

Issue for Permit

Preliminary Drainage Assessment

Stonington Civil Design

Silicon Ranch Corporation

North Stonington, Connecticut

February 19, 2021

(Revision 1)

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1. Narrative

1.1. Project Description

The owner intends to develop a photovoltaic solar site consisting of fixed-tilt panels, inverters, transformers and collector substation. The project site is located on just over 156 acres under 2 miles west of the Connecticut and Rhode Island state line and north of I-95. This report summarizes the proposed facilities and impacts to the stormwater runoff.

1.2. Existing Conditions

For the purpose of this project, the existing area was divided into six study areas: A, B, C, D, E, and F. These study areas were chosen to best orient the solar panels to face the south based on the lay of the land. Area E was later removed from the project. Within these 5 areas, there are 7 basins created based on the land cover. Analysis points were chosen for each of these study areas such that offsite flows would not enter the study areas. Conveyances were incorporated to take runoff to our basins. Weighted Curve Numbers (CN) and Time of Concentrations were generated by using the TR-55 method and discussed further in Section 2. The results of the CN and Time of Concentration can be found in Appendix E and F respectively. This data, along with the drainage area, was input into HydroCAD to generate hydrographs. The output of the HydroCAD model can be found in Appendix D. The entire site consists of type A, B, C, and D soils, and primarily consists of soil type "B". The primary land use area is wooded area. The wooded land cover is sparsely covered in wood therefore fair hydrologic condition was used to compute the CN. Fair hydrologic condition was used woods land cover because from historical satellite images it appears that there is some forest litter which covers the soil. For the existing and proposed conditions, the 2-year (24 hour), 10-year (24 hour), 25-year (24 hour), 50-year (24 hour), and 100-year (24 hour) storms were analyzed.

1.3. Proposed Conditions

Under post-developed conditions, the overland drainage pattern will remain basically the same. The ground cover in the Limits of Disturbance will change from wooded areas to open spaces with grass covering the area and in good condition, which creates the largest impact to the peak flows. The existing site requires very little grading, therefore the only effect of the time of concentration for the runoff is due to a lower Manning's N number because the proposed site will consist of grass within the Limits of Disturbance. Refer to the drainage area map in Appendix D. For the proposed conditions, the 2-year (24 hour), 10-year (24 hour), 25-year (24 hour), 50-year (24 hour), and 100-year (24 hour) storms were analyzed. Peak outflows for pre-developed and post-developed analyzed storms are in the following tables.

Table 1: Pre- and Post-development for the 2-yr, 24-hr storm

Name	Area (ac)	Pre-Inflow Q2 (cfs)	Post- Inflow Q2 (cfs)	Pre-Inflow vs. Post-Inflow Q2	Post-Outflow Q2 (cfs)	Pre-Inflow vs. Post-Outflow Q2
1A	4.69	0.88	2.79	1.91	0.01	-0.87
1B	10.54	2.23	5.54	3.31	0.25	-1.98
1C	8.58	1.78	4.31	2.53	0.41	-1.37
2	9.60	3.71	6.25	2.54	0.77	-2.94
3	4.16	1.57	3.18	1.61	0.01	-1.56
4	9.02	3.10	7.02	3.92	0.27	-2.83
5	15.23	8.59	13.52	4.93	1.56	-7.03

Table 2: Pre- and Post-development for the 10-yr, 24-hr storm

Name	Area (ac)	Pre-Inflow Q10 (cfs)	Post-Inflow Q10 (cfs)	Pre-Inflow vs. Post-Inflow Q10	Post-Outflow Q10 (cfs)	Pre-Inflow vs. Post-Outflow Q10
1A	4.69	3.05	6.07	3.02	1.05	-2.00
1B	10.54	7.34	12.64	5.30	3.96	-3.38
1C	8.58	6.18	10.37	4.19	4.05	-2.13
2	9.60	9.52	13.31	3.79	7.15	-2.37
3	4.16	4.50	6.94	2.44	1.35	-3.15
4	9.02	9.30	15.29	5.99	4.56	-4.74
5	15.23	20.10	27.13	7.03	13.58	-6.52

Table 3: Pre- and Post-development for the 25-yr, 24-hr storm

Name	Area (ac)	Pre-Inflow Q25 (cfs)	Post-Inflow Q25 (cfs)	Pre-Inflow vs. Post-Inflow Q25	Post-Outflow Q25 (cfs)	Pre-Inflow vs. Post-Outflow Q25
1A	4.69	4.74	8.30	3.56	3.03	-1.71
1B	10.54	12.24	17.54	5.30	9.69	-2.55
1C	8.58	9.59	14.62	5.03	8.40	-1.19
2	9.60	13.65	18.06	4.41	13.23	-0.42
3	4.16	6.65	9.49	2.84	4.15	-2.50
4	9.02	13.90	20.90	7.00	11.41	-2.49
5	15.23	28.09	36.10	8.01	24.43	-3.66

Table 4: Pre- and Post-development for the 50-yr, 24-hr storm

Name	Area (ac)	Pre-Inflow Q50 (cfs)	Post-Inflow Q50 (cfs)	Pre-Inflow vs. Post-Inflow Q50	Post-Outflow Q50 (cfs)	Pre-Inflow vs. Post-Outflow Q50
1A	4.69	6.10	10.02	3.92	5.07	-1.03
1B	10.54	14.39	21.35	6.96	14.57	0.18
1C	8.58	12.35	17.94	5.59	10.96	-1.39
2	9.60	16.91	21.71	4.80	16.97	0.06
3	4.16	8.36	11.45	3.09	6.66	-1.70
4	9.02	17.61	25.22	7.61	16.94	-0.67
5	15.23	34.33	42.93	8.60	32.62	-1.71

Table 5: Pre- and Post-development for the 100-yr, 24-hr storm

Name	Area (ac)	Pre-Inflow Q50 (cfs)	Post-Inflow Q50 (cfs)	Pre-Inflow vs. Post-Inflow Q50	Post-Outflow Q50 (cfs)	Pre-Inflow vs. Post-Outflow Q50
1A	4.69	7.64	11.89	4.25	7.22	-0.42
1B	10.54	17.92	25.49	7.57	17.52	-0.40
1C	8.58	15.45	21.57	6.12	12.37	-3.08
2	9.60	20.50	25.67	5.17	17.79	-2.71
3	4.16	10.26	13.58	3.32	9.38	-0.88
4	9.02	21.71	29.91	8.20	18.90	-2.81
5	15.23	41.13	50.28	9.15	41.06	-0.07

2. Stormwater Calculations

2.1. Stormwater Peak Flow Calculations

A hydrologic analysis was completed using the NRCS hydrologic method (details for this methodology can be found in the NRCS National Engineering Handbook, Section 4). Sub-drainage areas were delineated for each solar array areas and can be seen on the drainage area map in Appendix D. Composite curve numbers were calculated for each sub-drainage area utilizing the proposed land cover and the hydrologic soil groups for the site found in the Soil Survey of Stonington, Connecticut. The curve number calculations can be found in Appendix E. The Soil Resource Report for the site can be found in Appendix A. The time of concentration for each sub-drainage area was calculated using the NRCS TR-55 method. The time of concentration calculations can be found in Appendix F. The procedure for determining the CN and time of concentration can be found in the NRCS, TR-55, Second Edition, June 1986.

A hydrologic routing model was completed using the HydroCAD software program. The calculated drainage area size, composite curve number and time of concentration for each sub-drainage area was entered into the software. The total rainfall depths for the 2-year (24 hour), 10-year (24 hour), 25-year (24 hour), 50-year (24 hour), and 100-year (24 hour) storm events were obtained from the National Oceanic and Atmospheric Administration's website and can be found in Appendix C. The total rainfall depth was entered into the model and ran utilizing the NRCS Type II rainfall distribution with a fifteen minute time interval. The full storm water peak flow calculations can be found in Appendix D of this report.

2.2. Pond, Culvert, and Ditch Calculations

As part of the Erosion and Sediment Control Plan (further discussed in Section 3), sediment basins will be used to mitigate the short-term impacts of construction. Also in every basin, the post-development discharge was greater than the pre-development discharges. In order to keep these post-development flows at or below the pre-development flows, these sediment basins will be converted to ponds. For these basins, a pond is was designed to attenuate the 100-year storm discharge. The pond will be converted from the erosion and sediment control sediment basin in Phase 3. The pond consists of an outfall structure with a weir and a spillway for 100-year storm discharge. Pond calculations can be found in Appendix D of this report.

Three ponds will require completely new culverts and one pond will require an existing culvert to be retrofit. These culverts consist of one box culvert and then three bottomless arch culverts. These culverts were designed using AutoCAD Hydraflow Hydrographs Extension and SCS Curve Number method. These culverts were designed in accordance with CT DEEP Stream Crossing Guidelines and USACE Openness Ratio Calculations. For additional information on the culvert design calculations see Appendix I.

Each drainage area will require permanent ditches to help the water flow to the sediment basins or ponds. The ditches were designed using AutoCAD Hydraflow Express using the 10-yr storm event and CT DEEP conveyance criteria. The flows were calculated as a percentage of the overall subbasin flows per the proposed HydroCAD modeling results. These ditches consist of both trapezoidal and triangular channels. For additional information on ditch design calculations see Appendix I.

2.3. Wetlands, FEMA Floodplains, and Coastal Boundaries

2.3.1. Wetlands

Wetlands have been delineated for the site and a map of the wetlands can be found in Appendix G. Design has been considered in a way to reduce amount of impacts as possible.

2.3.2. FEMA Floodplains

FEMA Floodplains are not located on the site. FEMA Maps of the site can be found in Appendix B.

2.3.3. Coastal Boundaries

Coastal Boundaries are not located near the site and were not a necessary consideration for this project. See FEMA Maps located in Appendix B.

3. Erosion and Sediment Control Plan

3.1. Erosion and Sediment Controls

An Erosion and Sediment (E&S) Control Plan has been developed to mitigate the short-term impacts of the site improvements during construction and includes the following information: descriptive specifications concerning land grading, top soiling, temporary vegetative cover, permanent vegetative cover, vegetative cover selection and mulching, and erosion checks. Details can be found in the E&S plans and have been provided for all erosion controls as necessary. In all cases, the E&S Control Plan shall be implemented in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

3.2. Temporary Stabilization

Temporary stabilization for the site include silt fences, baffles, waddles, and ditch checks. These stabilization practices shall be installed and reinforced on the site before any construction occurs and according to the E&S plans and according to the proper phase of the project. The construction and maintenance of temporary stabilization shall follow the requirements of the E&S plans.

3.3. Permanent Stabilization

Permanent stabilization practice on the site will include sediment basins and stabilization of the site with permanent seed. Sediment basins will be constructed in each drainage area that will be converted to a stormwater pond at the end of the project to keep the post-development flows at or below the pre-development flows. See Appendix H for the Erosion and Sediment Control Calculations of the sediment basins and ponds. Stabilization and permanent seed will be in accordance with the project specifications and plans. Construction of E&S control measures are in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

3.4. Sediment Tracking and Maintenance of Controls

The entrance of the construction site shall be installed and maintained to reduce vehicular tracking of sediment. The installation of these practices shall be according to the plans and all maintenance of controls shall be according to the E&S plans.

E&S controls will be installed and maintained throughout the construction in accordance with local, state, and federal requirements.

Appendix A

Soil Resource Report

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 State of Connecticut



August 10, 2020

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

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: 1:8,550 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 400 800 1600 2400

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

Soil Survey Area: State of Connecticut
Survey Area Data: Version 20, Jun 9, 2020

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

Date(s) aerial images were photographed: Mar 20, 2019—Mar 27, 2019

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	3.0	1.9%
13	Walpole sandy loam, 0 to 3 percent slopes	2.6	1.6%
29A	Agawam fine sandy loam, 0 to 3 percent slopes	1.2	0.7%
34B	Merrimac fine sandy loam, 3 to 8 percent slopes	5.7	3.5%
38C	Hinckley loamy sand, 3 to 15 percent slopes	2.2	1.3%
38E	Hinckley loamy sand, 15 to 45 percent slopes	0.1	0.1%
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	4.3	2.6%
51B	Sutton fine sandy loam, 0 to 8 percent slopes, very stony	6.1	3.7%
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	5.3	3.2%
60C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes	2.0	1.2%
61B	Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony	45.5	27.7%
61C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes, very stony	15.8	9.7%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	9.2	5.6%
84B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes	2.0	1.2%
85B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony	14.2	8.7%
86C	Paxton and Montauk fine sandy loams, 3 to 15 percent slopes, extremely stony	2.4	1.5%
86D	Paxton and Montauk fine sandy loams, 15 to 35 percent slopes, extremely stony	0.1	0.0%
306	Udorthents-Urban land complex	40.9	24.9%
703A	Haven silt loam, 0 to 3 percent slopes	1.3	0.8%
Totals for Area of Interest		**164.1**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas

shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

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

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

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

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

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

State of Connecticut

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

Map Unit Setting

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

Map Unit Composition

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

Description of Ridgebury, Extremely Stony

Setting

Landform: Drumlins, depressions, drainageways, hills, ground moraines
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Hydrologic Soil Group: D
Ecological site: F144AY009CT - Wet Till Depressions
Hydric soil rating: Yes

Description of Leicester, Extremely Stony

Setting

Landform: Ground moraines, depressions, drainageways, hills
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Parent material: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Description of Whitman, Extremely Stony

Setting

Landform: Depressions, drainageways, hills, ground moraines, drumlins
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 1 inches: peat

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Woodbridge, extremely stony

Percent of map unit: 6 percent
Landform: Ground moraines, drumlins, hills
Landform position (two-dimensional): Backslope, footslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Swansea

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

13—Walpole sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2svkl
Elevation: 0 to 1,020 feet

Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 250 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Walpole

Setting

Landform: Outwash terraces, outwash plains, depressions, deltas, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy glaciofluvial deposits derived from igneous, metamorphic and sedimentary rock

Typical profile

Oe - 0 to 1 inches: mucky peat
A - 1 to 7 inches: sandy loam
Bg - 7 to 21 inches: sandy loam
BC - 21 to 25 inches: gravelly sandy loam
C - 25 to 65 inches: very gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 4 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: B/D
Ecological site: F144AY028MA - Wet Outwash
Hydric soil rating: Yes

Minor Components

Sudbury

Percent of map unit: 10 percent
Landform: Deltas, outwash plains, terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Linear

Hydric soil rating: No

Scarboro

Percent of map unit: 10 percent
Landform: Outwash terraces, deltas, outwash plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

29A—Agawam fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tyqw
Elevation: 0 to 1,040 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 250 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Agawam

Setting

Landform: Outwash plains, kame terraces, kames, moraines, outwash terraces
Landform position (two-dimensional): Backslope, shoulder, footslope, summit
Landform position (three-dimensional): Side slope, crest, tread, riser, rise, dip
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from gneiss, granite, schist, and/or phyllite

Typical profile

Ap - 0 to 11 inches: fine sandy loam
Bw1 - 11 to 16 inches: fine sandy loam
Bw2 - 16 to 26 inches: fine sandy loam
2C1 - 26 to 39 inches: loamy fine sand
2C2 - 39 to 55 inches: loamy fine sand
2C3 - 55 to 65 inches: loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 15 to 35 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: B
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

Minor Components

Ninigret

Percent of map unit: 5 percent
Landform: Terraces
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Windsor

Percent of map unit: 4 percent
Landform: Outwash plains, outwash terraces, deltas, dunes
Landform position (three-dimensional): Tread, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Walpole

Percent of map unit: 3 percent
Landform: Outwash plains, depressions, outwash terraces, depressions, deltas
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Hinckley

Percent of map unit: 3 percent
Landform: Outwash plains, eskers, kames, deltas
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest, head slope, rise
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

34B—Merrimac fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2tyqs
Elevation: 0 to 1,290 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Merrimac

Setting

Landform: Kames, eskers, moraines, outwash terraces, outwash plains
Landform position (two-dimensional): Backslope, footslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest, riser, tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy and gravelly glaciofluvial deposits derived from granite, schist, and gneiss

Typical profile

Ap - 0 to 10 inches: fine sandy loam
Bw1 - 10 to 22 inches: fine sandy loam
Bw2 - 22 to 26 inches: stratified gravel to gravelly loamy sand
2C - 26 to 65 inches: stratified gravel to very gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Maximum salinity: Nonsaline (0.0 to 1.4 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water capacity: Low (about 4.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

Minor Components

Sudbury
Percent of map unit: 5 percent
Landform: Outwash plains, terraces, deltas
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Hinckley
Percent of map unit: 5 percent
Landform: Deltas, outwash plains, eskers, kames
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope, crest, head slope, rise
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

Windsor
Percent of map unit: 3 percent
Landform: Outwash plains, deltas, dunes, outwash terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread, riser
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Agawam
Percent of map unit: 2 percent
Landform: Outwash terraces, outwash plains, kames, eskers, stream terraces, moraines
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

38C—Hinckley loamy sand, 3 to 15 percent slopes

Map Unit Setting
National map unit symbol: 2svmb
Elevation: 0 to 1,290 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Hinckley

Setting

Landform: Moraines, outwash terraces, outwash deltas, kame terraces, outwash plains, kames, eskers
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope, summit
Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser, tread
Down-slope shape: Convex, linear, concave
Across-slope shape: Linear, convex, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Merrimac

Percent of map unit: 5 percent
Landform: Outwash plains, kames, eskers, moraines, outwash terraces
Landform position (two-dimensional): Backslope, footslope, shoulder, toeslope, summit

Landform position (three-dimensional): Side slope, crest, head slope, nose slope, riser, tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Windsor

Percent of map unit: 5 percent
Landform: Eskers, moraines, kame terraces, outwash plains, outwash terraces, outwash deltas, kames
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope, summit
Landform position (three-dimensional): Crest, head slope, nose slope, side slope, riser, tread
Down-slope shape: Convex, concave, linear
Across-slope shape: Concave, linear, convex
Hydric soil rating: No

Agawam

Percent of map unit: 3 percent
Landform: Outwash deltas, kame terraces, outwash plains, kames, eskers, moraines, outwash terraces
Landform position (two-dimensional): Footslope, backslope, shoulder, toeslope, summit
Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser, tread
Down-slope shape: Linear, convex, concave
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Sudbury

Percent of map unit: 2 percent
Landform: Outwash plains, moraines, outwash deltas, outwash terraces, kame terraces
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

38E—Hinckley loamy sand, 15 to 45 percent slopes

Map Unit Setting

National map unit symbol: 2svmj
Elevation: 0 to 1,280 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Hinckley

Setting

Landform: Kames, eskers, kame terraces, outwash plains, moraines, outwash terraces, outwash deltas
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser
Down-slope shape: Linear, convex, concave
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 15 to 45 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Merrimac

Percent of map unit: 5 percent
Landform: Kames, eskers, moraines, outwash terraces, outwash plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope, crest, head slope, nose slope, riser
Down-slope shape: Convex
Across-slope shape: Convex

Hydric soil rating: No

Windsor

Percent of map unit: 5 percent
Landform: Outwash deltas, moraines, kames, eskers, kame terraces, outwash plains, outwash terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, riser
Down-slope shape: Concave, linear, convex
Across-slope shape: Linear, concave, convex
Hydric soil rating: No

Agawam

Percent of map unit: 3 percent
Landform: Kames, moraines, outwash terraces, outwash deltas, kame terraces, eskers, outwash plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser
Down-slope shape: Linear, convex, concave
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Sudbury

Percent of map unit: 2 percent
Landform: Eskers, kames, moraines, outwash terraces, kame terraces, outwash plains, outwash deltas
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

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

Map Unit Setting

National map unit symbol: 2t2qr
Elevation: 0 to 1,440 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Woodbridge, Very Stony

Setting

Landform: Hills, ground moraines, drumlins
Landform position (two-dimensional): Backslope, footslope, summit
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Paxton, very stony

Percent of map unit: 10 percent
Landform: Drumlins, hills, ground moraines
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex, linear
Hydric soil rating: No

Ridgebury, very stony

Percent of map unit: 8 percent
Landform: Ground moraines, depressions, drumlins, drainageways, hills
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave

Across-slope shape: Concave
Hydric soil rating: Yes

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

Map Unit Setting

National map unit symbol: 2xfff
Elevation: 0 to 1,410 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Sutton, Very Stony

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Charlton, very stony

Percent of map unit: 7 percent
Landform: Hills, ground moraines, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Canton, very stony

Percent of map unit: 4 percent
Landform: Ridges, hills, moraines
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex
Hydric soil rating: No

Leicester, very stony

Percent of map unit: 3 percent
Landform: Hills, drainageways, ground moraines, depressions
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

Whitman, very stony

Percent of map unit: 1 percent
Landform: Drainageways, hills, ground moraines, drumlins, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

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

Map Unit Setting

National map unit symbol: 2w81s
Elevation: 0 to 1,460 feet

Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Canton

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Description of Charlton

Setting

Landform: Hills, ground moraines, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Sutton

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

Leicester

Percent of map unit: 5 percent
Landform: Drainageways, ground moraines, hills, depressions
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Concave
Hydric soil rating: Yes

Chatfield

Percent of map unit: 5 percent
Landform: Ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

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

Map Unit Setting

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

Map Unit Composition

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

Description of Canton

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Charlton

Setting

Landform: Hills, ground moraines, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Chatfield

Percent of map unit: 5 percent
Landform: Hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Leicester

Percent of map unit: 5 percent
Landform: Hills, depressions, drainageways, ground moraines
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear

Across-slope shape: Concave
Hydric soil rating: Yes

Sutton

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

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

Map Unit Setting

National map unit symbol: 2w81v
Elevation: 0 to 1,480 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Canton, Very Stony

Setting

Landform: Ridges, hills, moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

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

Properties and qualities

Slope: 0 to 8 percent

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

Interpretive groups

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

Description of Charlton, Very Stony

Setting

Landform: Hills, ground moraines, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

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

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 8.7 inches)

Interpretive groups

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

Minor Components

Leicester, very stony

Percent of map unit: 5 percent
Landform: Ground moraines, depressions, drainageways, hills
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

Chatfield, very stony

Percent of map unit: 5 percent
Landform: Hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Nose slope, crest, side slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Sutton, very stony

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

61C—Canton and Charlton fine sandy loams, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2w820
Elevation: 0 to 1,540 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Canton, Very Stony

Setting

Landform: Ridges, hills, moraines
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Side slope, crest, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

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

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.4 inches)

Interpretive groups

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

Description of Charlton, Very Stony

Setting

Landform: Hills, ground moraines, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

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

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 8.7 inches)

Interpretive groups

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

Minor Components

Chatfield, very stony

Percent of map unit: 5 percent
Landform: Hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Leicester, very stony

Percent of map unit: 5 percent
Landform: Hills, ground moraines, depressions, drainageways
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Hydric soil rating: Yes

Sutton, very stony

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

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

Map Unit Setting

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

Map Unit Composition

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

Description of Charlton, Very Stony

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

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

Properties and qualities

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

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Chatfield, Very Stony

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Sutton, very stony

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

Rock outcrop

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

Hollis, very stony

Percent of map unit: 5 percent
Landform: Ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Leicester, very stony

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

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

Map Unit Setting

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

Map Unit Composition

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

Description of Paxton

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Description of Montauk

Setting

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

Typical profile

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

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 38 inches to densic material
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 24 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.3 inches)

Interpretive groups

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

Minor Components

Ridgebury

Percent of map unit: 5 percent
Landform: Hills, ground moraines, depressions, drainageways
Landform position (two-dimensional): Toeslope, backslope, footslope
Landform position (three-dimensional): Base slope, head slope, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Woodbridge

Percent of map unit: 5 percent
Landform: Hills, drumlins, ground moraines
Landform position (two-dimensional): Backslope, footslope, summit
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Charlton

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

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

Map Unit Setting

National map unit symbol: 2w679
Elevation: 0 to 1,530 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Paxton, Very Stony

Setting

Landform: Drumlins, ground moraines, hills

Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

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

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 43 inches to densic material
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 4.8 inches)

Interpretive groups

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

Description of Montauk, Very Stony

Setting

Landform: Ground moraines, recessionial moraines, drumlins, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy lodgment till derived from gneiss, granite, and/or schist

Typical profile

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

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 43 inches to densic material

Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 5.6 inches)

Interpretive groups

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

Minor Components

Woodbridge, very stony

Percent of map unit: 8 percent
Landform: Drumlins, hills, ground moraines
Landform position (two-dimensional): Backslope, summit, footslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Charlton, very stony

Percent of map unit: 3 percent
Landform: Hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Ridgebury, very stony

Percent of map unit: 3 percent
Landform: Ground moraines, depressions, drumlins, drainageways, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Stockbridge, very stony

Percent of map unit: 1 percent
Landform: Hills
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

86C—Paxton and Montauk fine sandy loams, 3 to 15 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2w67d
Elevation: 20 to 1,490 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Paxton, Extremely Stony

Setting

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

Typical profile

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

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 20 to 43 inches to densic material
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Description of Montauk, Extremely Stony

Setting

Landform: Drumlins, hills, ground moraines, recessionial moraines
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy lodgment till derived from gneiss, granite, and/or schist

Typical profile

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

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 20 to 43 inches to densic material
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Charlton, extremely stony

Percent of map unit: 6 percent
Landform: Hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Woodbridge, extremely stony

Percent of map unit: 5 percent
Landform: Hills, ground moraines, drumlins
Landform position (two-dimensional): Backslope, footslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Ridgebury, extremely stony

Percent of map unit: 3 percent
Landform: Drainageways, hills, ground moraines, depressions, drumlins
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Stockbridge, extremely stony

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

86D—Paxton and Montauk fine sandy loams, 15 to 35 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2w67c
Elevation: 0 to 1,400 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Paxton, Extremely Stony

Setting

Landform: Drumlins, hills, ground moraines

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

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

Properties and qualities

Slope: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 20 to 43 inches to densic material
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Description of Montauk, Extremely Stony

Setting

Landform: Drumlins, ground moraines, recessionial moraines, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy lodgment till derived from gneiss, granite, and/or schist

Typical profile

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

Properties and qualities

Slope: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 20 to 43 inches to densic material

Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Charlton, extremely stony

Percent of map unit: 6 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Woodbridge, extremely stony

Percent of map unit: 5 percent
Landform: Drumlins, hills, ground moraines
Landform position (two-dimensional): Backslope, footslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Ridgebury, extremely stony

Percent of map unit: 3 percent
Landform: Drainageways, hills, ground moraines, depressions, drumlins
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Stockbridge, extremely stony

Percent of map unit: 1 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

306—Udorthents-Urban land complex

Map Unit Setting

National map unit symbol: 9lmg
Elevation: 0 to 2,000 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 120 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Udorthents

Setting

Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Drift

Typical profile

A - 0 to 5 inches: loam
C1 - 5 to 21 inches: gravelly loam
C2 - 21 to 80 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: About 54 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Urban Land

Typical profile

H - 0 to 6 inches: material

Interpretive groups

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

Minor Components

Unnamed, undisturbed soils

Percent of map unit: 8 percent
Hydric soil rating: No

Udorthents, wet substratum

Percent of map unit: 5 percent
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent
Hydric soil rating: No

703A—Haven silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2y07k
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Haven

Setting

Landform: Outwash terraces, outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear

Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from granite and/or schist and/or gneiss

Typical profile

Ap - 0 to 7 inches: silt loam
Bw1 - 7 to 14 inches: silt loam
Bw2 - 14 to 20 inches: silt loam
BC - 20 to 24 inches: fine sandy loam
2C - 24 to 60 inches: stratified very gravelly sand to gravelly fine sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 18 to 36 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Ecological site: F144AY023CT - Well Drained Outwash
Hydric soil rating: No

Minor Components

Enfield

Percent of map unit: 5 percent
Landform: Outwash plains, outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Tisbury

Percent of map unit: 5 percent
Landform: Deltas, valley trains, outwash terraces, outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Agawam

Percent of map unit: 3 percent
Landform: Moraines, outwash terraces, outwash plains, kame terraces, kames
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Side slope, crest, tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Raypol

Percent of map unit: 2 percent
Landform: Depressions, drainageways
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations 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 interpretation.

Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

Hydric Rating by Map Unit

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

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.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

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.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Map—Hydric Rating by Map Unit



MAP LEGEND

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

Soils

Soil Rating Polygons
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points
- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

Soil Survey Area: State of Connecticut
Survey Area Data: Version 20, Jun 9, 2020

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

Date(s) aerial images were photographed: Mar 20, 2019—Mar 27, 2019

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—Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	94	3.0	1.9%
13	Walpole sandy loam, 0 to 3 percent slopes	90	2.6	1.6%
29A	Agawam fine sandy loam, 0 to 3 percent slopes	3	1.2	0.7%
34B	Merrimac fine sandy loam, 3 to 8 percent slopes	0	5.7	3.5%
38C	Hinckley loamy sand, 3 to 15 percent slopes	0	2.2	1.3%
38E	Hinckley loamy sand, 15 to 45 percent slopes	0	0.1	0.1%
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	8	4.3	2.6%
51B	Sutton fine sandy loam, 0 to 8 percent slopes, very stony	4	6.1	3.7%
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	5	5.3	3.2%
60C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes	5	2.0	1.2%
61B	Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony	5	45.5	27.7%
61C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes, very stony	5	15.8	9.7%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	5	9.2	5.6%
84B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes	5	2.0	1.2%
85B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony	3	14.2	8.7%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
86C	Paxton and Montauk fine sandy loams, 3 to 15 percent slopes, extremely stony	3	2.4	1.5%
86D	Paxton and Montauk fine sandy loams, 15 to 35 percent slopes, extremely stony	3	0.1	0.0%
306	Udorthents-Urban land complex	0	40.9	24.9%
703A	Haven silt loam, 0 to 3 percent slopes	2	1.3	0.8%
Totals for Area of Interest			**164.1**	**100.0%**

Rating Options—Hydric Rating by Map Unit

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

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.

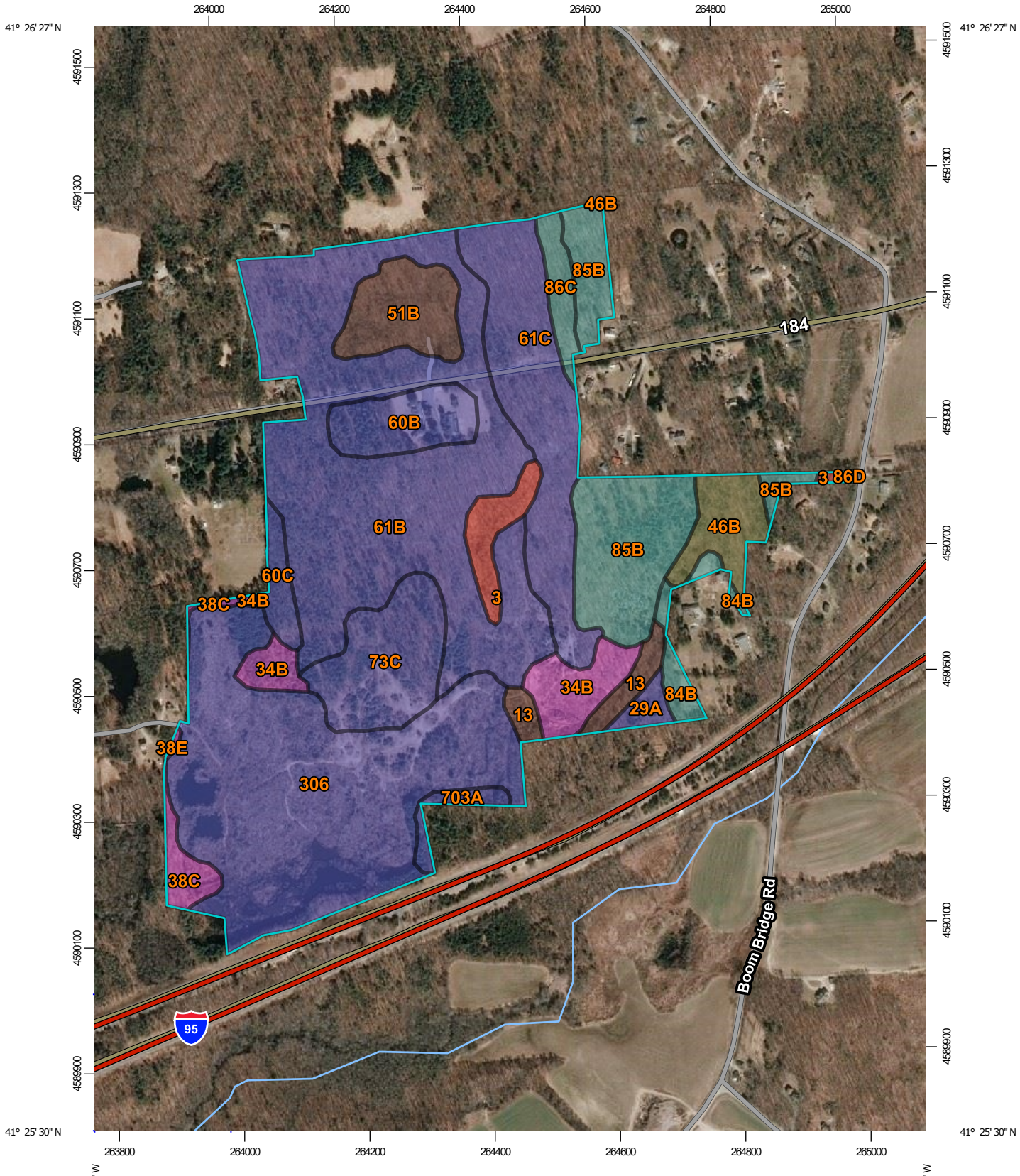
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

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.



Map Scale: 1:8,550 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 100 200 400 600

Feet
0 400 800 1600 2400

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

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

Soil Rating Lines

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

Soil Rating Points

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

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

Soil Survey Area: State of Connecticut
Survey Area Data: Version 20, Jun 9, 2020

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

Date(s) aerial images were photographed: Mar 20, 2019—Mar 27, 2019

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
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	D	3.0	1.9%
13	Walpole sandy loam, 0 to 3 percent slopes	B/D	2.6	1.6%
29A	Agawam fine sandy loam, 0 to 3 percent slopes	B	1.2	0.7%
34B	Merrimac fine sandy loam, 3 to 8 percent slopes	A	5.7	3.5%
38C	Hinckley loamy sand, 3 to 15 percent slopes	A	2.2	1.3%
38E	Hinckley loamy sand, 15 to 45 percent slopes	A	0.1	0.1%
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	C/D	4.3	2.6%
51B	Sutton fine sandy loam, 0 to 8 percent slopes, very stony	B/D	6.1	3.7%
60B	Canton and Charlton fine sandy loams, 3 to 8 percent slopes	B	5.3	3.2%
60C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes	B	2.0	1.2%
61B	Canton and Charlton fine sandy loams, 0 to 8 percent slopes, very stony	B	45.5	27.7%
61C	Canton and Charlton fine sandy loams, 8 to 15 percent slopes, very stony	B	15.8	9.7%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	B	9.2	5.6%
84B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes	C	2.0	1.2%
85B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony	C	14.2	8.7%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
86C	Paxton and Montauk fine sandy loams, 3 to 15 percent slopes, extremely stony	C	2.4	1.5%
86D	Paxton and Montauk fine sandy loams, 15 to 35 percent slopes, extremely stony	C	0.1	0.0%
306	Udorthents-Urban land complex	B	40.9	24.9%
703A	Haven silt loam, 0 to 3 percent slopes	B	1.3	0.8%
Totals for Area of Interest			**164.1**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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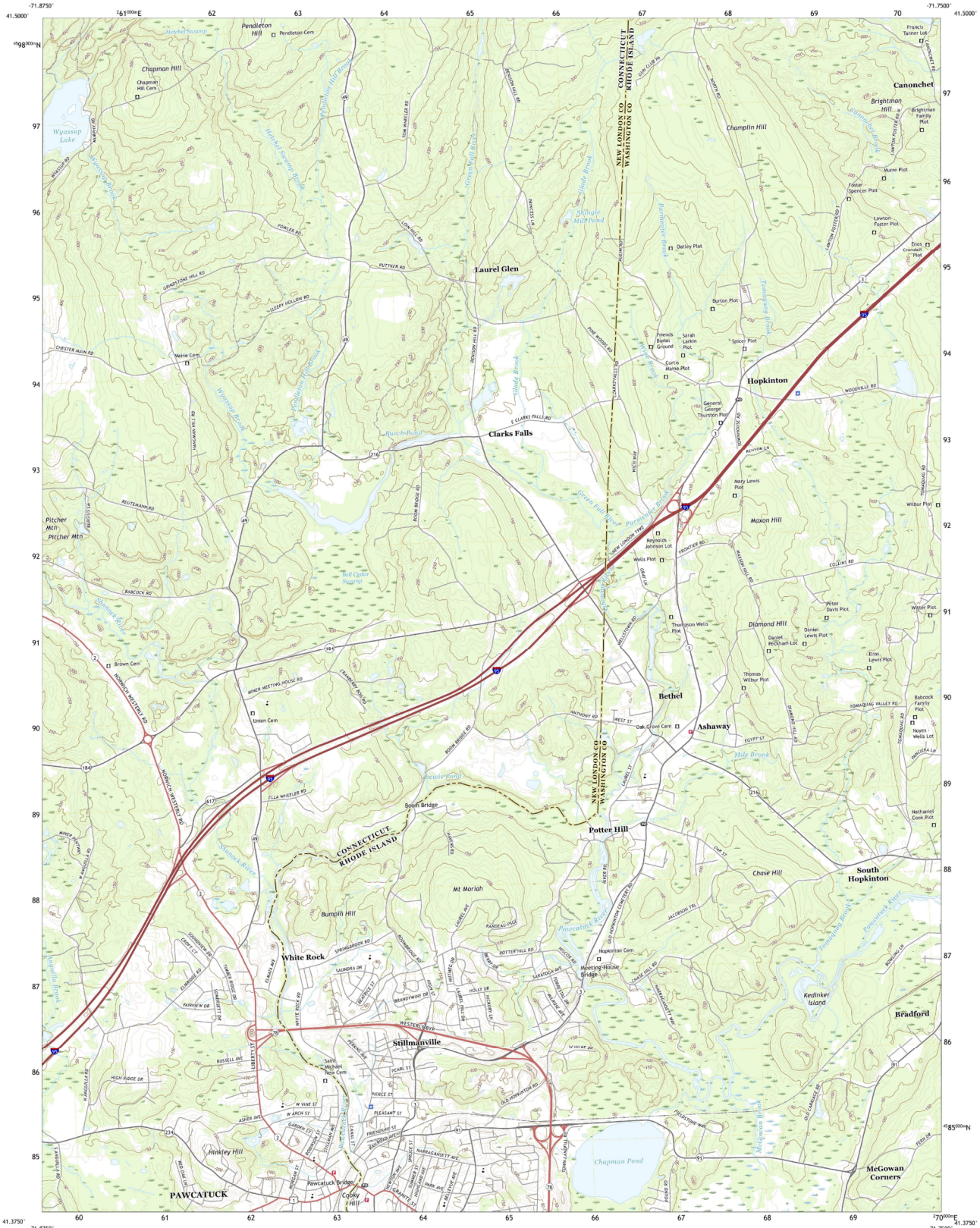
Appendix B

USGS & FEMA Firm Maps

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map
US Topo

ASHAWAY QUADRANGLE
RHODE ISLAND - CONNECTICUT
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and 1 000-meter grid:Universal Transverse Mercator, Zone 19T
This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, July 2016 - September 2016
Roads.....U.S. Census Bureau, 2016
Names.....GNIS, 1976 - 2018
Hydrography.....National Hydrography Dataset, 2004 - 2017
Contours.....National Elevation Dataset, 2004 - 2012
Boundaries.....Multiple sources; see metadata file 2016 - 2017

Wetlands.....FWS National Wetlands Inventory 2010

MN
GN
14°7'
251 MILS
1°52'
33 MILS

UTM GRID AND 2017 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
BF
Grid Zone Designation
19T

SCALE 1:24 000

KILOMETERS 1 0.5 0 1 2
METERS 1000 500 0 1000 2000
MILES 1 0.5 0 1
FEET 1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

RHODE ISLAND
QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES

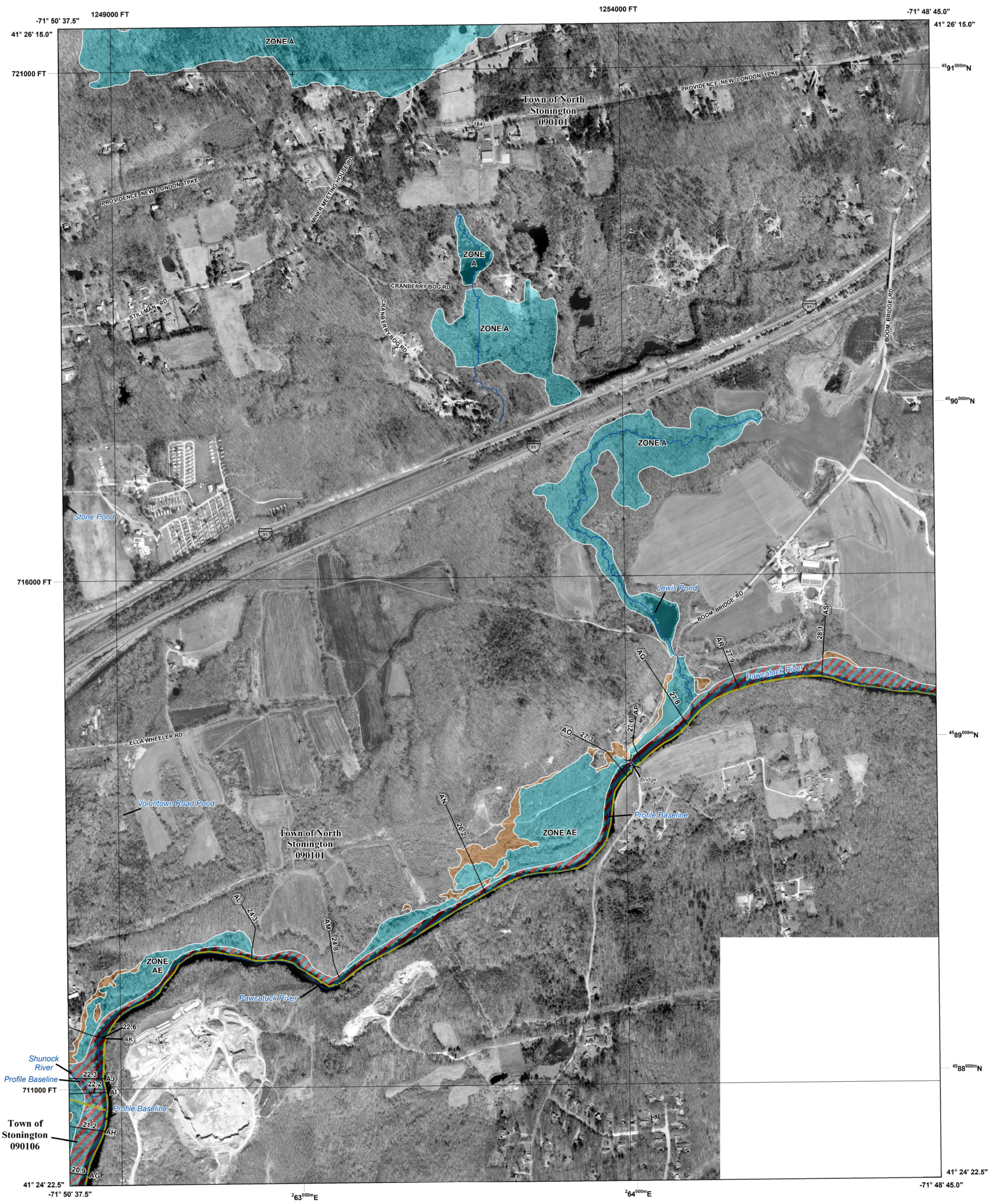
1 Jewett City
2 Voluntown
3 Hope Valley
4 Old Mystic
5 Carolina
6 Mystic
7 Watch Hill
8 Quonochontaug

ROAD CLASSIFICATION

Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

ASHAWAY, RI, CT
2018

NSN 7643018392064
NGA REF NO. USGSX24K1625



FLOOD HAZARD INFORMATION

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

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTP://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A,V, A99* With BFE or Depth *Zone AE, AO, AH, VE, AR*
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
	Future Conditions 1% Annual Chance Flood Hazard *Zone X*
	Area with Reduced Flood Risk due to Levee See Notes. *Zone X*
OTHER AREAS	NO SCREEN Areas Determined to be Outside the 0.2% Annual Chance Floodplain *Zone X*
	Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Accredited or Provisionally Accredited Levee, Dike, or Floodwall
	Non-accredited Levee, Dike, or Floodwall
	E 18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)
	8 Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	513 Base Flood Elevation Line (BFE)
OTHER FEATURES	Limit of Study
	Jurisdiction Boundary

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information eXchange.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in the community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was provided in digital format in 2016 by the Capitol Region Council of Governments of Connecticut at a 0.25-foot resolution.

