94	6.70	0.08
15.00	7.29	7.05	0.06
16.00	7.54	7.30	0.05
17.00	7.75	7.51	0.04
18.00	7.92	7.68	0.03
19.00	8.07	7.83	0.03
20.00	8.21	7.97	0.03
21.00	8.33	8.09	0.02
22.00	8.45	8.21	0.02
23.00	8.56	8.32	0.02
24.00	8.66	8.42	0.02
25.00	8.66	8.42	0.00
26.00	8.66	8.42	0.00
27.00	8.66	8.42	0.00
28.00	8.66	8.42	0.00
29.00	8.66	8.42	0.00
30.00	8.66	8.42	0.00
31.00	8.66	8.42	0.00
32.00	8.66	8.42	0.00
33.00	8.66	8.42	0.00
34.00	8.66	8.42	0.00
35.00	8.66	8.42	0.00
36.00	8.66	8.42	0.00
37.00	8.66	8.42	0.00
38.00	8.66	8.42	0.00
39.00	8.66	8.42	0.00
40.00	8.66	8.42	0.00
41.00	8.66	8.42	0.00
42.00	8.66	8.42	0.00
43.00	8.66	8.42	0.00
44.00	8.66	8.42	0.00
45.00	8.66	8.42	0.00
46.00	8.66	8.42	0.00
47.00	8.66	8.42	0.00
48.00	8.66	8.42	0.00
49.00	8.66	8.42	0.00
50.00	8.66	8.42	0.00
51.00	8.66	8.42	0.00

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 100-Year Rainfall=8.66"

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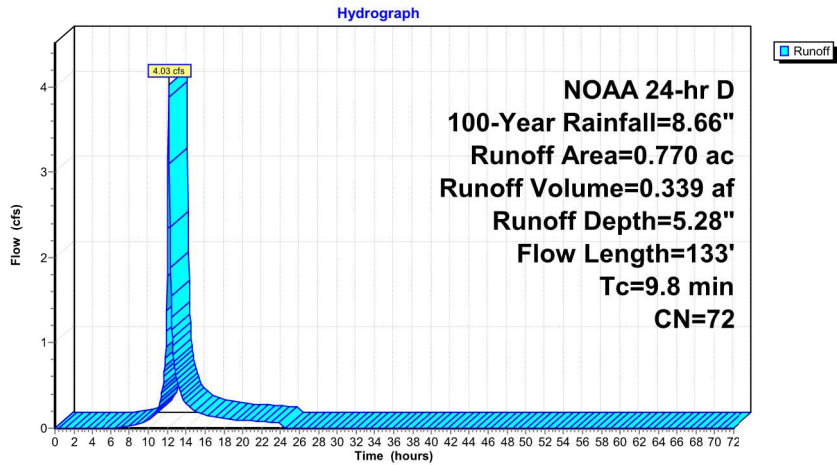
Summary for Subcatchment 5S: Basin B - Perv.

Runoff = 4.03 cfs @ 12.17 hrs, Volume= 0.339 af, Depth= 5.28"
Routed to Pond 4P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.390	74	>75% Grass cover, Good, HSG C
0.380	70	Woods, Good, HSG C
0.770	72	Weighted Average
0.770		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.3	48	0.0310	2.83		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.0	15	0.4000	10.18		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
0.5	45	0.0100	1.61		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.8	133	Total			

Subcatchment 5S: Basin B - Perv.**2023-01 Overflow Spillway Calcs**

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Hydrograph for Subcatchment 5S: Basin B - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.21	0.00	0.00
3.00	0.33	0.00	0.00
4.00	0.45	0.00	0.00
5.00	0.59	0.00	0.00
6.00	0.74	0.00	0.00
7.00	0.91	0.00	0.01
8.00	1.12	0.03	0.02
9.00	1.37	0.08	0.05
10.00	1.72	0.18	0.10
11.00	2.25	0.40	0.24
12.00	4.15	1.57	1.78
13.00	6.41	3.33	0.58
14.00	6.94	3.78	0.28
15.00	7.29	4.07	0.20
16.00	7.54	4.29	0.16
17.00	7.75	4.47	0.13
18.00	7.92	4.62	0.11
19.00	8.07	4.75	0.10
20.00	8.21	4.88	0.09
21.00	8.33	4.99	0.09
22.00	8.45	5.09	0.08
23.00	8.56	5.19	0.07
24.00	8.66	5.28	0.07
25.00	8.66	5.28	0.00
26.00	8.66	5.28	0.00
27.00	8.66	5.28	0.00
28.00	8.66	5.28	0.00
29.00	8.66	5.28	0.00
30.00	8.66	5.28	0.00
31.00	8.66	5.28	0.00
32.00	8.66	5.28	0.00
33.00	8.66	5.28	0.00
34.00	8.66	5.28	0.00
35.00	8.66	5.28	0.00
36.00	8.66	5.28	0.00
37.00	8.66	5.28	0.00
38.00	8.66	5.28	0.00
39.00	8.66	5.28	0.00
40.00	8.66	5.28	0.00
41.00	8.66	5.28	0.00
42.00	8.66	5.28	0.00
43.00	8.66	5.28	0.00
44.00	8.66	5.28	0.00
45.00	8.66	5.28	0.00
46.00	8.66	5.28	0.00
47.00	8.66	5.28	0.00
48.00	8.66	5.28	0.00
49.00	8.66	5.28	0.00
50.00	8.66	5.28	0.00
51.00	8.66	5.28	0.00

2023-01 Overflow Spillway Calcs

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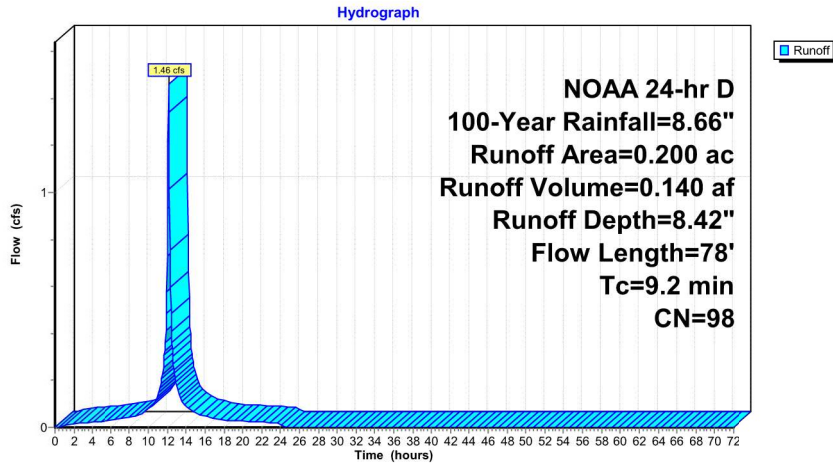
Summary for Subcatchment 7S: Basin C - Imp.

Runoff = 1.46 cfs @ 12.16 hrs, Volume= 0.140 af, Depth= 8.42"
Routed to Pond 5P : Basin C

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.200	98	Unconnected pavement, HSG C
0.200		100.00% Impervious Area
0.200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Shhet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	53	0.1070	5.27		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	78	Total			

Subcatchment 7S: Basin C - Imp.**2023-01 Overflow Spillway Calcs**

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Hydrograph for Subcatchment 7S: Basin C - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.01
2.00	0.21	0.08	0.02
3.00	0.33	0.17	0.02
4.00	0.45	0.28	0.02
5.00	0.59	0.40	0.03
6.00	0.74	0.54	0.03
7.00	0.91	0.71	0.04
8.00	1.12	0.91	0.04
9.00	1.37	1.16	0.05
10.00	1.72	1.49	0.08
11.00	2.25	2.02	0.14
12.00	4.15	3.91	0.73
13.00	6.41	6.17	0.18
14.00	6.94	6.70	0.09
15.00	7.29	7.05	0.06
16.00	7.54	7.30	0.05
17.00	7.75	7.51	0.04
18.00	7.92	7.68	0.03
19.00	8.07	7.83	0.03
20.00	8.21	7.97	0.03
21.00	8.33	8.09	0.03
22.00	8.45	8.21	0.02
23.00	8.56	8.32	0.02
24.00	8.66	8.42	0.02
25.00	8.66	8.42	0.00
26.00	8.66	8.42	0.00
27.00	8.66	8.42	0.00
28.00	8.66	8.42	0.00
29.00	8.66	8.42	0.00
30.00	8.66	8.42	0.00
31.00	8.66	8.42	0.00
32.00	8.66	8.42	0.00
33.00	8.66	8.42	0.00
34.00	8.66	8.42	0.00
35.00	8.66	8.42	0.00
36.00	8.66	8.42	0.00
37.00	8.66	8.42	0.00
38.00	8.66	8.42	0.00
39.00	8.66	8.42	0.00
40.00	8.66	8.42	0.00
41.00	8.66	8.42	0.00
42.00	8.66	8.42	0.00
43.00	8.66	8.42	0.00
44.00	8.66	8.42	0.00
45.00	8.66	8.42	0.00
46.00	8.66	8.42	0.00
47.00	8.66	8.42	0.00
48.00	8.66	8.42	0.00
49.00	8.66	8.42	0.00
50.00	8.66	8.42	0.00
51.00	8.66	8.42	0.00

2023-01 Overflow Spillway Calcs

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NOAA 24-hr D 100-Year Rainfall=8.66"

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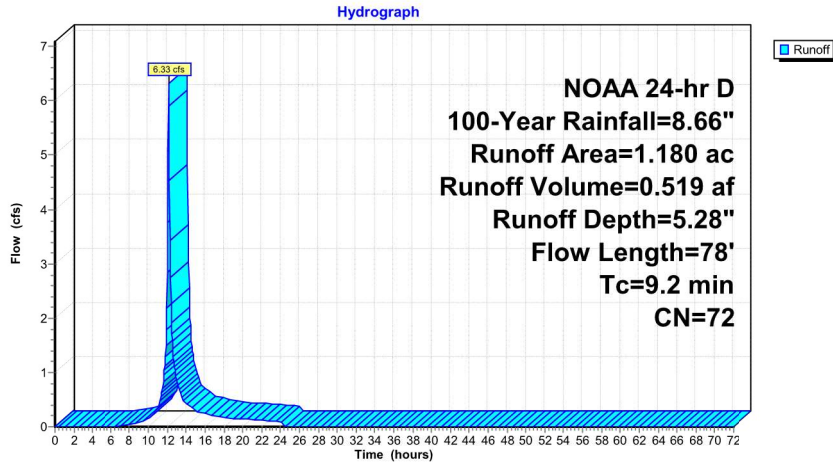
Summary for Subcatchment 8S: Basin C - Perv.

Runoff = 6.33 cfs @ 12.16 hrs, Volume= 0.519 af, Depth= 5.28"
 Routed to Pond 5P : Basin C

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
 NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.560	74	>75% Grass cover, Good, HSG C
0.620	70	Woods, Good, HSG C
1.180	72	Weighted Average
1.180		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.2	53	0.1070	5.27		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.2	78	Total			

Subcatchment 8S: Basin C - Perv.**2023-01 Overflow Spillway Calcs**

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Hydrograph for Subcatchment 8S: Basin C - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.66	5.28	0.00
1.00	0.10	0.00	0.00	53.00	8.66	5.28	0.00
2.00	0.21	0.00	0.00	54.00	8.66	5.28	0.00
3.00	0.33	0.00	0.00	55.00	8.66	5.28	0.00
4.00	0.45	0.00	0.00	56.00	8.66	5.28	0.00
5.00	0.59	0.00	0.00	57.00	8.66	5.28	0.00
6.00	0.74	0.00	0.00	58.00	8.66	5.28	0.00
7.00	0.91	0.00	0.01	59.00	8.66	5.28	0.00
8.00	1.12	0.03	0.04	60.00	8.66	5.28	0.00
9.00	1.37	0.08	0.07	61.00	8.66	5.28	0.00
10.00	1.72	0.18	0.16	62.00	8.66	5.28	0.00
11.00	2.25	0.40	0.37	63.00	8.66	5.28	0.00
12.00	4.15	1.57	2.85	64.00	8.66	5.28	0.00
13.00	6.41	3.33	0.88	65.00	8.66	5.28	0.00
14.00	6.94	3.78	0.43	66.00	8.66	5.28	0.00
15.00	7.29	4.07	0.30	67.00	8.66	5.28	0.00
16.00	7.54	4.29	0.24	68.00	8.66	5.28	0.00
17.00	7.75	4.47	0.21	69.00	8.66	5.28	0.00
18.00	7.92	4.62	0.17	70.00	8.66	5.28	0.00
19.00	8.07	4.75	0.15	71.00	8.66	5.28	0.00
20.00	8.21	4.88	0.14	72.00	8.66	5.28	0.00
21.00	8.33	4.99	0.13				
22.00	8.45	5.09	0.12				
23.00	8.56	5.19	0.11				
24.00	8.66	5.28	0.10				
25.00	8.66	5.28	0.00				
26.00	8.66	5.28	0.00				
27.00	8.66	5.28	0.00				
28.00	8.66	5.28	0.00				
29.00	8.66	5.28	0.00				
30.00	8.66	5.28	0.00				
31.00	8.66	5.28	0.00				
32.00	8.66	5.28	0.00				
33.00	8.66	5.28	0.00				
34.00	8.66	5.28	0.00				
35.00	8.66	5.28	0.00				
36.00	8.66	5.28	0.00				
37.00	8.66	5.28	0.00				
38.00	8.66	5.28	0.00				
39.00	8.66	5.28	0.00				
40.00	8.66	5.28	0.00				
41.00	8.66	5.28	0.00				
42.00	8.66	5.28	0.00				
43.00	8.66	5.28	0.00				
44.00	8.66	5.28	0.00				
45.00	8.66	5.28	0.00				
46.00	8.66	5.28	0.00				
47.00	8.66	5.28	0.00				
48.00	8.66	5.28	0.00				
49.00	8.66	5.28	0.00				
50.00	8.66	5.28	0.00				
51.00	8.66	5.28	0.00				

Summary for Subcatchment 11S: Basin D - Imp.

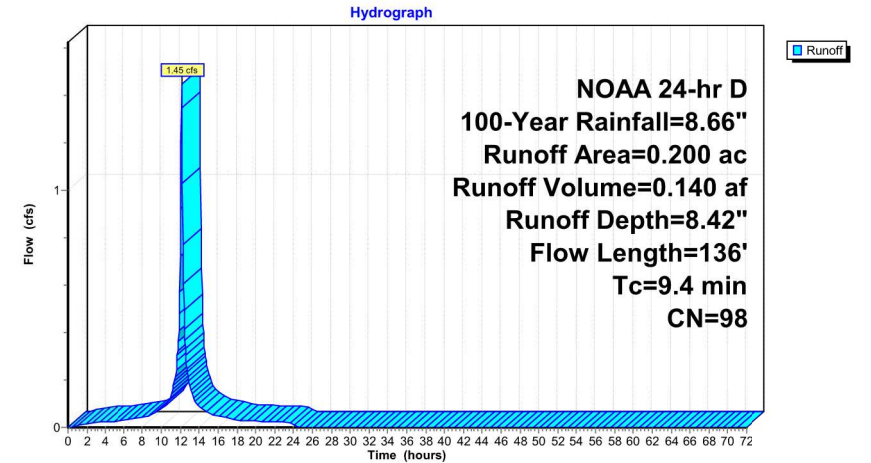
Runoff = 1.45 cfs @ 12.16 hrs, Volume= 0.140 af, Depth= 8.42"
Routed to Pond 6P : Basin D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.200	98	Unconnected pavement, HSG C
0.200		100.00% Impervious Area
0.200		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.4	111	0.0720	4.32		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.4	136	Total			

Subcatchment 11S: Basin D - Imp.