SCALE

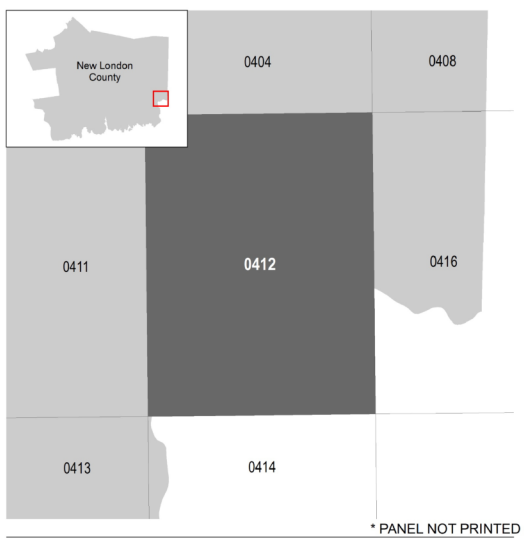
Map Projection:
Connecticut State Plane (FIPSZONE 0600); North American Datum 1983; Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 500 feet 1:6,000

0 500 1,000 2,000 Feet

0 125 250 500 Meters

PANEL LOCATOR



* PANEL NOT PRINTED

FEMA National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

NEW LONDON COUNTY, CT
(ALL JURISDICTIONS)

PANEL 412 OF 554

FEMA

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
NORTH STONINGTON , TOWN OF	090101	0412	H
STONINGTON , TOWN OF	090106	0412	H

VERSION NUMBER
2.3.3.2

MAP NUMBER
09011C0412H

MAP REVISED
April 3, 2020

Appendix C

NOAA Precipitation Data

NOAA Atlas 14, Volume 10, Version 3
Location name: North Stonington, Connecticut, USA*
Latitude: 41.4343°, Longitude: -71.8216°
Elevation: 137.53 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.331** (0.255-0.430)	**0.399** (0.307-0.518)	**0.511** (0.391-0.665)	**0.603** (0.460-0.789)	**0.731** (0.541-0.987)	**0.826** (0.600-1.13)	**0.927** (0.656-1.31)	**1.04** (0.699-1.49)	**1.21** (0.782-1.77)	**1.35** (0.853-2.00)
10-min	**0.469** (0.361-0.609)	**0.566** (0.435-0.735)	**0.724** (0.554-0.942)	**0.855** (0.651-1.12)	**1.03** (0.766-1.40)	**1.17** (0.850-1.61)	**1.31** (0.930-1.86)	**1.48** (0.990-2.11)	**1.71** (1.11-2.51)	**1.91** (1.21-2.84)
15-min	**0.552** (0.424-0.716)	**0.666** (0.511-0.864)	**0.852** (0.652-1.11)	**1.01** (0.766-1.31)	**1.22** (0.901-1.65)	**1.38** (0.999-1.89)	**1.55** (1.09-2.18)	**1.74** (1.17-2.48)	**2.02** (1.30-2.95)	**2.25** (1.42-3.34)
30-min	**0.764** (0.588-0.992)	**0.924** (0.710-1.20)	**1.19** (0.908-1.54)	**1.40** (1.07-1.83)	**1.70** (1.26-2.30)	**1.92** (1.40-2.64)	**2.16** (1.53-3.05)	**2.43** (1.63-3.47)	**2.82** (1.82-4.13)	**3.14** (1.99-4.66)
60-min	**0.977** (0.751-1.27)	**1.18** (0.909-1.54)	**1.52** (1.16-1.98)	**1.80** (1.37-2.35)	**2.18** (1.61-2.95)	**2.47** (1.79-3.39)	**2.78** (1.96-3.92)	**3.12** (2.09-4.45)	**3.62** (2.34-5.30)	**4.03** (2.55-5.99)
2-hr	**1.28** (0.993-1.66)	**1.55** (1.20-2.01)	**1.99** (1.53-2.58)	**2.36** (1.80-3.06)	**2.86** (2.12-3.84)	**3.23** (2.36-4.41)	**3.63** (2.58-5.10)	**4.08** (2.75-5.79)	**4.74** (3.08-6.90)	**5.29** (3.36-7.80)
3-hr	**1.50** (1.16-1.93)	**1.81** (1.40-2.33)	**2.31** (1.79-2.98)	**2.73** (2.10-3.54)	**3.31** (2.47-4.43)	**3.74** (2.74-5.09)	**4.20** (2.99-5.88)	**4.72** (3.19-6.67)	**5.49** (3.57-7.94)	**6.12** (3.90-8.99)
6-hr	**1.93** (1.50-2.47)	**2.31** (1.80-2.96)	**2.94** (2.28-3.77)	**3.46** (2.67-4.46)	**4.18** (3.13-5.56)	**4.71** (3.46-6.37)	**5.28** (3.78-7.35)	**5.93** (4.02-8.32)	**6.89** (4.50-9.90)	**7.69** (4.91-11.2)
12-hr	**2.42** (1.90-3.09)	**2.89** (2.26-3.68)	**3.65** (2.84-4.66)	**4.28** (3.32-5.48)	**5.14** (3.87-6.81)	**5.79** (4.28-7.78)	**6.48** (4.66-8.95)	**7.27** (4.95-10.1)	**8.43** (5.53-12.0)	**9.39** (6.03-13.6)
24-hr	**2.87** (2.26-3.63)	**3.42** (2.69-4.34)	**4.33** (3.39-5.49)	**5.08** (3.96-6.47)	**6.11** (4.62-8.04)	**6.88** (5.11-9.19)	**7.70** (5.57-10.6)	**8.65** (5.91-12.0)	**10.0** (6.61-14.2)	**11.2** (7.21-16.1)
2-day	**3.21** (2.54-4.04)	**3.86** (3.05-4.86)	**4.92** (3.87-6.21)	**5.79** (4.54-7.34)	**7.00** (5.32-9.16)	**7.90** (5.89-10.5)	**8.86** (6.44-12.1)	**9.97** (6.85-13.7)	**11.6** (7.67-16.3)	**12.9** (8.37-18.4)
3-day	**3.48** (2.76-4.36)	**4.17** (3.30-5.24)	**5.30** (4.19-6.67)	**6.24** (4.90-7.88)	**7.54** (5.74-9.82)	**8.50** (6.36-11.2)	**9.53** (6.94-12.9)	**10.7** (7.37-14.7)	**12.4** (8.25-17.4)	**13.9** (8.99-19.7)
4-day	**3.72** (2.96-4.66)	**4.44** (3.53-5.57)	**5.63** (4.45-7.07)	**6.61** (5.20-8.33)	**7.96** (6.08-10.3)	**8.97** (6.72-11.8)	**10.0** (7.32-13.6)	**11.3** (7.77-15.4)	**13.1** (8.68-18.2)	**14.5** (9.44-20.6)
7-day	**4.41** (3.52-5.50)	**5.20** (4.14-6.48)	**6.48** (5.15-8.10)	**7.54** (5.96-9.46)	**9.00** (6.90-11.6)	**10.1** (7.59-13.2)	**11.3** (8.23-15.1)	**12.6** (8.70-17.0)	**14.5** (9.64-20.1)	**16.0** (10.4-22.5)
10-day	**5.10** (4.08-6.34)	**5.92** (4.73-7.37)	**7.26** (5.79-9.05)	**8.37** (6.63-10.5)	**9.90** (7.60-12.7)	**11.1** (8.32-14.4)	**12.3** (8.96-16.4)	**13.6** (9.44-18.4)	**15.5** (10.4-21.4)	**17.0** (11.1-23.9)
20-day	**7.23** (5.81-8.94)	**8.12** (6.52-10.0)	**9.57** (7.66-11.9)	**10.8** (8.58-13.4)	**12.4** (9.57-15.8)	**13.7** (10.3-17.6)	**15.0** (10.9-19.7)	**16.3** (11.4-21.8)	**18.0** (12.1-24.7)	**19.3** (12.6-26.8)
30-day	**9.00** (7.26-11.1)	**9.94** (8.01-12.3)	**11.5** (9.22-14.2)	**12.8** (10.2-15.8)	**14.5** (11.2-18.3)	**15.9** (12.0-20.3)	**17.2** (12.5-22.3)	**18.5** (12.9-24.6)	**20.0** (13.5-27.3)	**21.1** (13.9-29.2)
45-day	**11.2** (9.06-13.8)	**12.2** (9.87-15.0)	**13.9** (11.2-17.1)	**15.2** (12.2-18.8)	**17.1** (13.2-21.5)	**18.6** (14.1-23.6)	**20.0** (14.5-25.8)	**21.2** (15.0-28.2)	**22.7** (15.4-30.8)	**23.6** (15.5-32.5)
60-day	**13.0** (10.6-16.0)	**14.1** (11.4-17.3)	**15.9** (12.8-19.5)	**17.3** (13.9-21.4)	**19.3** (15.0-24.2)	**21.0** (15.8-26.5)	**22.5** (16.3-28.7)	**23.7** (16.7-31.3)	**25.1** (17.0-33.9)	**25.9** (17.1-35.5)

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

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

Please refer to NOAA Atlas 14 document for more information.

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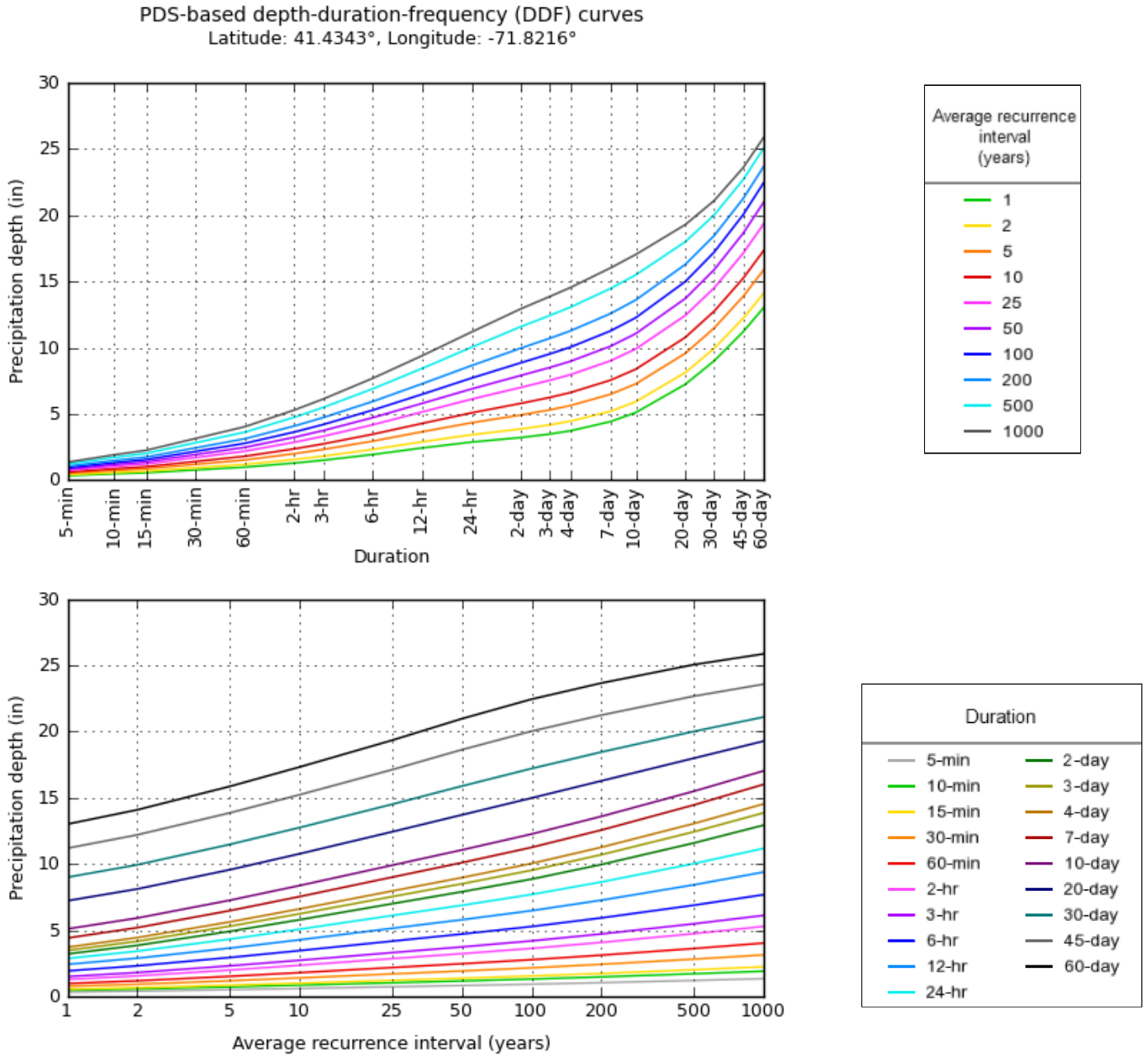
PF graphical



NOAA Atlas 14, Volume 10, Version 3

Created (GMT): Mon Aug 10 17:45:31 2020

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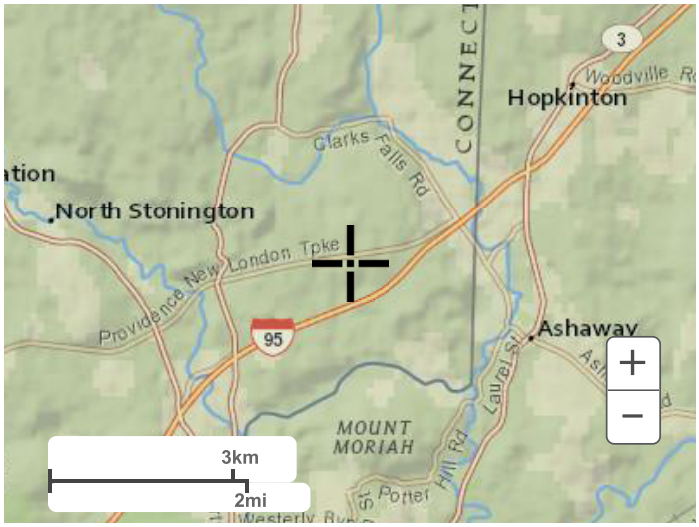
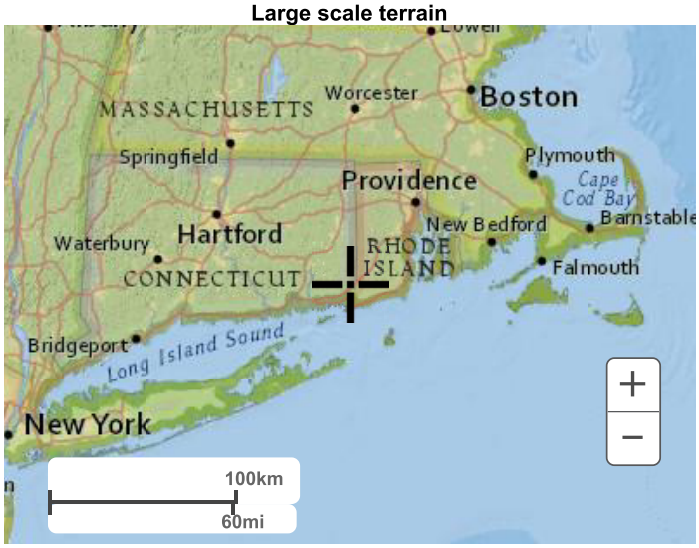
Maps & aerials

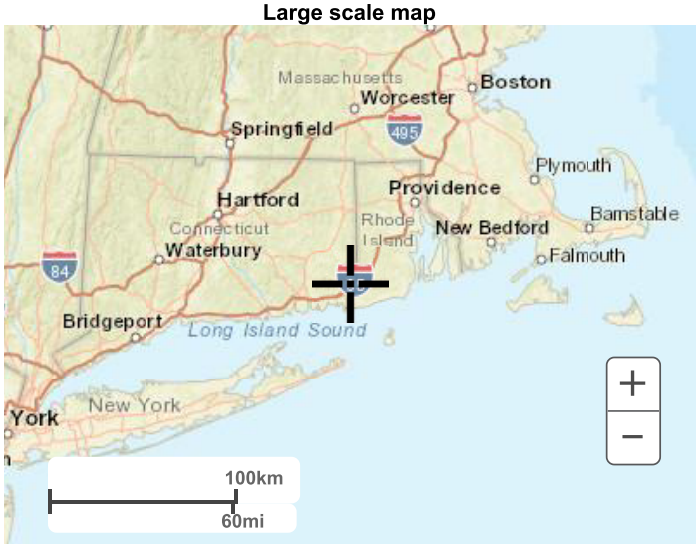
Small scale terrain



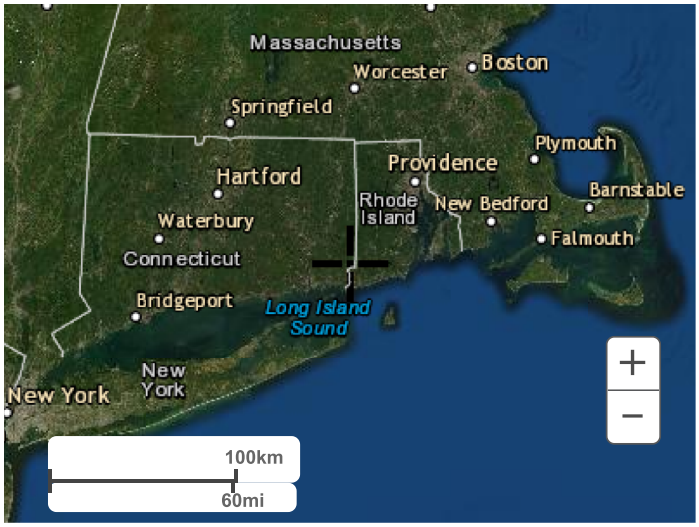
Large scale terrain



Large scale map



Large scale aerial



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

Disclaimer

Appendix D

Stormwater Drainage Area Map and Peak Flow Calculations



HDR Engineering Inc.
of the Carolinas

440 Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700

N.C.B.E.L.S. License Number: F-0116

SILICON RANCH

NOT FOR CONSTRUCTION

STONINGTON SOLAR

428, PROVIDENCE-NEW LONDON TURNPIKE
NORTH STONINGTON, CT 06359, USA

LAT: 41.431830°N
LON: 71.821514°W

STONINGTON, CT

0	ISSUED FOR PERMIT	09/30/20
REV. NO	DESCRIPTION	DATE

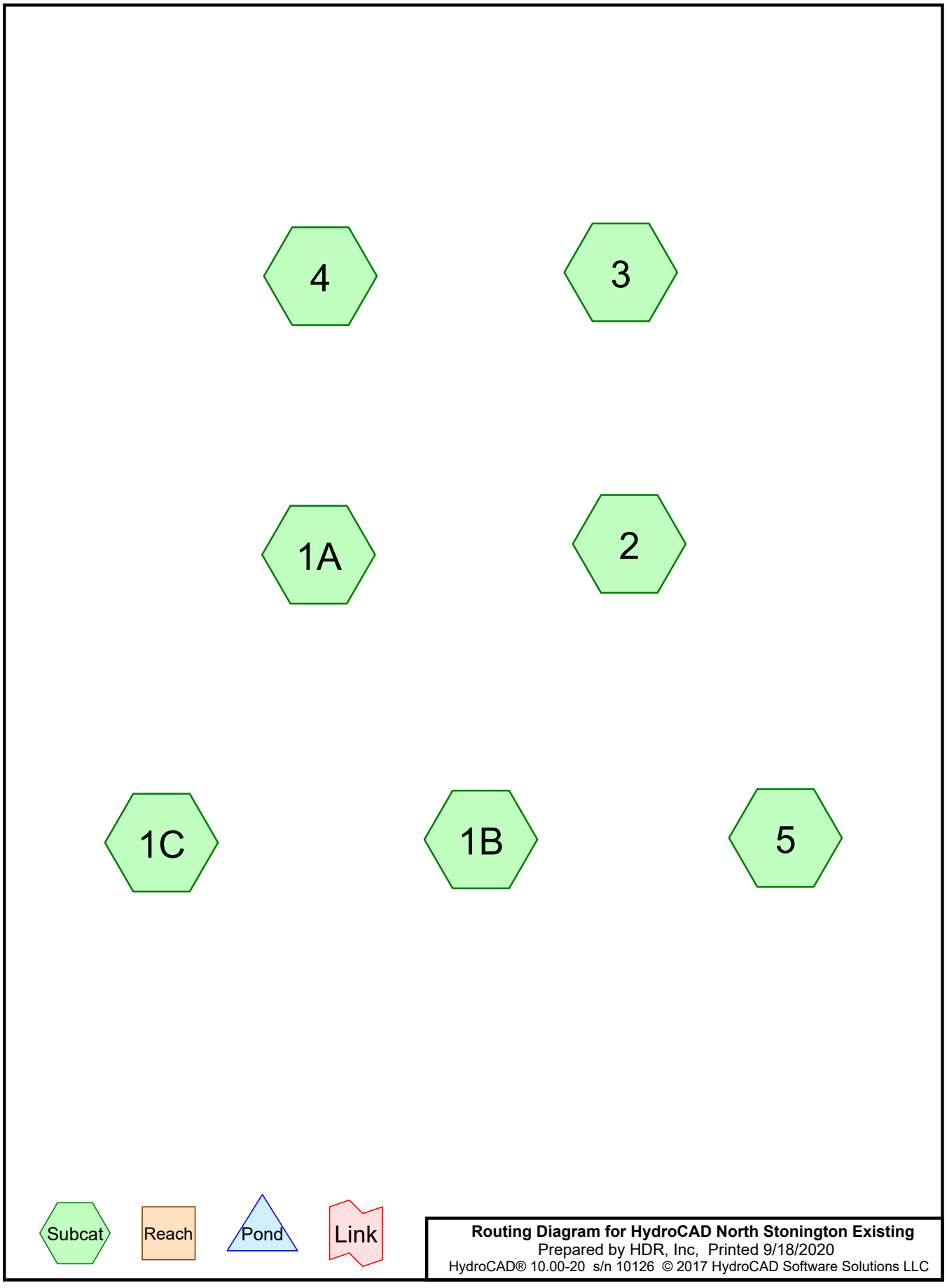
SHEET TITLE:

DRAINAGE AREA EXHIBIT POST-DEVELOPMENT

PROJ. MGR.	PROJ. ENGR.	DATE:
WK	MB	09/30/20
DRAWN BY:	CHECKED BY:	SCALE:
NC	CP	1:200

DRAWING NO.

EXHIBIT



Routing Diagram for HydroCAD North Stonington Existing
Prepared by HDR, Inc, Printed 9/18/2020
HydroCAD® 10.00-20 s/n 10126 © 2017 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
13.270	60	(1A, 1C)
10.540	61	(1B)
9.600	67	(2)
4.160	64	(3)
9.020	63	(4)
15.230	70	(5)
61.820	**64**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>0.49"
Tc=45.9 min CN=60 Runoff=0.88 cfs 0.191 af

Subcatchment1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>0.53"
Tc=45.5 min CN=61 Runoff=2.23 cfs 0.464 af

Subcatchment1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>0.49"
Tc=37.9 min CN=60 Runoff=1.78 cfs 0.351 af

Subcatchment2: Runoff Area=9.600 ac 0.00% Impervious Runoff Depth>0.79"
Tc=43.3 min CN=67 Runoff=3.71 cfs 0.636 af

Subcatchment3: Runoff Area=4.160 ac 0.00% Impervious Runoff Depth>0.66"
Tc=26.2 min CN=64 Runoff=1.57 cfs 0.229 af

Subcatchment4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>0.62"
Tc=25.7 min CN=63 Runoff=3.10 cfs 0.463 af

Subcatchment5: Runoff Area=15.230 ac 0.00% Impervious Runoff Depth>0.95"
Tc=32.0 min CN=70 Runoff=8.59 cfs 1.206 af

Total Runoff Area = 61.820 ac Runoff Volume = 3.539 af Average Runoff Depth = 0.69"
100.00% Pervious = 61.820 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

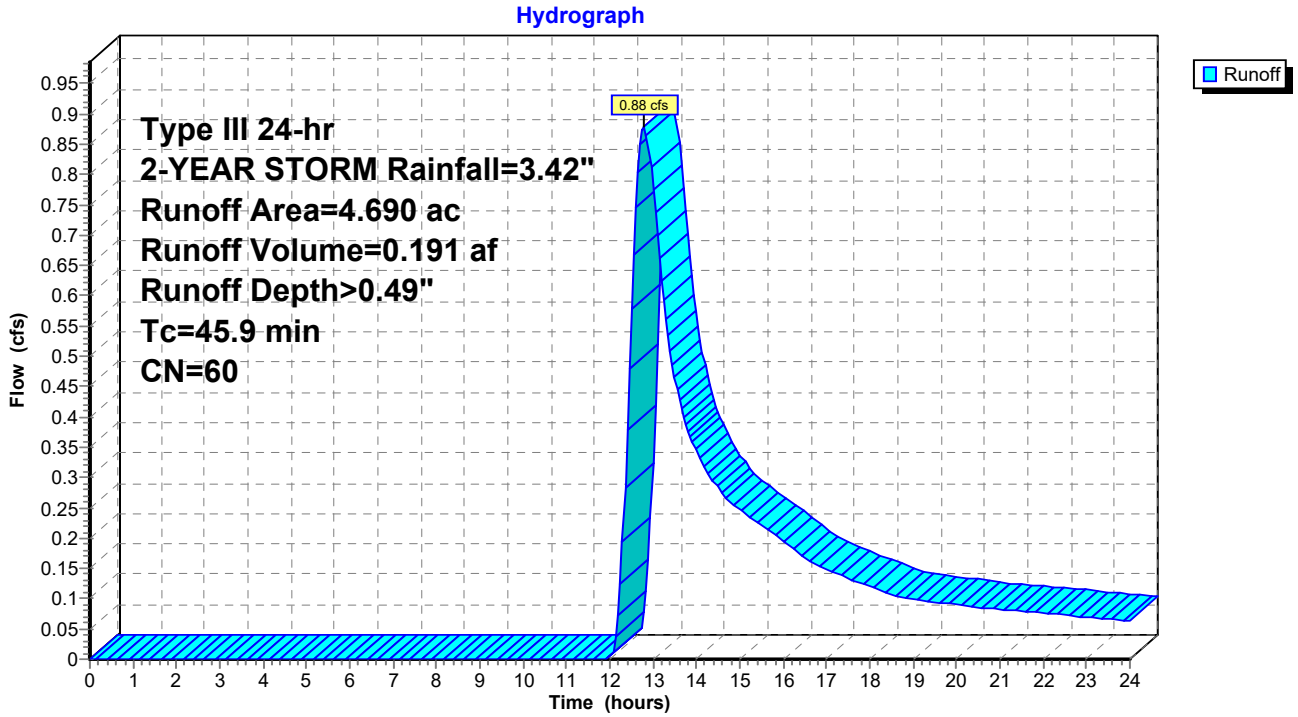
Runoff = 0.88 cfs @ 12.79 hrs, Volume= 0.191 af, Depth> 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	4.690	60	
	4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.9					**Direct Entry, SCS TR-55**

Subcatchment 1A:



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.00
11.00	0.85	0.00	0.00
11.25	0.93	0.00	0.00
11.50	1.02	0.00	0.00
11.75	1.21	0.00	0.00
12.00	1.71	0.02	0.00
12.25	2.21	0.10	0.12
12.50	2.40	0.15	0.58
12.75	2.49	0.17	**0.87**
13.00	2.56	0.19	**0.78**
13.25	2.62	0.21	0.59
13.50	2.68	0.23	0.47
13.75	2.73	0.24	0.39
14.00	2.77	0.26	0.34
14.25	2.81	0.27	0.31
14.50	2.85	0.28	0.28
14.75	2.89	0.29	0.26
15.00	2.92	0.31	0.25
15.25	2.95	0.32	0.23
15.50	2.98	0.33	0.22
15.75	3.01	0.34	0.21
16.00	3.03	0.34	0.19
16.25	3.05	0.35	0.18
16.50	3.07	0.36	0.17
16.75	3.09	0.37	0.16
17.00	3.11	0.37	0.15
17.25	3.13	0.38	0.14
17.50	3.14	0.39	0.13
17.75	3.16	0.39	0.13
18.00	3.17	0.40	0.12
18.25	3.19	0.40	0.11
18.50	3.20	0.41	0.11
18.75	3.21	0.41	0.10
19.00	3.23	0.42	0.10
19.25	3.24	0.42	0.10
19.50	3.25	0.43	0.09
19.75	3.26	0.43	0.09
20.00	3.27	0.44	0.09
20.25	3.28	0.44	0.09
20.50	3.29	0.45	0.09
20.75	3.31	0.45	0.08
21.00	3.32	0.45	0.08
21.25	3.33	0.46	0.08
21.50	3.34	0.46	0.08
21.75	3.34	0.47	0.08
22.00	3.35	0.47	0.08
22.25	3.36	0.47	0.07
22.50	3.37	0.48	0.07
22.75	3.38	0.48	0.07
23.00	3.39	0.48	0.07
23.25	3.40	0.49	0.07
23.50	3.40	0.49	0.07
23.75	3.41	0.49	0.06
24.00	**3.42**	**0.50**	0.06

Summary for Subcatchment 1B:

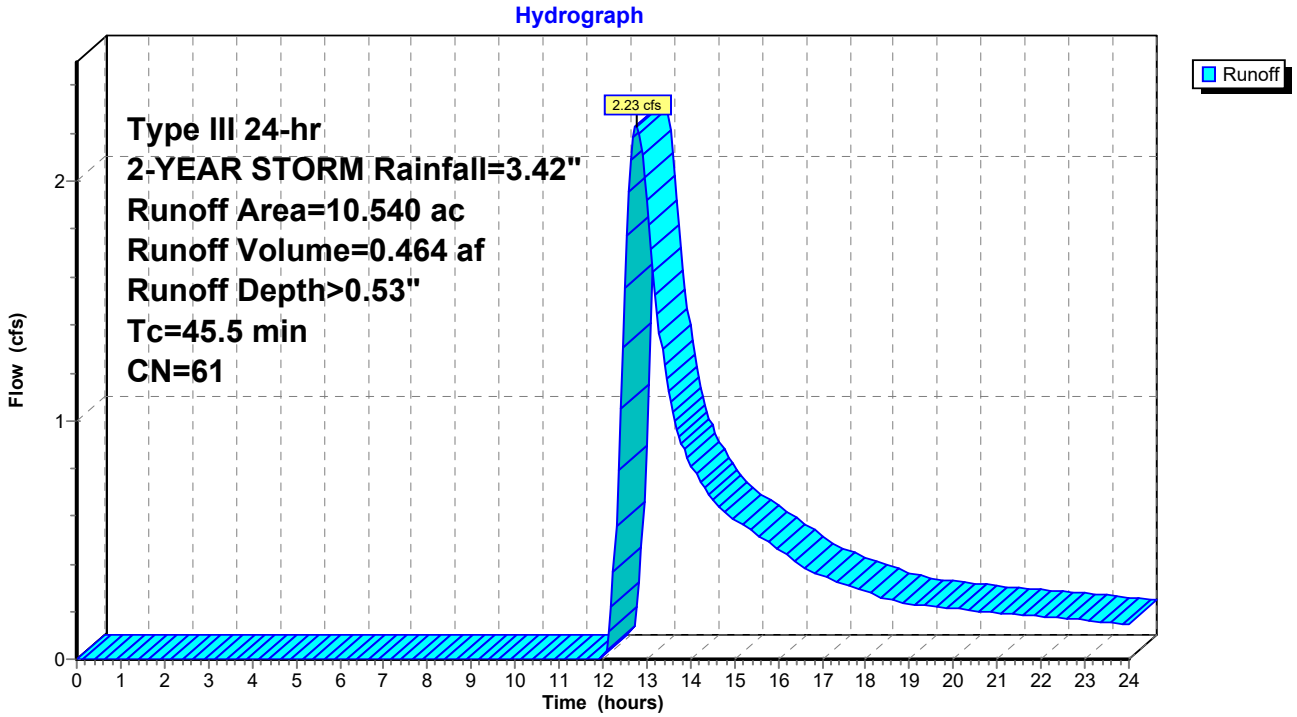
Runoff = 2.23 cfs @ 12.77 hrs, Volume= 0.464 af, Depth> 0.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	10.540	61	
	10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.5					**Direct Entry, SCS TR-55**

Subcatchment 1B:



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.00
11.00	0.85	0.00	0.00
11.25	0.93	0.00	0.00
11.50	1.02	0.00	0.00
11.75	1.21	0.00	0.00
12.00	1.71	0.03	0.01
12.25	2.21	0.12	0.37
12.50	2.40	0.17	1.55
12.75	2.49	0.19	**2.23**
13.00	2.56	0.22	1.92
13.25	2.62	0.23	1.44
13.50	2.68	0.25	1.12
13.75	2.73	0.27	0.93
14.00	2.77	0.28	0.82
14.25	2.81	0.30	0.74
14.50	2.85	0.31	0.67
14.75	2.89	0.32	0.62
15.00	2.92	0.34	0.59
15.25	2.95	0.35	0.56
15.50	2.98	0.36	0.52
15.75	3.01	0.37	0.49
16.00	3.03	0.38	0.46
16.25	3.05	0.38	0.43
16.50	3.07	0.39	0.39
16.75	3.09	0.40	0.37
17.00	3.11	0.41	0.35
17.25	3.13	0.41	0.33
17.50	3.14	0.42	0.32
17.75	3.16	0.43	0.30
18.00	3.17	0.43	0.28
18.25	3.19	0.44	0.27
18.50	3.20	0.44	0.25
18.75	3.21	0.45	0.24
19.00	3.23	0.45	0.23
19.25	3.24	0.46	0.23
19.50	3.25	0.46	0.22
19.75	3.26	0.47	0.22
20.00	3.27	0.47	0.21
20.25	3.28	0.48	0.21
20.50	3.29	0.48	0.20
20.75	3.31	0.49	0.20
21.00	3.32	0.49	0.19
21.25	3.33	0.50	0.19
21.50	3.34	0.50	0.19
21.75	3.34	0.50	0.18
22.00	3.35	0.51	0.18
22.25	3.36	0.51	0.17
22.50	3.37	0.52	0.17
22.75	3.38	0.52	0.17
23.00	3.39	0.52	0.16
23.25	3.40	0.53	0.16
23.50	3.40	0.53	0.16
23.75	3.41	0.53	0.15
24.00	**3.42**	**0.54**	0.15

Summary for Subcatchment 1C:

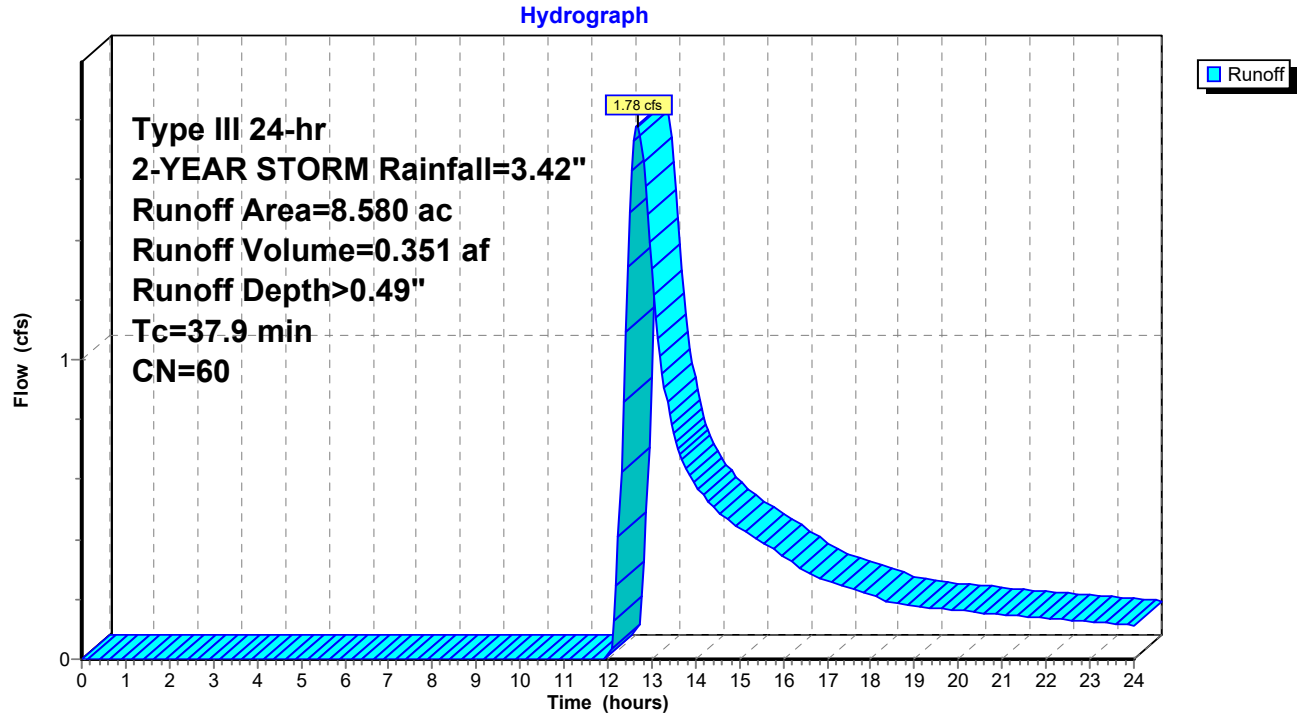
Runoff = 1.78 cfs @ 12.67 hrs, Volume= 0.351 af, Depth> 0.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	8.580	60	
	8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.9					**Direct Entry, SCS TR-55**

Subcatchment 1C:



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.00
11.00	0.85	0.00	0.00
11.25	0.93	0.00	0.00
11.50	1.02	0.00	0.00
11.75	1.21	0.00	0.00
12.00	1.71	0.02	0.00
12.25	2.21	0.10	0.41
12.50	2.40	0.15	**1.49**
12.75	2.49	0.17	**1.73**
13.00	2.56	0.19	1.30
13.25	2.62	0.21	0.95
13.50	2.68	0.23	0.75
13.75	2.73	0.24	0.65
14.00	2.77	0.26	0.58
14.25	2.81	0.27	0.53
14.50	2.85	0.28	0.49
14.75	2.89	0.29	0.46
15.00	2.92	0.31	0.44
15.25	2.95	0.32	0.42
15.50	2.98	0.33	0.39
15.75	3.01	0.34	0.37
16.00	3.03	0.34	0.34
16.25	3.05	0.35	0.32
16.50	3.07	0.36	0.29
16.75	3.09	0.37	0.28
17.00	3.11	0.37	0.26
17.25	3.13	0.38	0.25
17.50	3.14	0.39	0.24
17.75	3.16	0.39	0.23
18.00	3.17	0.40	0.21
18.25	3.19	0.40	0.20
18.50	3.20	0.41	0.19
18.75	3.21	0.41	0.18
19.00	3.23	0.42	0.18
19.25	3.24	0.42	0.17
19.50	3.25	0.43	0.17
19.75	3.26	0.43	0.17
20.00	3.27	0.44	0.16
20.25	3.28	0.44	0.16
20.50	3.29	0.45	0.16
20.75	3.31	0.45	0.15
21.00	3.32	0.45	0.15
21.25	3.33	0.46	0.15
21.50	3.34	0.46	0.14
21.75	3.34	0.47	0.14
22.00	3.35	0.47	0.14
22.25	3.36	0.47	0.13
22.50	3.37	0.48	0.13
22.75	3.38	0.48	0.13
23.00	3.39	0.48	0.13
23.25	3.40	0.49	0.12
23.50	3.40	0.49	0.12
23.75	3.41	0.49	0.12
24.00	**3.42**	**0.50**	0.11

Summary for Subcatchment 2:

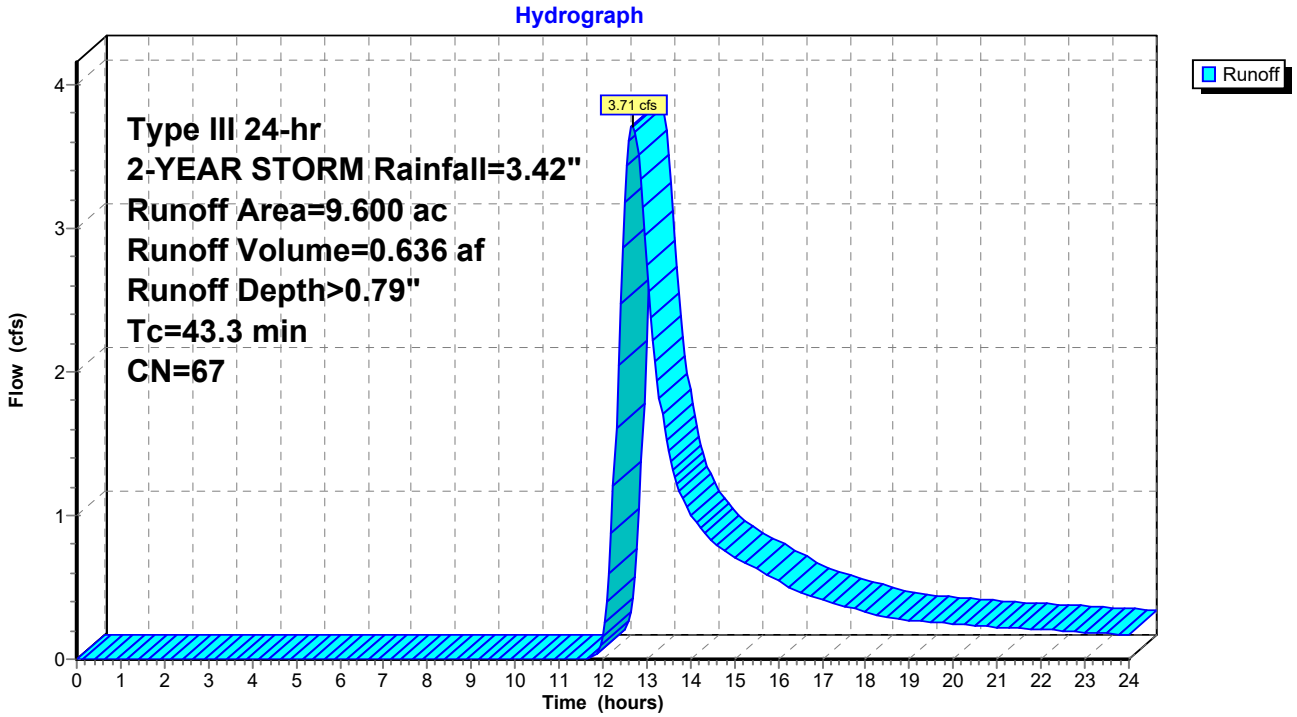
Runoff = 3.71 cfs @ 12.68 hrs, Volume= 0.636 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	9.600	67	
	9.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.3					**Direct Entry, SCS TR-55**

Subcatchment 2:



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	2.56	0.38	2.75
0.25	0.01	0.00	0.00	13.25	2.62	0.41	1.94
0.50	0.02	0.00	0.00	13.50	2.68	0.43	1.45
0.75	0.03	0.00	0.00	13.75	2.73	0.46	1.17
1.00	0.03	0.00	0.00	14.00	2.77	0.48	1.02
1.25	0.04	0.00	0.00	14.25	2.81	0.50	0.90
1.50	0.05	0.00	0.00	14.50	2.85	0.51	0.82
1.75	0.06	0.00	0.00	14.75	2.89	0.53	0.76
2.00	0.07	0.00	0.00	15.00	2.92	0.55	0.71
2.25	0.08	0.00	0.00	15.25	2.95	0.56	0.67
2.50	0.09	0.00	0.00	15.50	2.98	0.58	0.63
2.75	0.10	0.00	0.00	15.75	3.01	0.59	0.59
3.00	0.11	0.00	0.00	16.00	3.03	0.60	0.55
3.25	0.12	0.00	0.00	16.25	3.05	0.61	0.50
3.50	0.13	0.00	0.00	16.50	3.07	0.62	0.47
3.75	0.14	0.00	0.00	16.75	3.09	0.63	0.43
4.00	0.15	0.00	0.00	17.00	3.11	0.64	0.41
4.25	0.16	0.00	0.00	17.25	3.13	0.65	0.39
4.50	0.17	0.00	0.00	17.50	3.14	0.66	0.37
4.75	0.18	0.00	0.00	17.75	3.16	0.67	0.35
5.00	0.19	0.00	0.00	18.00	3.17	0.67	0.33
5.25	0.21	0.00	0.00	18.25	3.19	0.68	0.31
5.50	0.22	0.00	0.00	18.50	3.20	0.69	0.29
5.75	0.23	0.00	0.00	18.75	3.21	0.69	0.28
6.00	0.25	0.00	0.00	19.00	3.23	0.70	0.27
6.25	0.26	0.00	0.00	19.25	3.24	0.71	0.26
6.50	0.28	0.00	0.00	19.50	3.25	0.71	0.26
6.75	0.29	0.00	0.00	19.75	3.26	0.72	0.25
7.00	0.31	0.00	0.00	20.00	3.27	0.73	0.25
7.25	0.33	0.00	0.00	20.25	3.28	0.73	0.24
7.50	0.35	0.00	0.00	20.50	3.29	0.74	0.23
7.75	0.37	0.00	0.00	20.75	3.31	0.74	0.23
8.00	0.39	0.00	0.00	21.00	3.32	0.75	0.22
8.25	0.41	0.00	0.00	21.25	3.33	0.75	0.22
8.50	0.44	0.00	0.00	21.50	3.34	0.76	0.22
8.75	0.47	0.00	0.00	21.75	3.34	0.76	0.21
9.00	0.50	0.00	0.00	22.00	3.35	0.77	0.21
9.25	0.53	0.00	0.00	22.25	3.36	0.77	0.20
9.50	0.57	0.00	0.00	22.50	3.37	0.78	0.20
9.75	0.61	0.00	0.00	22.75	3.38	0.78	0.19
10.00	0.65	0.00	0.00	23.00	3.39	0.79	0.19
10.25	0.69	0.00	0.00	23.25	3.40	0.79	0.18
10.50	0.74	0.00	0.00	23.50	3.40	0.80	0.18
10.75	0.80	0.00	0.00	23.75	3.41	0.80	0.17
11.00	0.85	0.00	0.00	24.00	**3.42**	**0.81**	0.17
11.25	0.93	0.00	0.00				
11.50	1.02	0.00	0.00				
11.75	1.21	0.01	0.01				
12.00	1.71	0.09	0.16				
12.25	2.21	0.24	1.21				
12.50	2.40	0.32	**3.19**				
12.75	2.49	0.35	**3.65**				

Summary for Subcatchment 3:

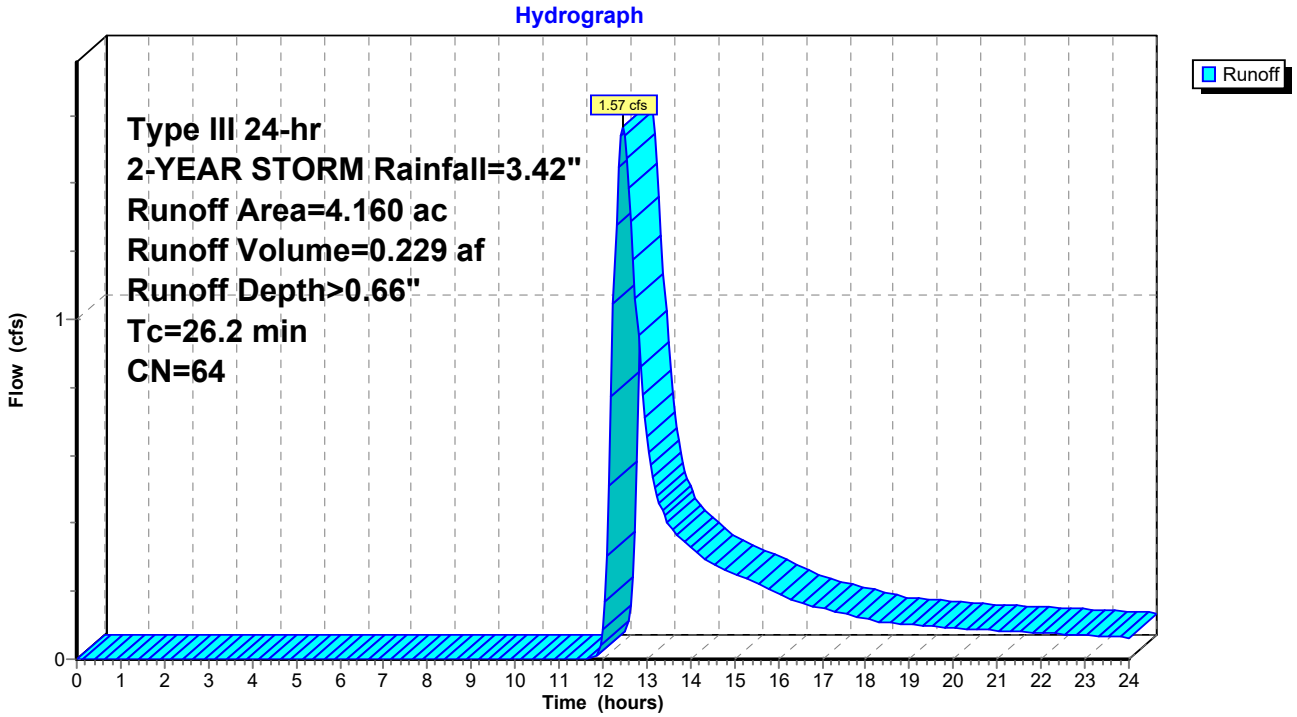
Runoff = 1.57 cfs @ 12.45 hrs, Volume= 0.229 af, Depth> 0.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	4.160	64	
	4.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.2					**Direct Entry, SCS TR-55**

Subcatchment 3:



Hydrograph for Subcatchment 3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.00
11.00	0.85	0.00	0.00
11.25	0.93	0.00	0.00
11.50	1.02	0.00	0.00
11.75	1.21	0.00	0.00
12.00	1.71	0.06	0.09
12.25	2.21	0.17	**1.04**
12.50	2.40	0.24	**1.54**
12.75	2.49	0.27	1.06
13.00	2.56	0.29	0.66
13.25	2.62	0.32	0.48
13.50	2.68	0.34	0.39
13.75	2.73	0.36	0.36
14.00	2.77	0.37	0.33
14.25	2.81	0.39	0.30
14.50	2.85	0.41	0.28
14.75	2.89	0.42	0.27
15.00	2.92	0.43	0.25
15.25	2.95	0.45	0.24
15.50	2.98	0.46	0.22
15.75	3.01	0.47	0.21
16.00	3.03	0.48	0.19
16.25	3.05	0.49	0.18
16.50	3.07	0.50	0.16
16.75	3.09	0.51	0.16
17.00	3.11	0.52	0.15
17.25	3.13	0.53	0.14
17.50	3.14	0.53	0.13
17.75	3.16	0.54	0.13
18.00	3.17	0.55	0.12
18.25	3.19	0.55	0.11
18.50	3.20	0.56	0.11
18.75	3.21	0.57	0.10
19.00	3.23	0.57	0.10
19.25	3.24	0.58	0.10
19.50	3.25	0.58	0.10
19.75	3.26	0.59	0.09
20.00	3.27	0.59	0.09
20.25	3.28	0.60	0.09
20.50	3.29	0.60	0.09
20.75	3.31	0.61	0.09
21.00	3.32	0.61	0.08
21.25	3.33	0.62	0.08
21.50	3.34	0.62	0.08
21.75	3.34	0.63	0.08
22.00	3.35	0.63	0.08
22.25	3.36	0.64	0.08
22.50	3.37	0.64	0.07
22.75	3.38	0.65	0.07
23.00	3.39	0.65	0.07
23.25	3.40	0.65	0.07
23.50	3.40	0.66	0.07
23.75	3.41	0.66	0.07
24.00	**3.42**	**0.67**	0.06

Summary for Subcatchment 4:

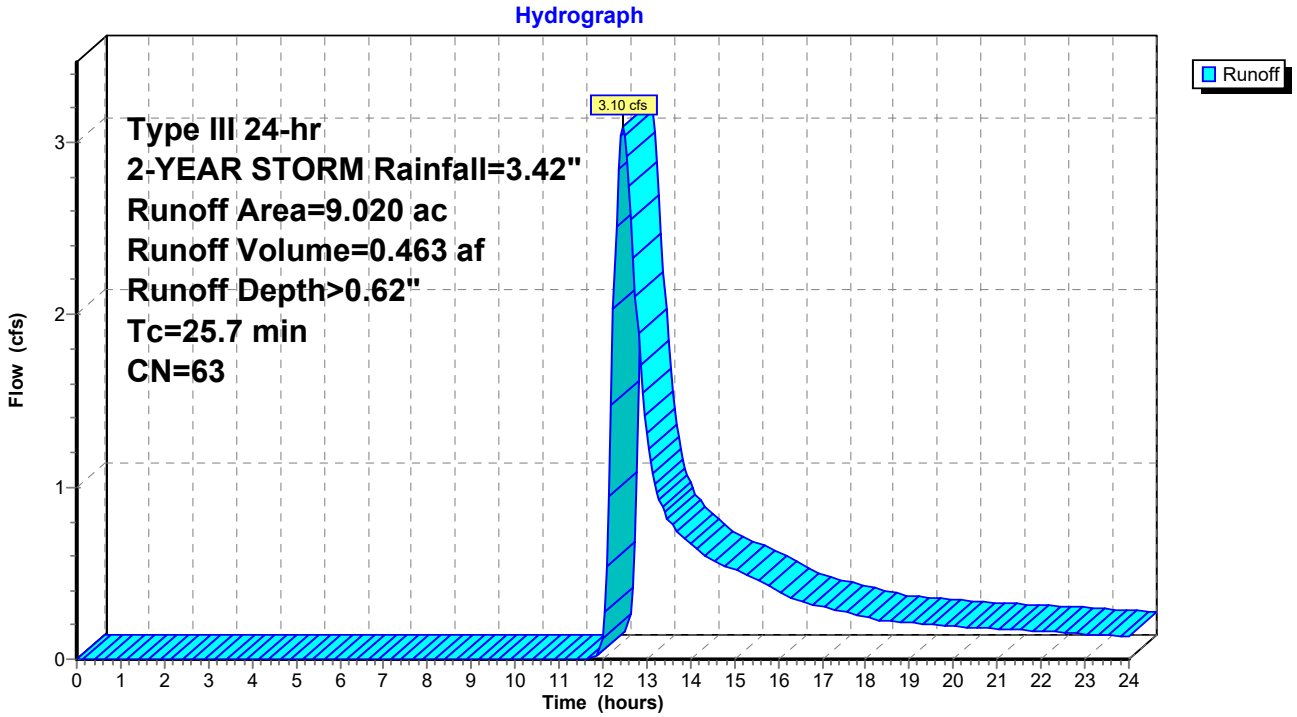
Runoff = 3.10 cfs @ 12.45 hrs, Volume= 0.463 af, Depth> 0.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	9.020	63	
	9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.7					**Direct Entry, SCS TR-55**

Subcatchment 4:



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.00
11.00	0.85	0.00	0.00
11.25	0.93	0.00	0.00
11.50	1.02	0.00	0.00
11.75	1.21	0.00	0.00
12.00	1.71	0.04	0.12
12.25	2.21	0.15	**2.03**
12.50	2.40	0.21	**3.04**
12.75	2.49	0.24	2.10
13.00	2.56	0.27	1.31
13.25	2.62	0.29	0.97
13.50	2.68	0.31	0.80
13.75	2.73	0.33	0.73
14.00	2.77	0.34	0.67
14.25	2.81	0.36	0.62
14.50	2.85	0.37	0.58
14.75	2.89	0.39	0.55
15.00	2.92	0.40	0.52
15.25	2.95	0.41	0.49
15.50	2.98	0.42	0.46
15.75	3.01	0.44	0.43
16.00	3.03	0.45	0.40
16.25	3.05	0.45	0.36
16.50	3.07	0.46	0.34
16.75	3.09	0.47	0.32
17.00	3.11	0.48	0.31
17.25	3.13	0.49	0.29
17.50	3.14	0.49	0.28
17.75	3.16	0.50	0.26
18.00	3.17	0.51	0.25
18.25	3.19	0.51	0.23
18.50	3.20	0.52	0.22
18.75	3.21	0.53	0.22
19.00	3.23	0.53	0.21
19.25	3.24	0.54	0.21
19.50	3.25	0.54	0.20
19.75	3.26	0.55	0.20
20.00	3.27	0.55	0.19
20.25	3.28	0.56	0.19
20.50	3.29	0.56	0.18
20.75	3.31	0.57	0.18
21.00	3.32	0.57	0.18
21.25	3.33	0.58	0.17
21.50	3.34	0.58	0.17
21.75	3.34	0.59	0.17
22.00	3.35	0.59	0.16
22.25	3.36	0.59	0.16
22.50	3.37	0.60	0.15
22.75	3.38	0.60	0.15
23.00	3.39	0.61	0.15
23.25	3.40	0.61	0.14
23.50	3.40	0.61	0.14
23.75	3.41	0.62	0.14
24.00	**3.42**	**0.62**	0.13

Summary for Subcatchment 5:

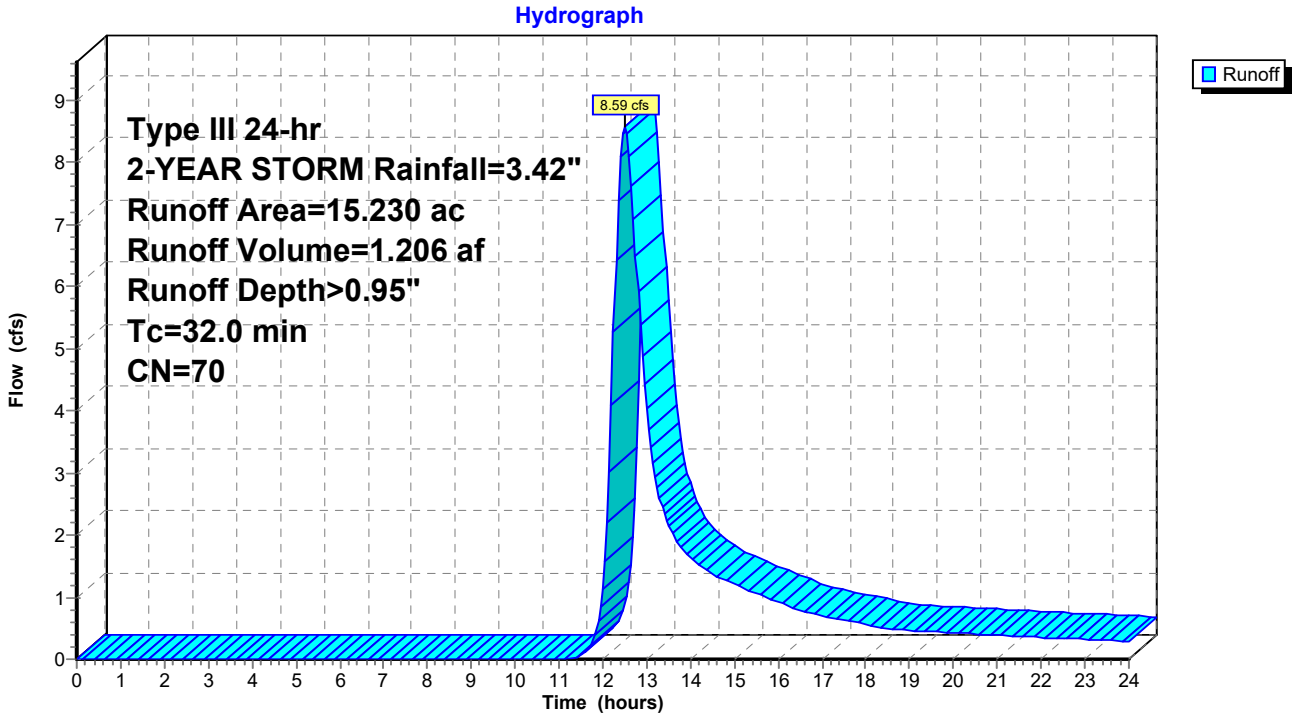
Runoff = 8.59 cfs @ 12.50 hrs, Volume= 1.206 af, Depth> 0.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	15.230	70	
	15.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.0					**Direct Entry, SCS TR-55**

Subcatchment 5:



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.00
11.00	0.85	0.00	0.00
11.25	0.93	0.00	0.00
11.50	1.02	0.01	0.06
11.75	1.21	0.03	0.25
12.00	1.71	0.14	1.14
12.25	2.21	0.32	5.28
12.50	2.40	0.41	**8.59**
12.75	2.49	0.45	6.49
13.00	2.56	0.49	4.03
13.25	2.62	0.52	2.76
13.50	2.68	0.54	2.13
13.75	2.73	0.57	1.83
14.00	2.77	0.59	1.64
14.25	2.81	0.61	1.49
14.50	2.85	0.63	1.37
14.75	2.89	0.65	1.29
15.00	2.92	0.67	1.21
15.25	2.95	0.69	1.14
15.50	2.98	0.70	1.07
15.75	3.01	0.72	1.00
16.00	3.03	0.73	0.92
16.25	3.05	0.74	0.84
16.50	3.07	0.75	0.78
16.75	3.09	0.77	0.74
17.00	3.11	0.78	0.70
17.25	3.13	0.79	0.66
17.50	3.14	0.80	0.63
17.75	3.16	0.80	0.59
18.00	3.17	0.81	0.56
18.25	3.19	0.82	0.52
18.50	3.20	0.83	0.50
18.75	3.21	0.84	0.48
19.00	3.23	0.84	0.47
19.25	3.24	0.85	0.46
19.50	3.25	0.86	0.45
19.75	3.26	0.86	0.44
20.00	3.27	0.87	0.42
20.25	3.28	0.88	0.41
20.50	3.29	0.88	0.40
20.75	3.31	0.89	0.40
21.00	3.32	0.90	0.39
21.25	3.33	0.90	0.38
21.50	3.34	0.91	0.37
21.75	3.34	0.91	0.36
22.00	3.35	0.92	0.36
22.25	3.36	0.92	0.35
22.50	3.37	0.93	0.34
22.75	3.38	0.94	0.33
23.00	3.39	0.94	0.32
23.25	3.40	0.95	0.31
23.50	3.40	0.95	0.31
23.75	3.41	0.95	0.30
24.00	**3.42**	**0.96**	0.29

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>1.33"
Tc=45.9 min CN=60 Runoff=3.05 cfs 0.520 af

Subcatchment1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>1.40"
Tc=45.5 min CN=61 Runoff=7.34 cfs 1.229 af

Subcatchment1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>1.33"
Tc=37.9 min CN=60 Runoff=6.18 cfs 0.953 af

Subcatchment2: Runoff Area=9.600 ac 0.00% Impervious Runoff Depth>1.84"
Tc=43.3 min CN=67 Runoff=9.52 cfs 1.471 af

Subcatchment3: Runoff Area=4.160 ac 0.00% Impervious Runoff Depth>1.62"
Tc=26.2 min CN=64 Runoff=4.50 cfs 0.562 af

Subcatchment4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>1.55"
Tc=25.7 min CN=63 Runoff=9.30 cfs 1.164 af

Subcatchment5: Runoff Area=15.230 ac 0.00% Impervious Runoff Depth>2.08"
Tc=32.0 min CN=70 Runoff=20.10 cfs 2.640 af

Total Runoff Area = 61.820 ac Runoff Volume = 8.539 af Average Runoff Depth = 1.66"
100.00% Pervious = 61.820 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

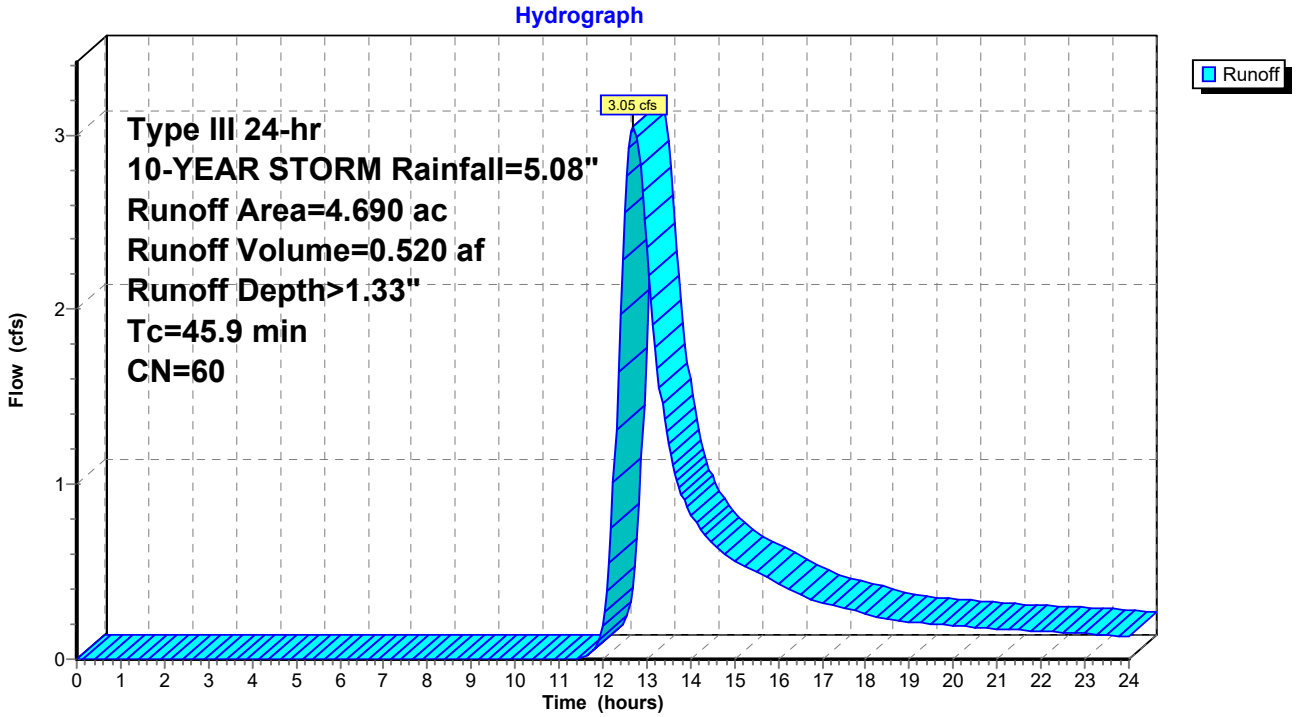
Runoff = 3.05 cfs @ 12.70 hrs, Volume= 0.520 af, Depth> 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	4.690	60	
	4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.9					**Direct Entry, SCS TR-55**

Subcatchment 1A:



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.00
9.50	0.84	0.00	0.00
9.75	0.90	0.00	0.00
10.00	0.96	0.00	0.00
10.25	1.03	0.00	0.00
10.50	1.10	0.00	0.00
10.75	1.18	0.00	0.00
11.00	1.27	0.00	0.00
11.25	1.38	0.00	0.00
11.50	1.51	0.00	0.00
11.75	1.80	0.03	0.03
12.00	2.54	0.18	0.19
12.25	3.28	0.44	1.01
12.50	3.57	0.56	**2.56**
12.75	3.70	0.62	**3.02**
13.00	3.81	0.67	2.36
13.25	3.90	0.71	1.66
13.50	3.98	0.75	1.23
13.75	4.05	0.79	0.98
14.00	4.12	0.82	0.84
14.25	4.18	0.85	0.74
14.50	4.24	0.88	0.66
14.75	4.29	0.91	0.61
15.00	4.34	0.93	0.57
15.25	4.39	0.96	0.53
15.50	4.43	0.98	0.50
15.75	4.47	1.00	0.47
16.00	4.50	1.02	0.43
16.25	4.53	1.04	0.40
16.50	4.56	1.05	0.37
16.75	4.59	1.07	0.34
17.00	4.62	1.09	0.32
17.25	4.65	1.10	0.31
17.50	4.67	1.11	0.29
17.75	4.69	1.13	0.28
18.00	4.71	1.14	0.26
18.25	4.73	1.15	0.24
18.50	4.75	1.16	0.23
18.75	4.77	1.17	0.22
19.00	4.79	1.18	0.21
19.25	4.81	1.19	0.21
19.50	4.83	1.20	0.20
19.75	4.84	1.21	0.20
20.00	4.86	1.22	0.19
20.25	4.88	1.23	0.19
20.50	4.89	1.24	0.18
20.75	4.91	1.25	0.18
21.00	4.92	1.26	0.17
21.25	4.94	1.27	0.17
21.50	4.95	1.27	0.17
21.75	4.97	1.28	0.16
22.00	4.98	1.29	0.16
22.25	5.00	1.30	0.16
22.50	5.01	1.31	0.15
22.75	5.02	1.31	0.15
23.00	5.03	1.32	0.15
23.25	5.05	1.33	0.14
23.50	5.06	1.33	0.14
23.75	5.07	1.34	0.13
24.00	**5.08**	**1.35**	0.13

Summary for Subcatchment 1B:

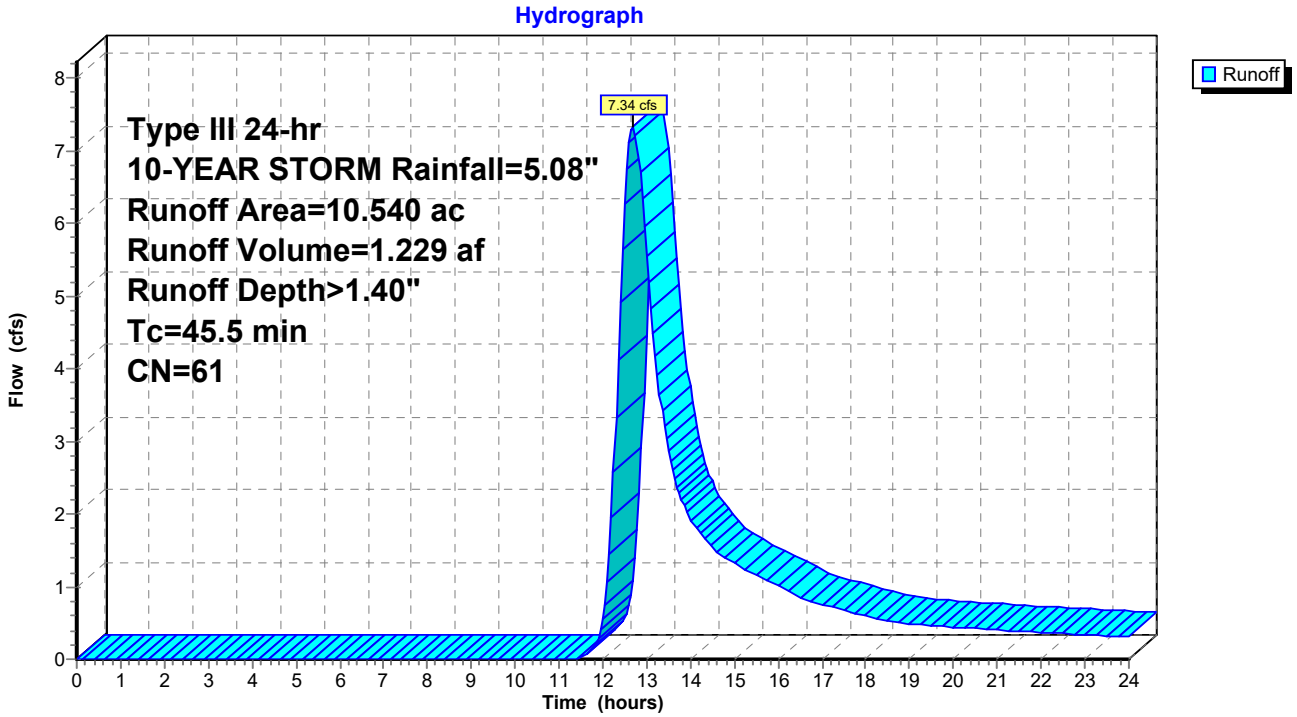
Runoff = 7.34 cfs @ 12.69 hrs, Volume= 1.229 af, Depth> 1.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	10.540	61	
	10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.5					**Direct Entry, SCS TR-55**

Subcatchment 1B:



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.00
9.50	0.84	0.00	0.00
9.75	0.90	0.00	0.00
10.00	0.96	0.00	0.00
10.25	1.03	0.00	0.00
10.50	1.10	0.00	0.00
10.75	1.18	0.00	0.00
11.00	1.27	0.00	0.00
11.25	1.38	0.00	0.00
11.50	1.51	0.01	0.02
11.75	1.80	0.04	0.12
12.00	2.54	0.21	0.55
12.25	3.28	0.48	2.59
12.50	3.57	0.60	**6.27**
12.75	3.70	0.67	**7.25**
13.00	3.81	0.72	5.56
13.25	3.90	0.76	3.90
13.50	3.98	0.80	2.87
13.75	4.05	0.84	2.28
14.00	4.12	0.87	1.94
14.25	4.18	0.91	1.71
14.50	4.24	0.94	1.54
14.75	4.29	0.96	1.41
15.00	4.34	0.99	1.31
15.25	4.39	1.02	1.23
15.50	4.43	1.04	1.16
15.75	4.47	1.06	1.08
16.00	4.50	1.08	1.01
16.25	4.53	1.10	0.93
16.50	4.56	1.12	0.86
16.75	4.59	1.13	0.80
17.00	4.62	1.15	0.75
17.25	4.65	1.16	0.71
17.50	4.67	1.18	0.67
17.75	4.69	1.19	0.64
18.00	4.71	1.20	0.60
18.25	4.73	1.21	0.57
18.50	4.75	1.22	0.53
18.75	4.77	1.23	0.51
19.00	4.79	1.25	0.49
19.25	4.81	1.26	0.48
19.50	4.83	1.27	0.47
19.75	4.84	1.28	0.46
20.00	4.86	1.29	0.44
20.25	4.88	1.30	0.43
20.50	4.89	1.31	0.42
20.75	4.91	1.32	0.41
21.00	4.92	1.32	0.40
21.25	4.94	1.33	0.40
21.50	4.95	1.34	0.39
21.75	4.97	1.35	0.38
22.00	4.98	1.36	0.37
22.25	5.00	1.37	0.36
22.50	5.01	1.37	0.35
22.75	5.02	1.38	0.35
23.00	5.03	1.39	0.34
23.25	5.05	1.40	0.33
23.50	5.06	1.40	0.32
23.75	5.07	1.41	0.31
24.00	**5.08**	**1.42**	0.30

Summary for Subcatchment 1C:

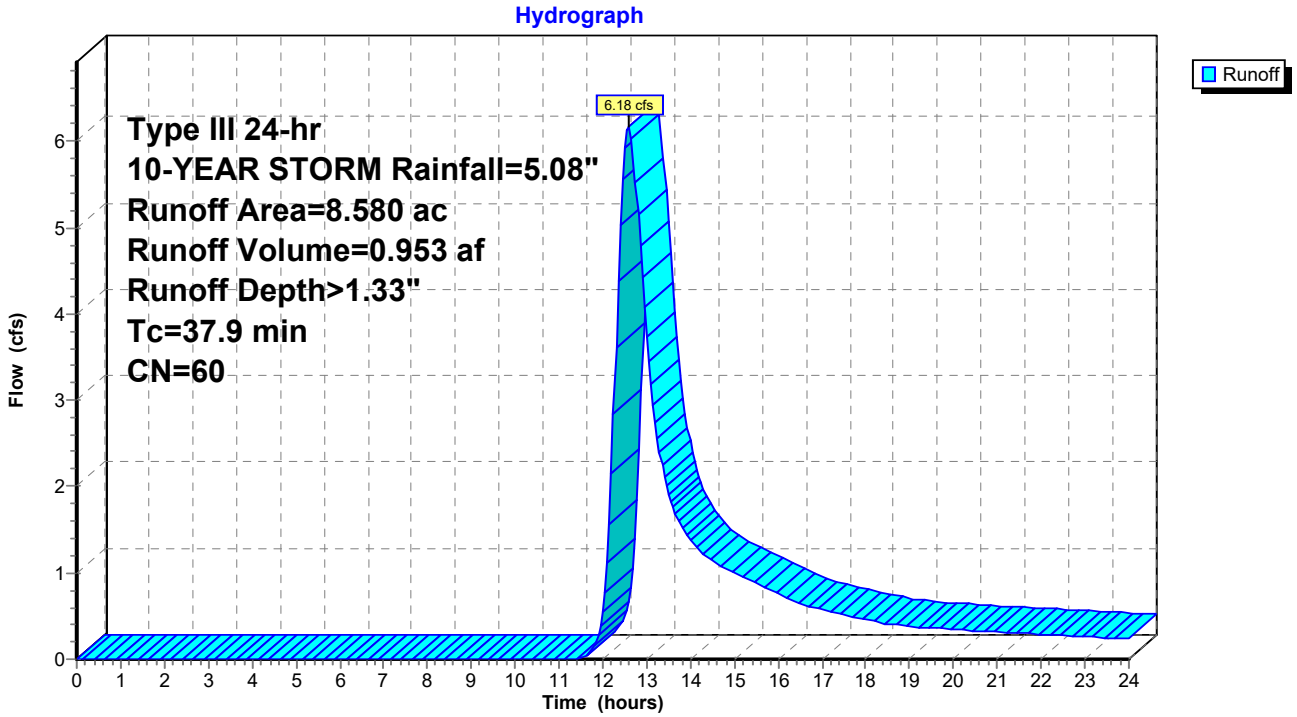
Runoff = 6.18 cfs @ 12.59 hrs, Volume= 0.953 af, Depth> 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	8.580	60	
	8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.9					**Direct Entry, SCS TR-55**

Subcatchment 1C:



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.00
9.50	0.84	0.00	0.00
9.75	0.90	0.00	0.00
10.00	0.96	0.00	0.00
10.25	1.03	0.00	0.00
10.50	1.10	0.00	0.00
10.75	1.18	0.00	0.00
11.00	1.27	0.00	0.00
11.25	1.38	0.00	0.00
11.50	1.51	0.00	0.01
11.75	1.80	0.03	0.09
12.00	2.54	0.18	0.55
12.25	3.28	0.44	2.85
12.50	3.57	0.56	**5.93**
12.75	3.70	0.62	**5.52**
13.00	3.81	0.67	3.74
13.25	3.90	0.71	2.55
13.50	3.98	0.75	1.91
13.75	4.05	0.79	1.59
14.00	4.12	0.82	1.39
14.25	4.18	0.85	1.25
14.50	4.24	0.88	1.14
14.75	4.29	0.91	1.06
15.00	4.34	0.93	1.00
15.25	4.39	0.96	0.94
15.50	4.43	0.98	0.88
15.75	4.47	1.00	0.82
16.00	4.50	1.02	0.76
16.25	4.53	1.04	0.70
16.50	4.56	1.05	0.65
16.75	4.59	1.07	0.61
17.00	4.62	1.09	0.58
17.25	4.65	1.10	0.55
17.50	4.67	1.11	0.52
17.75	4.69	1.13	0.49
18.00	4.71	1.14	0.46
18.25	4.73	1.15	0.43
18.50	4.75	1.16	0.41
18.75	4.77	1.17	0.39
19.00	4.79	1.18	0.38
19.25	4.81	1.19	0.37
19.50	4.83	1.20	0.36
19.75	4.84	1.21	0.36
20.00	4.86	1.22	0.35
20.25	4.88	1.23	0.34
20.50	4.89	1.24	0.33
20.75	4.91	1.25	0.32
21.00	4.92	1.26	0.32
21.25	4.94	1.27	0.31
21.50	4.95	1.27	0.30
21.75	4.97	1.28	0.30
22.00	4.98	1.29	0.29
22.25	5.00	1.30	0.28
22.50	5.01	1.31	0.28
22.75	5.02	1.31	0.27
23.00	5.03	1.32	0.26
23.25	5.05	1.33	0.26
23.50	5.06	1.33	0.25
23.75	5.07	1.34	0.24
24.00	**5.08**	**1.35**	0.24

Summary for Subcatchment 2:

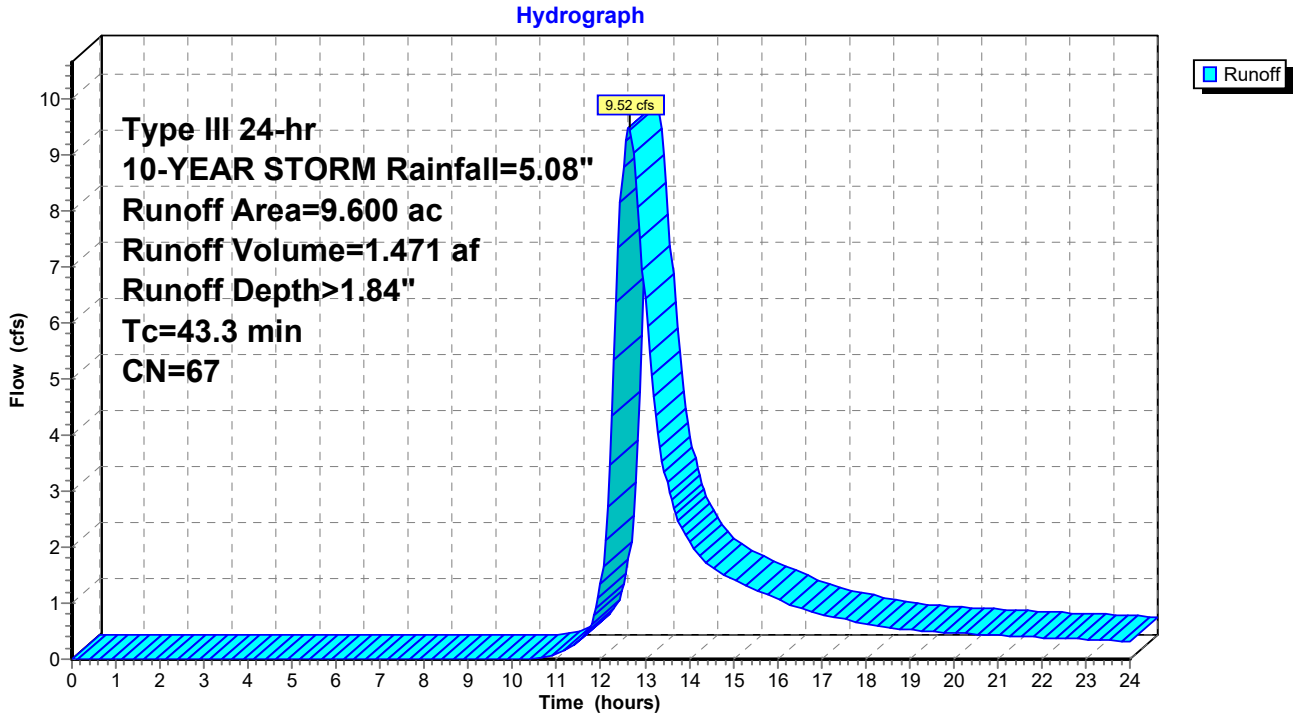
Runoff = 9.52 cfs @ 12.64 hrs, Volume= 1.471 af, Depth> 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	9.600	67	
	9.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.3					**Direct Entry, SCS TR-55**

Subcatchment 2:



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.00
9.50	0.84	0.00	0.00
9.75	0.90	0.00	0.00
10.00	0.96	0.00	0.00
10.25	1.03	0.00	0.00
10.50	1.10	0.00	0.01
10.75	1.18	0.01	0.04
11.00	1.27	0.02	0.10
11.25	1.38	0.03	0.19
11.50	1.51	0.05	0.33
11.75	1.80	0.12	0.57
12.00	2.54	0.37	1.34
12.25	3.28	0.73	4.35
12.50	3.57	0.89	**8.81**
12.75	3.70	0.97	**9.05**
13.00	3.81	1.03	6.43
13.25	3.90	1.08	4.35
13.50	3.98	1.13	3.15
13.75	4.05	1.18	2.48
14.00	4.12	1.22	2.11
14.25	4.18	1.26	1.85
14.50	4.24	1.29	1.66
14.75	4.29	1.33	1.52
15.00	4.34	1.36	1.42
15.25	4.39	1.39	1.33
15.50	4.43	1.42	1.25
15.75	4.47	1.44	1.16
16.00	4.50	1.46	1.08
16.25	4.53	1.49	0.99
16.50	4.56	1.51	0.91
16.75	4.59	1.53	0.85
17.00	4.62	1.54	0.80
17.25	4.65	1.56	0.76
17.50	4.67	1.58	0.72
17.75	4.69	1.59	0.68
18.00	4.71	1.61	0.64
18.25	4.73	1.62	0.60
18.50	4.75	1.63	0.56
18.75	4.77	1.65	0.54
19.00	4.79	1.66	0.52
19.25	4.81	1.67	0.51
19.50	4.83	1.68	0.49
19.75	4.84	1.70	0.48
20.00	4.86	1.71	0.47
20.25	4.88	1.72	0.46
20.50	4.89	1.73	0.45
20.75	4.91	1.74	0.44
21.00	4.92	1.75	0.43
21.25	4.94	1.76	0.42
21.50	4.95	1.77	0.41
21.75	4.97	1.78	0.40
22.00	4.98	1.79	0.39
22.25	5.00	1.80	0.38
22.50	5.01	1.81	0.37
22.75	5.02	1.82	0.36
23.00	5.03	1.83	0.36
23.25	5.05	1.84	0.35
23.50	5.06	1.84	0.34
23.75	5.07	1.85	0.33
24.00	**5.08**	**1.86**	0.32

Summary for Subcatchment 3:

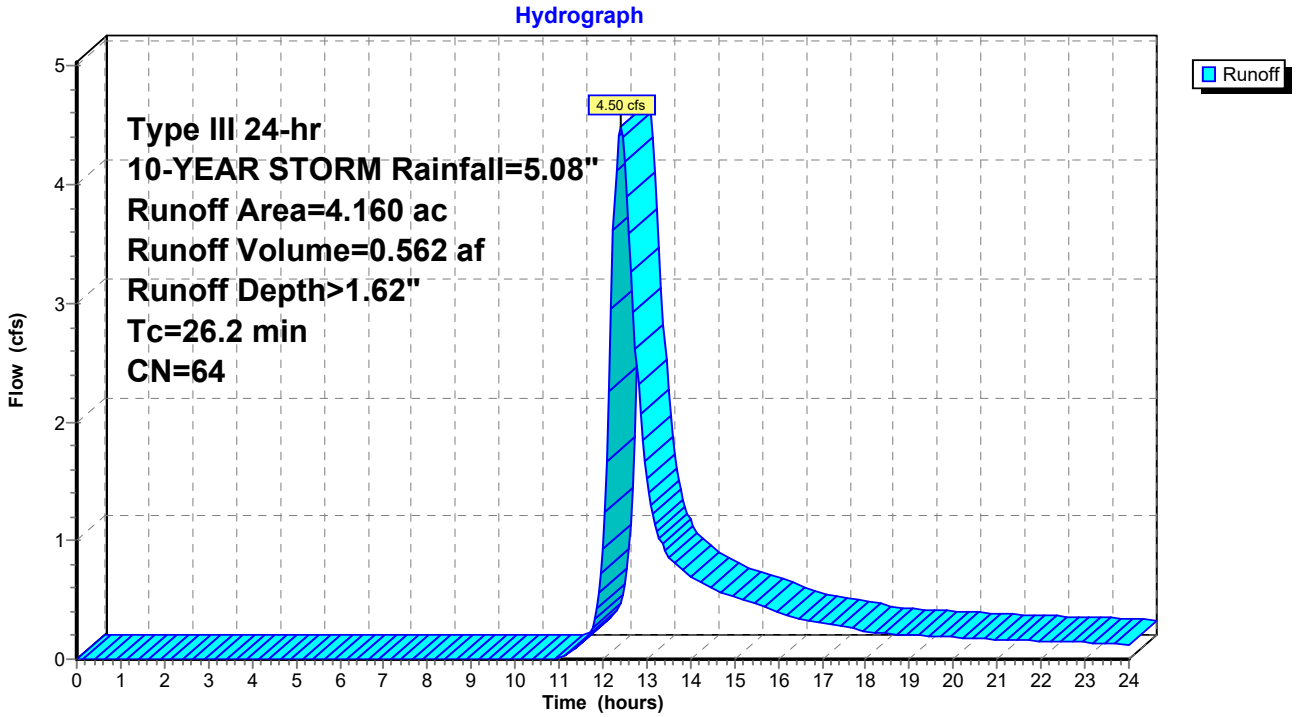
Runoff = 4.50 cfs @ 12.40 hrs, Volume= 0.562 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	4.160	64	
	4.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.2					**Direct Entry, SCS TR-55**

Subcatchment 3:



Hydrograph for Subcatchment 3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.00
9.50	0.84	0.00	0.00
9.75	0.90	0.00	0.00
10.00	0.96	0.00	0.00
10.25	1.03	0.00	0.00
10.50	1.10	0.00	0.00
10.75	1.18	0.00	0.00
11.00	1.27	0.00	0.01
11.25	1.38	0.01	0.05
11.50	1.51	0.03	0.12
11.75	1.80	0.07	0.27
12.00	2.54	0.28	0.94
12.25	3.28	0.59	**3.62**
12.50	3.57	0.74	**4.19**
12.75	3.70	0.81	2.61
13.00	3.81	0.87	1.53
13.25	3.90	0.92	1.08
13.50	3.98	0.96	0.87
13.75	4.05	1.00	0.77
14.00	4.12	1.04	0.70
14.25	4.18	1.08	0.64
14.50	4.24	1.11	0.59
14.75	4.29	1.14	0.56
15.00	4.34	1.17	0.53
15.25	4.39	1.20	0.50
15.50	4.43	1.22	0.46
15.75	4.47	1.24	0.43
16.00	4.50	1.27	0.39
16.25	4.53	1.29	0.36
16.50	4.56	1.30	0.34
16.75	4.59	1.32	0.32
17.00	4.62	1.34	0.30
17.25	4.65	1.36	0.29
17.50	4.67	1.37	0.27
17.75	4.69	1.38	0.26
18.00	4.71	1.40	0.24
18.25	4.73	1.41	0.22
18.50	4.75	1.42	0.21
18.75	4.77	1.44	0.21
19.00	4.79	1.45	0.20
19.25	4.81	1.46	0.20
19.50	4.83	1.47	0.19
19.75	4.84	1.48	0.19
20.00	4.86	1.49	0.18
20.25	4.88	1.50	0.18
20.50	4.89	1.51	0.18
20.75	4.91	1.52	0.17
21.00	4.92	1.53	0.17
21.25	4.94	1.54	0.17
21.50	4.95	1.55	0.16
21.75	4.97	1.56	0.16
22.00	4.98	1.57	0.15
22.25	5.00	1.58	0.15
22.50	5.01	1.59	0.15
22.75	5.02	1.59	0.14
23.00	5.03	1.60	0.14
23.25	5.05	1.61	0.14
23.50	5.06	1.62	0.13
23.75	5.07	1.63	0.13
24.00	**5.08**	**1.63**	0.12

Summary for Subcatchment 4:

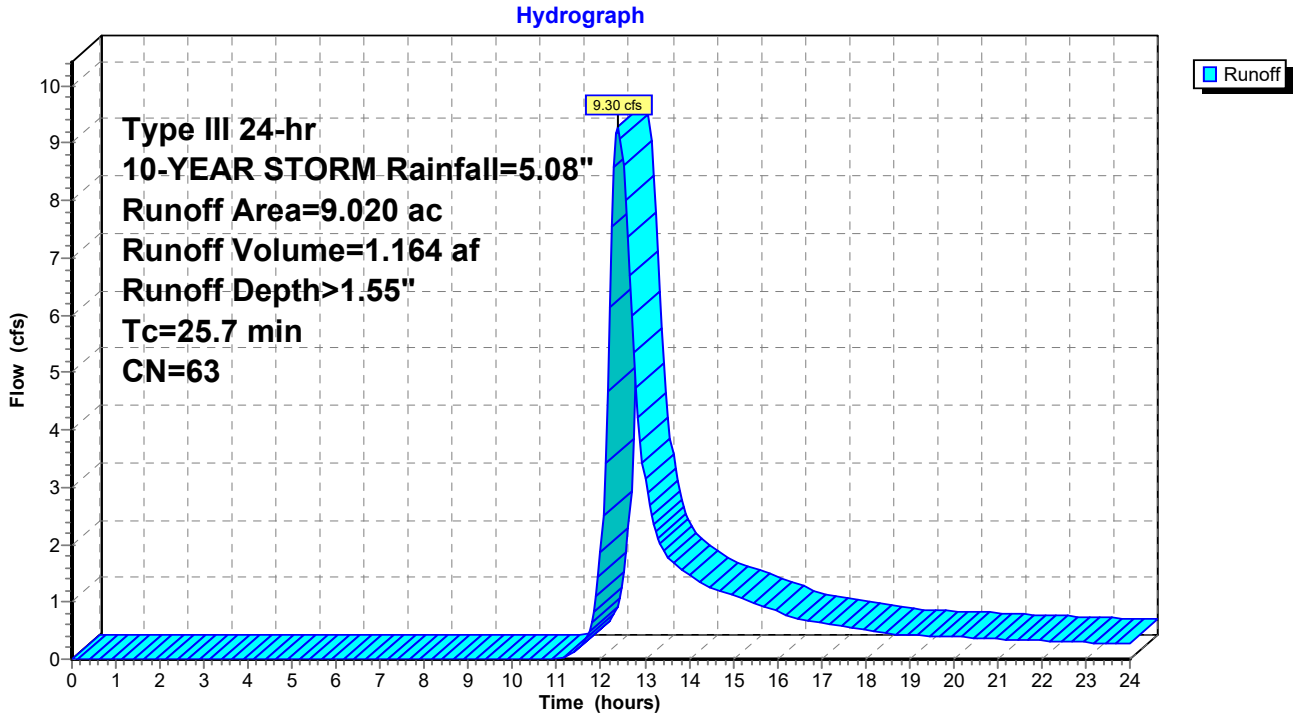
Runoff = 9.30 cfs @ 12.39 hrs, Volume= 1.164 af, Depth> 1.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	9.020	63	
	9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.7					**Direct Entry, SCS TR-55**

Subcatchment 4:



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.00
9.50	0.84	0.00	0.00
9.75	0.90	0.00	0.00
10.00	0.96	0.00	0.00
10.25	1.03	0.00	0.00
10.50	1.10	0.00	0.00
10.75	1.18	0.00	0.00
11.00	1.27	0.00	0.01
11.25	1.38	0.01	0.06
11.50	1.51	0.02	0.20
11.75	1.80	0.06	0.50
12.00	2.54	0.26	1.87
12.25	3.28	0.55	**7.54**
12.50	3.57	0.69	**8.61**
12.75	3.70	0.76	5.33
13.00	3.81	0.82	3.13
13.25	3.90	0.86	2.22
13.50	3.98	0.91	1.81
13.75	4.05	0.95	1.62
14.00	4.12	0.98	1.48
14.25	4.18	1.02	1.34
14.50	4.24	1.05	1.25
14.75	4.29	1.08	1.17
15.00	4.34	1.11	1.11
15.25	4.39	1.13	1.04
15.50	4.43	1.16	0.97
15.75	4.47	1.18	0.90
16.00	4.50	1.20	0.83
16.25	4.53	1.22	0.76
16.50	4.56	1.24	0.71
16.75	4.59	1.26	0.67
17.00	4.62	1.27	0.64
17.25	4.65	1.29	0.60
17.50	4.67	1.30	0.57
17.75	4.69	1.32	0.54
18.00	4.71	1.33	0.51
18.25	4.73	1.34	0.47
18.50	4.75	1.36	0.45
18.75	4.77	1.37	0.44
19.00	4.79	1.38	0.43
19.25	4.81	1.39	0.42
19.50	4.83	1.40	0.41
19.75	4.84	1.41	0.40
20.00	4.86	1.42	0.39
20.25	4.88	1.43	0.38
20.50	4.89	1.44	0.37
20.75	4.91	1.45	0.36
21.00	4.92	1.46	0.36
21.25	4.94	1.47	0.35
21.50	4.95	1.48	0.34
21.75	4.97	1.49	0.33
22.00	4.98	1.50	0.33
22.25	5.00	1.51	0.32
22.50	5.01	1.51	0.31
22.75	5.02	1.52	0.30
23.00	5.03	1.53	0.30
23.25	5.05	1.54	0.29
23.50	5.06	1.55	0.28
23.75	5.07	1.55	0.27
24.00	**5.08**	**1.56**	0.26

Summary for Subcatchment 5:

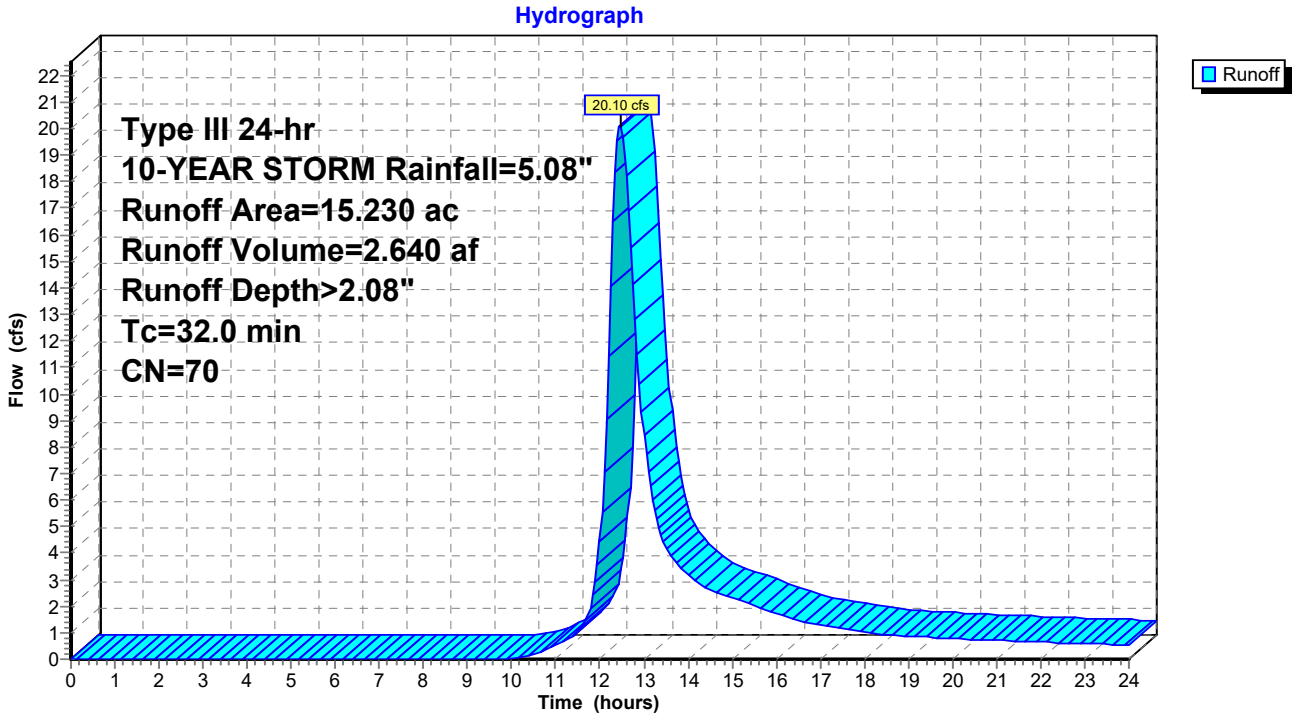
Runoff = 20.10 cfs @ 12.47 hrs, Volume= 2.640 af, Depth> 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	15.230	70	
	15.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.0					**Direct Entry, SCS TR-55**

Subcatchment 5:



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.00
9.50	0.84	0.00	0.00
9.75	0.90	0.00	0.00
10.00	0.96	0.00	0.02
10.25	1.03	0.01	0.09
10.50	1.10	0.01	0.20
10.75	1.18	0.02	0.34
11.00	1.27	0.04	0.52
11.25	1.38	0.06	0.74
11.50	1.51	0.09	1.08
11.75	1.80	0.17	1.76
12.00	2.54	0.47	4.39
12.25	3.28	0.87	**14.05**
12.50	3.57	1.05	**19.98**
12.75	3.70	1.14	14.14
13.00	3.81	1.20	8.45
13.25	3.90	1.26	5.62
13.50	3.98	1.32	4.25
13.75	4.05	1.37	3.59
14.00	4.12	1.41	3.19
14.25	4.18	1.45	2.88
14.50	4.24	1.49	2.64
14.75	4.29	1.53	2.47
15.00	4.34	1.56	2.32
15.25	4.39	1.59	2.18
15.50	4.43	1.62	2.03
15.75	4.47	1.65	1.88
16.00	4.50	1.67	1.74
16.25	4.53	1.70	1.59
16.50	4.56	1.72	1.46
16.75	4.59	1.74	1.38
17.00	4.62	1.76	1.31
17.25	4.65	1.78	1.24
17.50	4.67	1.80	1.17
17.75	4.69	1.81	1.11
18.00	4.71	1.83	1.04
18.25	4.73	1.84	0.97
18.50	4.75	1.86	0.92
18.75	4.77	1.87	0.89
19.00	4.79	1.88	0.86
19.25	4.81	1.90	0.84
19.50	4.83	1.91	0.82
19.75	4.84	1.92	0.80
20.00	4.86	1.93	0.78
20.25	4.88	1.95	0.76
20.50	4.89	1.96	0.74
20.75	4.91	1.97	0.73
21.00	4.92	1.98	0.71
21.25	4.94	1.99	0.70
21.50	4.95	2.00	0.68
21.75	4.97	2.01	0.67
22.00	4.98	2.02	0.65
22.25	5.00	2.03	0.64
22.50	5.01	2.04	0.62
22.75	5.02	2.05	0.60
23.00	5.03	2.06	0.59
23.25	5.05	2.07	0.57
23.50	5.06	2.08	0.56
23.75	5.07	2.09	0.54
24.00	**5.08**	**2.10**	0.53

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>1.97"
Tc=45.9 min CN=60 Runoff=4.74 cfs 0.770 af

Subcatchment1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>2.05"
Tc=45.5 min CN=61 Runoff=11.24 cfs 1.804 af

Subcatchment1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>1.97"
Tc=37.9 min CN=60 Runoff=9.59 cfs 1.411 af

Subcatchment2: Runoff Area=9.600 ac 0.00% Impervious Runoff Depth>2.59"
Tc=43.3 min CN=67 Runoff=13.65 cfs 2.069 af

Subcatchment3: Runoff Area=4.160 ac 0.00% Impervious Runoff Depth>2.33"
Tc=26.2 min CN=64 Runoff=6.65 cfs 0.807 af

Subcatchment4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>2.24"
Tc=25.7 min CN=63 Runoff=13.90 cfs 1.683 af

Subcatchment5: Runoff Area=15.230 ac 0.00% Impervious Runoff Depth>2.87"
Tc=32.0 min CN=70 Runoff=28.09 cfs 3.646 af

Total Runoff Area = 61.820 ac Runoff Volume = 12.191 af Average Runoff Depth = 2.37"
100.00% Pervious = 61.820 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

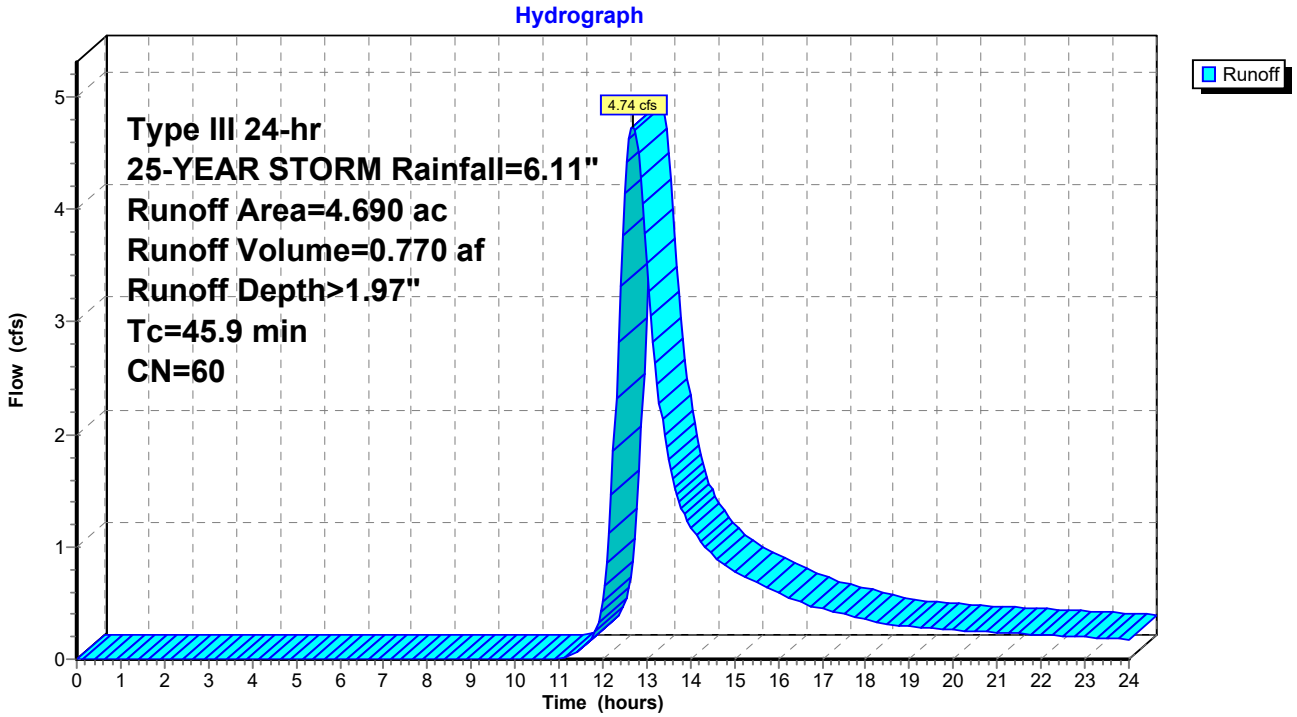
Runoff = 4.74 cfs @ 12.68 hrs, Volume= 0.770 af, Depth> 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=6.11"

	Area (ac)	CN	Description
*	4.690	60	
	4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.9					**Direct Entry, SCS TR-55**

Subcatchment 1A:



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.12	0.00	0.00
2.25	0.14	0.00	0.00
2.50	0.15	0.00	0.00
2.75	0.17	0.00	0.00
3.00	0.19	0.00	0.00
3.25	0.21	0.00	0.00
3.50	0.22	0.00	0.00
3.75	0.24	0.00	0.00
4.00	0.26	0.00	0.00
4.25	0.28	0.00	0.00
4.50	0.30	0.00	0.00
4.75	0.32	0.00	0.00
5.00	0.35	0.00	0.00
5.25	0.37	0.00	0.00
5.50	0.39	0.00	0.00
5.75	0.42	0.00	0.00
6.00	0.44	0.00	0.00
6.25	0.47	0.00	0.00
6.50	0.49	0.00	0.00
6.75	0.52	0.00	0.00
7.00	0.55	0.00	0.00
7.25	0.59	0.00	0.00
7.50	0.62	0.00	0.00
7.75	0.66	0.00	0.00
8.00	0.70	0.00	0.00
8.25	0.74	0.00	0.00
8.50	0.78	0.00	0.00
8.75	0.84	0.00	0.00
9.00	0.89	0.00	0.00
9.25	0.95	0.00	0.00
9.50	1.01	0.00	0.00
9.75	1.08	0.00	0.00
10.00	1.15	0.00	0.00
10.25	1.23	0.00	0.00
10.50	1.32	0.00	0.00
10.75	1.42	0.00	0.00
11.00	1.53	0.01	0.01
11.25	1.66	0.01	0.03
11.50	1.82	0.03	0.09
11.75	2.17	0.09	0.19
12.00	3.05	0.35	0.52
12.25	3.94	0.73	1.86
12.50	4.29	0.91	**4.14**
12.75	4.45	0.99	**4.65**
13.00	4.58	1.06	3.52
13.25	4.69	1.12	2.44
13.50	4.79	1.18	1.78
13.75	4.88	1.23	1.40
14.00	4.96	1.28	1.18
14.25	5.03	1.32	1.03
14.50	5.10	1.36	0.92
14.75	5.16	1.40	0.84
15.00	5.22	1.43	0.78
15.25	5.27	1.46	0.74
15.50	5.33	1.50	0.69
15.75	5.37	1.52	0.64
16.00	5.41	1.55	0.60
16.25	5.45	1.57	0.55
16.50	5.49	1.60	0.51
16.75	5.52	1.62	0.47
17.00	5.56	1.64	0.44
17.25	5.59	1.66	0.42
17.50	5.62	1.68	0.40
17.75	5.64	1.69	0.38
18.00	5.67	1.71	0.35
18.25	5.69	1.72	0.33
18.50	5.72	1.74	0.31
18.75	5.74	1.75	0.30
19.00	5.76	1.77	0.29
19.25	5.79	1.78	0.28
19.50	5.81	1.80	0.27
19.75	5.83	1.81	0.27
20.00	5.85	1.82	0.26
20.25	5.87	1.84	0.25
20.50	5.89	1.85	0.25
20.75	5.90	1.86	0.24
21.00	5.92	1.87	0.24
21.25	5.94	1.88	0.23
21.50	5.96	1.89	0.23
21.75	5.98	1.91	0.22
22.00	5.99	1.92	0.22
22.25	6.01	1.93	0.21
22.50	6.02	1.94	0.21
22.75	6.04	1.95	0.20
23.00	6.05	1.96	0.20
23.25	6.07	1.97	0.19
23.50	6.08	1.98	0.19
23.75	6.10	1.99	0.18
24.00	**6.11**	**1.99**	0.18

Summary for Subcatchment 1B:

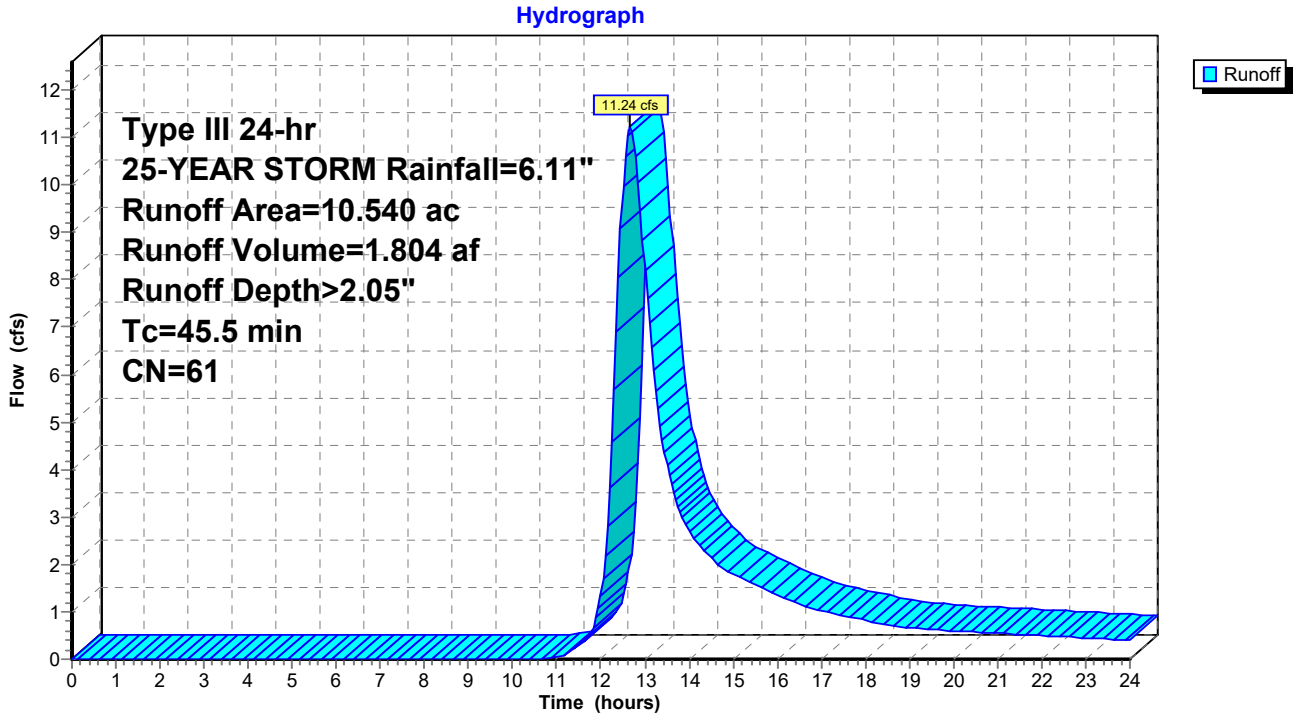
Runoff = 11.24 cfs @ 12.67 hrs, Volume= 1.804 af, Depth> 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=6.11"

	Area (ac)	CN	Description
*	10.540	61	
	10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.5					**Direct Entry, SCS TR-55**

Subcatchment 1B:



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.12	0.00	0.00
2.25	0.14	0.00	0.00
2.50	0.15	0.00	0.00
2.75	0.17	0.00	0.00
3.00	0.19	0.00	0.00
3.25	0.21	0.00	0.00
3.50	0.22	0.00	0.00
3.75	0.24	0.00	0.00
4.00	0.26	0.00	0.00
4.25	0.28	0.00	0.00
4.50	0.30	0.00	0.00
4.75	0.32	0.00	0.00
5.00	0.35	0.00	0.00
5.25	0.37	0.00	0.00
5.50	0.39	0.00	0.00
5.75	0.42	0.00	0.00
6.00	0.44	0.00	0.00
6.25	0.47	0.00	0.00
6.50	0.49	0.00	0.00
6.75	0.52	0.00	0.00
7.00	0.55	0.00	0.00
7.25	0.59	0.00	0.00
7.50	0.62	0.00	0.00
7.75	0.66	0.00	0.00
8.00	0.70	0.00	0.00
8.25	0.74	0.00	0.00
8.50	0.78	0.00	0.00
8.75	0.84	0.00	0.00
9.00	0.89	0.00	0.00
9.25	0.95	0.00	0.00
9.50	1.01	0.00	0.00
9.75	1.08	0.00	0.00
10.00	1.15	0.00	0.00
10.25	1.23	0.00	0.00
10.50	1.32	0.00	0.00
10.75	1.42	0.00	0.01
11.00	1.53	0.01	0.04
11.25	1.66	0.02	0.12
11.50	1.82	0.04	0.27
11.75	2.17	0.11	0.53
12.00	3.05	0.39	1.34
12.25	3.94	0.78	4.59
12.50	4.29	0.96	**9.96**
12.75	4.45	1.05	**10.99**
13.00	4.58	1.13	8.21
13.25	4.69	1.19	5.65
13.50	4.79	1.24	4.11
13.75	4.88	1.30	3.22
14.00	4.96	1.34	2.72
14.25	5.03	1.39	2.38
14.50	5.10	1.43	2.13
14.75	5.16	1.47	1.94
15.00	5.22	1.50	1.81
15.25	5.27	1.54	1.70
15.50	5.33	1.57	1.59
15.75	5.37	1.60	1.48
16.00	5.41	1.62	1.38
16.25	5.45	1.65	1.27
16.50	5.49	1.67	1.17
16.75	5.52	1.69	1.09
17.00	5.56	1.72	1.02
17.25	5.59	1.74	0.97
17.50	5.62	1.75	0.92
17.75	5.64	1.77	0.87
18.00	5.67	1.79	0.81
18.25	5.69	1.80	0.77
18.50	5.72	1.82	0.72
18.75	5.74	1.83	0.69
19.00	5.76	1.85	0.66
19.25	5.79	1.86	0.65
19.50	5.81	1.88	0.63
19.75	5.83	1.89	0.61
20.00	5.85	1.90	0.60
20.25	5.87	1.92	0.58
20.50	5.89	1.93	0.57
20.75	5.90	1.94	0.56
21.00	5.92	1.95	0.54
21.25	5.94	1.97	0.53
21.50	5.96	1.98	0.52
21.75	5.98	1.99	0.51
22.00	5.99	2.00	0.50
22.25	6.01	2.01	0.49
22.50	6.02	2.02	0.48
22.75	6.04	2.03	0.46
23.00	6.05	2.04	0.45
23.25	6.07	2.05	0.44
23.50	6.08	2.06	0.43
23.75	6.10	2.07	0.42
24.00	**6.11**	**2.08**	0.41

Summary for Subcatchment 1C:

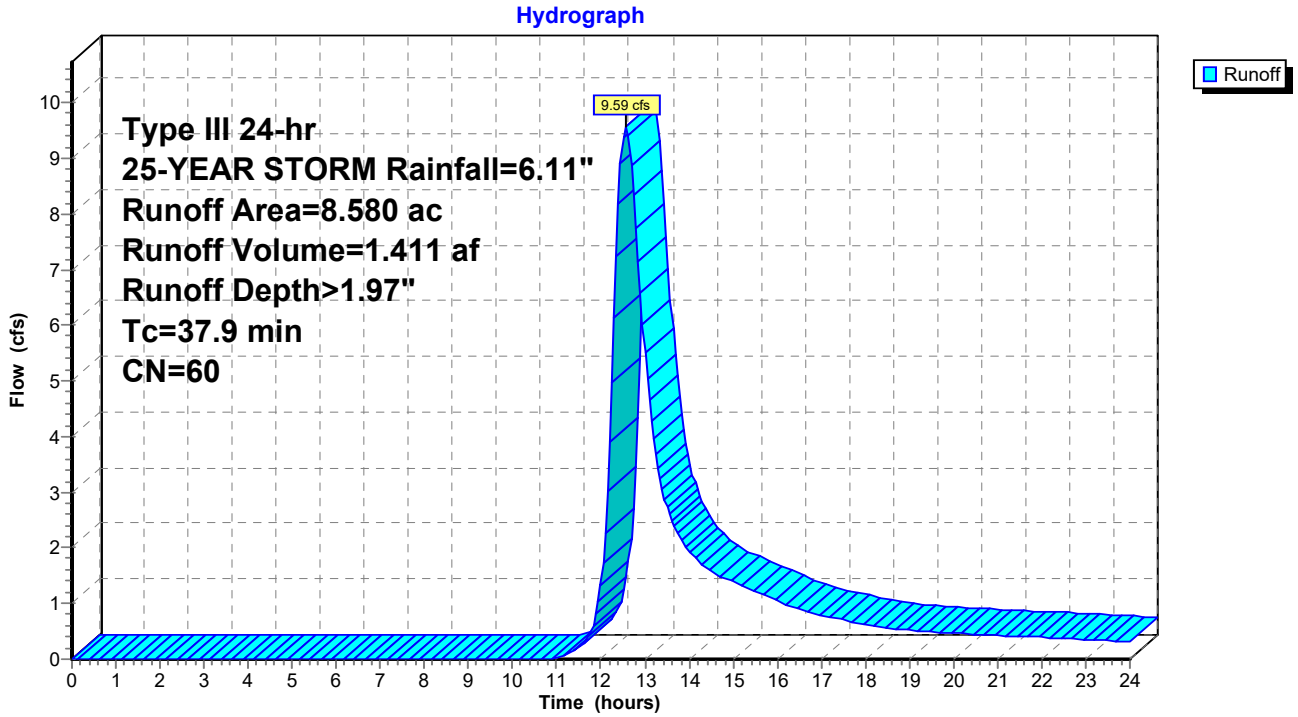
Runoff = 9.59 cfs @ 12.57 hrs, Volume= 1.411 af, Depth> 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=6.11"

	Area (ac)	CN	Description
*	8.580	60	
	8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.9					**Direct Entry, SCS TR-55**

Subcatchment 1C:



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.12	0.00	0.00
2.25	0.14	0.00	0.00
2.50	0.15	0.00	0.00
2.75	0.17	0.00	0.00
3.00	0.19	0.00	0.00
3.25	0.21	0.00	0.00
3.50	0.22	0.00	0.00
3.75	0.24	0.00	0.00
4.00	0.26	0.00	0.00
4.25	0.28	0.00	0.00
4.50	0.30	0.00	0.00
4.75	0.32	0.00	0.00
5.00	0.35	0.00	0.00
5.25	0.37	0.00	0.00
5.50	0.39	0.00	0.00
5.75	0.42	0.00	0.00
6.00	0.44	0.00	0.00
6.25	0.47	0.00	0.00
6.50	0.49	0.00	0.00
6.75	0.52	0.00	0.00
7.00	0.55	0.00	0.00
7.25	0.59	0.00	0.00
7.50	0.62	0.00	0.00
7.75	0.66	0.00	0.00
8.00	0.70	0.00	0.00
8.25	0.74	0.00	0.00
8.50	0.78	0.00	0.00
8.75	0.84	0.00	0.00
9.00	0.89	0.00	0.00
9.25	0.95	0.00	0.00
9.50	1.01	0.00	0.00
9.75	1.08	0.00	0.00
10.00	1.15	0.00	0.00
10.25	1.23	0.00	0.00
10.50	1.32	0.00	0.00
10.75	1.42	0.00	0.00
11.00	1.53	0.01	0.02
11.25	1.66	0.01	0.09
11.50	1.82	0.03	0.21
11.75	2.17	0.09	0.46
12.00	3.05	0.35	1.34
12.25	3.94	0.73	4.99
12.50	4.29	0.91	**9.37**
12.75	4.45	0.99	**8.33**
13.00	4.58	1.06	5.51
13.25	4.69	1.12	3.69
13.50	4.79	1.18	2.73
13.75	4.88	1.23	2.24
14.00	4.96	1.28	1.95
14.25	5.03	1.32	1.74
14.50	5.10	1.36	1.58
14.75	5.16	1.40	1.47
15.00	5.22	1.43	1.38
15.25	5.27	1.46	1.30
15.50	5.33	1.50	1.22
15.75	5.37	1.52	1.13
16.00	5.41	1.55	1.05
16.25	5.45	1.57	0.96
16.50	5.49	1.60	0.89
16.75	5.52	1.62	0.83
17.00	5.56	1.64	0.79
17.25	5.59	1.66	0.75
17.50	5.62	1.68	0.71
17.75	5.64	1.69	0.67
18.00	5.67	1.71	0.63
18.25	5.69	1.72	0.59
18.50	5.72	1.74	0.56
18.75	5.74	1.75	0.53
19.00	5.76	1.77	0.52
19.25	5.79	1.78	0.51
19.50	5.81	1.80	0.49
19.75	5.83	1.81	0.48
20.00	5.85	1.82	0.47
20.25	5.87	1.84	0.46
20.50	5.89	1.85	0.45
20.75	5.90	1.86	0.44
21.00	5.92	1.87	0.43
21.25	5.94	1.88	0.42
21.50	5.96	1.89	0.41
21.75	5.98	1.91	0.40
22.00	5.99	1.92	0.39
22.25	6.01	1.93	0.38
22.50	6.02	1.94	0.37
22.75	6.04	1.95	0.37
23.00	6.05	1.96	0.36
23.25	6.07	1.97	0.35
23.50	6.08	1.98	0.34
23.75	6.10	1.99	0.33
24.00	**6.11**	**1.99**	0.32

Summary for Subcatchment 2:

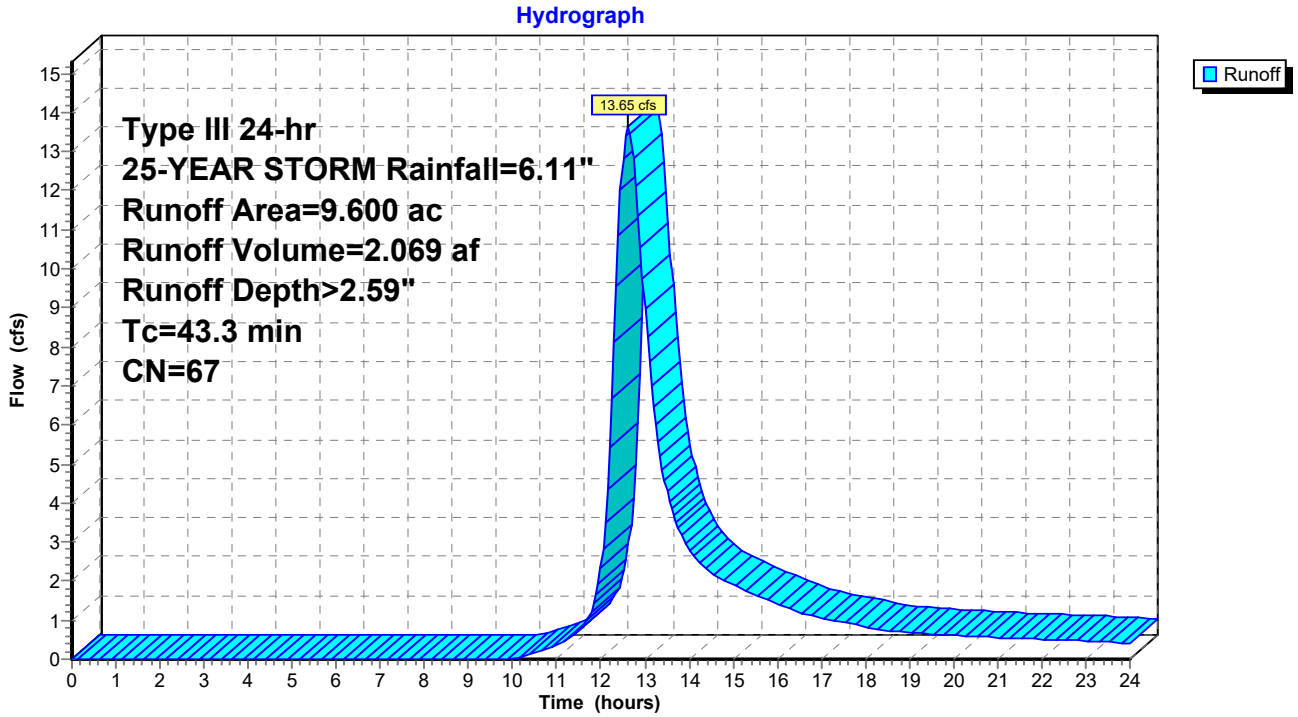
Runoff = 13.65 cfs @ 12.62 hrs, Volume= 2.069 af, Depth> 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=6.11"

	Area (ac)	CN	Description
*	9.600	67	
	9.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.3					**Direct Entry, SCS TR-55**

Subcatchment 2:



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.12	0.00	0.00
2.25	0.14	0.00	0.00
2.50	0.15	0.00	0.00
2.75	0.17	0.00	0.00
3.00	0.19	0.00	0.00
3.25	0.21	0.00	0.00
3.50	0.22	0.00	0.00
3.75	0.24	0.00	0.00
4.00	0.26	0.00	0.00
4.25	0.28	0.00	0.00
4.50	0.30	0.00	0.00
4.75	0.32	0.00	0.00
5.00	0.35	0.00	0.00
5.25	0.37	0.00	0.00
5.50	0.39	0.00	0.00
5.75	0.42	0.00	0.00
6.00	0.44	0.00	0.00
6.25	0.47	0.00	0.00
6.50	0.49	0.00	0.00
6.75	0.52	0.00	0.00
7.00	0.55	0.00	0.00
7.25	0.59	0.00	0.00
7.50	0.62	0.00	0.00
7.75	0.66	0.00	0.00
8.00	0.70	0.00	0.00
8.25	0.74	0.00	0.00
8.50	0.78	0.00	0.00
8.75	0.84	0.00	0.00
9.00	0.89	0.00	0.00
9.25	0.95	0.00	0.00
9.50	1.01	0.00	0.00
9.75	1.08	0.00	0.00
10.00	1.15	0.01	0.03
10.25	1.23	0.01	0.07
10.50	1.32	0.02	0.15
10.75	1.42	0.04	0.25
11.00	1.53	0.05	0.37
11.25	1.66	0.08	0.52
11.50	1.82	0.12	0.74
11.75	2.17	0.23	1.12
12.00	3.05	0.61	2.32
12.25	3.94	1.11	6.70
12.50	4.29	1.33	**12.83**
12.75	4.45	1.43	**12.83**
13.00	4.58	1.52	8.97
13.25	4.69	1.59	5.99
13.50	4.79	1.66	4.29
13.75	4.88	1.72	3.36
14.00	4.96	1.77	2.84
14.25	5.03	1.82	2.48
14.50	5.10	1.87	2.21
14.75	5.16	1.92	2.03
15.00	5.22	1.96	1.89
15.25	5.27	2.00	1.77
15.50	5.33	2.03	1.65
15.75	5.37	2.07	1.54
16.00	5.41	2.10	1.42
16.25	5.45	2.12	1.31
16.50	5.49	2.15	1.20
16.75	5.52	2.18	1.12
17.00	5.56	2.20	1.06
17.25	5.59	2.22	1.00
17.50	5.62	2.25	0.94
17.75	5.64	2.27	0.89
18.00	5.67	2.28	0.84
18.25	5.69	2.30	0.79
18.50	5.72	2.32	0.74
18.75	5.74	2.34	0.71
19.00	5.76	2.35	0.68
19.25	5.79	2.37	0.66
19.50	5.81	2.38	0.65
19.75	5.83	2.40	0.63
20.00	5.85	2.42	0.62
20.25	5.87	2.43	0.60
20.50	5.89	2.44	0.59
20.75	5.90	2.46	0.57
21.00	5.92	2.47	0.56
21.25	5.94	2.49	0.55
21.50	5.96	2.50	0.54
21.75	5.98	2.51	0.52
22.00	5.99	2.52	0.51
22.25	6.01	2.54	0.50
22.50	6.02	2.55	0.49
22.75	6.04	2.56	0.48
23.00	6.05	2.57	0.46
23.25	6.07	2.58	0.45
23.50	6.08	2.59	0.44
23.75	6.10	2.60	0.43
24.00	**6.11**	**2.61**	0.41

Summary for Subcatchment 3:

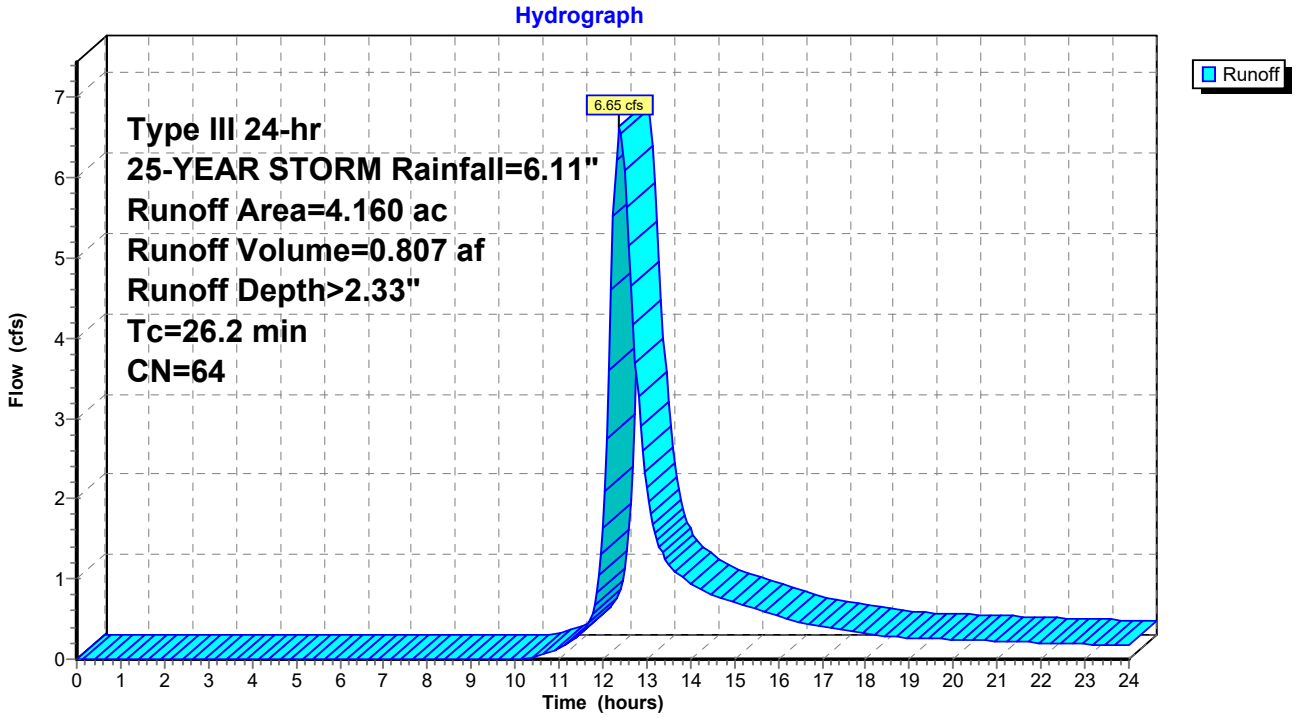
Runoff = 6.65 cfs @ 12.39 hrs, Volume= 0.807 af, Depth> 2.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=6.11"

	Area (ac)	CN	Description
*	4.160	64	
	4.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.2					**Direct Entry, SCS TR-55**

Subcatchment 3:



Hydrograph for Subcatchment 3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.12	0.00	0.00
2.25	0.14	0.00	0.00
2.50	0.15	0.00	0.00
2.75	0.17	0.00	0.00
3.00	0.19	0.00	0.00
3.25	0.21	0.00	0.00
3.50	0.22	0.00	0.00
3.75	0.24	0.00	0.00
4.00	0.26	0.00	0.00
4.25	0.28	0.00	0.00
4.50	0.30	0.00	0.00
4.75	0.32	0.00	0.00
5.00	0.35	0.00	0.00
5.25	0.37	0.00	0.00
5.50	0.39	0.00	0.00
5.75	0.42	0.00	0.00
6.00	0.44	0.00	0.00
6.25	0.47	0.00	0.00
6.50	0.49	0.00	0.00
6.75	0.52	0.00	0.00
7.00	0.55	0.00	0.00
7.25	0.59	0.00	0.00
7.50	0.62	0.00	0.00
7.75	0.66	0.00	0.00
8.00	0.70	0.00	0.00
8.25	0.74	0.00	0.00
8.50	0.78	0.00	0.00
8.75	0.84	0.00	0.00
9.00	0.89	0.00	0.00
9.25	0.95	0.00	0.00
9.50	1.01	0.00	0.00
9.75	1.08	0.00	0.00
10.00	1.15	0.00	0.00
10.25	1.23	0.00	0.01
10.50	1.32	0.01	0.03
10.75	1.42	0.01	0.08
11.00	1.53	0.03	0.13
11.25	1.66	0.05	0.20
11.50	1.82	0.08	0.32
11.75	2.17	0.16	0.57
12.00	3.05	0.49	1.64
12.25	3.94	0.94	**5.53**
12.50	4.29	1.14	**6.08**
12.75	4.45	1.24	3.69
13.00	4.58	1.32	2.13
13.25	4.69	1.38	1.48
13.50	4.79	1.44	1.19
13.75	4.88	1.50	1.05
14.00	4.96	1.55	0.96
14.25	5.03	1.60	0.87
14.50	5.10	1.64	0.80
14.75	5.16	1.69	0.76
15.00	5.22	1.72	0.71
15.25	5.27	1.76	0.67
15.50	5.33	1.80	0.62
15.75	5.37	1.83	0.58
16.00	5.41	1.86	0.53
16.25	5.45	1.88	0.48
16.50	5.49	1.91	0.45
16.75	5.52	1.93	0.43
17.00	5.56	1.95	0.40
17.25	5.59	1.97	0.38
17.50	5.62	1.99	0.36
17.75	5.64	2.01	0.34
18.00	5.67	2.03	0.32
18.25	5.69	2.05	0.30
18.50	5.72	2.06	0.28
18.75	5.74	2.08	0.28
19.00	5.76	2.10	0.27
19.25	5.79	2.11	0.26
19.50	5.81	2.13	0.26
19.75	5.83	2.14	0.25
20.00	5.85	2.16	0.25
20.25	5.87	2.17	0.24
20.50	5.89	2.18	0.23
20.75	5.90	2.20	0.23
21.00	5.92	2.21	0.22
21.25	5.94	2.22	0.22
21.50	5.96	2.23	0.21
21.75	5.98	2.25	0.21
22.00	5.99	2.26	0.20
22.25	6.01	2.27	0.20
22.50	6.02	2.28	0.19
22.75	6.04	2.29	0.19
23.00	6.05	2.30	0.18
23.25	6.07	2.31	0.18
23.50	6.08	2.32	0.17
23.75	6.10	2.33	0.17
24.00	**6.11**	**2.34**	0.16

Summary for Subcatchment 4:

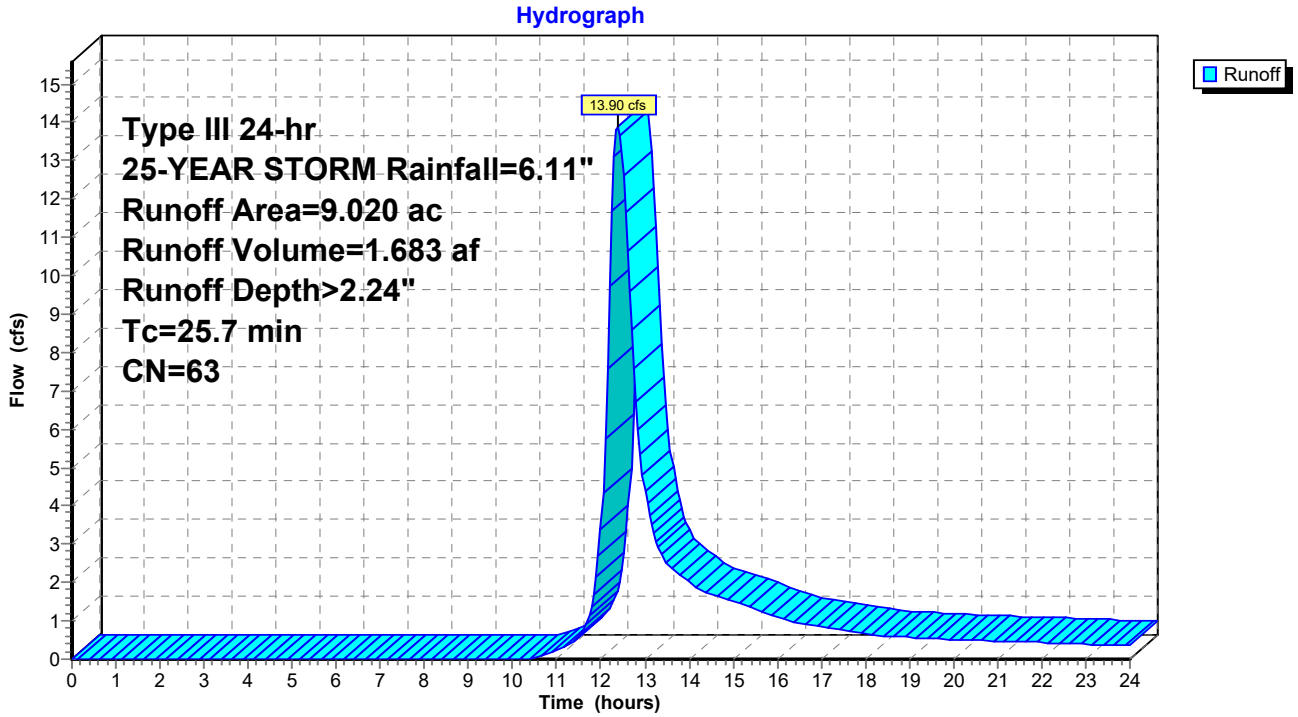
Runoff = 13.90 cfs @ 12.38 hrs, Volume= 1.683 af, Depth> 2.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=6.11"

	Area (ac)	CN	Description
*	9.020	63	
	9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.7					**Direct Entry, SCS TR-55**

Subcatchment 4:



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.12	0.00	0.00
2.25	0.14	0.00	0.00
2.50	0.15	0.00	0.00
2.75	0.17	0.00	0.00
3.00	0.19	0.00	0.00
3.25	0.21	0.00	0.00
3.50	0.22	0.00	0.00
3.75	0.24	0.00	0.00
4.00	0.26	0.00	0.00
4.25	0.28	0.00	0.00
4.50	0.30	0.00	0.00
4.75	0.32	0.00	0.00
5.00	0.35	0.00	0.00
5.25	0.37	0.00	0.00
5.50	0.39	0.00	0.00
5.75	0.42	0.00	0.00
6.00	0.44	0.00	0.00
6.25	0.47	0.00	0.00
6.50	0.49	0.00	0.00
6.75	0.52	0.00	0.00
7.00	0.55	0.00	0.00
7.25	0.59	0.00	0.00
7.50	0.62	0.00	0.00
7.75	0.66	0.00	0.00
8.00	0.70	0.00	0.00
8.25	0.74	0.00	0.00
8.50	0.78	0.00	0.00
8.75	0.84	0.00	0.00
9.00	0.89	0.00	0.00
9.25	0.95	0.00	0.00
9.50	1.01	0.00	0.00
9.75	1.08	0.00	0.00
10.00	1.15	0.00	0.00
10.25	1.23	0.00	0.00
10.50	1.32	0.00	0.03
10.75	1.42	0.01	0.11
11.00	1.53	0.02	0.22
11.25	1.66	0.04	0.37
11.50	1.82	0.06	0.61
11.75	2.17	0.14	1.13
12.00	3.05	0.46	3.38
12.25	3.94	0.88	**11.68**
12.50	4.29	1.08	**12.61**
12.75	4.45	1.17	7.60
13.00	4.58	1.25	4.39
13.25	4.69	1.32	3.08
13.50	4.79	1.38	2.49
13.75	4.88	1.43	2.21
14.00	4.96	1.48	2.02
14.25	5.03	1.53	1.83
14.50	5.10	1.57	1.70
14.75	5.16	1.61	1.60
15.00	5.22	1.65	1.50
15.25	5.27	1.69	1.41
15.50	5.33	1.72	1.31
15.75	5.37	1.75	1.22
16.00	5.41	1.78	1.12
16.25	5.45	1.80	1.02
16.50	5.49	1.83	0.95
16.75	5.52	1.85	0.90
17.00	5.56	1.87	0.85
17.25	5.59	1.89	0.81
17.50	5.62	1.91	0.77
17.75	5.64	1.93	0.72
18.00	5.67	1.95	0.68
18.25	5.69	1.97	0.63
18.50	5.72	1.98	0.60
18.75	5.74	2.00	0.59
19.00	5.76	2.01	0.57
19.25	5.79	2.03	0.56
19.50	5.81	2.04	0.55
19.75	5.83	2.06	0.53
20.00	5.85	2.07	0.52
20.25	5.87	2.08	0.51
20.50	5.89	2.10	0.49
20.75	5.90	2.11	0.48
21.00	5.92	2.12	0.47
21.25	5.94	2.14	0.46
21.50	5.96	2.15	0.45
21.75	5.98	2.16	0.44
22.00	5.99	2.17	0.43
22.25	6.01	2.18	0.42
22.50	6.02	2.19	0.41
22.75	6.04	2.20	0.40
23.00	6.05	2.21	0.39
23.25	6.07	2.22	0.38
23.50	6.08	2.23	0.37
23.75	6.10	2.24	0.36
24.00	**6.11**	**2.25**	0.35

Summary for Subcatchment 5:

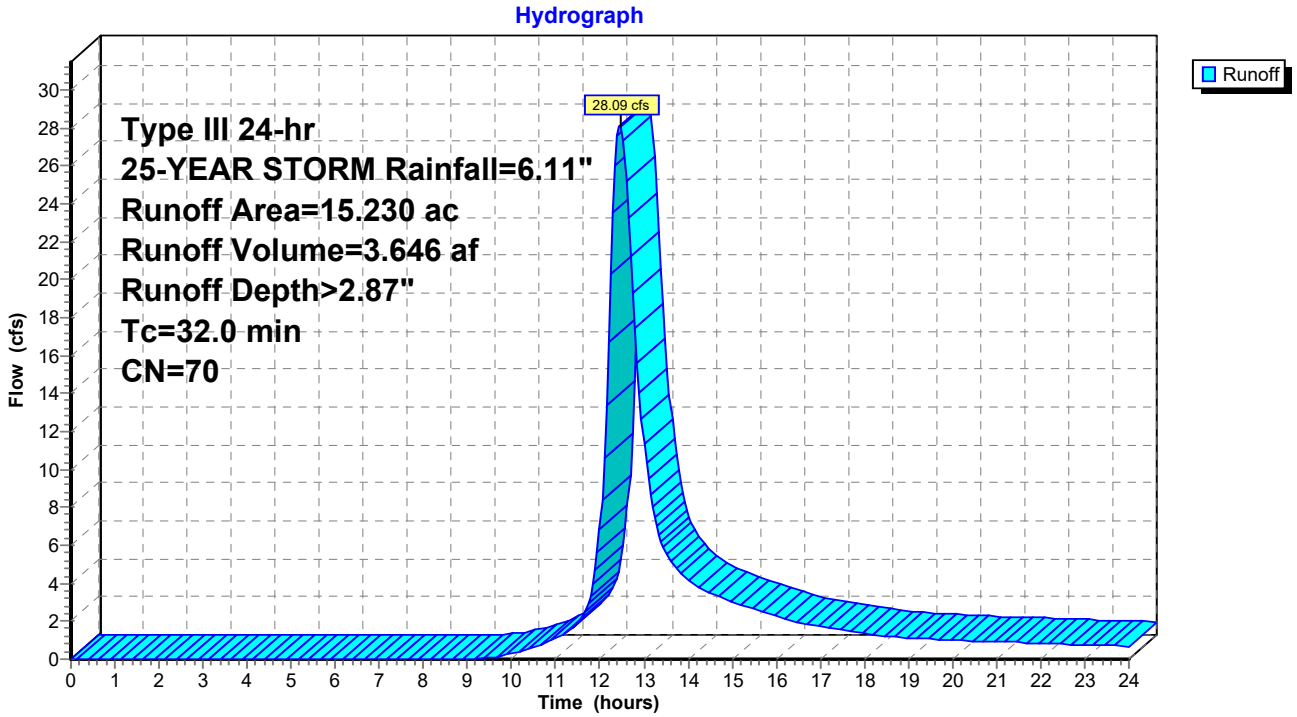
Runoff = 28.09 cfs @ 12.46 hrs, Volume= 3.646 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=6.11"

	Area (ac)	CN	Description
*	15.230	70	
	15.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.0					**Direct Entry, SCS TR-55**

Subcatchment 5:



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.12	0.00	0.00
2.25	0.14	0.00	0.00
2.50	0.15	0.00	0.00
2.75	0.17	0.00	0.00
3.00	0.19	0.00	0.00
3.25	0.21	0.00	0.00
3.50	0.22	0.00	0.00
3.75	0.24	0.00	0.00
4.00	0.26	0.00	0.00
4.25	0.28	0.00	0.00
4.50	0.30	0.00	0.00
4.75	0.32	0.00	0.00
5.00	0.35	0.00	0.00
5.25	0.37	0.00	0.00
5.50	0.39	0.00	0.00
5.75	0.42	0.00	0.00
6.00	0.44	0.00	0.00
6.25	0.47	0.00	0.00
6.50	0.49	0.00	0.00
6.75	0.52	0.00	0.00
7.00	0.55	0.00	0.00
7.25	0.59	0.00	0.00
7.50	0.62	0.00	0.00
7.75	0.66	0.00	0.00
8.00	0.70	0.00	0.00
8.25	0.74	0.00	0.00
8.50	0.78	0.00	0.00
8.75	0.84	0.00	0.00
9.00	0.89	0.00	0.00
9.25	0.95	0.00	0.02
9.50	1.01	0.01	0.08
9.75	1.08	0.01	0.17
10.00	1.15	0.02	0.29
10.25	1.23	0.03	0.43
10.50	1.32	0.05	0.61
10.75	1.42	0.07	0.83
11.00	1.53	0.09	1.09
11.25	1.66	0.13	1.41
11.50	1.82	0.18	1.93
11.75	2.17	0.31	2.94
12.00	3.05	0.75	6.83
12.25	3.94	1.29	**20.29**
12.50	4.29	1.53	**27.81**
12.75	4.45	1.64	19.30
13.00	4.58	1.73	11.39
13.25	4.69	1.81	7.50
13.50	4.79	1.88	5.64
13.75	4.88	1.94	4.74
14.00	4.96	2.00	4.20
14.25	5.03	2.06	3.79
14.50	5.10	2.11	3.47
14.75	5.16	2.16	3.23
15.00	5.22	2.20	3.03
15.25	5.27	2.24	2.84
15.50	5.33	2.28	2.65
15.75	5.37	2.32	2.46
16.00	5.41	2.35	2.26
16.25	5.45	2.38	2.07
16.50	5.49	2.41	1.90
16.75	5.52	2.43	1.79
17.00	5.56	2.46	1.70
17.25	5.59	2.48	1.61
17.50	5.62	2.50	1.52
17.75	5.64	2.53	1.43
18.00	5.67	2.55	1.34
18.25	5.69	2.56	1.26
18.50	5.72	2.58	1.19
18.75	5.74	2.60	1.15
19.00	5.76	2.62	1.12
19.25	5.79	2.64	1.09
19.50	5.81	2.65	1.06
19.75	5.83	2.67	1.04
20.00	5.85	2.68	1.01
20.25	5.87	2.70	0.99
20.50	5.89	2.72	0.96
20.75	5.90	2.73	0.94
21.00	5.92	2.74	0.92
21.25	5.94	2.76	0.90
21.50	5.96	2.77	0.88
21.75	5.98	2.79	0.86
22.00	5.99	2.80	0.84
22.25	6.01	2.81	0.82
22.50	6.02	2.82	0.80
22.75	6.04	2.84	0.78
23.00	6.05	2.85	0.76
23.25	6.07	2.86	0.74
23.50	6.08	2.87	0.72
23.75	6.10	2.88	0.70
24.00	**6.11**	**2.89**	0.68

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>2.49"
Tc=45.9 min CN=60 Runoff=6.10 cfs 0.973 af

Subcatchment1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>2.59"
Tc=45.5 min CN=61 Runoff=14.39 cfs 2.271 af

Subcatchment1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>2.49"
Tc=37.9 min CN=60 Runoff=12.35 cfs 1.784 af

Subcatchment2: Runoff Area=9.600 ac 0.00% Impervious Runoff Depth>3.18"
Tc=43.3 min CN=67 Runoff=16.91 cfs 2.544 af

Subcatchment3: Runoff Area=4.160 ac 0.00% Impervious Runoff Depth>2.89"
Tc=26.2 min CN=64 Runoff=8.36 cfs 1.003 af

Subcatchment4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>2.79"
Tc=25.7 min CN=63 Runoff=17.61 cfs 2.101 af

Subcatchment5: Runoff Area=15.230 ac 0.00% Impervious Runoff Depth>3.50"
Tc=32.0 min CN=70 Runoff=34.33 cfs 4.436 af

Total Runoff Area = 61.820 ac Runoff Volume = 15.112 af Average Runoff Depth = 2.93"
100.00% Pervious = 61.820 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

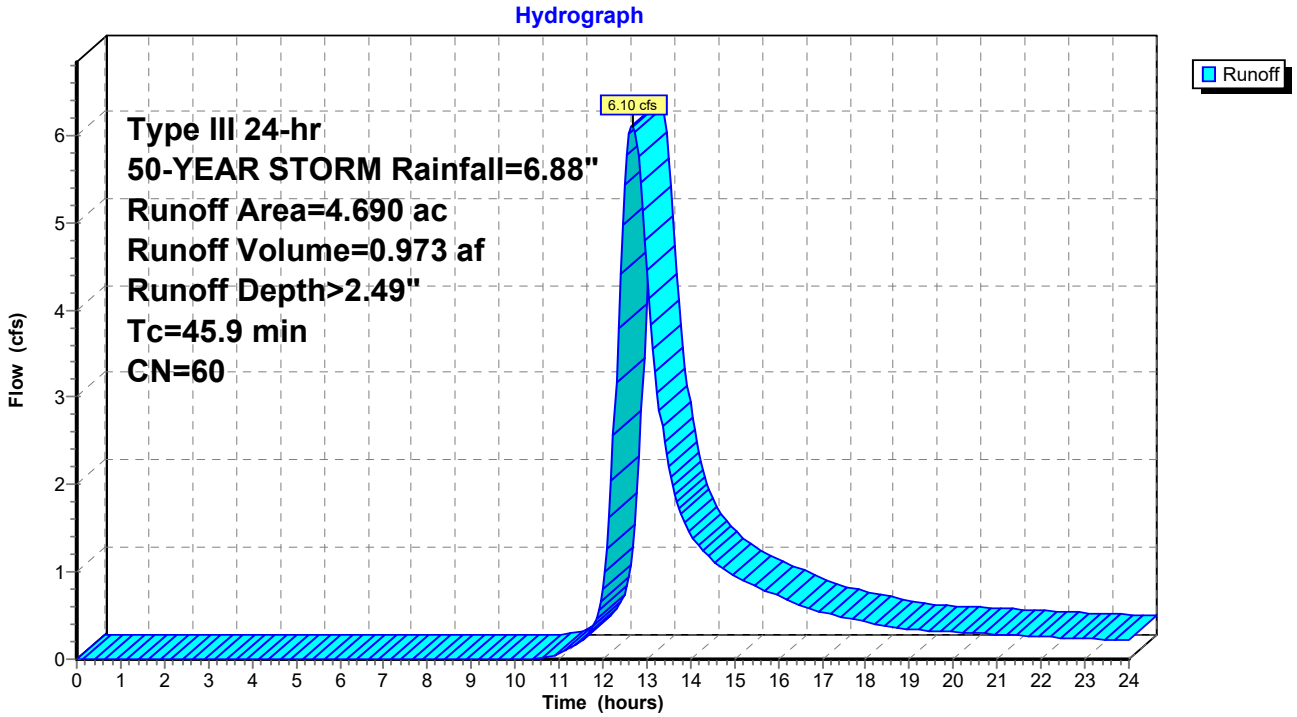
Runoff = 6.10 cfs @ 12.67 hrs, Volume= 0.973 af, Depth> 2.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR STORM Rainfall=6.88"

	Area (ac)	CN	Description
*	4.690	60	
	4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.9					**Direct Entry, SCS TR-55**

Subcatchment 1A:



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.16	1.40	4.45
0.25	0.02	0.00	0.00	13.25	5.28	1.47	3.06
0.50	0.03	0.00	0.00	13.50	5.39	1.53	2.21
0.75	0.05	0.00	0.00	13.75	5.49	1.60	1.72
1.00	0.07	0.00	0.00	14.00	5.58	1.65	1.45
1.25	0.09	0.00	0.00	14.25	5.66	1.70	1.26
1.50	0.10	0.00	0.00	14.50	5.74	1.75	1.12
1.75	0.12	0.00	0.00	14.75	5.81	1.80	1.02
2.00	0.14	0.00	0.00	15.00	5.88	1.84	0.95
2.25	0.16	0.00	0.00	15.25	5.94	1.88	0.89
2.50	0.17	0.00	0.00	15.50	6.00	1.92	0.84
2.75	0.19	0.00	0.00	15.75	6.05	1.95	0.78
3.00	0.21	0.00	0.00	16.00	6.10	1.98	0.72
3.25	0.23	0.00	0.00	16.25	6.14	2.01	0.67
3.50	0.25	0.00	0.00	16.50	6.18	2.04	0.61
3.75	0.27	0.00	0.00	16.75	6.22	2.07	0.57
4.00	0.30	0.00	0.00	17.00	6.26	2.09	0.54
4.25	0.32	0.00	0.00	17.25	6.29	2.12	0.51
4.50	0.34	0.00	0.00	17.50	6.33	2.14	0.48
4.75	0.37	0.00	0.00	17.75	6.36	2.16	0.45
5.00	0.39	0.00	0.00	18.00	6.38	2.18	0.43
5.25	0.42	0.00	0.00	18.25	6.41	2.20	0.40
5.50	0.44	0.00	0.00	18.50	6.44	2.21	0.38
5.75	0.47	0.00	0.00	18.75	6.46	2.23	0.36
6.00	0.50	0.00	0.00	19.00	6.49	2.25	0.35
6.25	0.52	0.00	0.00	19.25	6.51	2.27	0.34
6.50	0.55	0.00	0.00	19.50	6.54	2.28	0.33
6.75	0.59	0.00	0.00	19.75	6.56	2.30	0.32
7.00	0.62	0.00	0.00	20.00	6.58	2.31	0.31
7.25	0.66	0.00	0.00	20.25	6.61	2.33	0.31
7.50	0.70	0.00	0.00	20.50	6.63	2.34	0.30
7.75	0.74	0.00	0.00	20.75	6.65	2.36	0.29
8.00	0.78	0.00	0.00	21.00	6.67	2.37	0.28
8.25	0.83	0.00	0.00	21.25	6.69	2.39	0.28
8.50	0.88	0.00	0.00	21.50	6.71	2.40	0.27
8.75	0.94	0.00	0.00	21.75	6.73	2.41	0.27
9.00	1.00	0.00	0.00	22.00	6.75	2.43	0.26
9.25	1.07	0.00	0.00	22.25	6.77	2.44	0.25
9.50	1.14	0.00	0.00	22.50	6.78	2.45	0.25
9.75	1.22	0.00	0.00	22.75	6.80	2.46	0.24
10.00	1.30	0.00	0.00	23.00	6.82	2.48	0.24
10.25	1.39	0.00	0.00	23.25	6.83	2.49	0.23
10.50	1.49	0.00	0.00	23.50	6.85	2.50	0.22
10.75	1.60	0.01	0.02	23.75	6.87	2.51	0.22
11.00	1.72	0.02	0.06	24.00	**6.88**	**2.52**	0.21
11.25	1.87	0.04	0.12				
11.50	2.05	0.07	0.20				
11.75	2.44	0.16	0.36				
12.00	3.44	0.51	0.81				
12.25	4.44	0.99	2.57				
12.50	4.83	1.20	**5.43**				
12.75	5.01	1.31	**5.97**				

Summary for Subcatchment 1B:

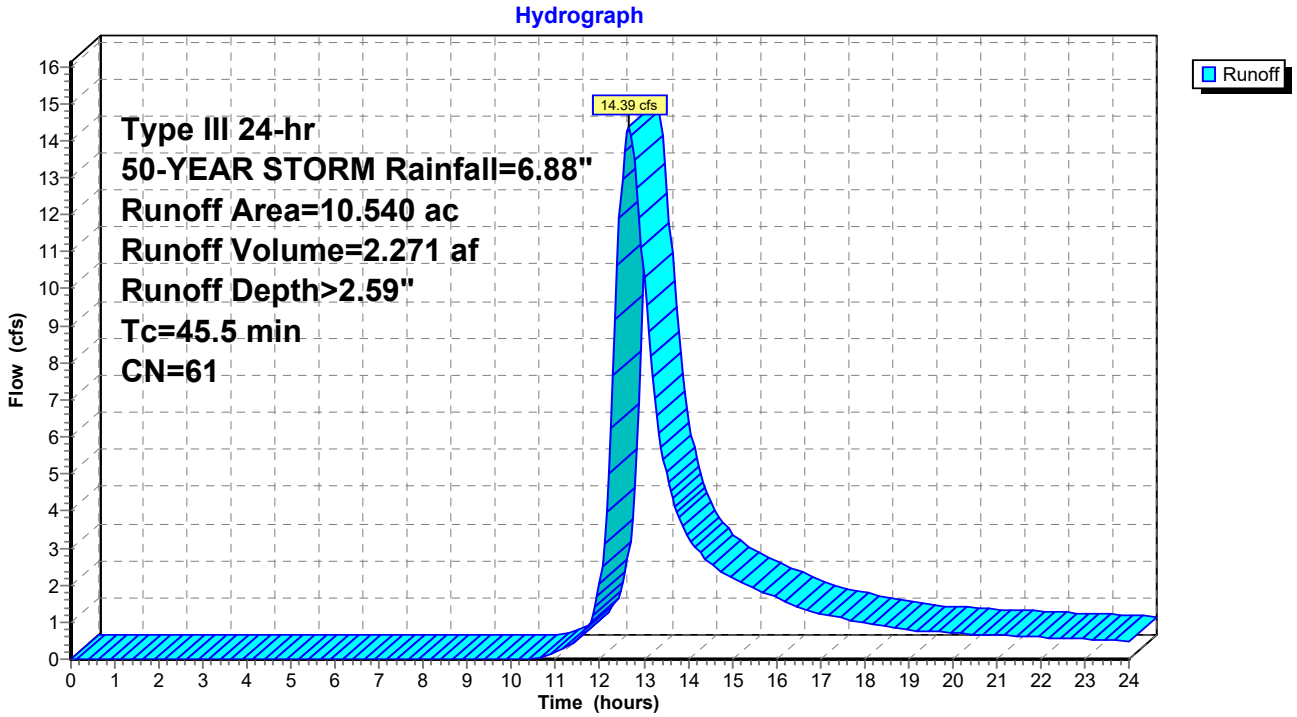
Runoff = 14.39 cfs @ 12.66 hrs, Volume= 2.271 af, Depth> 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR STORM Rainfall=6.88"

	Area (ac)	CN	Description
*	10.540	61	
	10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.5					**Direct Entry, SCS TR-55**

Subcatchment 1B:



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.16	1.47	10.32
0.25	0.02	0.00	0.00	13.25	5.28	1.54	7.04
0.50	0.03	0.00	0.00	13.50	5.39	1.61	5.08
0.75	0.05	0.00	0.00	13.75	5.49	1.67	3.96
1.00	0.07	0.00	0.00	14.00	5.58	1.73	3.33
1.25	0.09	0.00	0.00	14.25	5.66	1.78	2.90
1.50	0.10	0.00	0.00	14.50	5.74	1.83	2.58
1.75	0.12	0.00	0.00	14.75	5.81	1.88	2.35
2.00	0.14	0.00	0.00	15.00	5.88	1.92	2.19
2.25	0.16	0.00	0.00	15.25	5.94	1.96	2.05
2.50	0.17	0.00	0.00	15.50	6.00	2.00	1.92
2.75	0.19	0.00	0.00	15.75	6.05	2.04	1.79
3.00	0.21	0.00	0.00	16.00	6.10	2.07	1.66
3.25	0.23	0.00	0.00	16.25	6.14	2.10	1.53
3.50	0.25	0.00	0.00	16.50	6.18	2.13	1.40
3.75	0.27	0.00	0.00	16.75	6.22	2.15	1.31
4.00	0.30	0.00	0.00	17.00	6.26	2.18	1.23
4.25	0.32	0.00	0.00	17.25	6.29	2.20	1.16
4.50	0.34	0.00	0.00	17.50	6.33	2.23	1.10
4.75	0.37	0.00	0.00	17.75	6.36	2.25	1.04
5.00	0.39	0.00	0.00	18.00	6.38	2.27	0.98
5.25	0.42	0.00	0.00	18.25	6.41	2.29	0.92
5.50	0.44	0.00	0.00	18.50	6.44	2.30	0.86
5.75	0.47	0.00	0.00	18.75	6.46	2.32	0.82
6.00	0.50	0.00	0.00	19.00	6.49	2.34	0.80
6.25	0.52	0.00	0.00	19.25	6.51	2.36	0.77
6.50	0.55	0.00	0.00	19.50	6.54	2.37	0.75
6.75	0.59	0.00	0.00	19.75	6.56	2.39	0.74
7.00	0.62	0.00	0.00	20.00	6.58	2.41	0.72
7.25	0.66	0.00	0.00	20.25	6.61	2.42	0.70
7.50	0.70	0.00	0.00	20.50	6.63	2.44	0.68
7.75	0.74	0.00	0.00	20.75	6.65	2.45	0.67
8.00	0.78	0.00	0.00	21.00	6.67	2.47	0.65
8.25	0.83	0.00	0.00	21.25	6.69	2.48	0.64
8.50	0.88	0.00	0.00	21.50	6.71	2.49	0.62
8.75	0.94	0.00	0.00	21.75	6.73	2.51	0.61
9.00	1.00	0.00	0.00	22.00	6.75	2.52	0.60
9.25	1.07	0.00	0.00	22.25	6.77	2.53	0.58
9.50	1.14	0.00	0.00	22.50	6.78	2.55	0.57
9.75	1.22	0.00	0.00	22.75	6.80	2.56	0.55
10.00	1.30	0.00	0.00	23.00	6.82	2.57	0.54
10.25	1.39	0.00	0.00	23.25	6.83	2.58	0.53
10.50	1.49	0.01	0.02	23.50	6.85	2.59	0.51
10.75	1.60	0.02	0.09	23.75	6.87	2.61	0.50
11.00	1.72	0.03	0.20	24.00	**6.88**	**2.62**	0.49
11.25	1.87	0.05	0.35				
11.50	2.05	0.08	0.56				
11.75	2.44	0.18	0.92				
12.00	3.44	0.55	2.03				
12.25	4.44	1.04	6.25				
12.50	4.83	1.27	**12.96**				
12.75	5.01	1.38	**13.99**				

Summary for Subcatchment 1C:

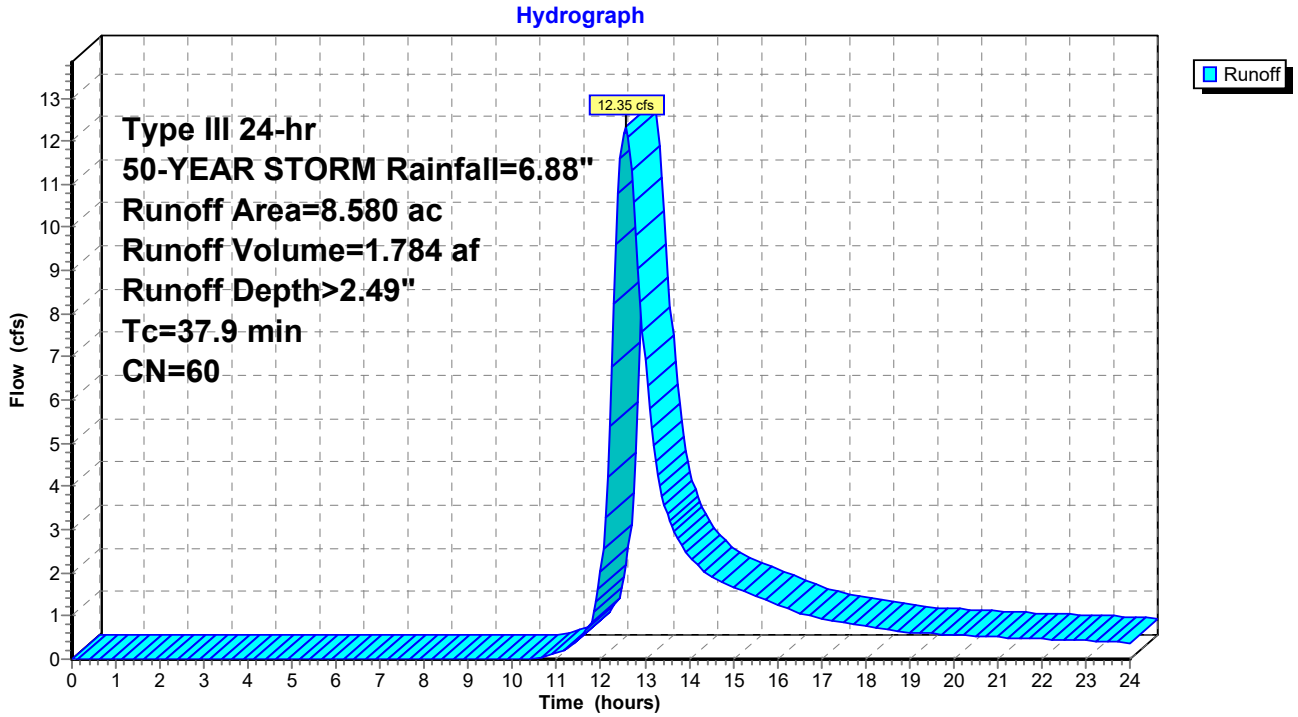
Runoff = 12.35 cfs @ 12.56 hrs, Volume= 1.784 af, Depth> 2.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR STORM Rainfall=6.88"

	Area (ac)	CN	Description
*	8.580	60	
	8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.9					**Direct Entry, SCS TR-55**

Subcatchment 1C:



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.16	1.40	6.92
0.25	0.02	0.00	0.00	13.25	5.28	1.47	4.59
0.50	0.03	0.00	0.00	13.50	5.39	1.53	3.37
0.75	0.05	0.00	0.00	13.75	5.49	1.60	2.75
1.00	0.07	0.00	0.00	14.00	5.58	1.65	2.39
1.25	0.09	0.00	0.00	14.25	5.66	1.70	2.12
1.50	0.10	0.00	0.00	14.50	5.74	1.75	1.93
1.75	0.12	0.00	0.00	14.75	5.81	1.80	1.79
2.00	0.14	0.00	0.00	15.00	5.88	1.84	1.68
2.25	0.16	0.00	0.00	15.25	5.94	1.88	1.58
2.50	0.17	0.00	0.00	15.50	6.00	1.92	1.48
2.75	0.19	0.00	0.00	15.75	6.05	1.95	1.37
3.00	0.21	0.00	0.00	16.00	6.10	1.98	1.27
3.25	0.23	0.00	0.00	16.25	6.14	2.01	1.17
3.50	0.25	0.00	0.00	16.50	6.18	2.04	1.07
3.75	0.27	0.00	0.00	16.75	6.22	2.07	1.00
4.00	0.30	0.00	0.00	17.00	6.26	2.09	0.95
4.25	0.32	0.00	0.00	17.25	6.29	2.12	0.90
4.50	0.34	0.00	0.00	17.50	6.33	2.14	0.85
4.75	0.37	0.00	0.00	17.75	6.36	2.16	0.81
5.00	0.39	0.00	0.00	18.00	6.38	2.18	0.76
5.25	0.42	0.00	0.00	18.25	6.41	2.20	0.71
5.50	0.44	0.00	0.00	18.50	6.44	2.21	0.67
5.75	0.47	0.00	0.00	18.75	6.46	2.23	0.64
6.00	0.50	0.00	0.00	19.00	6.49	2.25	0.62
6.25	0.52	0.00	0.00	19.25	6.51	2.27	0.61
6.50	0.55	0.00	0.00	19.50	6.54	2.28	0.59
6.75	0.59	0.00	0.00	19.75	6.56	2.30	0.58
7.00	0.62	0.00	0.00	20.00	6.58	2.31	0.57
7.25	0.66	0.00	0.00	20.25	6.61	2.33	0.55
7.50	0.70	0.00	0.00	20.50	6.63	2.34	0.54
7.75	0.74	0.00	0.00	20.75	6.65	2.36	0.53
8.00	0.78	0.00	0.00	21.00	6.67	2.37	0.51
8.25	0.83	0.00	0.00	21.25	6.69	2.39	0.50
8.50	0.88	0.00	0.00	21.50	6.71	2.40	0.49
8.75	0.94	0.00	0.00	21.75	6.73	2.41	0.48
9.00	1.00	0.00	0.00	22.00	6.75	2.43	0.47
9.25	1.07	0.00	0.00	22.25	6.77	2.44	0.46
9.50	1.14	0.00	0.00	22.50	6.78	2.45	0.45
9.75	1.22	0.00	0.00	22.75	6.80	2.46	0.44
10.00	1.30	0.00	0.00	23.00	6.82	2.48	0.43
10.25	1.39	0.00	0.00	23.25	6.83	2.49	0.42
10.50	1.49	0.00	0.01	23.50	6.85	2.50	0.40
10.75	1.60	0.01	0.06	23.75	6.87	2.51	0.39
11.00	1.72	0.02	0.15	24.00	**6.88**	**2.52**	0.38
11.25	1.87	0.04	0.27				
11.50	2.05	0.07	0.46				
11.75	2.44	0.16	0.81				
12.00	3.44	0.51	2.02				
12.25	4.44	0.99	6.76				
12.50	4.83	1.20	**12.16**				
12.75	5.01	1.31	**10.58**				

Summary for Subcatchment 2:

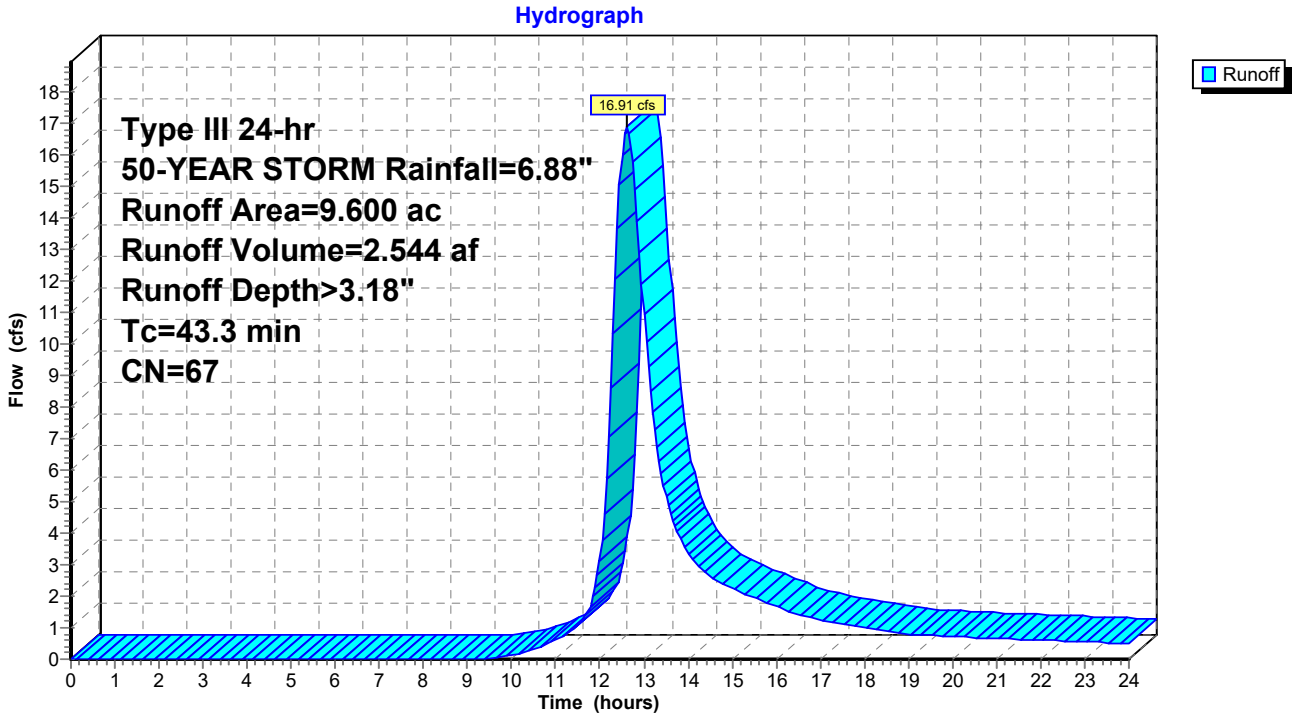
Runoff = 16.91 cfs @ 12.61 hrs, Volume= 2.544 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR STORM Rainfall=6.88"

	Area (ac)	CN	Description
*	9.600	67	
	9.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.3					**Direct Entry, SCS TR-55**

Subcatchment 2:



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.07	0.00	0.00
1.25	0.09	0.00	0.00
1.50	0.10	0.00	0.00
1.75	0.12	0.00	0.00
2.00	0.14	0.00	0.00
2.25	0.16	0.00	0.00
2.50	0.17	0.00	0.00
2.75	0.19	0.00	0.00
3.00	0.21	0.00	0.00
3.25	0.23	0.00	0.00
3.50	0.25	0.00	0.00
3.75	0.27	0.00	0.00
4.00	0.30	0.00	0.00
4.25	0.32	0.00	0.00
4.50	0.34	0.00	0.00
4.75	0.37	0.00	0.00
5.00	0.39	0.00	0.00
5.25	0.42	0.00	0.00
5.50	0.44	0.00	0.00
5.75	0.47	0.00	0.00
6.00	0.50	0.00	0.00
6.25	0.52	0.00	0.00
6.50	0.55	0.00	0.00
6.75	0.59	0.00	0.00
7.00	0.62	0.00	0.00
7.25	0.66	0.00	0.00
7.50	0.70	0.00	0.00
7.75	0.74	0.00	0.00
8.00	0.78	0.00	0.00
8.25	0.83	0.00	0.00
8.50	0.88	0.00	0.00
8.75	0.94	0.00	0.00
9.00	1.00	0.00	0.00
9.25	1.07	0.00	0.00
9.50	1.14	0.00	0.02
9.75	1.22	0.01	0.06
10.00	1.30	0.02	0.13
10.25	1.39	0.03	0.22
10.50	1.49	0.05	0.32
10.75	1.60	0.07	0.45
11.00	1.72	0.10	0.62
11.25	1.87	0.13	0.81
11.50	2.05	0.19	1.09
11.75	2.44	0.33	1.59
12.00	3.44	0.82	3.12
12.25	4.44	1.42	8.59
12.50	4.83	1.69	**16.01**
12.75	5.01	1.81	**15.79**
13.00	5.16	1.92	10.94
13.25	5.28	2.00	7.26
13.50	5.39	2.08	5.17
13.75	5.49	2.15	4.03
14.00	5.58	2.22	3.40
14.25	5.66	2.28	2.96
14.50	5.74	2.33	2.63
14.75	5.81	2.39	2.41
15.00	5.88	2.44	2.24
15.25	5.94	2.48	2.10
15.50	6.00	2.53	1.96
15.75	6.05	2.57	1.82
16.00	6.10	2.60	1.69
16.25	6.14	2.64	1.55
16.50	6.18	2.67	1.42
16.75	6.22	2.70	1.32
17.00	6.26	2.73	1.25
17.25	6.29	2.75	1.18
17.50	6.33	2.78	1.12
17.75	6.36	2.80	1.05
18.00	6.38	2.82	0.99
18.25	6.41	2.84	0.93
18.50	6.44	2.87	0.87
18.75	6.46	2.89	0.83
19.00	6.49	2.91	0.81
19.25	6.51	2.92	0.78
19.50	6.54	2.94	0.76
19.75	6.56	2.96	0.74
20.00	6.58	2.98	0.73
20.25	6.61	3.00	0.71
20.50	6.63	3.01	0.69
20.75	6.65	3.03	0.67
21.00	6.67	3.05	0.66
21.25	6.69	3.06	0.64
21.50	6.71	3.08	0.63
21.75	6.73	3.09	0.62
22.00	6.75	3.11	0.60
22.25	6.77	3.12	0.59
22.50	6.78	3.14	0.57
22.75	6.80	3.15	0.56
23.00	6.82	3.16	0.54
23.25	6.83	3.18	0.53
23.50	6.85	3.19	0.52
23.75	6.87	3.20	0.50
24.00	**6.88**	**3.21**	0.49

Summary for Subcatchment 3:

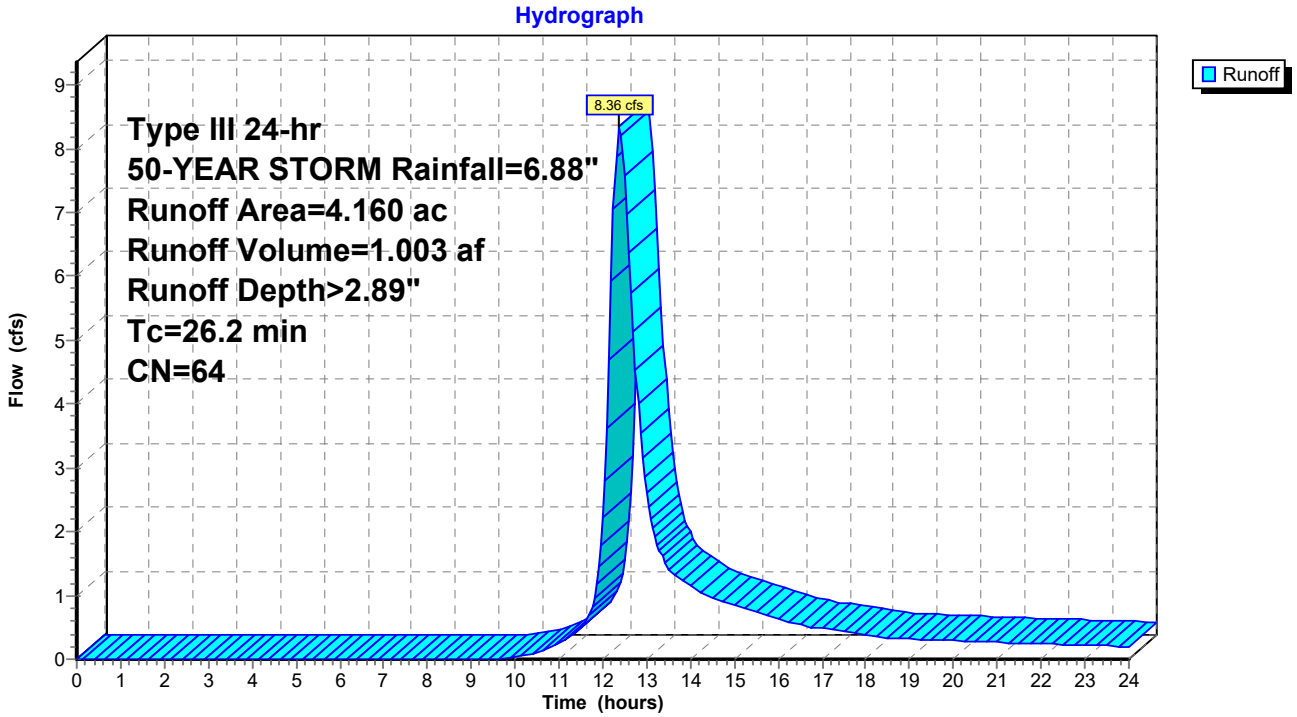
Runoff = 8.36 cfs @ 12.38 hrs, Volume= 1.003 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR STORM Rainfall=6.88"

	Area (ac)	CN	Description
*	4.160	64	
	4.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.2					**Direct Entry, SCS TR-55**

Subcatchment 3:



Hydrograph for Subcatchment 3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.16	1.69	2.60
0.25	0.02	0.00	0.00	13.25	5.28	1.77	1.80
0.50	0.03	0.00	0.00	13.50	5.39	1.84	1.43
0.75	0.05	0.00	0.00	13.75	5.49	1.91	1.27
1.00	0.07	0.00	0.00	14.00	5.58	1.97	1.15
1.25	0.09	0.00	0.00	14.25	5.66	2.03	1.04
1.50	0.10	0.00	0.00	14.50	5.74	2.08	0.96
1.75	0.12	0.00	0.00	14.75	5.81	2.13	0.91
2.00	0.14	0.00	0.00	15.00	5.88	2.18	0.85
2.25	0.16	0.00	0.00	15.25	5.94	2.22	0.80
2.50	0.17	0.00	0.00	15.50	6.00	2.26	0.74
2.75	0.19	0.00	0.00	15.75	6.05	2.30	0.69
3.00	0.21	0.00	0.00	16.00	6.10	2.33	0.63
3.25	0.23	0.00	0.00	16.25	6.14	2.36	0.58
3.50	0.25	0.00	0.00	16.50	6.18	2.39	0.54
3.75	0.27	0.00	0.00	16.75	6.22	2.42	0.51
4.00	0.30	0.00	0.00	17.00	6.26	2.45	0.48
4.25	0.32	0.00	0.00	17.25	6.29	2.47	0.46
4.50	0.34	0.00	0.00	17.50	6.33	2.50	0.43
4.75	0.37	0.00	0.00	17.75	6.36	2.52	0.41
5.00	0.39	0.00	0.00	18.00	6.38	2.54	0.38
5.25	0.42	0.00	0.00	18.25	6.41	2.56	0.36
5.50	0.44	0.00	0.00	18.50	6.44	2.58	0.34
5.75	0.47	0.00	0.00	18.75	6.46	2.60	0.33
6.00	0.50	0.00	0.00	19.00	6.49	2.62	0.32
6.25	0.52	0.00	0.00	19.25	6.51	2.64	0.31
6.50	0.55	0.00	0.00	19.50	6.54	2.65	0.31
6.75	0.59	0.00	0.00	19.75	6.56	2.67	0.30
7.00	0.62	0.00	0.00	20.00	6.58	2.69	0.29
7.25	0.66	0.00	0.00	20.25	6.61	2.71	0.28
7.50	0.70	0.00	0.00	20.50	6.63	2.72	0.28
7.75	0.74	0.00	0.00	20.75	6.65	2.74	0.27
8.00	0.78	0.00	0.00	21.00	6.67	2.75	0.27
8.25	0.83	0.00	0.00	21.25	6.69	2.77	0.26
8.50	0.88	0.00	0.00	21.50	6.71	2.78	0.25
8.75	0.94	0.00	0.00	21.75	6.73	2.80	0.25
9.00	1.00	0.00	0.00	22.00	6.75	2.81	0.24
9.25	1.07	0.00	0.00	22.25	6.77	2.82	0.24
9.50	1.14	0.00	0.00	22.50	6.78	2.84	0.23
9.75	1.22	0.00	0.00	22.75	6.80	2.85	0.22
10.00	1.30	0.01	0.03	23.00	6.82	2.86	0.22
10.25	1.39	0.01	0.06	23.25	6.83	2.88	0.21
10.50	1.49	0.02	0.11	23.50	6.85	2.89	0.21
10.75	1.60	0.04	0.17	23.75	6.87	2.90	0.20
11.00	1.72	0.06	0.24	24.00	**6.88**	**2.91**	0.20
11.25	1.87	0.09	0.33				
11.50	2.05	0.13	0.49				
11.75	2.44	0.25	0.82				
12.00	3.44	0.67	2.22				
12.25	4.44	1.23	**7.07**				
12.50	4.83	1.47	**7.58**				
12.75	5.01	1.59	4.54				

Summary for Subcatchment 4:

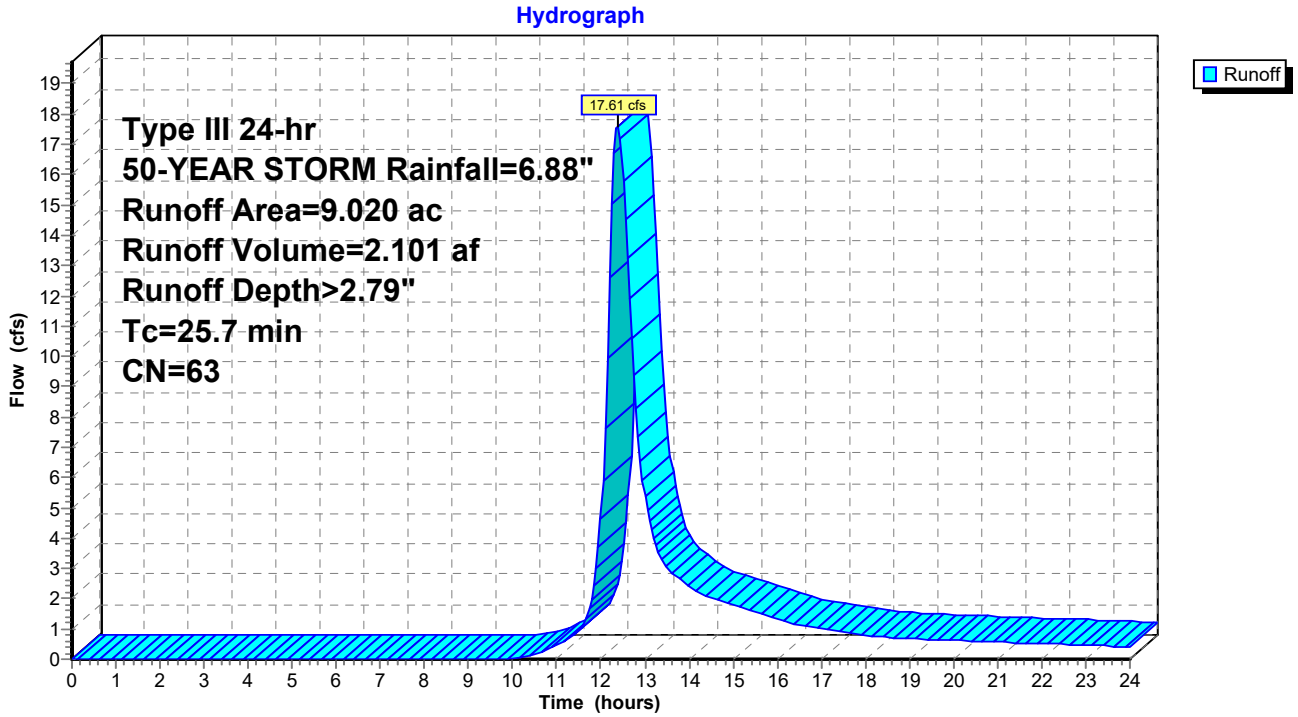
Runoff = 17.61 cfs @ 12.37 hrs, Volume= 2.101 af, Depth> 2.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR STORM Rainfall=6.88"

	Area (ac)	CN	Description
*	9.020	63	
	9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.7					**Direct Entry, SCS TR-55**

Subcatchment 4:



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.07	0.00	0.00
1.25	0.09	0.00	0.00
1.50	0.10	0.00	0.00
1.75	0.12	0.00	0.00
2.00	0.14	0.00	0.00
2.25	0.16	0.00	0.00
2.50	0.17	0.00	0.00
2.75	0.19	0.00	0.00
3.00	0.21	0.00	0.00
3.25	0.23	0.00	0.00
3.50	0.25	0.00	0.00
3.75	0.27	0.00	0.00
4.00	0.30	0.00	0.00
4.25	0.32	0.00	0.00
4.50	0.34	0.00	0.00
4.75	0.37	0.00	0.00
5.00	0.39	0.00	0.00
5.25	0.42	0.00	0.00
5.50	0.44	0.00	0.00
5.75	0.47	0.00	0.00
6.00	0.50	0.00	0.00
6.25	0.52	0.00	0.00
6.50	0.55	0.00	0.00
6.75	0.59	0.00	0.00
7.00	0.62	0.00	0.00
7.25	0.66	0.00	0.00
7.50	0.70	0.00	0.00
7.75	0.74	0.00	0.00
8.00	0.78	0.00	0.00
8.25	0.83	0.00	0.00
8.50	0.88	0.00	0.00
8.75	0.94	0.00	0.00
9.00	1.00	0.00	0.00
9.25	1.07	0.00	0.00
9.50	1.14	0.00	0.00
9.75	1.22	0.00	0.00
10.00	1.30	0.00	0.02
10.25	1.39	0.01	0.08
10.50	1.49	0.02	0.18
10.75	1.60	0.03	0.30
11.00	1.72	0.05	0.45
11.25	1.87	0.07	0.64
11.50	2.05	0.11	0.97
11.75	2.44	0.23	1.66
12.00	3.44	0.63	4.63
12.25	4.44	1.16	**15.02**
12.50	4.83	1.40	**15.78**
12.75	5.01	1.52	9.38
13.00	5.16	1.61	5.38
13.25	5.28	1.69	3.75
13.50	5.39	1.76	3.01
13.75	5.49	1.83	2.68
14.00	5.58	1.89	2.43
14.25	5.66	1.94	2.21
14.50	5.74	2.00	2.04
14.75	5.81	2.04	1.92
15.00	5.88	2.09	1.80
15.25	5.94	2.13	1.69
15.50	6.00	2.17	1.57
15.75	6.05	2.21	1.46
16.00	6.10	2.24	1.34
16.25	6.14	2.27	1.22
16.50	6.18	2.30	1.14
16.75	6.22	2.33	1.07
17.00	6.26	2.36	1.02
17.25	6.29	2.38	0.97
17.50	6.33	2.41	0.91
17.75	6.36	2.43	0.86
18.00	6.38	2.45	0.81
18.25	6.41	2.47	0.75
18.50	6.44	2.49	0.72
18.75	6.46	2.51	0.70
19.00	6.49	2.52	0.68
19.25	6.51	2.54	0.67
19.50	6.54	2.56	0.65
19.75	6.56	2.58	0.63
20.00	6.58	2.59	0.62
20.25	6.61	2.61	0.60
20.50	6.63	2.63	0.59
20.75	6.65	2.64	0.58
21.00	6.67	2.66	0.56
21.25	6.69	2.67	0.55
21.50	6.71	2.69	0.54
21.75	6.73	2.70	0.53
22.00	6.75	2.71	0.52
22.25	6.77	2.73	0.50
22.50	6.78	2.74	0.49
22.75	6.80	2.75	0.48
23.00	6.82	2.77	0.47
23.25	6.83	2.78	0.45
23.50	6.85	2.79	0.44
23.75	6.87	2.80	0.43
24.00	**6.88**	**2.81**	0.42