Hydrograph for Subcatchment 11S: Basin D - Imp.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.01
2.00	0.21	0.08	0.02
3.00	0.33	0.17	0.02
4.00	0.45	0.28	0.02
5.00	0.59	0.40	0.03
6.00	0.74	0.54	0.03
7.00	0.91	0.71	0.04
8.00	1.12	0.91	0.04
9.00	1.37	1.16	0.05
10.00	1.72	1.49	0.08
11.00	2.25	2.02	0.14
12.00	4.15	3.91	0.72
13.00	6.41	6.17	0.18
14.00	6.94	6.70	0.09
15.00	7.29	7.05	0.06
16.00	7.54	7.30	0.05
17.00	7.75	7.51	0.04
18.00	7.92	7.68	0.03
19.00	8.07	7.83	0.03
20.00	8.21	7.97	0.03
21.00	8.33	8.09	0.03
22.00	8.45	8.21	0.02
23.00	8.56	8.32	0.02
24.00	8.66	8.42	0.02
25.00	8.66	8.42	0.00
26.00	8.66	8.42	0.00
27.00	8.66	8.42	0.00
28.00	8.66	8.42	0.00
29.00	8.66	8.42	0.00
30.00	8.66	8.42	0.00
31.00	8.66	8.42	0.00
32.00	8.66	8.42	0.00
33.00	8.66	8.42	0.00
34.00	8.66	8.42	0.00
35.00	8.66	8.42	0.00
36.00	8.66	8.42	0.00
37.00	8.66	8.42	0.00
38.00	8.66	8.42	0.00
39.00	8.66	8.42	0.00
40.00	8.66	8.42	0.00
41.00	8.66	8.42	0.00
42.00	8.66	8.42	0.00
43.00	8.66	8.42	0.00
44.00	8.66	8.42	0.00
45.00	8.66	8.42	0.00
46.00	8.66	8.42	0.00
47.00	8.66	8.42	0.00
48.00	8.66	8.42	0.00
49.00	8.66	8.42	0.00
50.00	8.66	8.42	0.00
51.00	8.66	8.42	0.00

2023-01 Overflow Spillway Calcs

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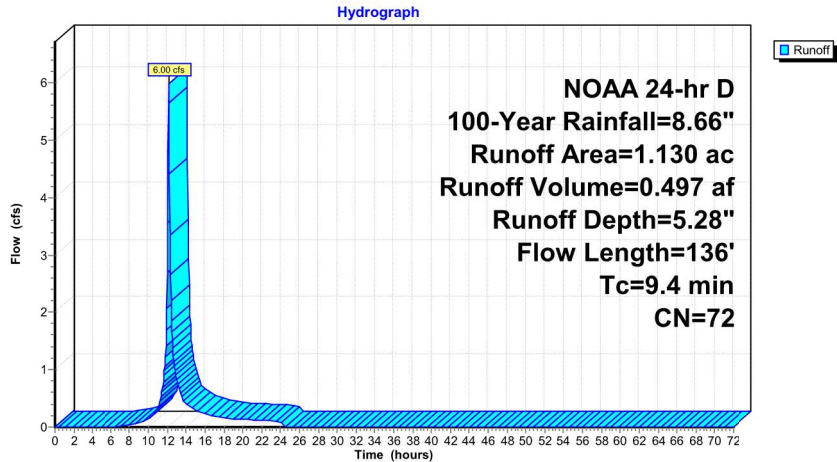
Summary for Subcatchment 12S: Basin D - Perv.

Runoff = 6.00 cfs @ 12.17 hrs, Volume= 0.497 af, Depth= 5.28"
Routed to Pond 6P : Basin D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr D 100-Year Rainfall=8.66"

Area (ac)	CN	Description
0.470	74	>75% Grass cover, Good, HSG C
0.650	70	Woods, Good, HSG C
* 0.010	55	Woods, Good, HSG B
1.130	72	Weighted Average
1.130		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	25	0.0100	0.05		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.44" Using McCuen-Spiess flow length
0.4	111	0.0720	4.32		Shallow Concentrated Flow, SCF - Unpaved Unpaved Kv= 16.1 fps
9.4	136	Total			

Subcatchment 12S: Basin D - Perv.**2023-01 Overflow Spillway Calcs**

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Hydrograph for Subcatchment 12S: Basin D - Perv.

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.21	0.00	0.00
3.00	0.33	0.00	0.00
4.00	0.45	0.00	0.00
5.00	0.59	0.00	0.00
6.00	0.74	0.00	0.00
7.00	0.91	0.00	0.01
8.00	1.12	0.03	0.04
9.00	1.37	0.08	0.07
10.00	1.72	0.18	0.15
11.00	2.25	0.40	0.35
12.00	4.15	1.57	2.69
13.00	6.41	3.33	0.85
14.00	6.94	3.78	0.42
15.00	7.29	4.07	0.29
16.00	7.54	4.29	0.23
17.00	7.75	4.47	0.20
18.00	7.92	4.62	0.16
19.00	8.07	4.75	0.14
20.00	8.21	4.88	0.13
21.00	8.33	4.99	0.13
22.00	8.45	5.09	0.12
23.00	8.56	5.19	0.11
24.00	8.66	5.28	0.10
25.00	8.66	5.28	0.00
26.00	8.66	5.28	0.00
27.00	8.66	5.28	0.00
28.00	8.66	5.28	0.00
29.00	8.66	5.28	0.00
30.00	8.66	5.28	0.00
31.00	8.66	5.28	0.00
32.00	8.66	5.28	0.00
33.00	8.66	5.28	0.00
34.00	8.66	5.28	0.00
35.00	8.66	5.28	0.00
36.00	8.66	5.28	0.00
37.00	8.66	5.28	0.00
38.00	8.66	5.28	0.00
39.00	8.66	5.28	0.00
40.00	8.66	5.28	0.00
41.00	8.66	5.28	0.00
42.00	8.66	5.28	0.00
43.00	8.66	5.28	0.00
44.00	8.66	5.28	0.00
45.00	8.66	5.28	0.00
46.00	8.66	5.28	0.00
47.00	8.66	5.28	0.00
48.00	8.66	5.28	0.00
49.00	8.66	5.28	0.00
50.00	8.66	5.28	0.00
51.00	8.66	5.28	0.00

Summary for Pond 3P: Basin A

Inflow Area = 1.130 ac, 18.58% Impervious, Inflow Depth = 5.86" for 100-Year event
Inflow = 6.47 cfs @ 12.16 hrs, Volume= 0.552 af
Outflow = 5.27 cfs @ 12.23 hrs, Volume= 0.552 af, Atten= 18%, Lag= 4.1 min
Primary = 5.27 cfs @ 12.23 hrs, Volume= 0.552 af
Routed to nonexistent node 2L

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Starting Elev= 621.80' Storage= 0.000 af
Peak Elev= 622.65' @ 12.23 hrs Surf.Area= 0.199 ac Storage= 0.050 af

Plug-Flow detention time= 12.9 min calculated for 0.552 af (100% of inflow)
Center-of-Mass det. time= 13.0 min (819.1 - 806.1)

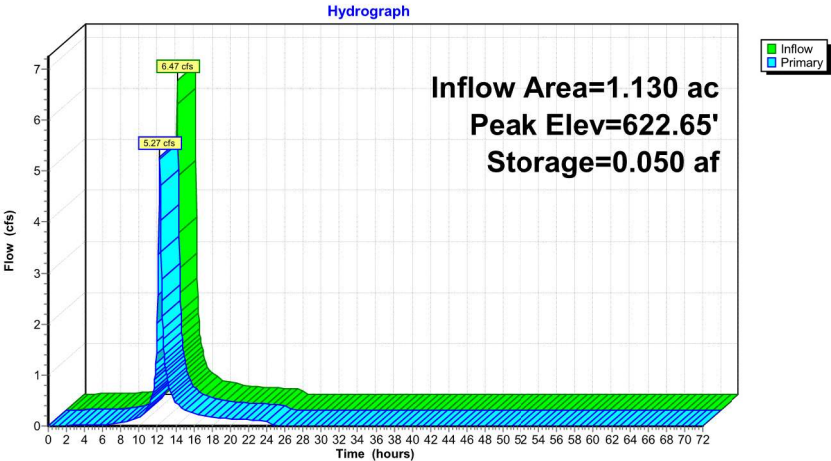
Volume	Invert	Avail.Storage	Storage Description
#1	622.35'	0.051 af	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
622.35	0.140	0.000	0.000
622.65	0.200	0.051	0.051

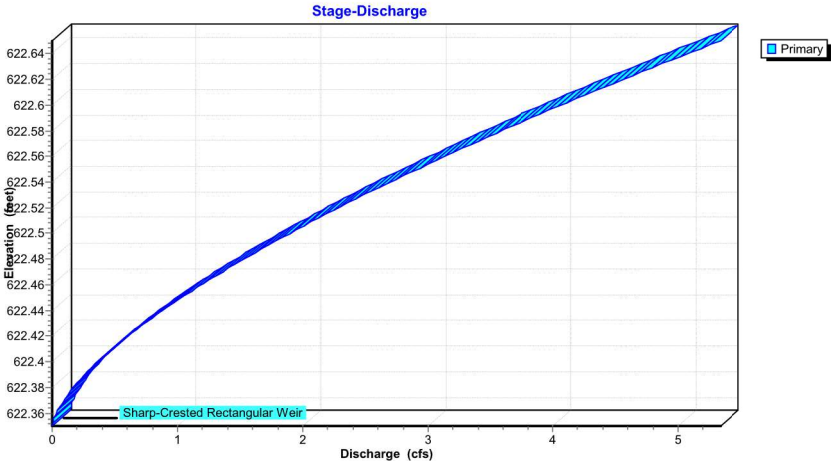
Device	Routing	Invert	Outlet Devices
#1	Primary	622.35'	10.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=5.20 cfs @ 12.23 hrs HW=622.64' (Free Discharge)
1=Sharp-Crested Rectangular Weir (Weir Controls 5.20 cfs @ 1.78 fps)

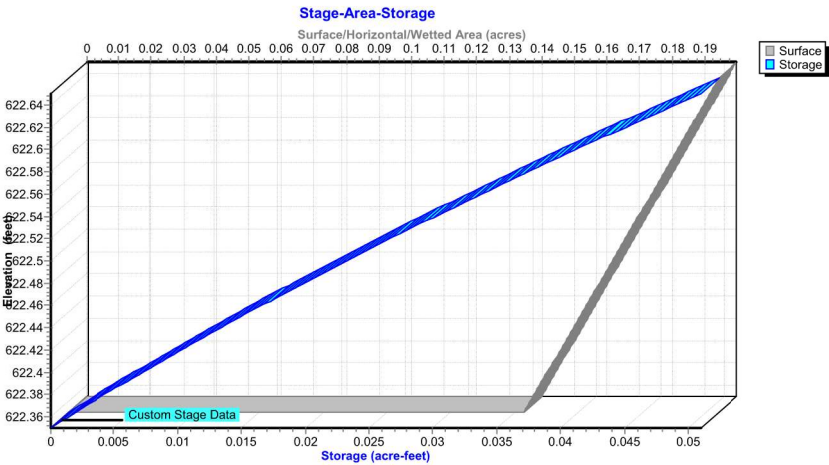
Pond 3P: Basin A



Pond 3P: Basin A



Pond 3P: Basin A



Hydrograph for Pond 3P: Basin A

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	622.35	0.00
2.50	0.02	0.001	622.36	0.01
5.00	0.03	0.001	622.36	0.03
7.50	0.06	0.002	622.36	0.05
10.00	0.20	0.004	622.38	0.18
12.50	1.71	0.028	622.53	2.46
15.00	0.30	0.007	622.40	0.32
17.50	0.18	0.005	622.38	0.19
20.00	0.14	0.004	622.38	0.14
22.50	0.11	0.003	622.37	0.12
25.00	0.00	0.001	622.35	0.01
27.50	0.00	0.000	622.35	0.00
30.00	0.00	0.000	622.35	0.00
32.50	0.00	0.000	622.35	0.00
35.00	0.00	0.000	622.35	0.00
37.50	0.00	0.000	622.35	0.00
40.00	0.00	0.000	622.35	0.00
42.50	0.00	0.000	622.35	0.00
45.00	0.00	0.000	622.35	0.00
47.50	0.00	0.000	622.35	0.00
50.00	0.00	0.000	622.35	0.00
52.50	0.00	0.000	622.35	0.00
55.00	0.00	0.000	622.35	0.00
57.50	0.00	0.000	622.35	0.00
60.00	0.00	0.000	622.35	0.00
62.50	0.00	0.000	622.35	0.00
65.00	0.00	0.000	622.35	0.00
67.50	0.00	0.000	622.35	0.00
70.00	0.00	0.000	622.35	0.00

2023-01 Overflow Spillway Calcs

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Stage-Discharge for Pond 3P: Basin A

Elevation (feet)	Primary (cfs)
622.35	0.00
622.36	0.03
622.37	0.09
622.38	0.17
622.39	0.26
622.40	0.37
622.41	0.48
622.42	0.60
622.43	0.74
622.44	0.88
622.45	1.03
622.46	1.19
622.47	1.36
622.48	1.53
622.49	1.71
622.50	1.89
622.51	2.09
622.52	2.28
622.53	2.49
622.54	2.70
622.55	2.91
622.56	3.13
622.57	3.36
622.58	3.59
622.59	3.83
622.60	4.07
622.61	4.31
622.62	4.56
622.63	4.82
622.64	5.08
622.65	5.34

2023-01 Overflow Spillway Calcs

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Stage-Area-Storage for Pond 3P: Basin A

Elevation (feet)	Surface (acres)	Storage (acre-feet)
622.35	0.140	0.000
622.36	0.142	0.001
622.37	0.144	0.003
622.38	0.146	0.004
622.39	0.148	0.006
622.40	0.150	0.007
622.41	0.152	0.009
622.42	0.154	0.010
622.43	0.156	0.012
622.44	0.158	0.013
622.45	0.160	0.015
622.46	0.162	0.017
622.47	0.164	0.018
622.48	0.166	0.020
622.49	0.168	0.022
622.50	0.170	0.023
622.51	0.172	0.025
622.52	0.174	0.027
622.53	0.176	0.028
622.54	0.178	0.030
622.55	0.180	0.032
622.56	0.182	0.034
622.57	0.184	0.036
622.58	0.186	0.037
622.59	0.188	0.039
622.60	0.190	0.041
622.61	0.192	0.043
622.62	0.194	0.045
622.63	0.196	0.047
622.64	0.198	0.049
622.65	0.200	0.051

Summary for Pond 4P: Basin B

Inflow Area = 0.960 ac, 19.79% Impervious, Inflow Depth = 5.90" for 100-Year event
Inflow = 5.38 cfs @ 12.17 hrs, Volume= 0.472 af
Outflow = 4.42 cfs @ 12.24 hrs, Volume= 0.472 af, Atten= 18%, Lag= 4.3 min
Primary = 4.42 cfs @ 12.24 hrs, Volume= 0.472 af
Routed to nonexistent node 2L

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Starting Elev= 621.25' Storage= 0.000 af
Peak Elev= 622.11' @ 12.24 hrs Surf.Area= 0.193 ac Storage= 0.044 af

Plug-Flow detention time= 13.5 min calculated for 0.472 af (100% of inflow)
Center-of-Mass det. time= 13.6 min (819.0 - 805.3)

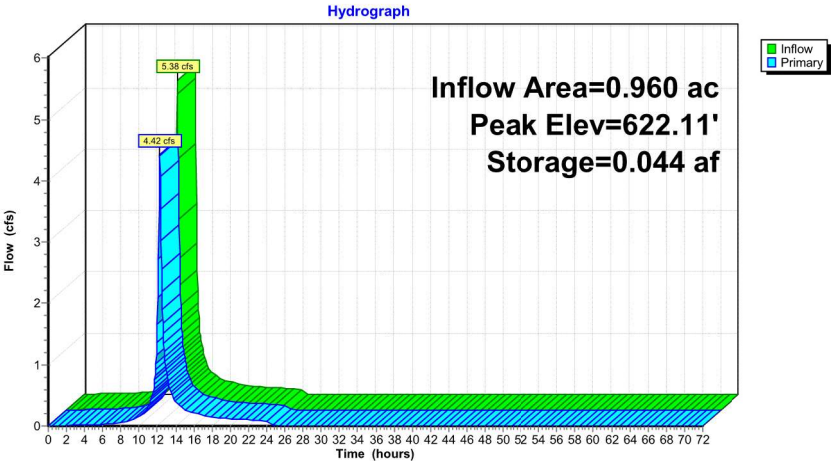
Volume	Invert	Avail.Storage	Storage Description
#1	621.85'	0.051 af	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
621.85	0.140	0.000	0.000
622.15	0.200	0.051	0.051

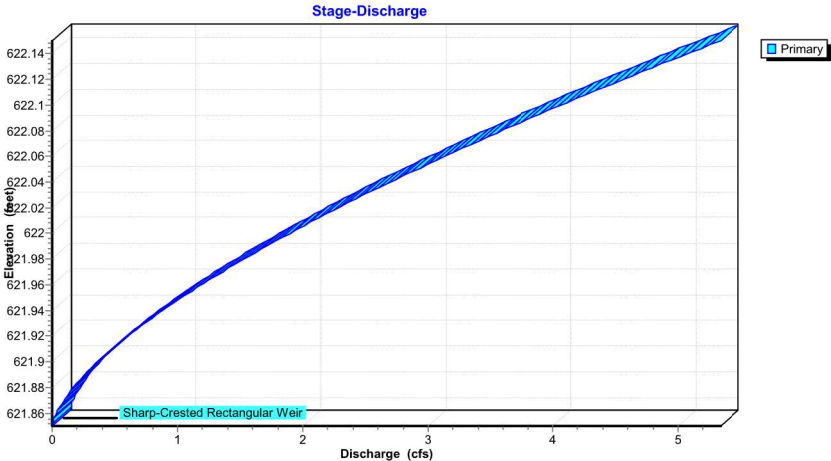
Device	Routing	Invert	Outlet Devices
#1	Primary	621.85'	10.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=4.38 cfs @ 12.24 hrs HW=622.11' (Free Discharge)
1=Sharp-Crested Rectangular Weir (Weir Controls 4.38 cfs @ 1.68 fps)

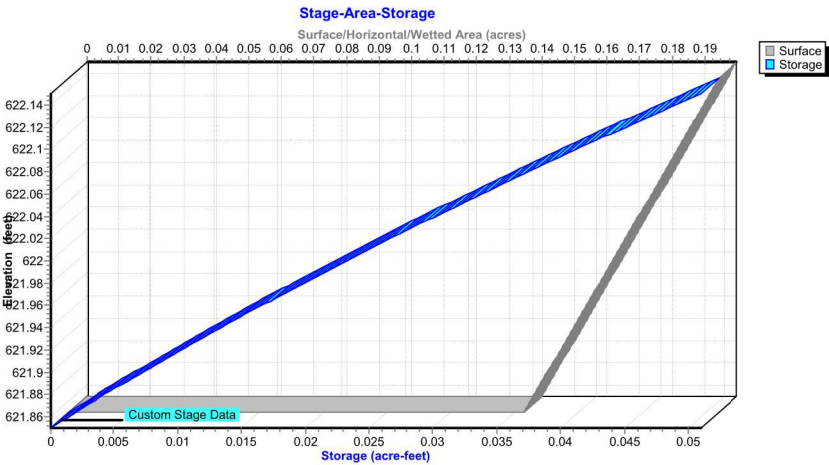
Pond 4P: Basin B



Pond 4P: Basin B



Pond 4P: Basin B



Hydrograph for Pond 4P: Basin B

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	621.85	0.00
2.50	0.02	0.001	621.86	0.01
5.00	0.02	0.001	621.86	0.02
7.50	0.05	0.002	621.86	0.05
10.00	0.18	0.004	621.88	0.16
12.50	1.50	0.026	622.02	2.19
15.00	0.25	0.006	621.89	0.27
17.50	0.16	0.004	621.88	0.16
20.00	0.12	0.003	621.87	0.12
22.50	0.10	0.003	621.87	0.10
25.00	0.00	0.001	621.85	0.01
27.50	0.00	0.000	621.85	0.00
30.00	0.00	0.000	621.85	0.00
32.50	0.00	0.000	621.85	0.00
35.00	0.00	0.000	621.85	0.00
37.50	0.00	0.000	621.85	0.00
40.00	0.00	0.000	621.85	0.00
42.50	0.00	0.000	621.85	0.00
45.00	0.00	0.000	621.85	0.00
47.50	0.00	0.000	621.85	0.00
50.00	0.00	0.000	621.85	0.00
52.50	0.00	0.000	621.85	0.00
55.00	0.00	0.000	621.85	0.00
57.50	0.00	0.000	621.85	0.00
60.00	0.00	0.000	621.85	0.00
62.50	0.00	0.000	621.85	0.00
65.00	0.00	0.000	621.85	0.00
67.50	0.00	0.000	621.85	0.00
70.00	0.00	0.000	621.85	0.00

2023-01 Overflow Spillway Calcs

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Stage-Discharge for Pond 4P: Basin B

Elevation (feet)	Primary (cfs)
621.85	0.00
621.86	0.03
621.87	0.09
621.88	0.17
621.89	0.26
621.90	0.37
621.91	0.48
621.92	0.60
621.93	0.74
621.94	0.88
621.95	1.03
621.96	1.19
621.97	1.36
621.98	1.53
621.99	1.71
622.00	1.89
622.01	2.09
622.02	2.28
622.03	2.49
622.04	2.70
622.05	2.91
622.06	3.13
622.07	3.36
622.08	3.59
622.09	3.83
622.10	4.07
622.11	4.31
622.12	4.56
622.13	4.82
622.14	5.08
622.15	5.34

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Stage-Area-Storage for Pond 4P: Basin B

Elevation (feet)	Surface (acres)	Storage (acre-feet)
621.85	0.140	0.000
621.86	0.142	0.001
621.87	0.144	0.003
621.88	0.146	0.004
621.89	0.148	0.006
621.90	0.150	0.007
621.91	0.152	0.009
621.92	0.154	0.010
621.93	0.156	0.012
621.94	0.158	0.013
621.95	0.160	0.015
621.96	0.162	0.017
621.97	0.164	0.018
621.98	0.166	0.020
621.99	0.168	0.022
622.00	0.170	0.023
622.01	0.172	0.025
622.02	0.174	0.027
622.03	0.176	0.028
622.04	0.178	0.030
622.05	0.180	0.032
622.06	0.182	0.034
622.07	0.184	0.036
622.08	0.186	0.037
622.09	0.188	0.039
622.10	0.190	0.041
622.11	0.192	0.043
622.12	0.194	0.045
622.13	0.196	0.047
622.14	0.198	0.049
622.15	0.200	0.051

Summary for Pond 5P: Basin C

Inflow Area = 1.380 ac, 14.49% Impervious, Inflow Depth = 5.73" for 100-Year event
Inflow = 7.79 cfs @ 12.16 hrs, Volume= 0.659 af
Outflow = 6.46 cfs @ 12.23 hrs, Volume= 0.659 af, Atten= 17%, Lag= 3.8 min
Primary = 6.46 cfs @ 12.23 hrs, Volume= 0.659 af
Routed to nonexistent node 2L

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Starting Elev= 619.40' Storage= 0.000 af
Peak Elev= 620.40' @ 12.23 hrs Surf.Area= 0.220 ac Storage= 0.057 af

Plug-Flow detention time= 12.6 min calculated for 0.659 af (100% of inflow)
Center-of-Mass det. time= 12.2 min (822.9 - 810.7)

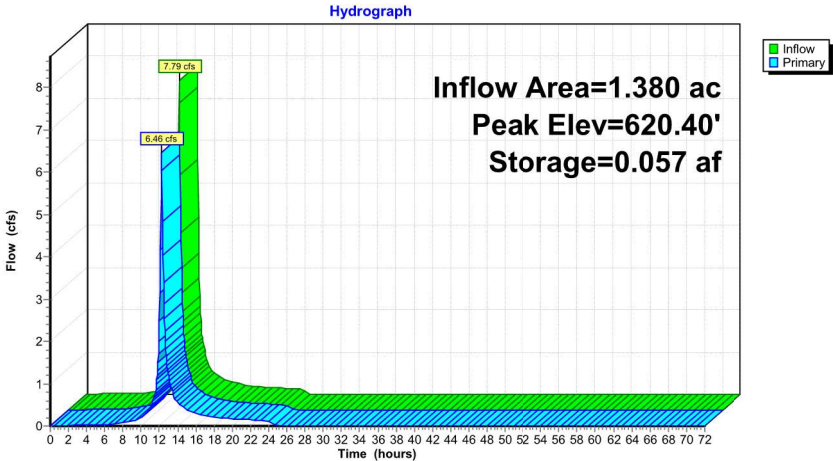
Volume	Invert	Avail.Storage	Storage Description
#1	620.10'	0.057 af	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
620.10	0.160	0.000	0.000
620.40	0.220	0.057	0.057

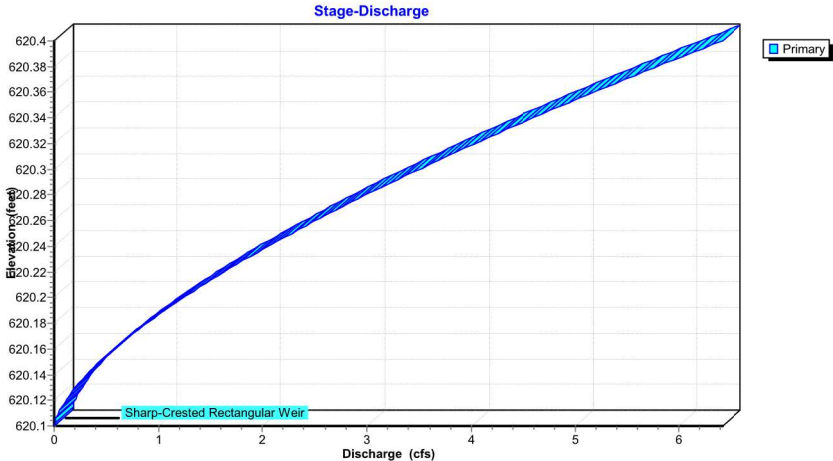
Device	Routing	Invert	Outlet Devices
#1	Primary	620.10'	12.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=6.37 cfs @ 12.23 hrs HW=620.40' (Free Discharge)
1=Sharp-Crested Rectangular Weir (Weir Controls 6.37 cfs @ 1.79 fps)

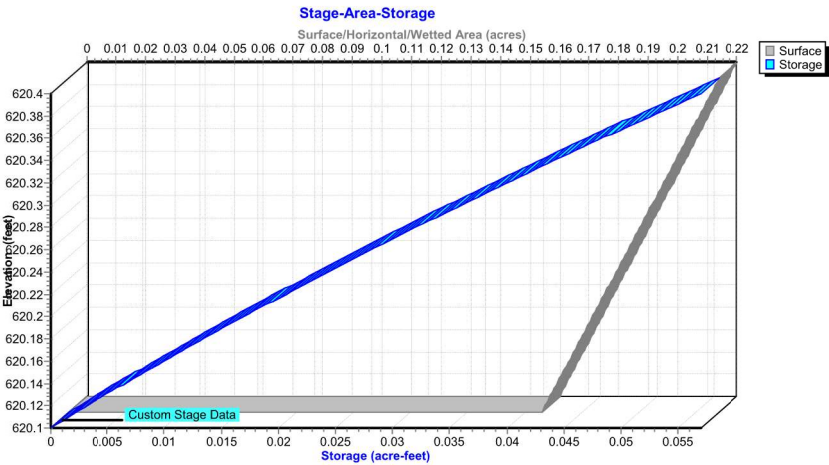
Pond 5P: Basin C



Pond 5P: Basin C



Pond 5P: Basin C



Hydrograph for Pond 5P: Basin C

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	620.10	0.00
2.50	0.02	0.001	620.10	0.01
5.00	0.03	0.001	620.11	0.03
7.50	0.06	0.002	620.11	0.05
10.00	0.23	0.005	620.13	0.21
12.50	2.07	0.031	620.28	2.89
15.00	0.36	0.008	620.15	0.39
17.50	0.22	0.005	620.13	0.23
20.00	0.17	0.004	620.13	0.17
22.50	0.14	0.004	620.12	0.14
25.00	0.00	0.001	620.10	0.01
27.50	0.00	0.000	620.10	0.00
30.00	0.00	0.000	620.10	0.00
32.50	0.00	0.000	620.10	0.00
35.00	0.00	0.000	620.10	0.00
37.50	0.00	0.000	620.10	0.00
40.00	0.00	0.000	620.10	0.00
42.50	0.00	0.000	620.10	0.00
45.00	0.00	0.000	620.10	0.00
47.50	0.00	0.000	620.10	0.00
50.00	0.00	0.000	620.10	0.00
52.50	0.00	0.000	620.10	0.00
55.00	0.00	0.000	620.10	0.00
57.50	0.00	0.000	620.10	0.00
60.00	0.00	0.000	620.10	0.00
62.50	0.00	0.000	620.10	0.00
65.00	0.00	0.000	620.10	0.00
67.50	0.00	0.000	620.10	0.00
70.00	0.00	0.000	620.10	0.00

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Stage-Discharge for Pond 5P: Basin C

Elevation (feet)	Primary (cfs)
620.10	0.00
620.11	0.04
620.12	0.11
620.13	0.20
620.14	0.31
620.15	0.44
620.16	0.58
620.17	0.73
620.18	0.89
620.19	1.06
620.20	1.24
620.21	1.43
620.22	1.63
620.23	1.84
620.24	2.05
620.25	2.27
620.26	2.50
620.27	2.74
620.28	2.99
620.29	3.24
620.30	3.50
620.31	3.76
620.32	4.03
620.33	4.31
620.34	4.60
620.35	4.88
620.36	5.18
620.37	5.48
620.38	5.79
620.39	6.10
620.40	6.42

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Stage-Area-Storage for Pond 5P: Basin C

Elevation (feet)	Surface (acres)	Storage (acre-feet)
620.10	0.160	0.000
620.11	0.162	0.002
620.12	0.164	0.003
620.13	0.166	0.005
620.14	0.168	0.007
620.15	0.170	0.008
620.16	0.172	0.010
620.17	0.174	0.012
620.18	0.176	0.013
620.19	0.178	0.015
620.20	0.180	0.017
620.21	0.182	0.019
620.22	0.184	0.021
620.23	0.186	0.022
620.24	0.188	0.024
620.25	0.190	0.026
620.26	0.192	0.028
620.27	0.194	0.030
620.28	0.196	0.032
620.29	0.198	0.034
620.30	0.200	0.036
620.31	0.202	0.038
620.32	0.204	0.040
620.33	0.206	0.042
620.34	0.208	0.044
620.35	0.210	0.046
620.36	0.212	0.048
620.37	0.214	0.050
620.38	0.216	0.053
620.39	0.218	0.055
620.40	0.220	0.057

Summary for Pond 6P: Basin D

Inflow Area = 1.330 ac, 15.04% Impervious, Inflow Depth = 5.75" for 100-Year event
Inflow = 7.44 cfs @ 12.16 hrs, Volume= 0.637 af
Outflow = 6.19 cfs @ 12.23 hrs, Volume= 0.637 af, Atten= 17%, Lag= 3.9 min
Primary = 6.19 cfs @ 12.23 hrs, Volume= 0.637 af
Routed to nonexistent node 2L

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Starting Elev= 614.15' Storage= 0.000 af
Peak Elev= 614.89' @ 12.23 hrs Surf.Area= 0.228 ac Storage= 0.052 af

Plug-Flow detention time= 10.5 min calculated for 0.637 af (100% of inflow)
Center-of-Mass det. time= 10.5 min (820.8 - 810.3)

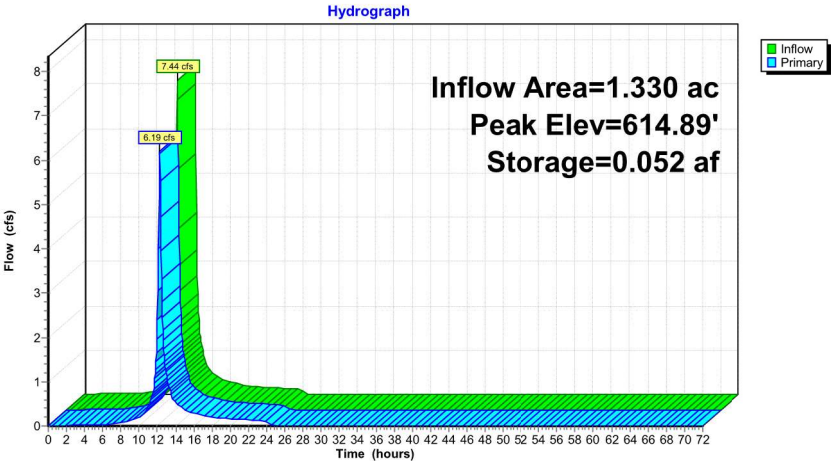
Volume	Invert	Avail.Storage	Storage Description
#1	614.60'	0.054 af	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
614.60	0.130	0.000	0.000
614.90	0.230	0.054	0.054

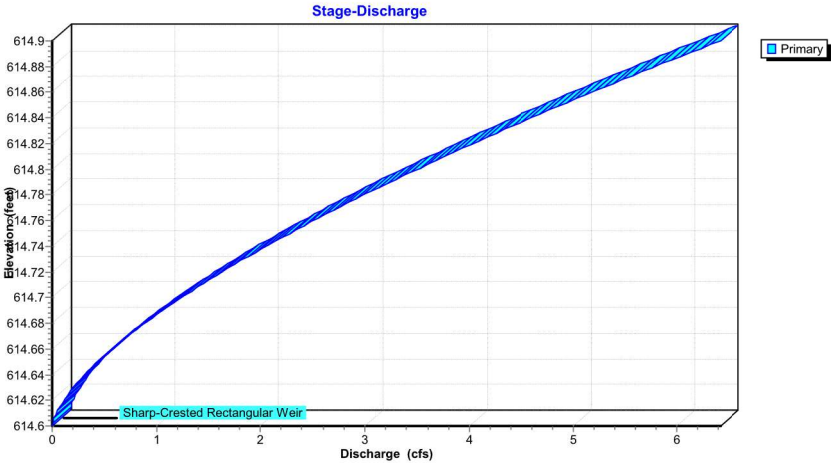
Device	Routing	Invert	Outlet Devices
#1	Primary	614.60'	12.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=6.11 cfs @ 12.23 hrs HW=614.89' (Free Discharge)
1=Sharp-Crested Rectangular Weir (Weir Controls 6.11 cfs @ 1.76 fps)

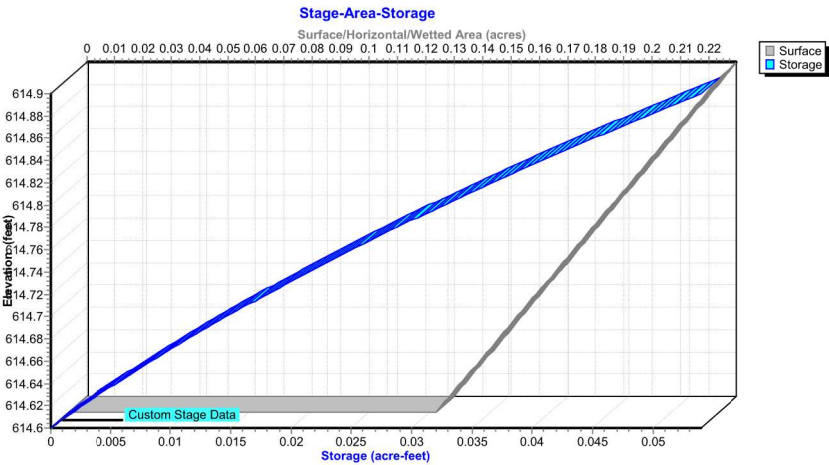
Pond 6P: Basin D



Pond 6P: Basin D



Pond 6P: Basin D



Hydrograph for Pond 6P: Basin D

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	614.60	0.00
2.50	0.02	0.001	614.61	0.02
5.00	0.03	0.001	614.61	0.03
7.50	0.06	0.002	614.61	0.06
10.00	0.23	0.004	614.63	0.21
12.50	2.02	0.027	614.77	2.82
15.00	0.35	0.006	614.64	0.37
17.50	0.21	0.004	614.63	0.22
20.00	0.16	0.003	614.63	0.16
22.50	0.13	0.003	614.62	0.14
25.00	0.00	0.000	614.60	0.01
27.50	0.00	0.000	614.60	0.00
30.00	0.00	0.000	614.60	0.00
32.50	0.00	0.000	614.60	0.00
35.00	0.00	0.000	614.60	0.00
37.50	0.00	0.000	614.60	0.00
40.00	0.00	0.000	614.60	0.00
42.50	0.00	0.000	614.60	0.00
45.00	0.00	0.000	614.60	0.00
47.50	0.00	0.000	614.60	0.00
50.00	0.00	0.000	614.60	0.00
52.50	0.00	0.000	614.60	0.00
55.00	0.00	0.000	614.60	0.00
57.50	0.00	0.000	614.60	0.00
60.00	0.00	0.000	614.60	0.00
62.50	0.00	0.000	614.60	0.00
65.00	0.00	0.000	614.60	0.00
67.50	0.00	0.000	614.60	0.00
70.00	0.00	0.000	614.60	0.00

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Stage-Discharge for Pond 6P: Basin D

Elevation (feet)	Primary (cfs)
614.60	0.00
614.61	0.04
614.62	0.11
614.63	0.20
614.64	0.31
614.65	0.44
614.66	0.58
614.67	0.73
614.68	0.89
614.69	1.06
614.70	1.24
614.71	1.43
614.72	1.63
614.73	1.84
614.74	2.05
614.75	2.27
614.76	2.50
614.77	2.74
614.78	2.99
614.79	3.24
614.80	3.50
614.81	3.76
614.82	4.03
614.83	4.31
614.84	4.60
614.85	4.88
614.86	5.18
614.87	5.48
614.88	5.79
614.89	6.10
614.90	6.42

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Stage-Area-Storage for Pond 6P: Basin D

Elevation (feet)	Surface (acres)	Storage (acre-feet)
614.60	0.130	0.000
614.61	0.133	0.001
614.62	0.137	0.003
614.63	0.140	0.004
614.64	0.143	0.005
614.65	0.147	0.007
614.66	0.150	0.008
614.67	0.153	0.010
614.68	0.157	0.011
614.69	0.160	0.013
614.70	0.163	0.015
614.71	0.167	0.016
614.72	0.170	0.018
614.73	0.173	0.020
614.74	0.177	0.021
614.75	0.180	0.023
614.76	0.183	0.025
614.77	0.187	0.027
614.78	0.190	0.029
614.79	0.193	0.031
614.80	0.197	0.033
614.81	0.200	0.035
614.82	0.203	0.037
614.83	0.207	0.039
614.84	0.210	0.041
614.85	0.213	0.043
614.86	0.217	0.045
614.87	0.220	0.047
614.88	0.223	0.049
614.89	0.227	0.052
614.90	0.230	0.054

Events for Subcatchment 1S: Basin A - Imp.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	0.60	0.056	3.21
10-Year	5.22	0.92	0.087	4.98
100-Year	8.66	1.53	0.147	8.42

Events for Subcatchment 3S: Basin A - Perv.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	0.97	0.083	1.08
10-Year	5.22	2.22	0.182	2.37
100-Year	8.66	4.93	0.405	5.28

Events for Subcatchment 4S: Basin B - Imp.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	0.53	0.051	3.21
10-Year	5.22	0.81	0.079	4.98
100-Year	8.66	1.35	0.133	8.42

Events for Subcatchment 5S: Basin B - Perv.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	0.79	0.069	1.08
10-Year	5.22	1.81	0.152	2.37
100-Year	8.66	4.03	0.339	5.28

Events for Subcatchment 7S: Basin C - Imp.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	0.57	0.053	3.21
10-Year	5.22	0.88	0.083	4.98
100-Year	8.66	1.46	0.140	8.42

Events for Subcatchment 8S: Basin C - Perv.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	1.25	0.106	1.08
10-Year	5.22	2.85	0.233	2.37
100-Year	8.66	6.33	0.519	5.28

Events for Subcatchment 11S: Basin D - Imp.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	0.57	0.053	3.21
10-Year	5.22	0.87	0.083	4.98
100-Year	8.66	1.45	0.140	8.42

Events for Subcatchment 12S: Basin D - Perv.				
Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
2-Year	3.44	1.18	0.102	1.08
10-Year	5.22	2.70	0.223	2.37
100-Year	8.66	6.00	0.497	5.28

Events for Pond 3P: Basin A				
Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2-Year	1.57	1.17	622.46	0.016
10-Year	3.14	2.46	622.53	0.028
100-Year	6.47	5.27	622.65	0.050

Events for Pond 4P: Basin B				
Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2-Year	1.32	0.98	621.95	0.014
10-Year	2.62	2.07	622.01	0.025
100-Year	5.38	4.42	622.11	0.044

Events for Pond 5P: Basin C				
Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2-Year	1.82	1.37	620.21	0.018
10-Year	3.73	2.97	620.28	0.032
100-Year	7.79	6.46	620.40	0.057

Events for Pond 6P: Basin D				
Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
2-Year	1.75	1.37	614.71	0.016
10-Year	3.57	2.90	614.78	0.028
100-Year	7.44	6.19	614.89	0.052

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- 8 Node Listing
- 9 Subcat 1S: Basin A - Imp.
- 11 Subcat 3S: Basin A - Perv.
- 13 Subcat 4S: Basin B - Imp.
- 15 Subcat 5S: Basin B - Perv.
- 17 Subcat 7S: Basin C - Imp.
- 19 Subcat 8S: Basin C - Perv.
- 21 Subcat 11S: Basin D - Imp.
- 23 Subcat 12S: Basin D - Perv.
- 25 Pond 3P: Basin A
- 31 Pond 4P: Basin B
- 37 Pond 5P: Basin C
- 43 Pond 6P: Basin D

10-Year Event

- 49 Node Listing
- 50 Subcat 1S: Basin A - Imp.
- 52 Subcat 3S: Basin A - Perv.
- 54 Subcat 4S: Basin B - Imp.
- 56 Subcat 5S: Basin B - Perv.
- 58 Subcat 7S: Basin C - Imp.
- 60 Subcat 8S: Basin C - Perv.
- 62 Subcat 11S: Basin D - Imp.
- 64 Subcat 12S: Basin D - Perv.
- 66 Pond 3P: Basin A
- 72 Pond 4P: Basin B
- 78 Pond 5P: Basin C
- 84 Pond 6P: Basin D

100-Year Event

- 90 Node Listing
- 91 Subcat 1S: Basin A - Imp.
- 93 Subcat 3S: Basin A - Perv.
- 95 Subcat 4S: Basin B - Imp.
- 97 Subcat 5S: Basin B - Perv.
- 99 Subcat 7S: Basin C - Imp.
- 101 Subcat 8S: Basin C - Perv.
- 103 Subcat 11S: Basin D - Imp.
- 105 Subcat 12S: Basin D - Perv.
- 107 Pond 3P: Basin A

- 113 Pond 4P: Basin B
- 119 Pond 5P: Basin C
- 125 Pond 6P: Basin D

Multi-Event Tables

- 131 Subcat 1S: Basin A - Imp.
- 132 Subcat 3S: Basin A - Perv.
- 133 Subcat 4S: Basin B - Imp.
- 134 Subcat 5S: Basin B - Perv.
- 135 Subcat 7S: Basin C - Imp.
- 136 Subcat 8S: Basin C - Perv.
- 137 Subcat 11S: Basin D - Imp.
- 138 Subcat 12S: Basin D - Perv.
- 139 Pond 3P: Basin A
- 140 Pond 4P: Basin B
- 141 Pond 5P: Basin C
- 142 Pond 6P: Basin D

**REPORT OF PRELIMINARY GEOTECHNICAL AND
STORMWATER BASIN AREA INVESTIGATION,
PREPARED BY DYNAMIC EARTH, LLC (ATTACHED
SEPARATELY)**

DRAINAGE AREA MAPS