Summary for Subcatchment 5:

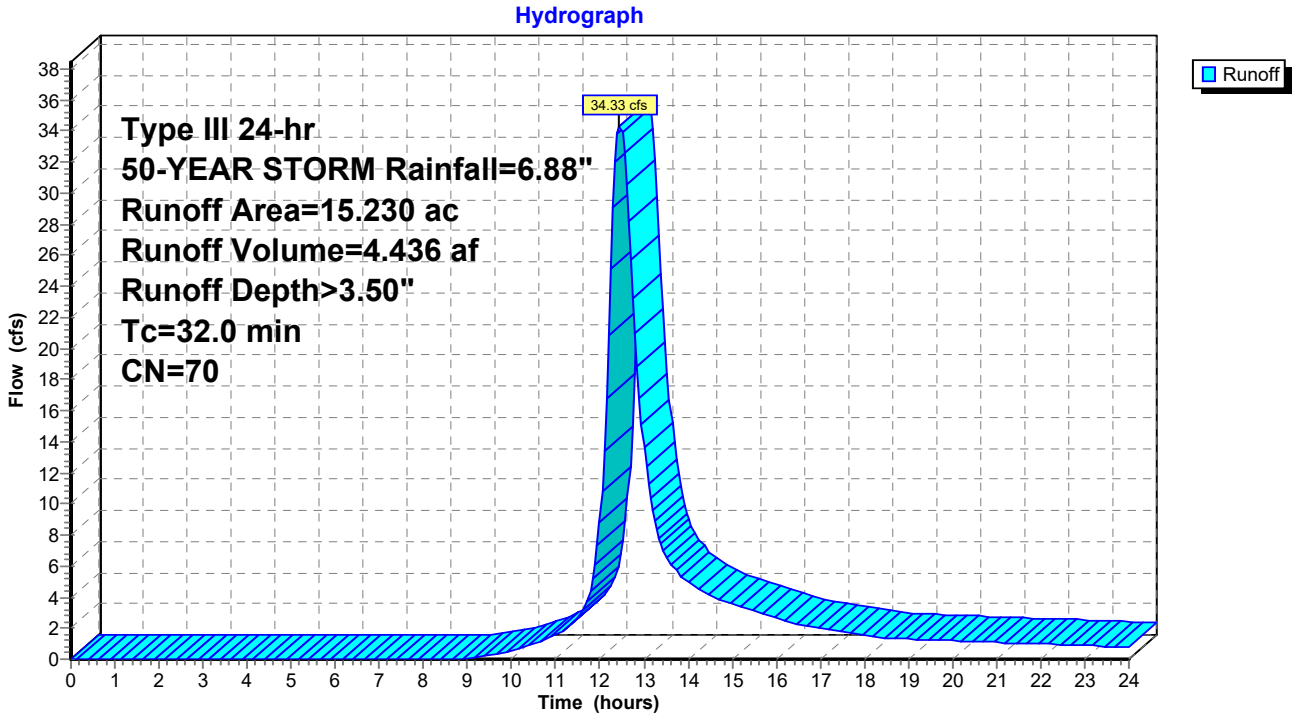
Runoff = 34.33 cfs @ 12.45 hrs, Volume= 4.436 af, Depth> 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR STORM Rainfall=6.88"

	Area (ac)	CN	Description
*	15.230	70	
	15.230		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.0					**Direct Entry, SCS TR-55**

Subcatchment 5:



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.07	0.00	0.00
1.25	0.09	0.00	0.00
1.50	0.10	0.00	0.00
1.75	0.12	0.00	0.00
2.00	0.14	0.00	0.00
2.25	0.16	0.00	0.00
2.50	0.17	0.00	0.00
2.75	0.19	0.00	0.00
3.00	0.21	0.00	0.00
3.25	0.23	0.00	0.00
3.50	0.25	0.00	0.00
3.75	0.27	0.00	0.00
4.00	0.30	0.00	0.00
4.25	0.32	0.00	0.00
4.50	0.34	0.00	0.00
4.75	0.37	0.00	0.00
5.00	0.39	0.00	0.00
5.25	0.42	0.00	0.00
5.50	0.44	0.00	0.00
5.75	0.47	0.00	0.00
6.00	0.50	0.00	0.00
6.25	0.52	0.00	0.00
6.50	0.55	0.00	0.00
6.75	0.59	0.00	0.00
7.00	0.62	0.00	0.00
7.25	0.66	0.00	0.00
7.50	0.70	0.00	0.00
7.75	0.74	0.00	0.00
8.00	0.78	0.00	0.00
8.25	0.83	0.00	0.00
8.50	0.88	0.00	0.00
8.75	0.94	0.00	0.01
9.00	1.00	0.00	0.06
9.25	1.07	0.01	0.15
9.50	1.14	0.02	0.27
9.75	1.22	0.03	0.41
10.00	1.30	0.04	0.56
10.25	1.39	0.06	0.74
10.50	1.49	0.08	0.96
10.75	1.60	0.11	1.25
11.00	1.72	0.14	1.58
11.25	1.87	0.19	1.98
11.50	2.05	0.26	2.64
11.75	2.44	0.43	3.91
12.00	3.44	0.97	8.79
12.25	4.44	1.63	**25.19**
12.50	4.83	1.91	**33.89**
12.75	5.01	2.05	23.27
13.00	5.16	2.16	13.65
13.25	5.28	2.25	8.94
13.50	5.39	2.33	6.69
13.75	5.49	2.41	5.62
14.00	5.58	2.48	4.97
14.25	5.66	2.54	4.47
14.50	5.74	2.60	4.09
14.75	5.81	2.66	3.81
15.00	5.88	2.71	3.57
15.25	5.94	2.76	3.34
15.50	6.00	2.80	3.11
15.75	6.05	2.84	2.89
16.00	6.10	2.88	2.65
16.25	6.14	2.92	2.43
16.50	6.18	2.95	2.24
16.75	6.22	2.98	2.10
17.00	6.26	3.01	1.99
17.25	6.29	3.04	1.89
17.50	6.33	3.07	1.78
17.75	6.36	3.09	1.68
18.00	6.38	3.11	1.57
18.25	6.41	3.14	1.47
18.50	6.44	3.16	1.39
18.75	6.46	3.18	1.35
19.00	6.49	3.20	1.31
19.25	6.51	3.22	1.28
19.50	6.54	3.24	1.25
19.75	6.56	3.26	1.21
20.00	6.58	3.28	1.18
20.25	6.61	3.29	1.15
20.50	6.63	3.31	1.12
20.75	6.65	3.33	1.10
21.00	6.67	3.35	1.08
21.25	6.69	3.36	1.05
21.50	6.71	3.38	1.03
21.75	6.73	3.39	1.00
22.00	6.75	3.41	0.98
22.25	6.77	3.42	0.96
22.50	6.78	3.44	0.93
22.75	6.80	3.45	0.91
23.00	6.82	3.47	0.89
23.25	6.83	3.48	0.86
23.50	6.85	3.49	0.84
23.75	6.87	3.51	0.81
24.00	**6.88**	**3.52**	0.79

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>3.08"
Tc=45.9 min CN=60 Runoff=7.64 cfs 1.202 af

Subcatchment1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>3.18"
Tc=45.5 min CN=61 Runoff=17.92 cfs 2.795 af

Subcatchment1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>3.08"
Tc=37.9 min CN=60 Runoff=15.45 cfs 2.203 af

Subcatchment2: Runoff Area=9.600 ac 0.00% Impervious Runoff Depth>3.84"
Tc=43.3 min CN=67 Runoff=20.50 cfs 3.070 af

Subcatchment3: Runoff Area=4.160 ac 0.00% Impervious Runoff Depth>3.52"
Tc=26.2 min CN=64 Runoff=10.26 cfs 1.221 af

Subcatchment4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>3.41"
Tc=25.7 min CN=63 Runoff=21.71 cfs 2.567 af

Subcatchment5: Runoff Area=15.230 ac 0.00% Impervious Runoff Depth>4.18"
Tc=32.0 min CN=70 Runoff=41.13 cfs 5.306 af

Total Runoff Area = 61.820 ac Runoff Volume = 18.364 af Average Runoff Depth = 3.56"
100.00% Pervious = 61.820 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

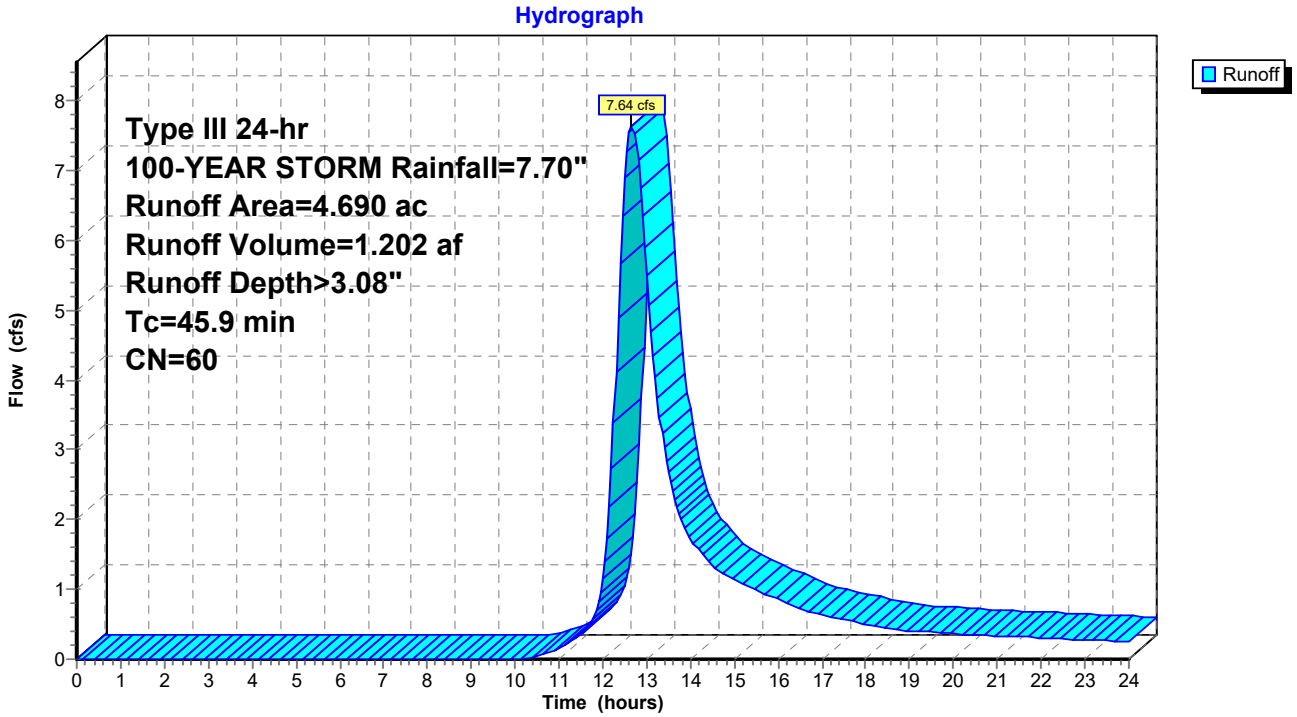
Runoff = 7.64 cfs @ 12.66 hrs, Volume= 1.202 af, Depth> 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

	Area (ac)	CN	Description
*	4.690	60	
	4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.9					**Direct Entry, SCS TR-55**

Subcatchment 1A:



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.77	1.78	5.49
0.25	0.02	0.00	0.00	13.25	5.91	1.86	3.74
0.50	0.04	0.00	0.00	13.50	6.03	1.94	2.68
0.75	0.06	0.00	0.00	13.75	6.14	2.02	2.08
1.00	0.08	0.00	0.00	14.00	6.24	2.08	1.74
1.25	0.10	0.00	0.00	14.25	6.34	2.14	1.52
1.50	0.12	0.00	0.00	14.50	6.42	2.20	1.34
1.75	0.13	0.00	0.00	14.75	6.50	2.26	1.22
2.00	0.15	0.00	0.00	15.00	6.58	2.31	1.14
2.25	0.17	0.00	0.00	15.25	6.65	2.36	1.06
2.50	0.19	0.00	0.00	15.50	6.71	2.40	0.99
2.75	0.21	0.00	0.00	15.75	6.77	2.44	0.93
3.00	0.24	0.00	0.00	16.00	6.82	2.48	0.86
3.25	0.26	0.00	0.00	16.25	6.87	2.51	0.79
3.50	0.28	0.00	0.00	16.50	6.92	2.55	0.73
3.75	0.31	0.00	0.00	16.75	6.96	2.58	0.68
4.00	0.33	0.00	0.00	17.00	7.00	2.61	0.64
4.25	0.36	0.00	0.00	17.25	7.04	2.63	0.60
4.50	0.38	0.00	0.00	17.50	7.08	2.66	0.57
4.75	0.41	0.00	0.00	17.75	7.11	2.68	0.54
5.00	0.44	0.00	0.00	18.00	7.15	2.71	0.51
5.25	0.47	0.00	0.00	18.25	7.18	2.73	0.47
5.50	0.49	0.00	0.00	18.50	7.21	2.75	0.45
5.75	0.52	0.00	0.00	18.75	7.23	2.77	0.42
6.00	0.55	0.00	0.00	19.00	7.26	2.79	0.41
6.25	0.59	0.00	0.00	19.25	7.29	2.81	0.40
6.50	0.62	0.00	0.00	19.50	7.32	2.83	0.39
6.75	0.66	0.00	0.00	19.75	7.34	2.85	0.38
7.00	0.70	0.00	0.00	20.00	7.37	2.87	0.37
7.25	0.74	0.00	0.00	20.25	7.39	2.89	0.36
7.50	0.78	0.00	0.00	20.50	7.42	2.90	0.35
7.75	0.83	0.00	0.00	20.75	7.44	2.92	0.34
8.00	0.88	0.00	0.00	21.00	7.46	2.94	0.34
8.25	0.93	0.00	0.00	21.25	7.49	2.95	0.33
8.50	0.99	0.00	0.00	21.50	7.51	2.97	0.32
8.75	1.05	0.00	0.00	21.75	7.53	2.99	0.31
9.00	1.12	0.00	0.00	22.00	7.55	3.00	0.31
9.25	1.20	0.00	0.00	22.25	7.57	3.02	0.30
9.50	1.28	0.00	0.00	22.50	7.59	3.03	0.29
9.75	1.36	0.00	0.00	22.75	7.61	3.04	0.29
10.00	1.46	0.00	0.00	23.00	7.63	3.06	0.28
10.25	1.56	0.01	0.01	23.25	7.65	3.07	0.27
10.50	1.67	0.02	0.04	23.50	7.67	3.09	0.26
10.75	1.79	0.03	0.09	23.75	7.68	3.10	0.26
11.00	1.93	0.05	0.15	24.00	**7.70**	**3.11**	0.25
11.25	2.09	0.08	0.24				
11.50	2.29	0.12	0.35				
11.75	2.74	0.24	0.55				
12.00	3.85	0.69	1.15				
12.25	4.96	1.28	3.38				
12.50	5.41	1.54	**6.89**				
12.75	5.61	1.67	**7.43**				

Summary for Subcatchment 1B:

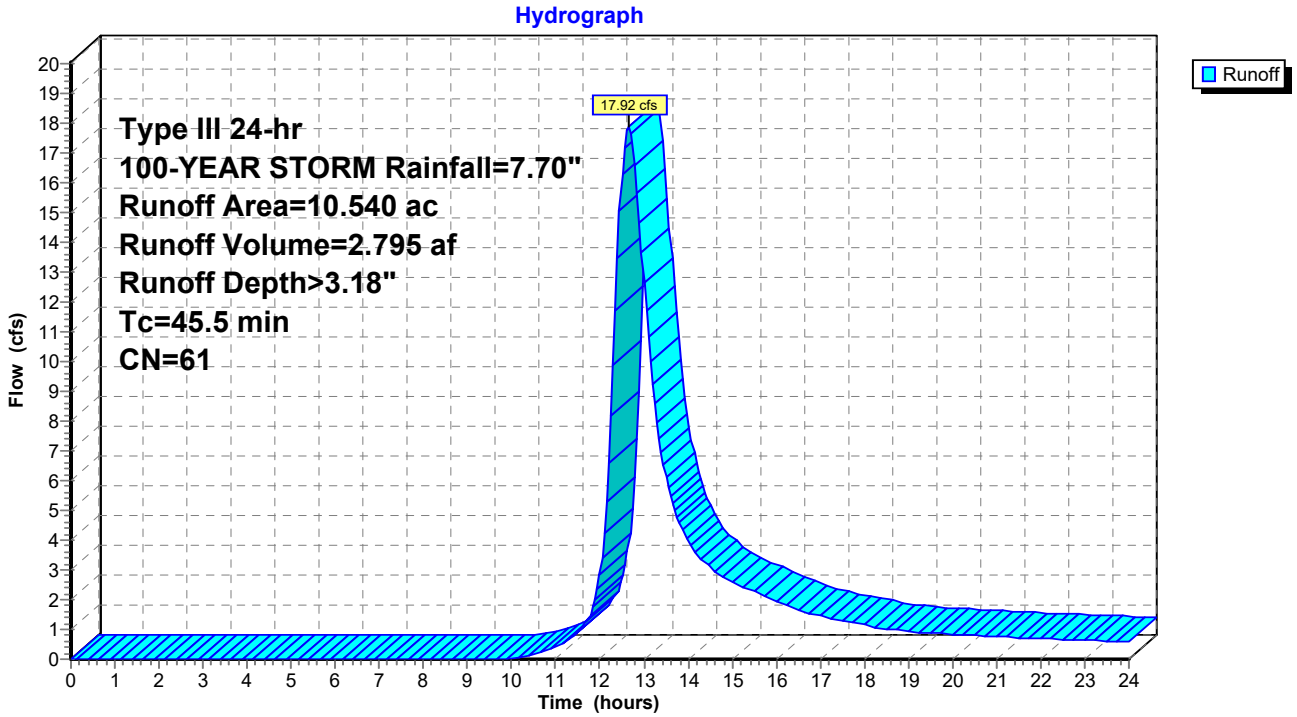
Runoff = 17.92 cfs @ 12.65 hrs, Volume= 2.795 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

	Area (ac)	CN	Description
*	10.540	61	
	10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
45.5					**Direct Entry, SCS TR-55**

Subcatchment 1B:



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.04	0.00	0.00
0.75	0.06	0.00	0.00
1.00	0.08	0.00	0.00
1.25	0.10	0.00	0.00
1.50	0.12	0.00	0.00
1.75	0.13	0.00	0.00
2.00	0.15	0.00	0.00
2.25	0.17	0.00	0.00
2.50	0.19	0.00	0.00
2.75	0.21	0.00	0.00
3.00	0.24	0.00	0.00
3.25	0.26	0.00	0.00
3.50	0.28	0.00	0.00
3.75	0.31	0.00	0.00
4.00	0.33	0.00	0.00
4.25	0.36	0.00	0.00
4.50	0.38	0.00	0.00
4.75	0.41	0.00	0.00
5.00	0.44	0.00	0.00
5.25	0.47	0.00	0.00
5.50	0.49	0.00	0.00
5.75	0.52	0.00	0.00
6.00	0.55	0.00	0.00
6.25	0.59	0.00	0.00
6.50	0.62	0.00	0.00
6.75	0.66	0.00	0.00
7.00	0.70	0.00	0.00
7.25	0.74	0.00	0.00
7.50	0.78	0.00	0.00
7.75	0.83	0.00	0.00
8.00	0.88	0.00	0.00
8.25	0.93	0.00	0.00
8.50	0.99	0.00	0.00
8.75	1.05	0.00	0.00
9.00	1.12	0.00	0.00
9.25	1.20	0.00	0.00
9.50	1.28	0.00	0.00
9.75	1.36	0.00	0.00
10.00	1.46	0.00	0.01
10.25	1.56	0.01	0.06
10.50	1.67	0.02	0.15
10.75	1.79	0.04	0.27
11.00	1.93	0.06	0.43
11.25	2.09	0.09	0.63
11.50	2.29	0.14	0.91
11.75	2.74	0.27	1.39
12.00	3.85	0.74	2.83
12.25	4.96	1.35	8.15
12.50	5.41	1.62	**16.32**
12.75	5.61	1.75	**17.33**
13.00	5.77	1.86	12.65
13.25	5.91	1.95	8.57
13.50	6.03	2.03	6.14
13.75	6.14	2.10	4.76
14.00	6.24	2.17	3.99
14.25	6.34	2.23	3.47
14.50	6.42	2.29	3.08
14.75	6.50	2.35	2.80
15.00	6.58	2.40	2.60
15.25	6.65	2.45	2.44
15.50	6.71	2.50	2.28
15.75	6.77	2.54	2.12
16.00	6.82	2.57	1.97
16.25	6.87	2.61	1.81
16.50	6.92	2.64	1.66
16.75	6.96	2.67	1.55
17.00	7.00	2.70	1.45
17.25	7.04	2.73	1.37
17.50	7.08	2.76	1.30
17.75	7.11	2.78	1.23
18.00	7.15	2.81	1.16
18.25	7.18	2.83	1.08
18.50	7.21	2.85	1.02
18.75	7.23	2.87	0.97
19.00	7.26	2.89	0.94
19.25	7.29	2.91	0.91
19.50	7.32	2.93	0.89
19.75	7.34	2.95	0.87
20.00	7.37	2.97	0.84
20.25	7.39	2.99	0.82
20.50	7.42	3.01	0.80
20.75	7.44	3.02	0.78
21.00	7.46	3.04	0.77
21.25	7.49	3.06	0.75
21.50	7.51	3.08	0.73
21.75	7.53	3.09	0.72
22.00	7.55	3.11	0.70
22.25	7.57	3.12	0.68
22.50	7.59	3.14	0.67
22.75	7.61	3.15	0.65
23.00	7.63	3.17	0.64
23.25	7.65	3.18	0.62
23.50	7.67	3.19	0.60
23.75	7.68	3.21	0.59
24.00	**7.70**	**3.22**	0.57

Summary for Subcatchment 1C:

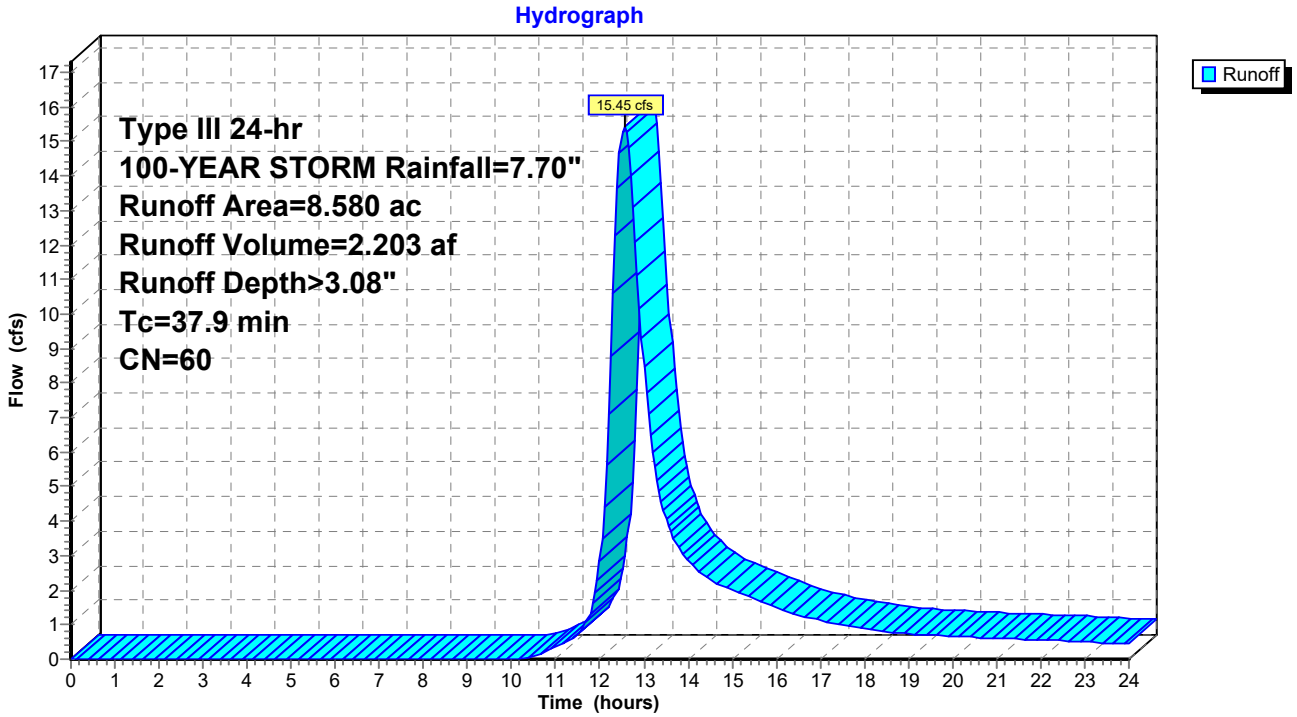
Runoff = 15.45 cfs @ 12.55 hrs, Volume= 2.203 af, Depth> 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

	Area (ac)	CN	Description
*	8.580	60	
	8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.9					**Direct Entry, SCS TR-55**

Subcatchment 1C:



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.77	1.78	8.47
0.25	0.02	0.00	0.00	13.25	5.91	1.86	5.58
0.50	0.04	0.00	0.00	13.50	6.03	1.94	4.07
0.75	0.06	0.00	0.00	13.75	6.14	2.02	3.30
1.00	0.08	0.00	0.00	14.00	6.24	2.08	2.86
1.25	0.10	0.00	0.00	14.25	6.34	2.14	2.54
1.50	0.12	0.00	0.00	14.50	6.42	2.20	2.30
1.75	0.13	0.00	0.00	14.75	6.50	2.26	2.14
2.00	0.15	0.00	0.00	15.00	6.58	2.31	2.00
2.25	0.17	0.00	0.00	15.25	6.65	2.36	1.88
2.50	0.19	0.00	0.00	15.50	6.71	2.40	1.76
2.75	0.21	0.00	0.00	15.75	6.77	2.44	1.63
3.00	0.24	0.00	0.00	16.00	6.82	2.48	1.51
3.25	0.26	0.00	0.00	16.25	6.87	2.51	1.38
3.50	0.28	0.00	0.00	16.50	6.92	2.55	1.27
3.75	0.31	0.00	0.00	16.75	6.96	2.58	1.19
4.00	0.33	0.00	0.00	17.00	7.00	2.61	1.13
4.25	0.36	0.00	0.00	17.25	7.04	2.63	1.07
4.50	0.38	0.00	0.00	17.50	7.08	2.66	1.01
4.75	0.41	0.00	0.00	17.75	7.11	2.68	0.95
5.00	0.44	0.00	0.00	18.00	7.15	2.71	0.90
5.25	0.47	0.00	0.00	18.25	7.18	2.73	0.84
5.50	0.49	0.00	0.00	18.50	7.21	2.75	0.79
5.75	0.52	0.00	0.00	18.75	7.23	2.77	0.76
6.00	0.55	0.00	0.00	19.00	7.26	2.79	0.74
6.25	0.59	0.00	0.00	19.25	7.29	2.81	0.72
6.50	0.62	0.00	0.00	19.50	7.32	2.83	0.70
6.75	0.66	0.00	0.00	19.75	7.34	2.85	0.68
7.00	0.70	0.00	0.00	20.00	7.37	2.87	0.67
7.25	0.74	0.00	0.00	20.25	7.39	2.89	0.65
7.50	0.78	0.00	0.00	20.50	7.42	2.90	0.63
7.75	0.83	0.00	0.00	20.75	7.44	2.92	0.62
8.00	0.88	0.00	0.00	21.00	7.46	2.94	0.61
8.25	0.93	0.00	0.00	21.25	7.49	2.95	0.59
8.50	0.99	0.00	0.00	21.50	7.51	2.97	0.58
8.75	1.05	0.00	0.00	21.75	7.53	2.99	0.57
9.00	1.12	0.00	0.00	22.00	7.55	3.00	0.55
9.25	1.20	0.00	0.00	22.25	7.57	3.02	0.54
9.50	1.28	0.00	0.00	22.50	7.59	3.03	0.53
9.75	1.36	0.00	0.00	22.75	7.61	3.04	0.52
10.00	1.46	0.00	0.00	23.00	7.63	3.06	0.50
10.25	1.56	0.01	0.04	23.25	7.65	3.07	0.49
10.50	1.67	0.02	0.11	23.50	7.67	3.09	0.48
10.75	1.79	0.03	0.21	23.75	7.68	3.10	0.46
11.00	1.93	0.05	0.34	24.00	**7.70**	**3.11**	0.45
11.25	2.09	0.08	0.51				
11.50	2.29	0.12	0.76				
11.75	2.74	0.24	1.22				
12.00	3.85	0.69	2.82				
12.25	4.96	1.28	8.79				
12.50	5.41	1.54	**15.28**				
12.75	5.61	1.67	**13.08**				

Summary for Subcatchment 2:

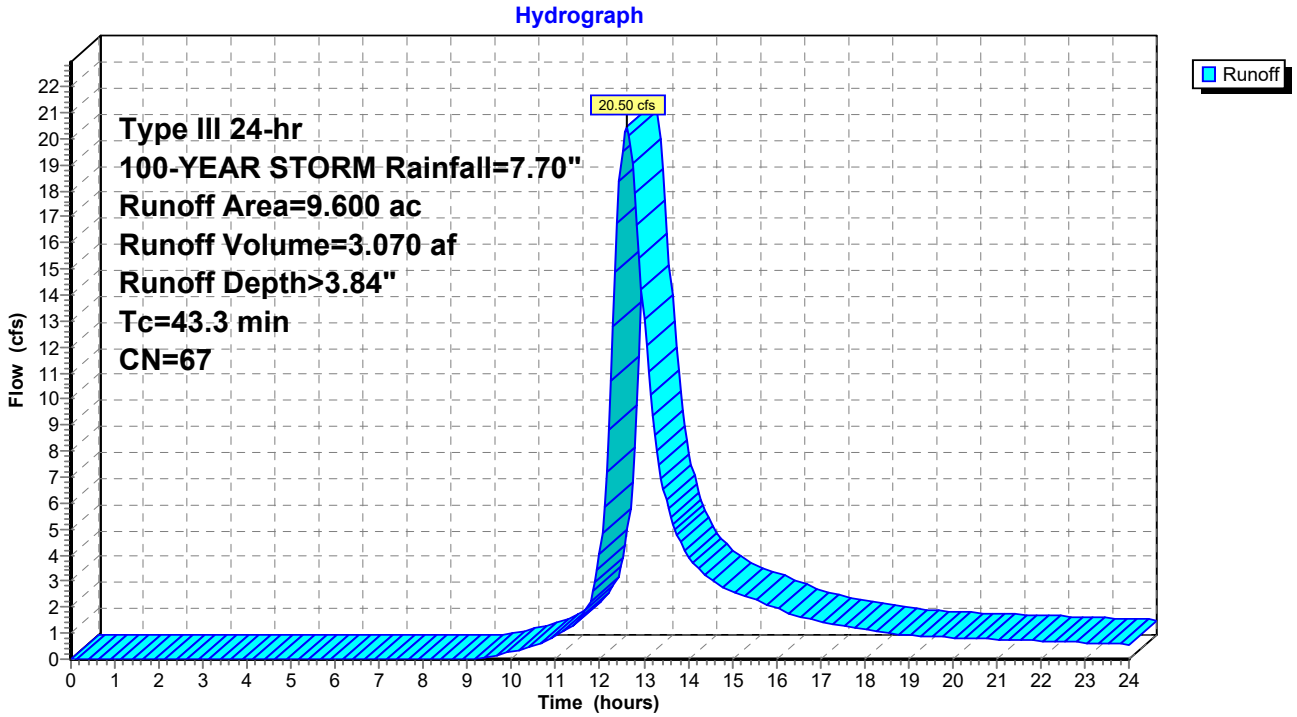
Runoff = 20.50 cfs @ 12.61 hrs, Volume= 3.070 af, Depth> 3.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

	Area (ac)	CN	Description
*	9.600	67	
	9.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.3					**Direct Entry, SCS TR-55**

Subcatchment 2:



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.04	0.00	0.00
0.75	0.06	0.00	0.00
1.00	0.08	0.00	0.00
1.25	0.10	0.00	0.00
1.50	0.12	0.00	0.00
1.75	0.13	0.00	0.00
2.00	0.15	0.00	0.00
2.25	0.17	0.00	0.00
2.50	0.19	0.00	0.00
2.75	0.21	0.00	0.00
3.00	0.24	0.00	0.00
3.25	0.26	0.00	0.00
3.50	0.28	0.00	0.00
3.75	0.31	0.00	0.00
4.00	0.33	0.00	0.00
4.25	0.36	0.00	0.00
4.50	0.38	0.00	0.00
4.75	0.41	0.00	0.00
5.00	0.44	0.00	0.00
5.25	0.47	0.00	0.00
5.50	0.49	0.00	0.00
5.75	0.52	0.00	0.00
6.00	0.55	0.00	0.00
6.25	0.59	0.00	0.00
6.50	0.62	0.00	0.00
6.75	0.66	0.00	0.00
7.00	0.70	0.00	0.00
7.25	0.74	0.00	0.00
7.50	0.78	0.00	0.00
7.75	0.83	0.00	0.00
8.00	0.88	0.00	0.00
8.25	0.93	0.00	0.00
8.50	0.99	0.00	0.00
8.75	1.05	0.00	0.00
9.00	1.12	0.00	0.01
9.25	1.20	0.01	0.05
9.50	1.28	0.02	0.11
9.75	1.36	0.03	0.19
10.00	1.46	0.04	0.29
10.25	1.56	0.06	0.40
10.50	1.67	0.08	0.54
10.75	1.79	0.11	0.70
11.00	1.93	0.15	0.91
11.25	2.09	0.20	1.15
11.50	2.29	0.28	1.50
11.75	2.74	0.46	2.12
12.00	3.85	1.05	4.03
12.25	4.96	1.78	10.70
12.50	5.41	2.09	**19.52**
12.75	5.61	2.24	**19.02**
13.00	5.77	2.36	13.09
13.25	5.91	2.46	8.64
13.50	6.03	2.55	6.13
13.75	6.14	2.64	4.76
14.00	6.24	2.72	3.99
14.25	6.34	2.79	3.48
14.50	6.42	2.85	3.09
14.75	6.50	2.92	2.82
15.00	6.58	2.97	2.62
15.25	6.65	3.03	2.46
15.50	6.71	3.08	2.29
15.75	6.77	3.12	2.13
16.00	6.82	3.17	1.97
16.25	6.87	3.20	1.81
16.50	6.92	3.24	1.66
16.75	6.96	3.28	1.54
17.00	7.00	3.31	1.45
17.25	7.04	3.34	1.37
17.50	7.08	3.37	1.30
17.75	7.11	3.40	1.23
18.00	7.15	3.42	1.15
18.25	7.18	3.45	1.08
18.50	7.21	3.47	1.02
18.75	7.23	3.50	0.97
19.00	7.26	3.52	0.94
19.25	7.29	3.54	0.91
19.50	7.32	3.56	0.89
19.75	7.34	3.58	0.87
20.00	7.37	3.60	0.84
20.25	7.39	3.62	0.82
20.50	7.42	3.64	0.80
20.75	7.44	3.66	0.78
21.00	7.46	3.68	0.76
21.25	7.49	3.70	0.75
21.50	7.51	3.72	0.73
21.75	7.53	3.74	0.71
22.00	7.55	3.75	0.70
22.25	7.57	3.77	0.68
22.50	7.59	3.79	0.67
22.75	7.61	3.80	0.65
23.00	7.63	3.82	0.63
23.25	7.65	3.83	0.62
23.50	7.67	3.85	0.60
23.75	7.68	3.86	0.58
24.00	**7.70**	**3.87**	0.57

Summary for Subcatchment 3:

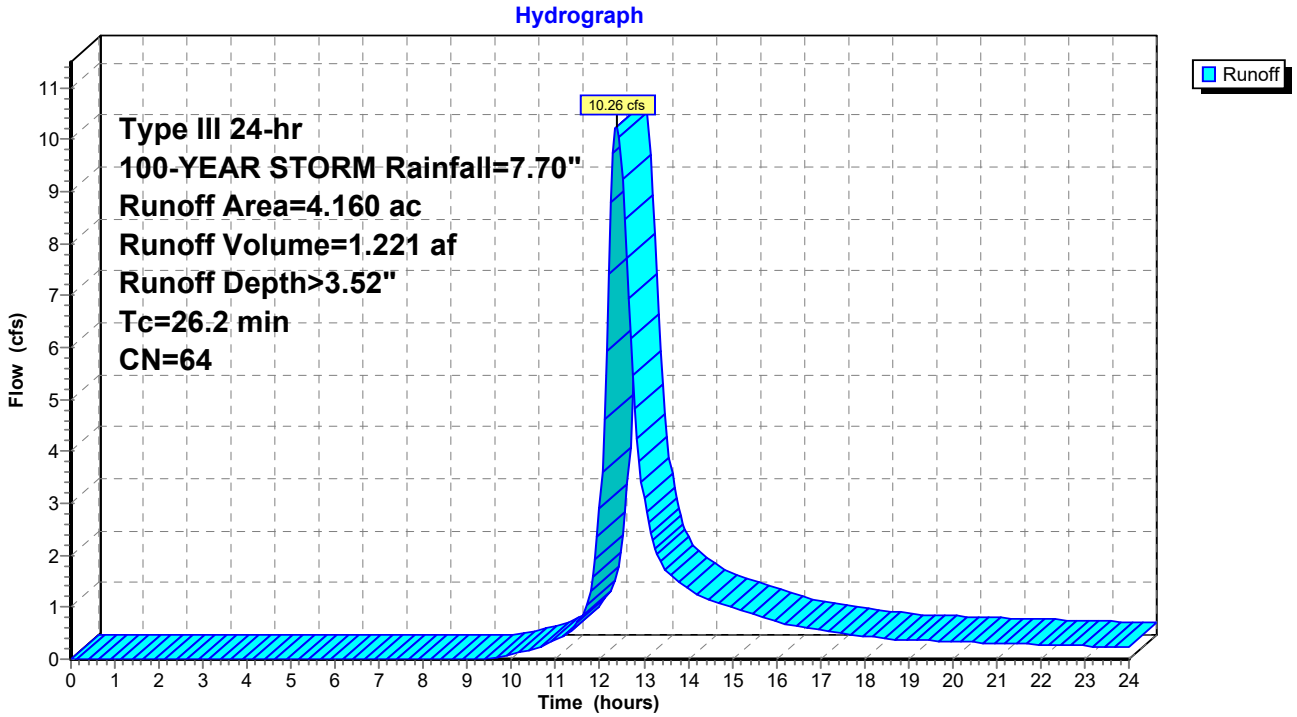
Runoff = 10.26 cfs @ 12.38 hrs, Volume= 1.221 af, Depth> 3.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

	Area (ac)	CN	Description
*	4.160	64	
	4.160		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
26.2					**Direct Entry, SCS TR-55**

Subcatchment 3:



Hydrograph for Subcatchment 3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.77	2.10	3.10
0.25	0.02	0.00	0.00	13.25	5.91	2.20	2.14
0.50	0.04	0.00	0.00	13.50	6.03	2.29	1.70
0.75	0.06	0.00	0.00	13.75	6.14	2.37	1.50
1.00	0.08	0.00	0.00	14.00	6.24	2.44	1.36
1.25	0.10	0.00	0.00	14.25	6.34	2.51	1.23
1.50	0.12	0.00	0.00	14.50	6.42	2.57	1.14
1.75	0.13	0.00	0.00	14.75	6.50	2.63	1.07
2.00	0.15	0.00	0.00	15.00	6.58	2.68	1.00
2.25	0.17	0.00	0.00	15.25	6.65	2.74	0.94
2.50	0.19	0.00	0.00	15.50	6.71	2.78	0.87
2.75	0.21	0.00	0.00	15.75	6.77	2.83	0.81
3.00	0.24	0.00	0.00	16.00	6.82	2.87	0.74
3.25	0.26	0.00	0.00	16.25	6.87	2.90	0.68
3.50	0.28	0.00	0.00	16.50	6.92	2.94	0.63
3.75	0.31	0.00	0.00	16.75	6.96	2.97	0.59
4.00	0.33	0.00	0.00	17.00	7.00	3.00	0.56
4.25	0.36	0.00	0.00	17.25	7.04	3.03	0.53
4.50	0.38	0.00	0.00	17.50	7.08	3.06	0.50
4.75	0.41	0.00	0.00	17.75	7.11	3.09	0.47
5.00	0.44	0.00	0.00	18.00	7.15	3.11	0.45
5.25	0.47	0.00	0.00	18.25	7.18	3.14	0.42
5.50	0.49	0.00	0.00	18.50	7.21	3.16	0.40
5.75	0.52	0.00	0.00	18.75	7.23	3.18	0.39
6.00	0.55	0.00	0.00	19.00	7.26	3.20	0.38
6.25	0.59	0.00	0.00	19.25	7.29	3.22	0.37
6.50	0.62	0.00	0.00	19.50	7.32	3.24	0.36
6.75	0.66	0.00	0.00	19.75	7.34	3.27	0.35
7.00	0.70	0.00	0.00	20.00	7.37	3.28	0.34
7.25	0.74	0.00	0.00	20.25	7.39	3.30	0.33
7.50	0.78	0.00	0.00	20.50	7.42	3.32	0.32
7.75	0.83	0.00	0.00	20.75	7.44	3.34	0.32
8.00	0.88	0.00	0.00	21.00	7.46	3.36	0.31
8.25	0.93	0.00	0.00	21.25	7.49	3.38	0.30
8.50	0.99	0.00	0.00	21.50	7.51	3.39	0.30
8.75	1.05	0.00	0.00	21.75	7.53	3.41	0.29
9.00	1.12	0.00	0.00	22.00	7.55	3.43	0.28
9.25	1.20	0.00	0.00	22.25	7.57	3.44	0.28
9.50	1.28	0.00	0.02	22.50	7.59	3.46	0.27
9.75	1.36	0.01	0.05	22.75	7.61	3.47	0.26
10.00	1.46	0.02	0.09	23.00	7.63	3.49	0.26
10.25	1.56	0.03	0.14	23.25	7.65	3.50	0.25
10.50	1.67	0.05	0.20	23.50	7.67	3.52	0.24
10.75	1.79	0.07	0.28	23.75	7.68	3.53	0.23
11.00	1.93	0.10	0.37	24.00	**7.70**	**3.54**	0.23
11.25	2.09	0.14	0.49				
11.50	2.29	0.20	0.69				
11.75	2.74	0.36	1.11				
12.00	3.85	0.89	2.89				
12.25	4.96	1.56	**8.78**				
12.50	5.41	1.85	**9.22**				
12.75	5.61	1.99	5.46				

Summary for Subcatchment 4:

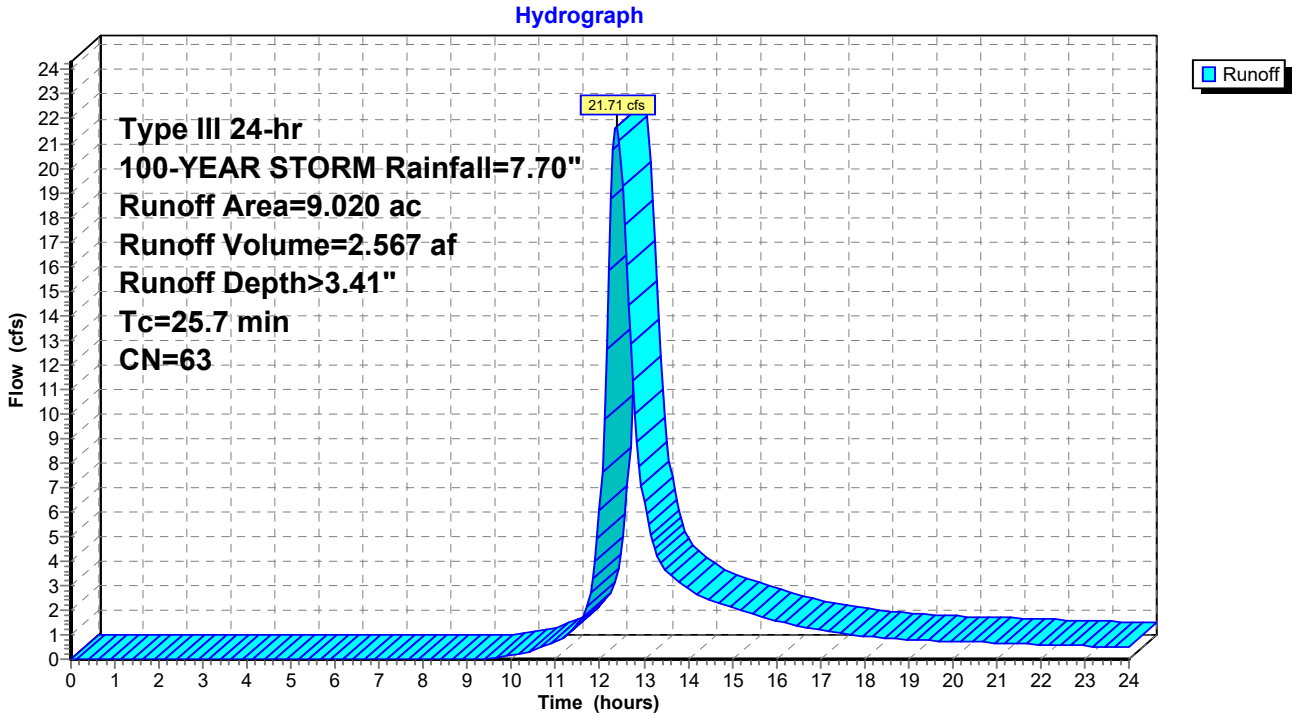
Runoff = 21.71 cfs @ 12.37 hrs, Volume= 2.567 af, Depth> 3.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

	Area (ac)	CN	Description
*	9.020	63	
	9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.7					**Direct Entry, SCS TR-55**

Subcatchment 4:



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.04	0.00	0.00
0.75	0.06	0.00	0.00
1.00	0.08	0.00	0.00
1.25	0.10	0.00	0.00
1.50	0.12	0.00	0.00
1.75	0.13	0.00	0.00
2.00	0.15	0.00	0.00
2.25	0.17	0.00	0.00
2.50	0.19	0.00	0.00
2.75	0.21	0.00	0.00
3.00	0.24	0.00	0.00
3.25	0.26	0.00	0.00
3.50	0.28	0.00	0.00
3.75	0.31	0.00	0.00
4.00	0.33	0.00	0.00
4.25	0.36	0.00	0.00
4.50	0.38	0.00	0.00
4.75	0.41	0.00	0.00
5.00	0.44	0.00	0.00
5.25	0.47	0.00	0.00
5.50	0.49	0.00	0.00
5.75	0.52	0.00	0.00
6.00	0.55	0.00	0.00
6.25	0.59	0.00	0.00
6.50	0.62	0.00	0.00
6.75	0.66	0.00	0.00
7.00	0.70	0.00	0.00
7.25	0.74	0.00	0.00
7.50	0.78	0.00	0.00
7.75	0.83	0.00	0.00
8.00	0.88	0.00	0.00
8.25	0.93	0.00	0.00
8.50	0.99	0.00	0.00
8.75	1.05	0.00	0.00
9.00	1.12	0.00	0.00
9.25	1.20	0.00	0.00
9.50	1.28	0.00	0.01
9.75	1.36	0.01	0.06
10.00	1.46	0.01	0.15
10.25	1.56	0.02	0.25
10.50	1.67	0.04	0.37
10.75	1.79	0.06	0.53
11.00	1.93	0.09	0.73
11.25	2.09	0.12	0.97
11.50	2.29	0.18	1.39
11.75	2.74	0.33	2.28
12.00	3.85	0.84	6.07
12.25	4.96	1.49	**18.75**
12.50	5.41	1.77	**19.27**
12.75	5.61	1.91	11.32
13.00	5.77	2.02	6.45
13.25	5.91	2.11	4.47
13.50	6.03	2.20	3.58
13.75	6.14	2.28	3.18
14.00	6.24	2.35	2.88
14.25	6.34	2.41	2.61
14.50	6.42	2.48	2.41
14.75	6.50	2.53	2.27
15.00	6.58	2.59	2.13
15.25	6.65	2.64	1.99
15.50	6.71	2.69	1.86
15.75	6.77	2.73	1.72
16.00	6.82	2.77	1.58
16.25	6.87	2.80	1.44
16.50	6.92	2.84	1.34
16.75	6.96	2.87	1.26
17.00	7.00	2.90	1.20
17.25	7.04	2.93	1.14
17.50	7.08	2.96	1.07
17.75	7.11	2.99	1.01
18.00	7.15	3.01	0.95
18.25	7.18	3.03	0.89
18.50	7.21	3.06	0.84
18.75	7.23	3.08	0.82
19.00	7.26	3.10	0.80
19.25	7.29	3.12	0.78
19.50	7.32	3.14	0.76
19.75	7.34	3.16	0.74
20.00	7.37	3.18	0.73
20.25	7.39	3.20	0.71
20.50	7.42	3.22	0.69
20.75	7.44	3.24	0.67
21.00	7.46	3.25	0.66
21.25	7.49	3.27	0.65
21.50	7.51	3.29	0.63
21.75	7.53	3.30	0.62
22.00	7.55	3.32	0.60
22.25	7.57	3.34	0.59
22.50	7.59	3.35	0.57
22.75	7.61	3.37	0.56
23.00	7.63	3.38	0.54
23.25	7.65	3.39	0.53
23.50	7.67	3.41	0.52
23.75	7.68	3.42	0.50
24.00	**7.70**	**3.43**	0.49

Summary for Subcatchment 5:

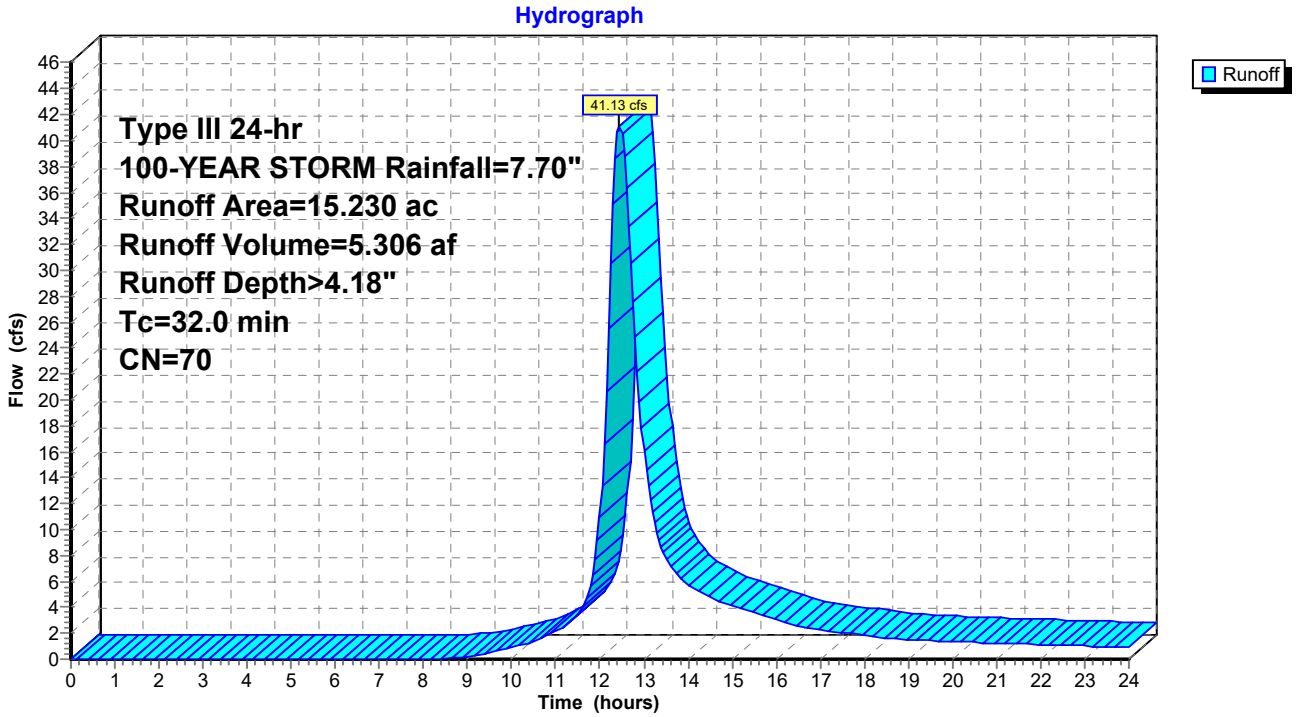
Runoff = 41.13 cfs @ 12.45 hrs, Volume= 5.306 af, Depth> 4.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

	Area (ac)	CN	Description
*	15.230	70	
	15.230		100.00% Pervious Area

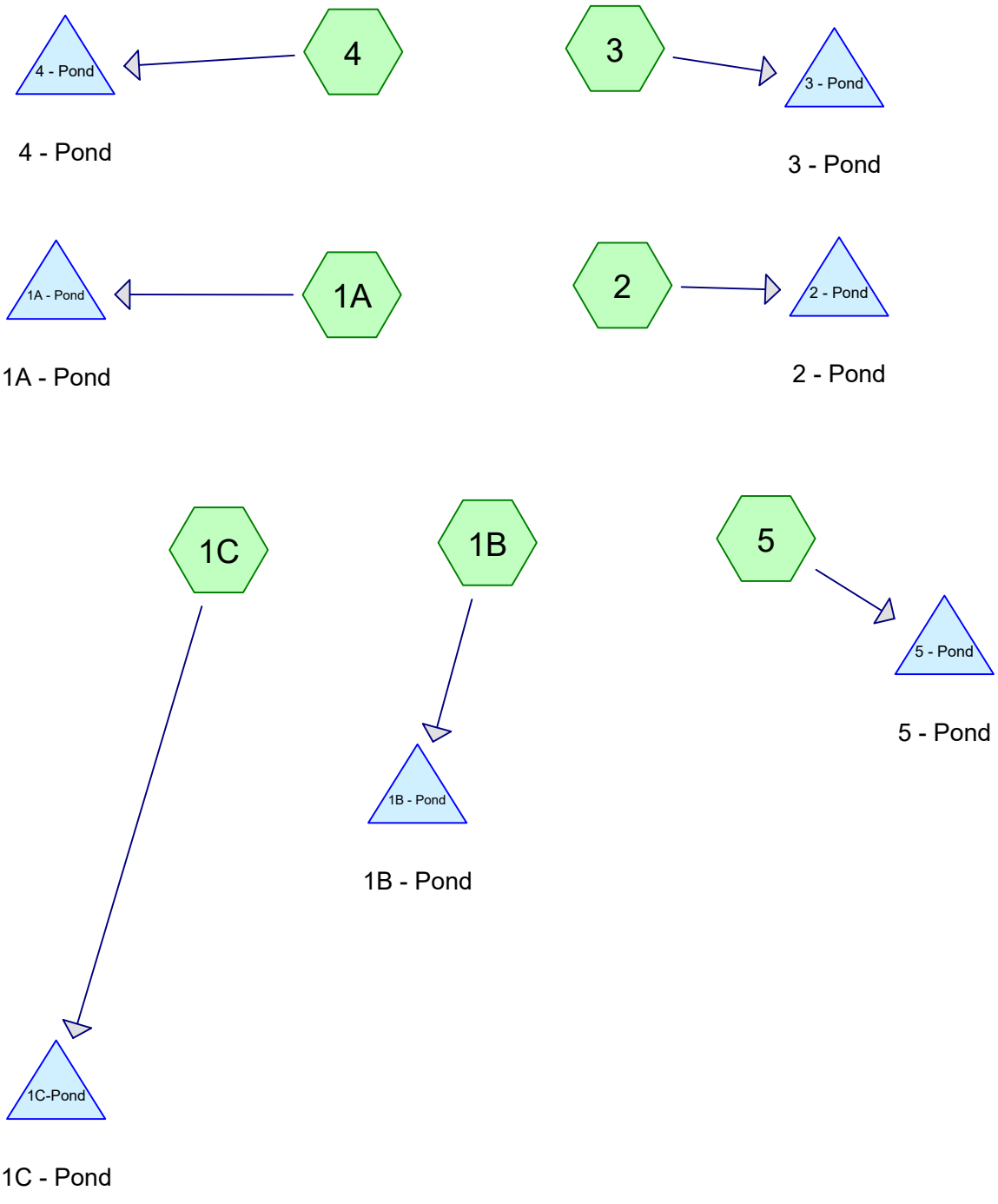
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.0					**Direct Entry, SCS TR-55**

Subcatchment 5:



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.04	0.00	0.00
0.75	0.06	0.00	0.00
1.00	0.08	0.00	0.00
1.25	0.10	0.00	0.00
1.50	0.12	0.00	0.00
1.75	0.13	0.00	0.00
2.00	0.15	0.00	0.00
2.25	0.17	0.00	0.00
2.50	0.19	0.00	0.00
2.75	0.21	0.00	0.00
3.00	0.24	0.00	0.00
3.25	0.26	0.00	0.00
3.50	0.28	0.00	0.00
3.75	0.31	0.00	0.00
4.00	0.33	0.00	0.00
4.25	0.36	0.00	0.00
4.50	0.38	0.00	0.00
4.75	0.41	0.00	0.00
5.00	0.44	0.00	0.00
5.25	0.47	0.00	0.00
5.50	0.49	0.00	0.00
5.75	0.52	0.00	0.00
6.00	0.55	0.00	0.00
6.25	0.59	0.00	0.00
6.50	0.62	0.00	0.00
6.75	0.66	0.00	0.00
7.00	0.70	0.00	0.00
7.25	0.74	0.00	0.00
7.50	0.78	0.00	0.00
7.75	0.83	0.00	0.00
8.00	0.88	0.00	0.00
8.25	0.93	0.00	0.01
8.50	0.99	0.00	0.05
8.75	1.05	0.01	0.13
9.00	1.12	0.02	0.23
9.25	1.20	0.03	0.36
9.50	1.28	0.04	0.52
9.75	1.36	0.05	0.69
10.00	1.46	0.07	0.89
10.25	1.56	0.10	1.11
10.50	1.67	0.13	1.38
10.75	1.79	0.17	1.73
11.00	1.93	0.21	2.15
11.25	2.09	0.27	2.63
11.50	2.29	0.36	3.44
11.75	2.74	0.57	5.01
12.00	3.85	1.23	10.99
12.25	4.96	2.01	**30.59**
12.50	5.41	2.34	**40.51**
12.75	5.61	2.50	27.57
13.00	5.77	2.63	16.08
13.25	5.91	2.73	10.49
13.50	6.03	2.83	7.83
13.75	6.14	2.92	6.55
14.00	6.24	3.00	5.78
14.25	6.34	3.07	5.20
14.50	6.42	3.14	4.75
14.75	6.50	3.21	4.43
15.00	6.58	3.27	4.15
15.25	6.65	3.33	3.88
15.50	6.71	3.38	3.61
15.75	6.77	3.43	3.35
16.00	6.82	3.47	3.08
16.25	6.87	3.51	2.81
16.50	6.92	3.55	2.59
16.75	6.96	3.59	2.43
17.00	7.00	3.62	2.30
17.25	7.04	3.65	2.18
17.50	7.08	3.68	2.06
17.75	7.11	3.71	1.94
18.00	7.15	3.74	1.82
18.25	7.18	3.77	1.70
18.50	7.21	3.79	1.61
18.75	7.23	3.81	1.55
19.00	7.26	3.84	1.51
19.25	7.29	3.86	1.47
19.50	7.32	3.88	1.44
19.75	7.34	3.91	1.40
20.00	7.37	3.93	1.37
20.25	7.39	3.95	1.33
20.50	7.42	3.97	1.30
20.75	7.44	3.99	1.27
21.00	7.46	4.01	1.24
21.25	7.49	4.03	1.21
21.50	7.51	4.05	1.19
21.75	7.53	4.06	1.16
22.00	7.55	4.08	1.13
22.25	7.57	4.10	1.10
22.50	7.59	4.12	1.08
22.75	7.61	4.13	1.05
23.00	7.63	4.15	1.02
23.25	7.65	4.16	0.99
23.50	7.67	4.18	0.97
23.75	7.68	4.19	0.94
24.00	**7.70**	**4.21**	0.91



Routing Diagram for HydroCAD North Stonington Proposed
Prepared by HDR, Inc, Printed 9/28/2020
HydroCAD® 10.00-20 s/n 10126 © 2017 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
17.830	73	(1A, 3, 4)
10.540	71	(1B)
8.580	69	(1C)
9.600	74	(2)
15.220	77	(5)
61.770	**73**	**TOTAL AREA**

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1A - Pond	127.25	127.00	55.0	0.0045	0.012	18.0	0.0	0.0
2	1B - Pond	123.00	122.00	50.0	0.0200	0.012	18.0	0.0	0.0
3	1C-Pond	128.00	127.75	45.0	0.0056	0.012	18.0	0.0	0.0
4	2 - Pond	133.00	132.50	50.0	0.0100	0.012	18.0	0.0	0.0
5	3 - Pond	168.00	164.50	55.0	0.0636	0.012	18.0	0.0	0.0
6	4 - Pond	122.00	121.50	60.0	0.0083	0.012	18.0	0.0	0.0
7	5 - Pond	120.00	117.00	60.0	0.0500	0.012	30.0	0.0	0.0

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>1.11"
Tc=42.6 min CN=73 Runoff=2.79 cfs 0.435 af

Subcatchment1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>1.00"
Tc=42.3 min CN=71 Runoff=5.54 cfs 0.879 af

Subcatchment1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>0.90"
Tc=35.2 min CN=69 Runoff=4.31 cfs 0.641 af

Subcatchment2: Runoff Area=9.600 ac 0.00% Impervious Runoff Depth>1.17"
Tc=40.3 min CN=74 Runoff=6.25 cfs 0.938 af

Subcatchment3: Runoff Area=4.120 ac 0.00% Impervious Runoff Depth>1.12"
Tc=24.4 min CN=73 Runoff=3.18 cfs 0.384 af

Subcatchment4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>1.12"
Tc=24.0 min CN=73 Runoff=7.02 cfs 0.841 af

Subcatchment5: Runoff Area=15.220 ac 0.00% Impervious Runoff Depth>1.36"
Tc=29.9 min CN=77 Runoff=13.52 cfs 1.727 af

Pond 1A - Pond: 1A - Pond Peak Elev=129.09' Storage=0.427 af Inflow=2.79 cfs 0.435 af
Primary=0.01 cfs 0.008 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.008 af

Pond 1B - Pond: 1B - Pond Peak Elev=126.58' Storage=0.800 af Inflow=5.54 cfs 0.879 af
Primary=0.25 cfs 0.081 af Secondary=0.00 cfs 0.000 af Outflow=0.25 cfs 0.081 af

Pond 1C-Pond: 1C - Pond Peak Elev=129.61' Storage=0.454 af Inflow=4.31 cfs 0.641 af
Primary=0.41 cfs 0.204 af Secondary=0.00 cfs 0.000 af Outflow=0.41 cfs 0.204 af

Pond 2 - Pond: 2 - Pond Peak Elev=136.57' Storage=0.625 af Inflow=6.25 cfs 0.938 af
Primary=0.77 cfs 0.338 af Secondary=0.00 cfs 0.000 af Outflow=0.77 cfs 0.338 af

Pond 3 - Pond: 3 - Pond Peak Elev=171.20' Storage=0.377 af Inflow=3.18 cfs 0.384 af
Primary=0.01 cfs 0.007 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.007 af

Pond 4 - Pond: 4 - Pond Peak Elev=126.08' Storage=31,156 cf Inflow=7.02 cfs 0.841 af
Primary=0.27 cfs 0.130 af Secondary=0.00 cfs 0.000 af Outflow=0.27 cfs 0.130 af

Pond 5 - Pond: 5 - Pond Peak Elev=123.83' Storage=47,648 cf Inflow=13.52 cfs 1.727 af
Primary=1.56 cfs 0.695 af Secondary=0.00 cfs 0.000 af Outflow=1.56 cfs 0.695 af

Total Runoff Area = 61.770 ac Runoff Volume = 5.847 af Average Runoff Depth = 1.14"
100.00% Pervious = 61.770 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

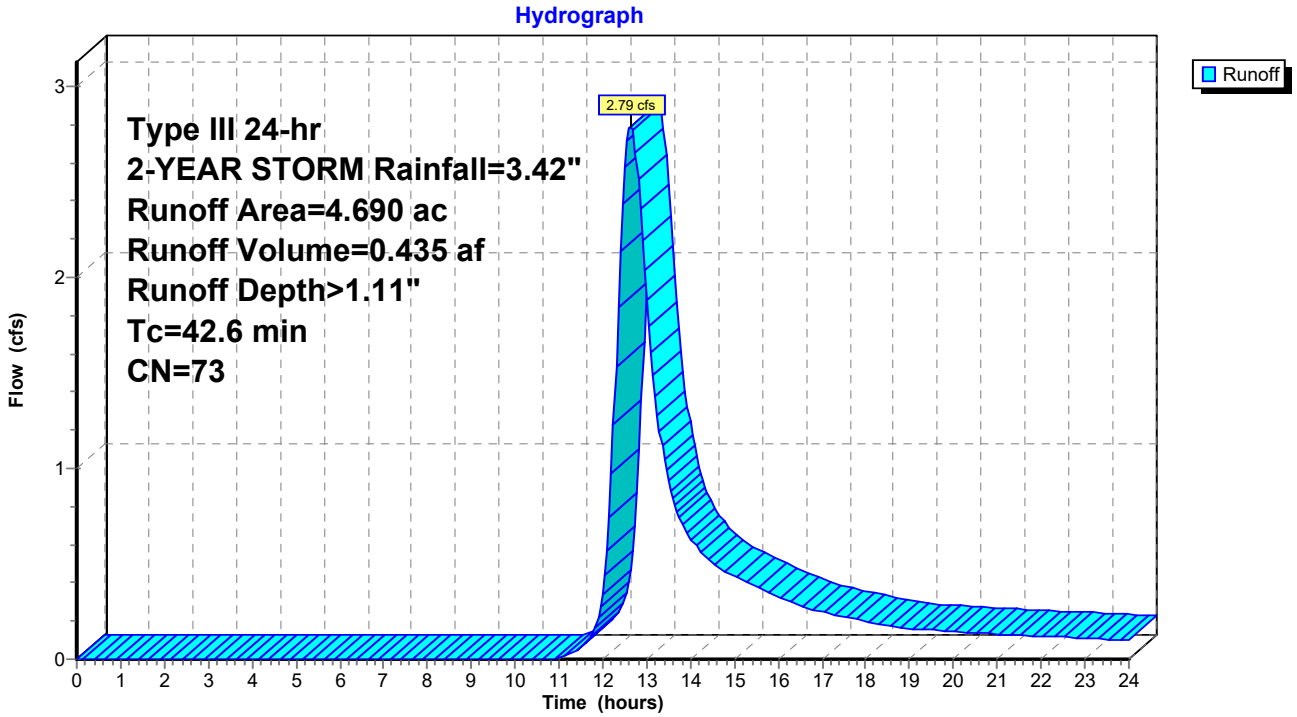
Runoff = 2.79 cfs @ 12.64 hrs, Volume= 0.435 af, Depth> 1.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	4.690	73	
	4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.6					**Direct Entry, SCS TR-55**

Subcatchment 1A:



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.00
11.00	0.85	0.00	0.01
11.25	0.93	0.01	0.02
11.50	1.02	0.02	0.06
11.75	1.21	0.05	0.12
12.00	1.71	0.20	0.34
12.25	2.21	0.42	1.23
12.50	2.40	0.51	**2.58**
12.75	2.49	0.56	**2.65**
13.00	2.56	0.60	1.88
13.25	2.62	0.64	1.28
13.50	2.68	0.67	0.93
13.75	2.73	0.70	0.74
14.00	2.77	0.72	0.64
14.25	2.81	0.75	0.56
14.50	2.85	0.77	0.50
14.75	2.89	0.79	0.46
15.00	2.92	0.81	0.43
15.25	2.95	0.83	0.41
15.50	2.98	0.85	0.38
15.75	3.01	0.86	0.36
16.00	3.03	0.88	0.33
16.25	3.05	0.89	0.30
16.50	3.07	0.90	0.28
16.75	3.09	0.91	0.26
17.00	3.11	0.93	0.25
17.25	3.13	0.94	0.23
17.50	3.14	0.95	0.22
17.75	3.16	0.96	0.21
18.00	3.17	0.97	0.20
18.25	3.19	0.97	0.18
18.50	3.20	0.98	0.17
18.75	3.21	0.99	0.17
19.00	3.23	1.00	0.16
19.25	3.24	1.01	0.16
19.50	3.25	1.01	0.15
19.75	3.26	1.02	0.15
20.00	3.27	1.03	0.15
20.25	3.28	1.04	0.14
20.50	3.29	1.04	0.14
20.75	3.31	1.05	0.14
21.00	3.32	1.06	0.13
21.25	3.33	1.06	0.13
21.50	3.34	1.07	0.13
21.75	3.34	1.08	0.12
22.00	3.35	1.08	0.12
22.25	3.36	1.09	0.12
22.50	3.37	1.09	0.12
22.75	3.38	1.10	0.11
23.00	3.39	1.11	0.11
23.25	3.40	1.11	0.11
23.50	3.40	1.12	0.10
23.75	3.41	1.12	0.10
24.00	**3.42**	**1.13**	0.10

Summary for Subcatchment 1B:

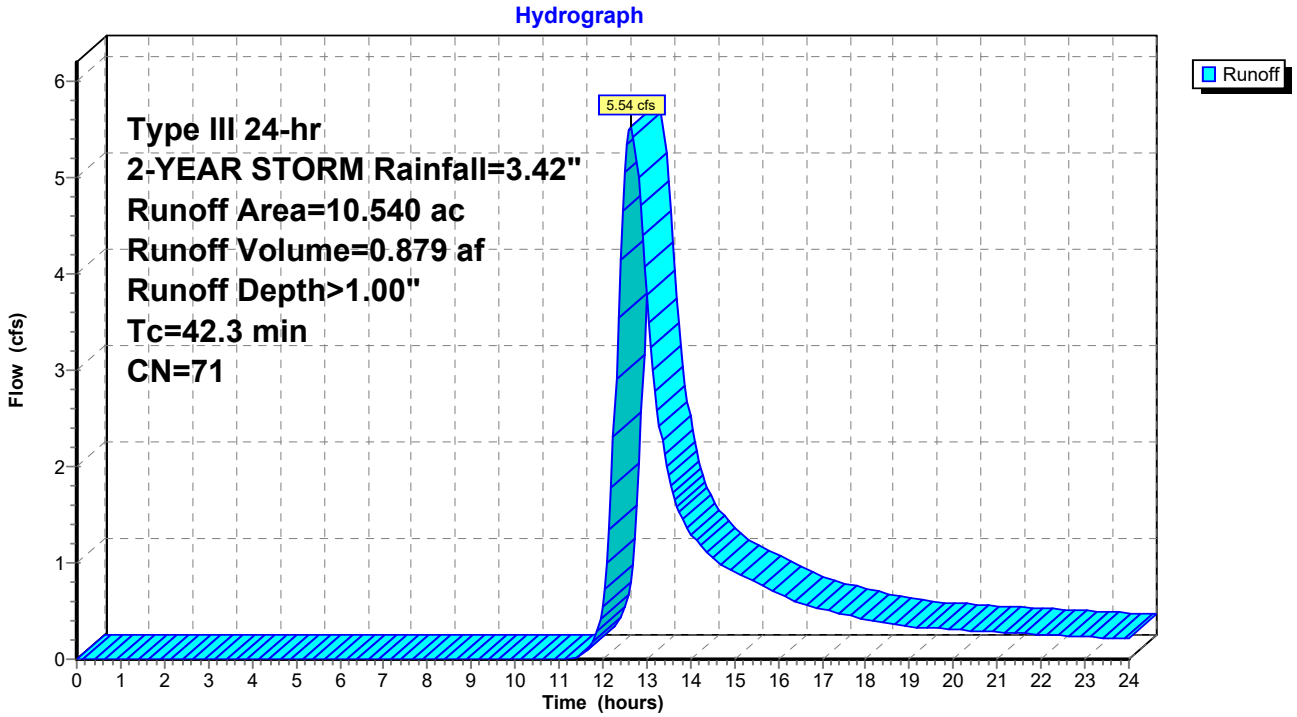
Runoff = 5.54 cfs @ 12.64 hrs, Volume= 0.879 af, Depth> 1.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	10.540	71	
	10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.3					**Direct Entry, SCS TR-55**

Subcatchment 1B:



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.00
11.00	0.85	0.00	0.00
11.25	0.93	0.00	0.01
11.50	1.02	0.01	0.05
11.75	1.21	0.04	0.15
12.00	1.71	0.16	0.55
12.25	2.21	0.35	2.31
12.50	2.40	0.44	**5.06**
12.75	2.49	0.49	**5.28**
13.00	2.56	0.52	3.78
13.25	2.62	0.55	2.59
13.50	2.68	0.58	1.91
13.75	2.73	0.61	1.53
14.00	2.77	0.63	1.32
14.25	2.81	0.66	1.17
14.50	2.85	0.68	1.05
14.75	2.89	0.70	0.97
15.00	2.92	0.72	0.91
15.25	2.95	0.73	0.85
15.50	2.98	0.75	0.80
15.75	3.01	0.76	0.75
16.00	3.03	0.78	0.69
16.25	3.05	0.79	0.64
16.50	3.07	0.80	0.59
16.75	3.09	0.81	0.55
17.00	3.11	0.82	0.52
17.25	3.13	0.84	0.49
17.50	3.14	0.84	0.47
17.75	3.16	0.85	0.44
18.00	3.17	0.86	0.42
18.25	3.19	0.87	0.39
18.50	3.20	0.88	0.37
18.75	3.21	0.89	0.35
19.00	3.23	0.89	0.34
19.25	3.24	0.90	0.33
19.50	3.25	0.91	0.32
19.75	3.26	0.92	0.32
20.00	3.27	0.92	0.31
20.25	3.28	0.93	0.30
20.50	3.29	0.94	0.29
20.75	3.31	0.94	0.29
21.00	3.32	0.95	0.28
21.25	3.33	0.95	0.27
21.50	3.34	0.96	0.27
21.75	3.34	0.97	0.26
22.00	3.35	0.97	0.26
22.25	3.36	0.98	0.25
22.50	3.37	0.98	0.25
22.75	3.38	0.99	0.24
23.00	3.39	0.99	0.23
23.25	3.40	1.00	0.23
23.50	3.40	1.00	0.22
23.75	3.41	1.01	0.22
24.00	**3.42**	**1.01**	0.21

Summary for Subcatchment 1C:

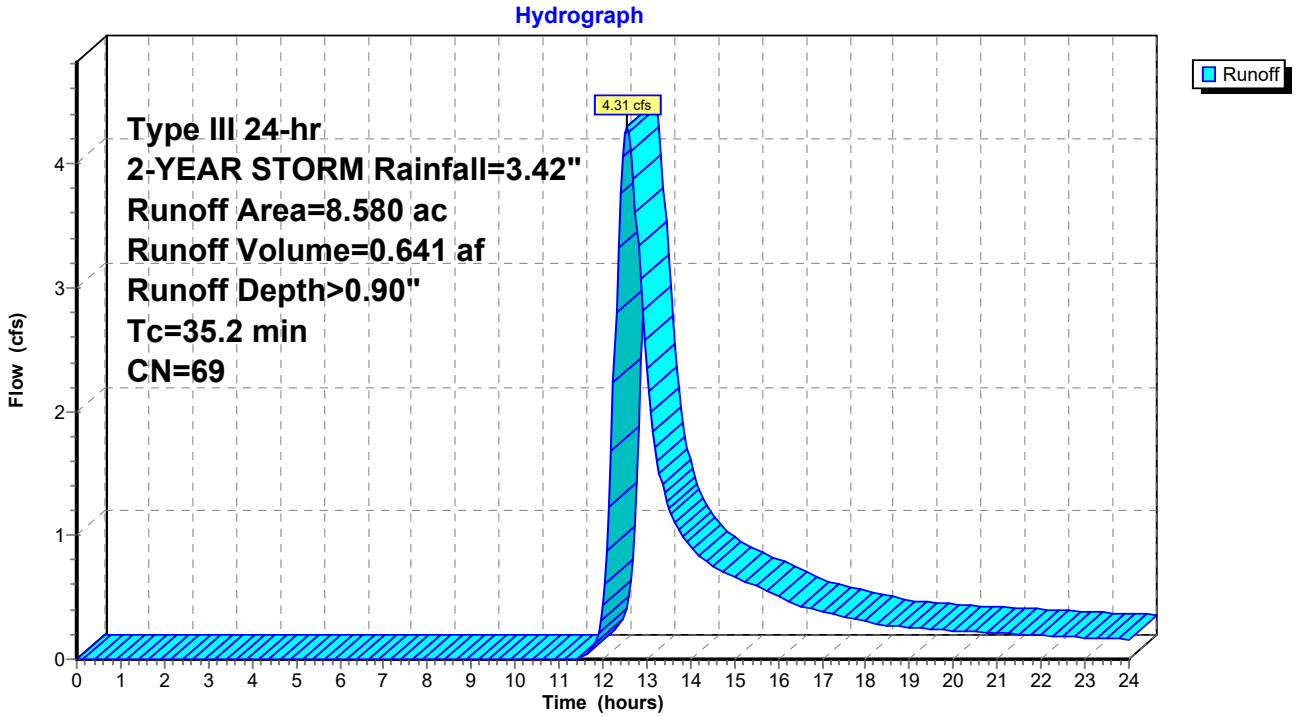
Runoff = 4.31 cfs @ 12.55 hrs, Volume= 0.641 af, Depth> 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	8.580	69	
	8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2					**Direct Entry, SCS TR-55**

Subcatchment 1C:



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.00
11.00	0.85	0.00	0.00
11.25	0.93	0.00	0.00
11.50	1.02	0.00	0.01
11.75	1.21	0.02	0.07
12.00	1.71	0.12	0.43
12.25	2.21	0.29	2.23
12.50	2.40	0.38	**4.25**
12.75	2.49	0.42	**3.61**
13.00	2.56	0.45	2.35
13.25	2.62	0.48	1.61
13.50	2.68	0.51	1.22
13.75	2.73	0.53	1.03
14.00	2.77	0.55	0.91
14.25	2.81	0.57	0.82
14.50	2.85	0.59	0.76
14.75	2.89	0.61	0.71
15.00	2.92	0.63	0.67
15.25	2.95	0.64	0.63
15.50	2.98	0.66	0.59
15.75	3.01	0.67	0.55
16.00	3.03	0.69	0.51
16.25	3.05	0.70	0.47
16.50	3.07	0.71	0.43
16.75	3.09	0.72	0.40
17.00	3.11	0.73	0.38
17.25	3.13	0.74	0.36
17.50	3.14	0.75	0.35
17.75	3.16	0.76	0.33
18.00	3.17	0.76	0.31
18.25	3.19	0.77	0.29
18.50	3.20	0.78	0.27
18.75	3.21	0.79	0.26
19.00	3.23	0.79	0.26
19.25	3.24	0.80	0.25
19.50	3.25	0.81	0.24
19.75	3.26	0.81	0.24
20.00	3.27	0.82	0.23
20.25	3.28	0.83	0.23
20.50	3.29	0.83	0.22
20.75	3.31	0.84	0.22
21.00	3.32	0.85	0.21
21.25	3.33	0.85	0.21
21.50	3.34	0.86	0.20
21.75	3.34	0.86	0.20
22.00	3.35	0.87	0.19
22.25	3.36	0.87	0.19
22.50	3.37	0.88	0.19
22.75	3.38	0.88	0.18
23.00	3.39	0.89	0.18
23.25	3.40	0.89	0.17
23.50	3.40	0.90	0.17
23.75	3.41	0.90	0.16
24.00	**3.42**	**0.91**	0.16

Summary for Subcatchment 2:

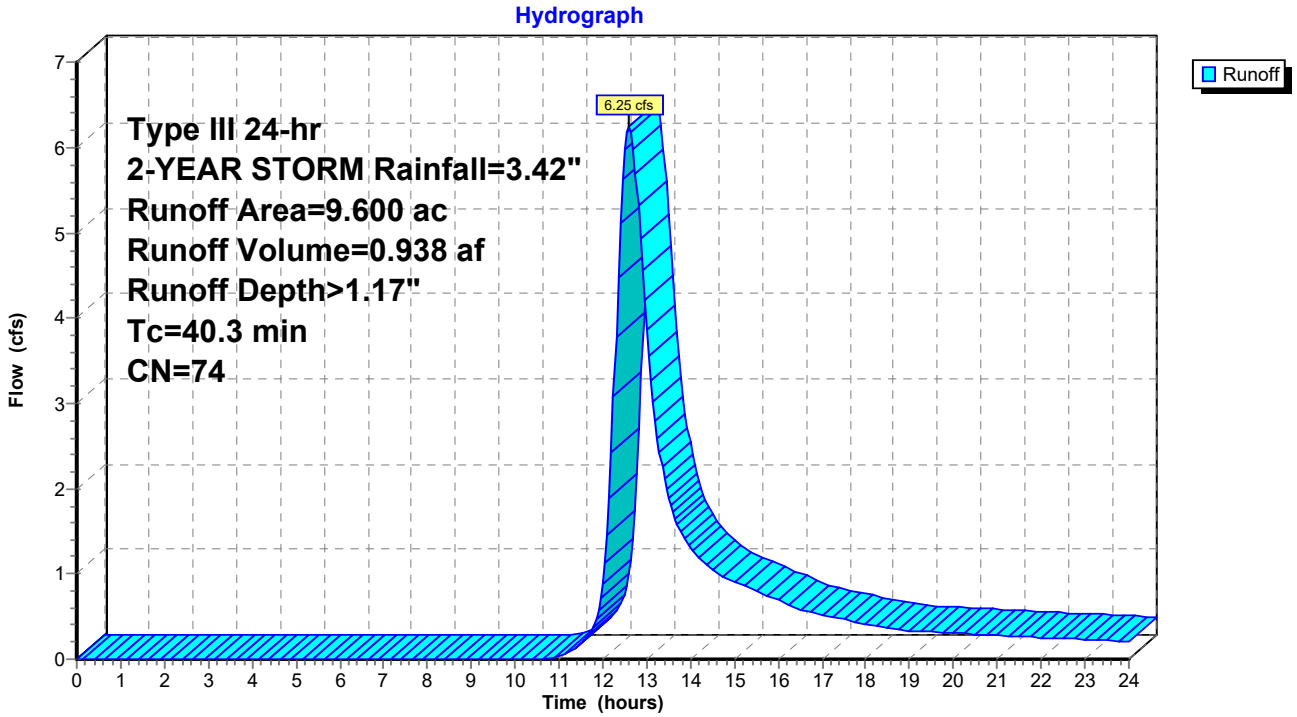
Runoff = 6.25 cfs @ 12.60 hrs, Volume= 0.938 af, Depth> 1.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	9.600	74	
	9.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.3					**Direct Entry, SCS TR-55**

Subcatchment 2:



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.01
11.00	0.85	0.01	0.04
11.25	0.93	0.01	0.09
11.50	1.02	0.03	0.18
11.75	1.21	0.07	0.34
12.00	1.71	0.22	0.88
12.25	2.21	0.45	3.07
12.50	2.40	0.55	**5.98**
12.75	2.49	0.60	**5.68**
13.00	2.56	0.65	3.86
13.25	2.62	0.68	2.59
13.50	2.68	0.71	1.89
13.75	2.73	0.74	1.53
14.00	2.77	0.77	1.32
14.25	2.81	0.79	1.16
14.50	2.85	0.82	1.05
14.75	2.89	0.84	0.97
15.00	2.92	0.86	0.91
15.25	2.95	0.88	0.86
15.50	2.98	0.90	0.80
15.75	3.01	0.91	0.75
16.00	3.03	0.93	0.69
16.25	3.05	0.94	0.64
16.50	3.07	0.95	0.58
16.75	3.09	0.97	0.55
17.00	3.11	0.98	0.52
17.25	3.13	0.99	0.49
17.50	3.14	1.00	0.46
17.75	3.16	1.01	0.44
18.00	3.17	1.02	0.41
18.25	3.19	1.03	0.39
18.50	3.20	1.04	0.36
18.75	3.21	1.05	0.35
19.00	3.23	1.05	0.34
19.25	3.24	1.06	0.33
19.50	3.25	1.07	0.32
19.75	3.26	1.08	0.31
20.00	3.27	1.09	0.31
20.25	3.28	1.09	0.30
20.50	3.29	1.10	0.29
20.75	3.31	1.11	0.28
21.00	3.32	1.11	0.28
21.25	3.33	1.12	0.27
21.50	3.34	1.13	0.27
21.75	3.34	1.13	0.26
22.00	3.35	1.14	0.26
22.25	3.36	1.15	0.25
22.50	3.37	1.15	0.24
22.75	3.38	1.16	0.24
23.00	3.39	1.16	0.23
23.25	3.40	1.17	0.23
23.50	3.40	1.17	0.22
23.75	3.41	1.18	0.21
24.00	**3.42**	**1.19**	0.21

Summary for Subcatchment 3:

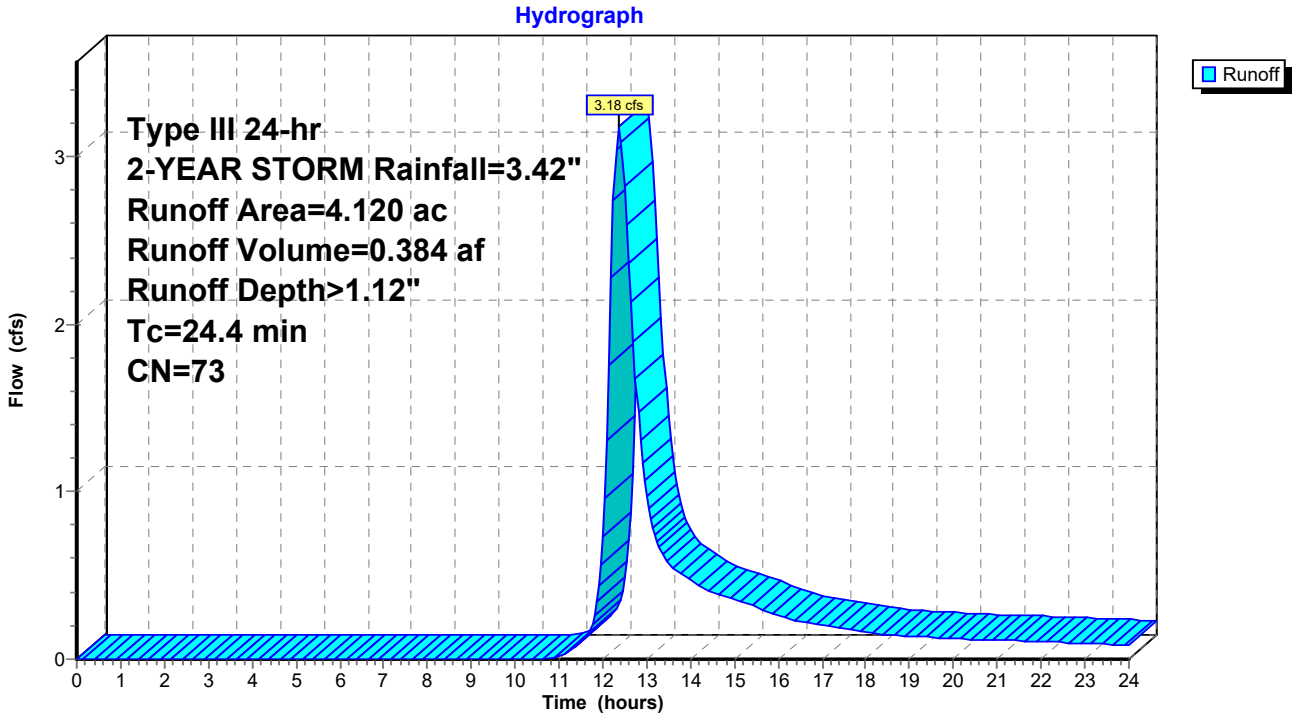
Runoff = 3.18 cfs @ 12.37 hrs, Volume= 0.384 af, Depth> 1.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	4.120	73	
	4.120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.4					**Direct Entry, SCS TR-55**

Subcatchment 3:



Hydrograph for Subcatchment 3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.00
11.00	0.85	0.00	0.02
11.25	0.93	0.01	0.05
11.50	1.02	0.02	0.10
11.75	1.21	0.05	0.21
12.00	1.71	0.20	0.73
12.25	2.21	0.42	**2.74**
12.50	2.40	0.51	**2.82**
12.75	2.49	0.56	1.67
13.00	2.56	0.60	0.98
13.25	2.62	0.64	0.70
13.50	2.68	0.67	0.57
13.75	2.73	0.70	0.52
14.00	2.77	0.72	0.47
14.25	2.81	0.75	0.43
14.50	2.85	0.77	0.40
14.75	2.89	0.79	0.38
15.00	2.92	0.81	0.36
15.25	2.95	0.83	0.33
15.50	2.98	0.85	0.31
15.75	3.01	0.86	0.29
16.00	3.03	0.88	0.26
16.25	3.05	0.89	0.24
16.50	3.07	0.90	0.23
16.75	3.09	0.91	0.21
17.00	3.11	0.93	0.20
17.25	3.13	0.94	0.19
17.50	3.14	0.95	0.18
17.75	3.16	0.96	0.17
18.00	3.17	0.97	0.16
18.25	3.19	0.97	0.15
18.50	3.20	0.98	0.14
18.75	3.21	0.99	0.14
19.00	3.23	1.00	0.14
19.25	3.24	1.01	0.13
19.50	3.25	1.01	0.13
19.75	3.26	1.02	0.13
20.00	3.27	1.03	0.12
20.25	3.28	1.04	0.12
20.50	3.29	1.04	0.12
20.75	3.31	1.05	0.12
21.00	3.32	1.06	0.11
21.25	3.33	1.06	0.11
21.50	3.34	1.07	0.11
21.75	3.34	1.08	0.11
22.00	3.35	1.08	0.10
22.25	3.36	1.09	0.10
22.50	3.37	1.09	0.10
22.75	3.38	1.10	0.10
23.00	3.39	1.11	0.09
23.25	3.40	1.11	0.09
23.50	3.40	1.12	0.09
23.75	3.41	1.12	0.09
24.00	**3.42**	**1.13**	0.08

Summary for Subcatchment 4:

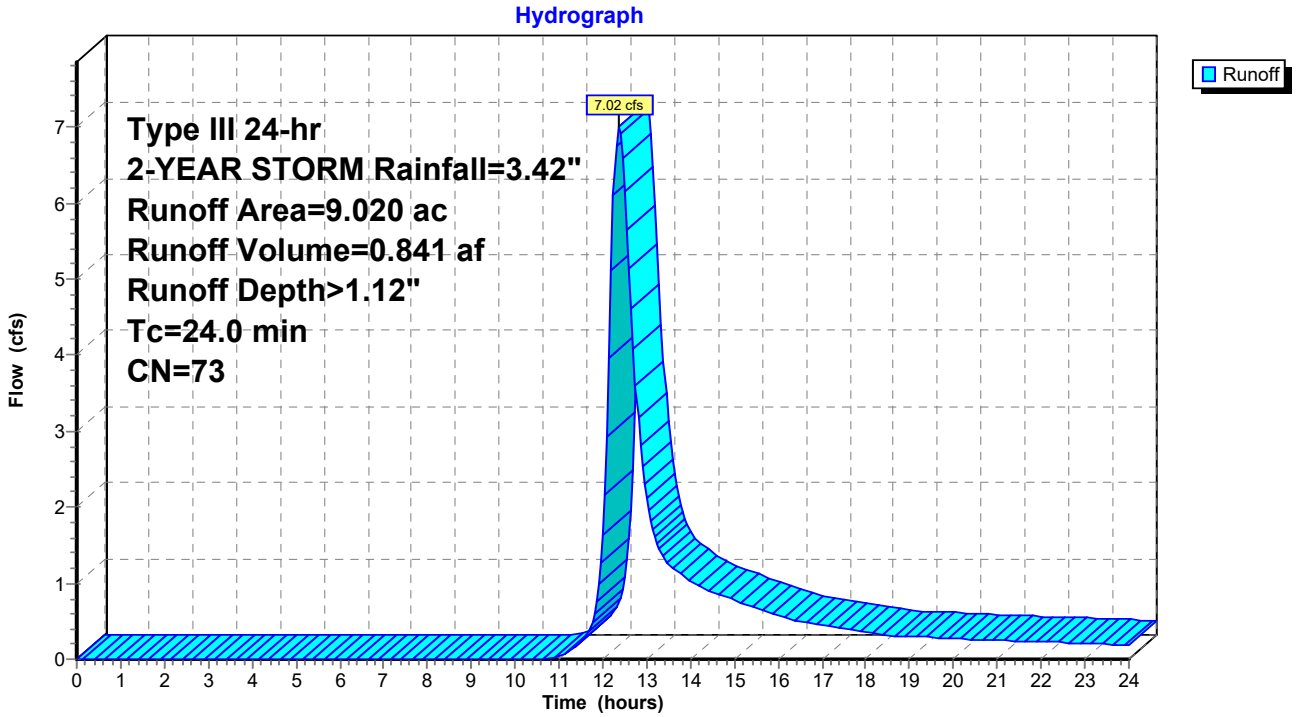
Runoff = 7.02 cfs @ 12.36 hrs, Volume= 0.841 af, Depth> 1.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	9.020	73	
	9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					**Direct Entry, SCS TR-55**

Subcatchment 4:



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.00
11.00	0.85	0.00	0.04
11.25	0.93	0.01	0.10
11.50	1.02	0.02	0.22
11.75	1.21	0.05	0.47
12.00	1.71	0.20	1.63
12.25	2.21	0.42	**6.11**
12.50	2.40	0.51	**6.14**
12.75	2.49	0.56	3.60
13.00	2.56	0.60	2.11
13.25	2.62	0.64	1.52
13.50	2.68	0.67	1.25
13.75	2.73	0.70	1.13
14.00	2.77	0.72	1.03
14.25	2.81	0.75	0.94
14.50	2.85	0.77	0.87
14.75	2.89	0.79	0.82
15.00	2.92	0.81	0.78
15.25	2.95	0.83	0.73
15.50	2.98	0.85	0.68
15.75	3.01	0.86	0.63
16.00	3.03	0.88	0.58
16.25	3.05	0.89	0.53
16.50	3.07	0.90	0.49
16.75	3.09	0.91	0.47
17.00	3.11	0.93	0.44
17.25	3.13	0.94	0.42
17.50	3.14	0.95	0.40
17.75	3.16	0.96	0.38
18.00	3.17	0.97	0.35
18.25	3.19	0.97	0.33
18.50	3.20	0.98	0.32
18.75	3.21	0.99	0.31
19.00	3.23	1.00	0.30
19.25	3.24	1.01	0.29
19.50	3.25	1.01	0.29
19.75	3.26	1.02	0.28
20.00	3.27	1.03	0.27
20.25	3.28	1.04	0.27
20.50	3.29	1.04	0.26
20.75	3.31	1.05	0.25
21.00	3.32	1.06	0.25
21.25	3.33	1.06	0.24
21.50	3.34	1.07	0.24
21.75	3.34	1.08	0.23
22.00	3.35	1.08	0.23
22.25	3.36	1.09	0.22
22.50	3.37	1.09	0.22
22.75	3.38	1.10	0.21
23.00	3.39	1.11	0.21
23.25	3.40	1.11	0.20
23.50	3.40	1.12	0.19
23.75	3.41	1.12	0.19
24.00	**3.42**	**1.13**	0.18

Summary for Subcatchment 5:

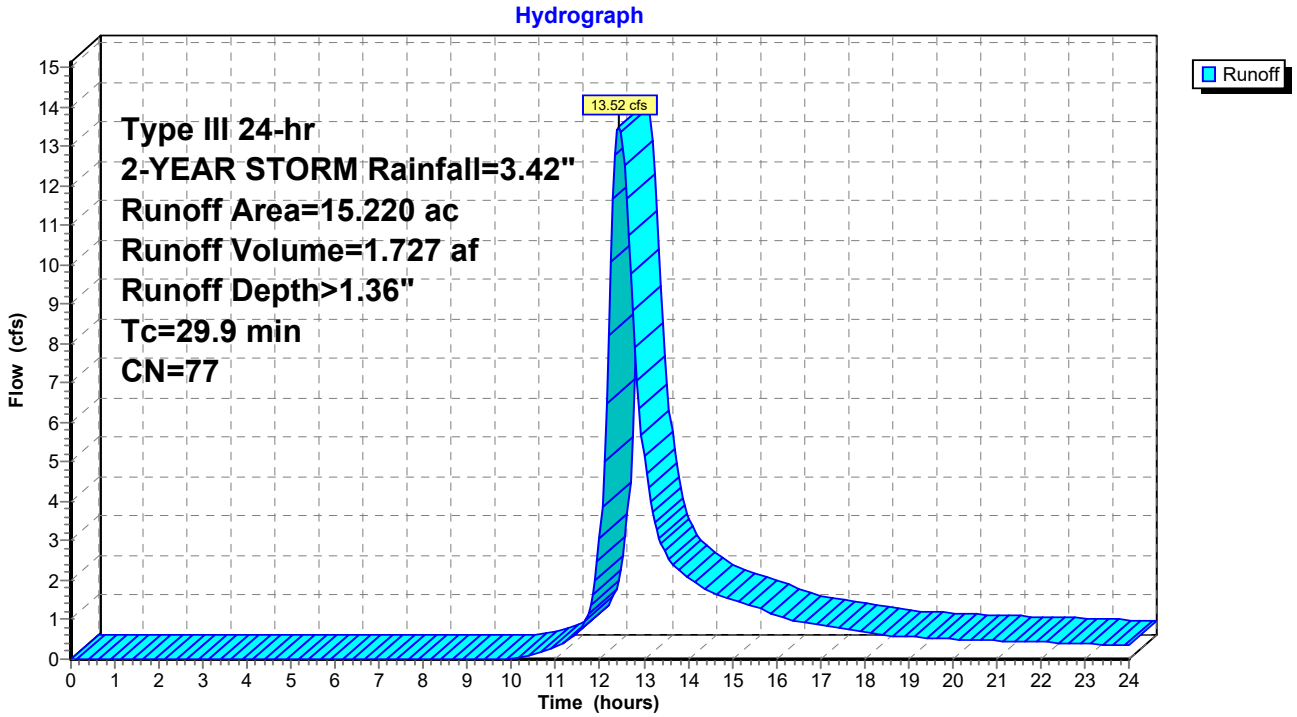
Runoff = 13.52 cfs @ 12.44 hrs, Volume= 1.727 af, Depth> 1.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	15.220	77	
	15.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.9					**Direct Entry, SCS TR-55**

Subcatchment 5:



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.04
10.50	0.74	0.01	0.11
10.75	0.80	0.01	0.20
11.00	0.85	0.02	0.31
11.25	0.93	0.03	0.46
11.50	1.02	0.05	0.70
11.75	1.21	0.11	1.17
12.00	1.71	0.30	3.07
12.25	2.21	0.56	**10.07**
12.50	2.40	0.68	**13.19**
12.75	2.49	0.74	8.81
13.00	2.56	0.78	5.16
13.25	2.62	0.82	3.48
13.50	2.68	0.86	2.69
13.75	2.73	0.89	2.31
14.00	2.77	0.92	2.07
14.25	2.81	0.94	1.88
14.50	2.85	0.97	1.73
14.75	2.89	0.99	1.62
15.00	2.92	1.02	1.52
15.25	2.95	1.04	1.43
15.50	2.98	1.06	1.33
15.75	3.01	1.08	1.23
16.00	3.03	1.09	1.14
16.25	3.05	1.11	1.04
16.50	3.07	1.12	0.96
16.75	3.09	1.14	0.91
17.00	3.11	1.15	0.86
17.25	3.13	1.16	0.81
17.50	3.14	1.17	0.77
17.75	3.16	1.18	0.73
18.00	3.17	1.19	0.68
18.25	3.19	1.20	0.64
18.50	3.20	1.21	0.60
18.75	3.21	1.22	0.59
19.00	3.23	1.23	0.57
19.25	3.24	1.24	0.56
19.50	3.25	1.25	0.54
19.75	3.26	1.26	0.53
20.00	3.27	1.26	0.52
20.25	3.28	1.27	0.50
20.50	3.29	1.28	0.49
20.75	3.31	1.29	0.48
21.00	3.32	1.29	0.47
21.25	3.33	1.30	0.46
21.50	3.34	1.31	0.45
21.75	3.34	1.32	0.44
22.00	3.35	1.32	0.43
22.25	3.36	1.33	0.42
22.50	3.37	1.34	0.41
22.75	3.38	1.34	0.40
23.00	3.39	1.35	0.39
23.25	3.40	1.35	0.38
23.50	3.40	1.36	0.37
23.75	3.41	1.37	0.36
24.00	**3.42**	**1.37**	0.35

Summary for Pond 1A - Pond: 1A - Pond

Inflow Area = 4.690 ac, 0.00% Impervious, Inflow Depth > 1.11" for 2-YEAR STORM event
Inflow = 2.79 cfs @ 12.64 hrs, Volume= 0.435 af
Outflow = 0.01 cfs @ 24.00 hrs, Volume= 0.008 af, Atten= 100%, Lag= 681.8 min
Primary = 0.01 cfs @ 24.00 hrs, Volume= 0.008 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 129.09' @ 24.00 hrs Surf.Area= 0.259 ac Storage= 0.427 af

Plug-Flow detention time= 406.6 min calculated for 0.008 af (2% of inflow)
Center-of-Mass det. time= 223.4 min (1,111.9 - 888.5)

Volume	Invert	Avail.Storage	Storage Description
#1	127.25'	0.975 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

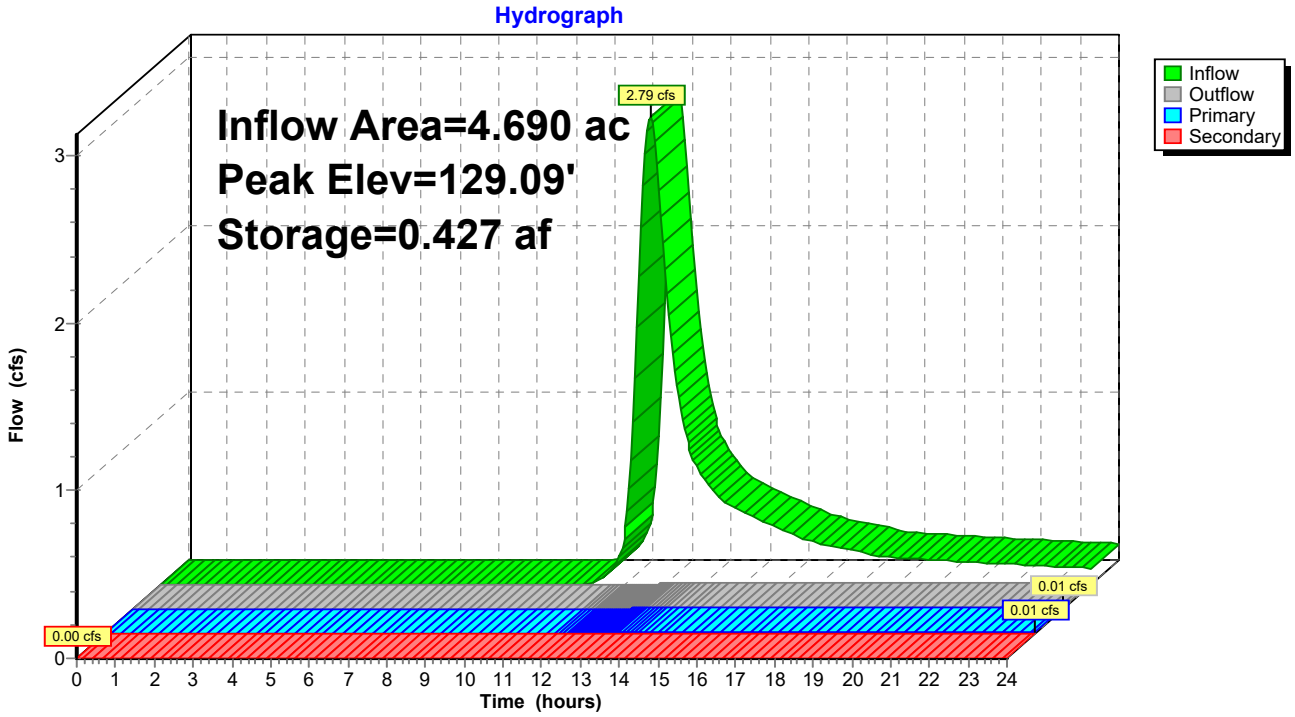
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
127.25	0.200	0.000	0.000
128.00	0.230	0.161	0.161
129.00	0.257	0.244	0.405
130.00	0.285	0.271	0.676
131.00	0.314	0.300	0.975

Device	Routing	Invert	Outlet Devices
#1	Secondary	130.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	127.25'	**18.0" Round Culvert** L= 55.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 127.25' / 127.00' S= 0.0045 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#3	Device 2	129.30'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	127.25'	**0.5" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.01 cfs @ 24.00 hrs HW=129.09' (Free Discharge)
└**2=Culvert** (Passes 0.01 cfs of 7.76 cfs potential flow)
  └**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
  └**4=Orifice/Grate** (Orifice Controls 0.01 cfs @ 6.49 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=127.25' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A - Pond: 1A - Pond



Hydrograph for Pond 1A - Pond: 1A - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	127.25	0.00	0.00	**0.00**
0.50	0.00	0.000	127.25	0.00	0.00	0.00
1.00	0.00	0.000	127.25	0.00	0.00	0.00
1.50	0.00	0.000	127.25	0.00	0.00	0.00
2.00	0.00	0.000	127.25	0.00	0.00	0.00
2.50	0.00	0.000	127.25	0.00	0.00	0.00
3.00	0.00	0.000	127.25	0.00	0.00	0.00
3.50	0.00	0.000	127.25	0.00	0.00	0.00
4.00	0.00	0.000	127.25	0.00	0.00	0.00
4.50	0.00	0.000	127.25	0.00	0.00	0.00
5.00	0.00	0.000	127.25	0.00	0.00	0.00
5.50	0.00	0.000	127.25	0.00	0.00	0.00
6.00	0.00	0.000	127.25	0.00	0.00	0.00
6.50	0.00	0.000	127.25	0.00	0.00	0.00
7.00	0.00	0.000	127.25	0.00	0.00	0.00
7.50	0.00	0.000	127.25	0.00	0.00	0.00
8.00	0.00	0.000	127.25	0.00	0.00	0.00
8.50	0.00	0.000	127.25	0.00	0.00	0.00
9.00	0.00	0.000	127.25	0.00	0.00	0.00
9.50	0.00	0.000	127.25	0.00	0.00	0.00
10.00	0.00	0.000	127.25	0.00	0.00	0.00
10.50	0.00	0.000	127.25	0.00	0.00	0.00
11.00	0.01	0.000	127.25	0.00	0.00	0.00
11.50	0.06	0.001	127.26	0.00	0.00	0.00
12.00	0.34	0.007	127.29	0.00	0.00	0.00
12.50	**2.58**	0.062	127.55	0.00	0.00	0.00
13.00	**1.88**	0.165	128.02	0.01	0.01	0.00
13.50	0.93	0.220	128.25	0.01	0.01	0.00
14.00	0.64	0.251	128.38	0.01	0.01	0.00
14.50	0.50	0.274	128.48	0.01	0.01	0.00
15.00	0.43	0.293	128.55	0.01	0.01	0.00
15.50	0.38	0.309	128.62	0.01	0.01	0.00
16.00	0.33	0.324	128.68	0.01	0.01	0.00
16.50	0.28	0.336	128.73	0.01	0.01	0.00
17.00	0.25	0.347	128.77	0.01	0.01	0.00
17.50	0.22	0.356	128.81	0.01	0.01	0.00
18.00	0.20	0.364	128.84	0.01	0.01	0.00
18.50	0.17	0.371	128.87	0.01	0.01	0.00
19.00	0.16	0.378	128.90	0.01	0.01	0.00
19.50	0.15	0.384	128.92	0.01	0.01	0.00
20.00	0.15	0.390	128.94	0.01	0.01	0.00
20.50	0.14	0.395	128.96	0.01	0.01	0.00
21.00	0.13	0.401	128.98	0.01	0.01	0.00
21.50	0.13	0.406	129.00	0.01	0.01	0.00
22.00	0.12	0.411	129.02	0.01	0.01	0.00
22.50	0.12	0.415	129.04	0.01	0.01	0.00
23.00	0.11	0.419	129.06	0.01	0.01	0.00
23.50	0.10	0.423	129.07	0.01	0.01	0.00
24.00	0.10	**0.427**	**129.09**	**0.01**	**0.01**	0.00

Summary for Pond 1B - Pond: 1B - Pond

Inflow Area = 10.540 ac, 0.00% Impervious, Inflow Depth > 1.00" for 2-YEAR STORM event
Inflow = 5.54 cfs @ 12.64 hrs, Volume= 0.879 af
Outflow = 0.25 cfs @ 22.50 hrs, Volume= 0.081 af, Atten= 96%, Lag= 591.5 min
Primary = 0.25 cfs @ 22.50 hrs, Volume= 0.081 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 126.58' @ 22.50 hrs Surf.Area= 0.277 ac Storage= 0.800 af

Plug-Flow detention time= 544.1 min calculated for 0.081 af (9% of inflow)
Center-of-Mass det. time= 383.5 min (1,278.0 - 894.5)

Volume	Invert	Avail.Storage	Storage Description
#1	123.00'	1.560 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

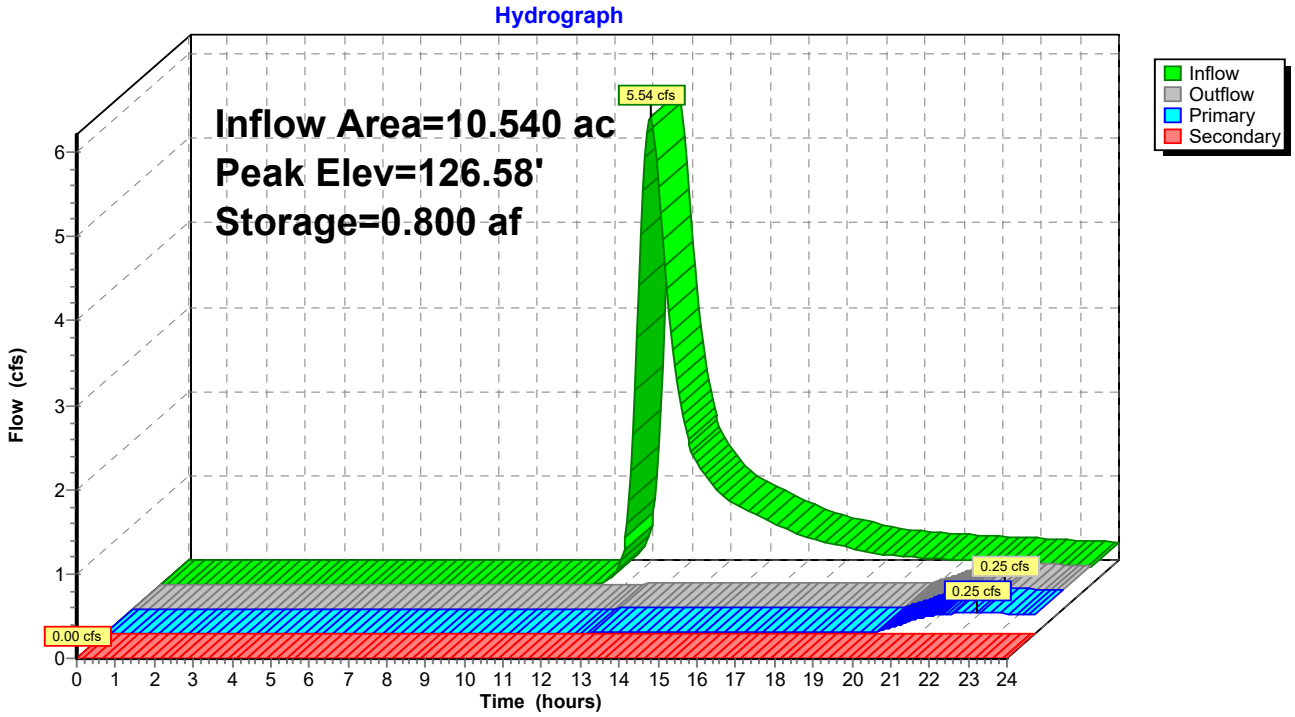
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
123.00	0.170	0.000	0.000
124.00	0.200	0.185	0.185
125.00	0.230	0.215	0.400
126.00	0.260	0.245	0.645
127.00	0.290	0.275	0.920
128.00	0.320	0.305	1.225
129.00	0.350	0.335	1.560

Device	Routing	Invert	Outlet Devices
#1	Primary	123.00'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 123.00' / 122.00' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	128.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	126.50'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	123.00'	**0.7" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.23 cfs @ 22.50 hrs HW=126.58' (Free Discharge)
└**1=Culvert** (Passes 0.23 cfs of 14.30 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.21 cfs @ 0.92 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.02 cfs @ 9.07 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=123.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1B - Pond: 1B - Pond



Hydrograph for Pond 1B - Pond: 1B - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	123.00	0.00	0.00	**0.00**
0.50	0.00	0.000	123.00	0.00	0.00	0.00
1.00	0.00	0.000	123.00	0.00	0.00	0.00
1.50	0.00	0.000	123.00	0.00	0.00	0.00
2.00	0.00	0.000	123.00	0.00	0.00	0.00
2.50	0.00	0.000	123.00	0.00	0.00	0.00
3.00	0.00	0.000	123.00	0.00	0.00	0.00
3.50	0.00	0.000	123.00	0.00	0.00	0.00
4.00	0.00	0.000	123.00	0.00	0.00	0.00
4.50	0.00	0.000	123.00	0.00	0.00	0.00
5.00	0.00	0.000	123.00	0.00	0.00	0.00
5.50	0.00	0.000	123.00	0.00	0.00	0.00
6.00	0.00	0.000	123.00	0.00	0.00	0.00
6.50	0.00	0.000	123.00	0.00	0.00	0.00
7.00	0.00	0.000	123.00	0.00	0.00	0.00
7.50	0.00	0.000	123.00	0.00	0.00	0.00
8.00	0.00	0.000	123.00	0.00	0.00	0.00
8.50	0.00	0.000	123.00	0.00	0.00	0.00
9.00	0.00	0.000	123.00	0.00	0.00	0.00
9.50	0.00	0.000	123.00	0.00	0.00	0.00
10.00	0.00	0.000	123.00	0.00	0.00	0.00
10.50	0.00	0.000	123.00	0.00	0.00	0.00
11.00	0.00	0.000	123.00	0.00	0.00	0.00
11.50	0.05	0.001	123.00	0.00	0.00	0.00
12.00	0.55	0.009	123.05	0.00	0.00	0.00
12.50	**5.06**	0.113	123.63	0.01	0.01	0.00
13.00	**3.78**	0.318	124.63	0.02	0.02	0.00
13.50	1.91	0.428	125.12	0.02	0.02	0.00
14.00	1.32	0.491	125.39	0.02	0.02	0.00
14.50	1.05	0.539	125.58	0.02	0.02	0.00
15.00	0.91	0.578	125.74	0.02	0.02	0.00
15.50	0.80	0.613	125.88	0.02	0.02	0.00
16.00	0.69	0.643	125.99	0.02	0.02	0.00
16.50	0.59	0.668	126.09	0.02	0.02	0.00
17.00	0.52	0.690	126.17	0.02	0.02	0.00
17.50	0.47	0.710	126.24	0.02	0.02	0.00
18.00	0.42	0.727	126.31	0.02	0.02	0.00
18.50	0.37	0.742	126.37	0.02	0.02	0.00
19.00	0.34	0.756	126.42	0.02	0.02	0.00
19.50	0.32	0.768	126.46	0.02	0.02	0.00
20.00	0.31	0.780	126.51	0.03	0.03	0.00
20.50	0.29	0.790	126.54	0.10	0.10	0.00
21.00	0.28	0.795	126.56	0.18	0.18	0.00
21.50	0.27	0.798	126.57	0.22	0.22	0.00
22.00	0.26	0.799	126.58	0.24	0.24	0.00
22.50	0.25	**0.800**	**126.58**	**0.25**	**0.25**	0.00
23.00	0.23	0.800	126.58	0.24	0.24	0.00
23.50	0.22	0.799	126.57	0.24	0.24	0.00
24.00	0.21	0.798	126.57	0.23	0.23	0.00

Summary for Pond 1C-Pond: 1C - Pond

Inflow Area = 8.580 ac, 0.00% Impervious, Inflow Depth > 0.90" for 2-YEAR STORM event
Inflow = 4.31 cfs @ 12.55 hrs, Volume= 0.641 af
Outflow = 0.41 cfs @ 16.74 hrs, Volume= 0.204 af, Atten= 91%, Lag= 251.3 min
Primary = 0.41 cfs @ 16.74 hrs, Volume= 0.204 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 129.61' @ 16.74 hrs Surf.Area= 0.327 ac Storage= 0.454 af

Plug-Flow detention time= 393.0 min calculated for 0.204 af (32% of inflow)
Center-of-Mass det. time= 246.4 min (1,142.0 - 895.6)

Volume	Invert	Avail.Storage	Storage Description
#1	128.00'	1.875 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

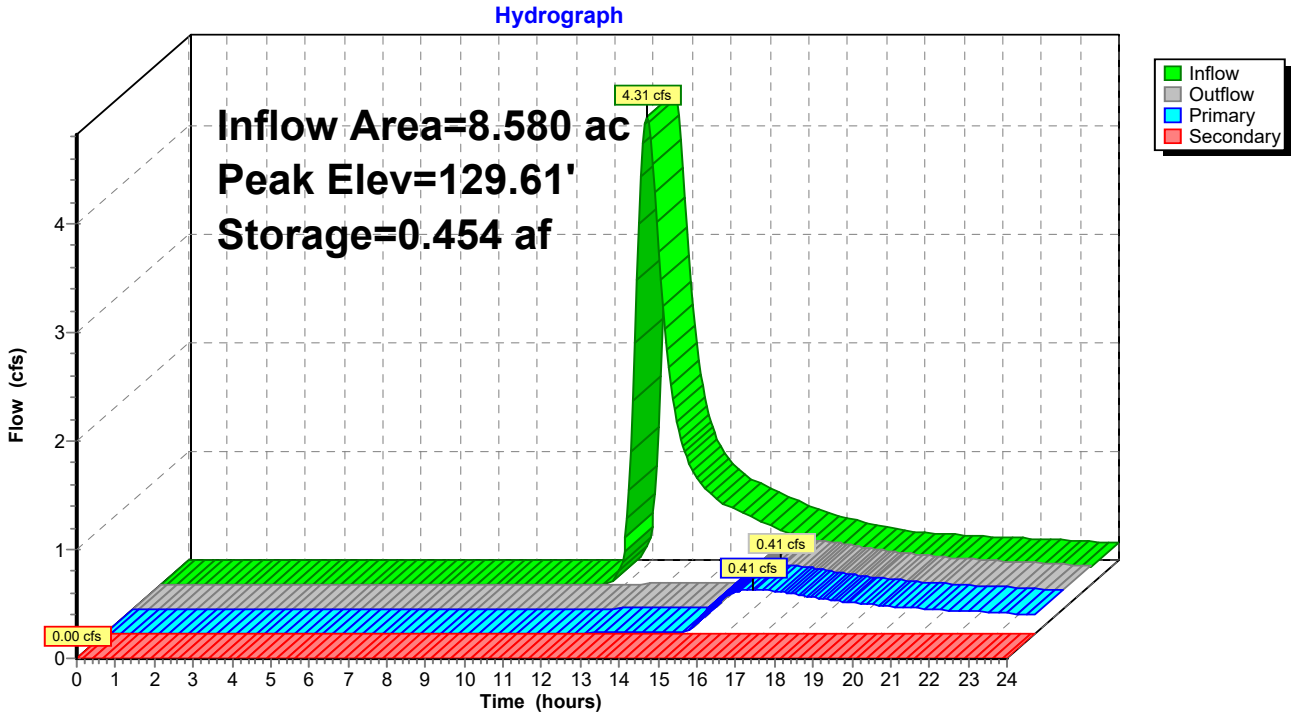
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
128.00	0.240	0.000	0.000
129.00	0.290	0.265	0.265
130.00	0.350	0.320	0.585
131.00	0.400	0.375	0.960
132.00	0.460	0.430	1.390
133.00	0.510	0.485	1.875

Device	Routing	Invert	Outlet Devices
#1	Primary	128.00'	**18.0" Round Culvert** L= 45.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 128.00' / 127.75' S= 0.0056 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	131.75'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	129.50'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	128.00'	**0.7" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.40 cfs @ 16.74 hrs HW=129.61' (Free Discharge)
↑**1=Culvert** (Passes 0.40 cfs of 6.94 cfs potential flow)
↑**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.38 cfs @ 1.13 fps)
4=Orifice/Grate (Orifice Controls 0.02 cfs @ 6.06 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-Pond: 1C - Pond



Hydrograph for Pond 1C-Pond: 1C - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	128.00	0.00	0.00	**0.00**
0.50	0.00	0.000	128.00	0.00	0.00	0.00
1.00	0.00	0.000	128.00	0.00	0.00	0.00
1.50	0.00	0.000	128.00	0.00	0.00	0.00
2.00	0.00	0.000	128.00	0.00	0.00	0.00
2.50	0.00	0.000	128.00	0.00	0.00	0.00
3.00	0.00	0.000	128.00	0.00	0.00	0.00
3.50	0.00	0.000	128.00	0.00	0.00	0.00
4.00	0.00	0.000	128.00	0.00	0.00	0.00
4.50	0.00	0.000	128.00	0.00	0.00	0.00
5.00	0.00	0.000	128.00	0.00	0.00	0.00
5.50	0.00	0.000	128.00	0.00	0.00	0.00
6.00	0.00	0.000	128.00	0.00	0.00	0.00
6.50	0.00	0.000	128.00	0.00	0.00	0.00
7.00	0.00	0.000	128.00	0.00	0.00	0.00
7.50	0.00	0.000	128.00	0.00	0.00	0.00
8.00	0.00	0.000	128.00	0.00	0.00	0.00
8.50	0.00	0.000	128.00	0.00	0.00	0.00
9.00	0.00	0.000	128.00	0.00	0.00	0.00
9.50	0.00	0.000	128.00	0.00	0.00	0.00
10.00	0.00	0.000	128.00	0.00	0.00	0.00
10.50	0.00	0.000	128.00	0.00	0.00	0.00
11.00	0.00	0.000	128.00	0.00	0.00	0.00
11.50	0.01	0.000	128.00	0.00	0.00	0.00
12.00	0.43	0.005	128.02	0.00	0.00	0.00
12.50	**4.25**	0.100	128.40	0.01	0.01	0.00
13.00	**2.35**	0.245	128.93	0.01	0.01	0.00
13.50	1.22	0.313	129.16	0.01	0.01	0.00
14.00	0.91	0.355	129.30	0.01	0.01	0.00
14.50	0.76	0.389	129.41	0.02	0.02	0.00
15.00	0.67	0.418	129.50	0.02	0.02	0.00
15.50	0.59	0.439	129.57	0.20	0.20	0.00
16.00	0.51	0.450	129.60	0.34	0.34	0.00
16.50	0.43	**0.454**	**129.61**	**0.40**	**0.40**	0.00
17.00	0.38	**0.454**	**129.61**	**0.40**	**0.40**	0.00
17.50	0.35	0.453	129.61	0.38	0.38	0.00
18.00	0.31	0.451	129.60	0.35	0.35	0.00
18.50	0.27	0.449	129.60	0.32	0.32	0.00
19.00	0.26	0.447	129.59	0.30	0.30	0.00
19.50	0.24	0.446	129.59	0.28	0.28	0.00
20.00	0.23	0.444	129.58	0.26	0.26	0.00
20.50	0.22	0.443	129.58	0.25	0.25	0.00
21.00	0.21	0.442	129.58	0.23	0.23	0.00
21.50	0.20	0.441	129.57	0.22	0.22	0.00
22.00	0.19	0.440	129.57	0.21	0.21	0.00
22.50	0.19	0.440	129.57	0.20	0.20	0.00
23.00	0.18	0.439	129.57	0.19	0.19	0.00
23.50	0.17	0.438	129.56	0.19	0.19	0.00
24.00	0.16	0.437	129.56	0.18	0.18	0.00

Summary for Pond 2 - Pond: 2 - Pond

Inflow Area = 9.600 ac, 0.00% Impervious, Inflow Depth > 1.17" for 2-YEAR STORM event
Inflow = 6.25 cfs @ 12.60 hrs, Volume= 0.938 af
Outflow = 0.77 cfs @ 15.65 hrs, Volume= 0.338 af, Atten= 88%, Lag= 183.4 min
Primary = 0.77 cfs @ 15.65 hrs, Volume= 0.338 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 136.57' @ 15.65 hrs Surf.Area= 0.240 ac Storage= 0.625 af

Plug-Flow detention time= 343.1 min calculated for 0.338 af (36% of inflow)
Center-of-Mass det. time= 208.2 min (1,091.9 - 883.7)

Volume	Invert	Avail.Storage	Storage Description
#1	133.00'	1.326 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

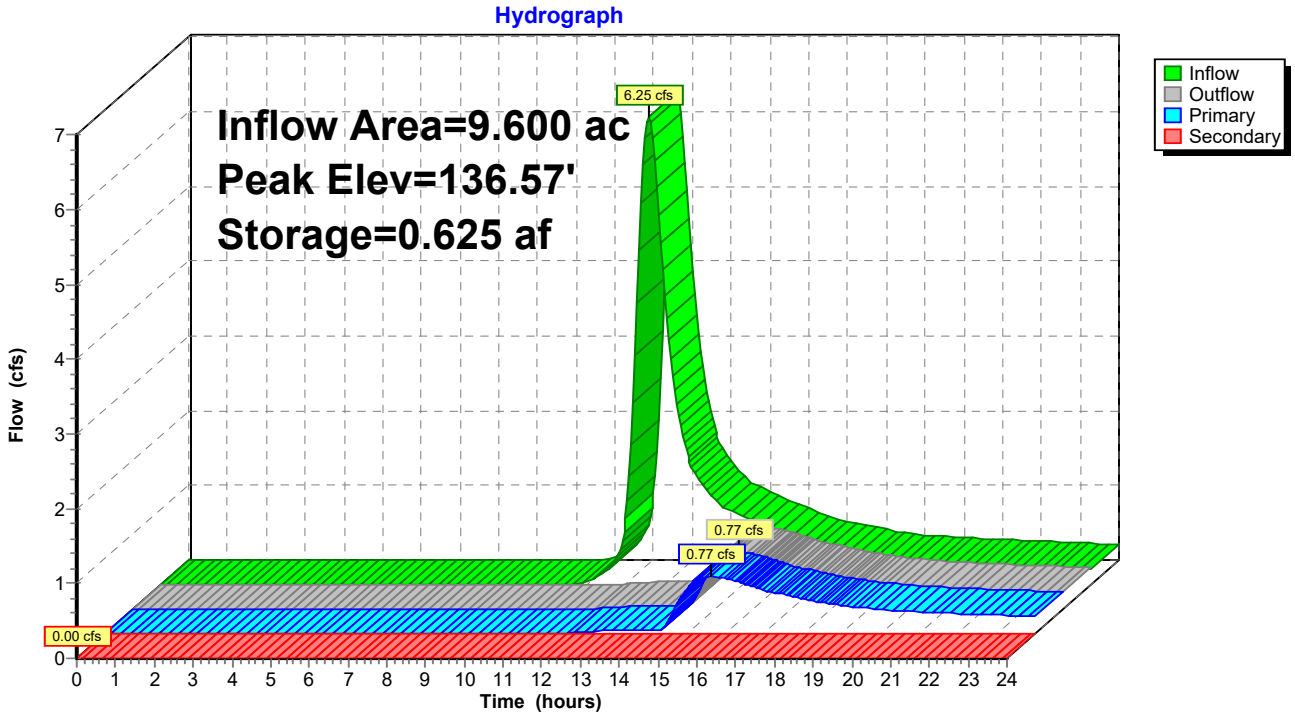
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
133.00	0.113	0.000	0.000
134.00	0.147	0.130	0.130
135.00	0.182	0.164	0.294
136.00	0.218	0.200	0.494
137.00	0.257	0.237	0.732
138.00	0.297	0.277	1.009
139.00	0.338	0.317	1.326

Device	Routing	Invert	Outlet Devices
#1	Device 2	136.40'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#2	Primary	133.00'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.00' / 132.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#3	Secondary	138.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#4	Device 2	133.00'	**1.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.76 cfs @ 15.65 hrs HW=136.57' (Free Discharge)
└**2=Culvert** (Passes 0.76 cfs of 14.29 cfs potential flow)
  ├**1=Sharp-Crested Rectangular Weir** (Weir Controls 0.71 cfs @ 1.41 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.05 cfs @ 9.04 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.00' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2 - Pond: 2 - Pond



Hydrograph for Pond 2 - Pond: 2 - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	133.00	0.00	0.00	**0.00**
0.50	0.00	0.000	133.00	0.00	0.00	0.00
1.00	0.00	0.000	133.00	0.00	0.00	0.00
1.50	0.00	0.000	133.00	0.00	0.00	0.00
2.00	0.00	0.000	133.00	0.00	0.00	0.00
2.50	0.00	0.000	133.00	0.00	0.00	0.00
3.00	0.00	0.000	133.00	0.00	0.00	0.00
3.50	0.00	0.000	133.00	0.00	0.00	0.00
4.00	0.00	0.000	133.00	0.00	0.00	0.00
4.50	0.00	0.000	133.00	0.00	0.00	0.00
5.00	0.00	0.000	133.00	0.00	0.00	0.00
5.50	0.00	0.000	133.00	0.00	0.00	0.00
6.00	0.00	0.000	133.00	0.00	0.00	0.00
6.50	0.00	0.000	133.00	0.00	0.00	0.00
7.00	0.00	0.000	133.00	0.00	0.00	0.00
7.50	0.00	0.000	133.00	0.00	0.00	0.00
8.00	0.00	0.000	133.00	0.00	0.00	0.00
8.50	0.00	0.000	133.00	0.00	0.00	0.00
9.00	0.00	0.000	133.00	0.00	0.00	0.00
9.50	0.00	0.000	133.00	0.00	0.00	0.00
10.00	0.00	0.000	133.00	0.00	0.00	0.00
10.50	0.00	0.000	133.00	0.00	0.00	0.00
11.00	0.04	0.000	133.00	0.00	0.00	0.00
11.50	0.18	0.004	133.04	0.00	0.00	0.00
12.00	0.88	0.021	133.18	0.01	0.01	0.00
12.50	**5.98**	0.154	134.16	0.03	0.03	0.00
13.00	**3.86**	0.377	135.43	0.04	0.04	0.00
13.50	1.89	0.486	135.96	0.04	0.04	0.00
14.00	1.32	0.548	136.24	0.05	0.05	0.00
14.50	1.05	0.594	136.44	0.14	0.14	0.00
15.00	0.91	0.619	136.54	0.59	0.59	0.00
15.50	0.80	**0.625**	**136.57**	**0.76**	**0.76**	0.00
16.00	0.69	**0.624**	**136.57**	**0.74**	**0.74**	0.00
16.50	0.58	0.621	136.55	0.67	0.67	0.00
17.00	0.52	0.618	136.54	0.58	0.58	0.00
17.50	0.46	0.616	136.53	0.53	0.53	0.00
18.00	0.41	0.613	136.52	0.47	0.47	0.00
18.50	0.36	0.611	136.51	0.42	0.42	0.00
19.00	0.34	0.609	136.50	0.38	0.38	0.00
19.50	0.32	0.607	136.49	0.35	0.35	0.00
20.00	0.31	0.606	136.49	0.33	0.33	0.00
20.50	0.29	0.605	136.49	0.31	0.31	0.00
21.00	0.28	0.605	136.48	0.29	0.29	0.00
21.50	0.27	0.604	136.48	0.28	0.28	0.00
22.00	0.26	0.603	136.48	0.27	0.27	0.00
22.50	0.24	0.603	136.48	0.26	0.26	0.00
23.00	0.23	0.602	136.47	0.25	0.25	0.00
23.50	0.22	0.601	136.47	0.24	0.24	0.00
24.00	0.21	0.600	136.47	0.23	0.23	0.00

Summary for Pond 3 - Pond: 3 - Pond

Inflow Area = 4.120 ac, 0.00% Impervious, Inflow Depth > 1.12" for 2-YEAR STORM event
Inflow = 3.18 cfs @ 12.37 hrs, Volume= 0.384 af
Outflow = 0.01 cfs @ 24.00 hrs, Volume= 0.007 af, Atten= 100%, Lag= 697.9 min
Primary = 0.01 cfs @ 24.00 hrs, Volume= 0.007 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 171.20' @ 24.00 hrs Surf.Area= 0.180 ac Storage= 0.377 af

Plug-Flow detention time= 404.6 min calculated for 0.007 af (2% of inflow)
Center-of-Mass det. time= 223.5 min (1,098.1 - 874.6)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	1.043 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

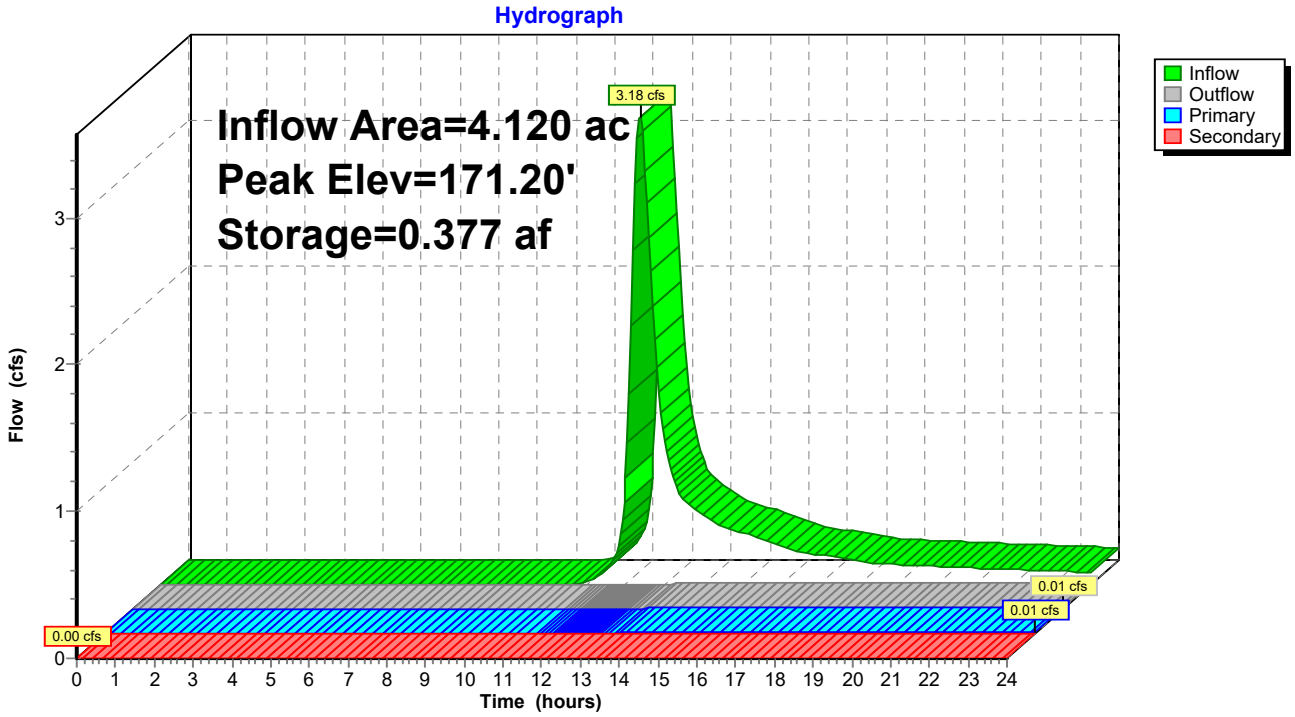
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.058	0.000	0.000
169.00	0.094	0.076	0.076
170.00	0.133	0.113	0.189
171.00	0.172	0.152	0.342
172.00	0.211	0.191	0.533
173.00	0.254	0.233	0.766
174.00	0.299	0.276	1.043

Device	Routing	Invert	Outlet Devices
#1	Primary	168.00'	**18.0" Round Culvert** L= 55.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 168.00' / 164.50' S= 0.0636 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	173.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Device 1	171.20'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	168.00'	**0.4" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.01 cfs @ 24.00 hrs HW=171.20' (Free Discharge)
└**1=Culvert** (Passes 0.01 cfs of 13.32 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.07 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.01 cfs @ 8.59 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=168.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3 - Pond: 3 - Pond



Hydrograph for Pond 3 - Pond: 3 - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	168.00	0.00	0.00	**0.00**
0.50	0.00	0.000	168.00	0.00	0.00	0.00
1.00	0.00	0.000	168.00	0.00	0.00	0.00
1.50	0.00	0.000	168.00	0.00	0.00	0.00
2.00	0.00	0.000	168.00	0.00	0.00	0.00
2.50	0.00	0.000	168.00	0.00	0.00	0.00
3.00	0.00	0.000	168.00	0.00	0.00	0.00
3.50	0.00	0.000	168.00	0.00	0.00	0.00
4.00	0.00	0.000	168.00	0.00	0.00	0.00
4.50	0.00	0.000	168.00	0.00	0.00	0.00
5.00	0.00	0.000	168.00	0.00	0.00	0.00
5.50	0.00	0.000	168.00	0.00	0.00	0.00
6.00	0.00	0.000	168.00	0.00	0.00	0.00
6.50	0.00	0.000	168.00	0.00	0.00	0.00
7.00	0.00	0.000	168.00	0.00	0.00	0.00
7.50	0.00	0.000	168.00	0.00	0.00	0.00
8.00	0.00	0.000	168.00	0.00	0.00	0.00
8.50	0.00	0.000	168.00	0.00	0.00	0.00
9.00	0.00	0.000	168.00	0.00	0.00	0.00
9.50	0.00	0.000	168.00	0.00	0.00	0.00
10.00	0.00	0.000	168.00	0.00	0.00	0.00
10.50	0.00	0.000	168.00	0.00	0.00	0.00
11.00	0.02	0.000	168.00	0.00	0.00	0.00
11.50	0.10	0.002	168.04	0.00	0.00	0.00
12.00	**0.73**	0.014	168.22	0.00	0.00	0.00
12.50	**2.82**	0.110	169.33	0.00	0.00	0.00
13.00	0.98	0.182	169.94	0.01	0.01	0.00
13.50	0.57	0.212	170.16	0.01	0.01	0.00
14.00	0.47	0.233	170.31	0.01	0.01	0.00
14.50	0.40	0.250	170.43	0.01	0.01	0.00
15.00	0.36	0.266	170.53	0.01	0.01	0.00
15.50	0.31	0.279	170.62	0.01	0.01	0.00
16.00	0.26	0.291	170.69	0.01	0.01	0.00
16.50	0.23	0.301	170.75	0.01	0.01	0.00
17.00	0.20	0.309	170.80	0.01	0.01	0.00
17.50	0.18	0.317	170.85	0.01	0.01	0.00
18.00	0.16	0.324	170.89	0.01	0.01	0.00
18.50	0.14	0.330	170.93	0.01	0.01	0.00
19.00	0.14	0.335	170.96	0.01	0.01	0.00
19.50	0.13	0.340	170.99	0.01	0.01	0.00
20.00	0.12	0.345	171.02	0.01	0.01	0.00
20.50	0.12	0.350	171.05	0.01	0.01	0.00
21.00	0.11	0.355	171.07	0.01	0.01	0.00
21.50	0.11	0.359	171.10	0.01	0.01	0.00
22.00	0.10	0.363	171.12	0.01	0.01	0.00
22.50	0.10	0.367	171.14	0.01	0.01	0.00
23.00	0.09	0.371	171.16	0.01	0.01	0.00
23.50	0.09	0.374	171.18	0.01	0.01	0.00
24.00	0.08	**0.377**	**171.20**	**0.01**	**0.01**	0.00

Summary for Pond 4 - Pond: 4 - Pond

Inflow Area = 9.020 ac, 0.00% Impervious, Inflow Depth > 1.12" for 2-YEAR STORM event
Inflow = 7.02 cfs @ 12.36 hrs, Volume= 0.841 af
Outflow = 0.27 cfs @ 19.93 hrs, Volume= 0.130 af, Atten= 96%, Lag= 454.2 min
Primary = 0.27 cfs @ 19.93 hrs, Volume= 0.130 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 126.08' @ 19.93 hrs Surf.Area= 10,121 sf Storage= 31,156 cf

Plug-Flow detention time= 497.6 min calculated for 0.130 af (15% of inflow)
Center-of-Mass det. time= 348.5 min (1,222.8 - 874.3)

Volume	Invert	Avail.Storage	Storage Description
#1	122.00'	66,544 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

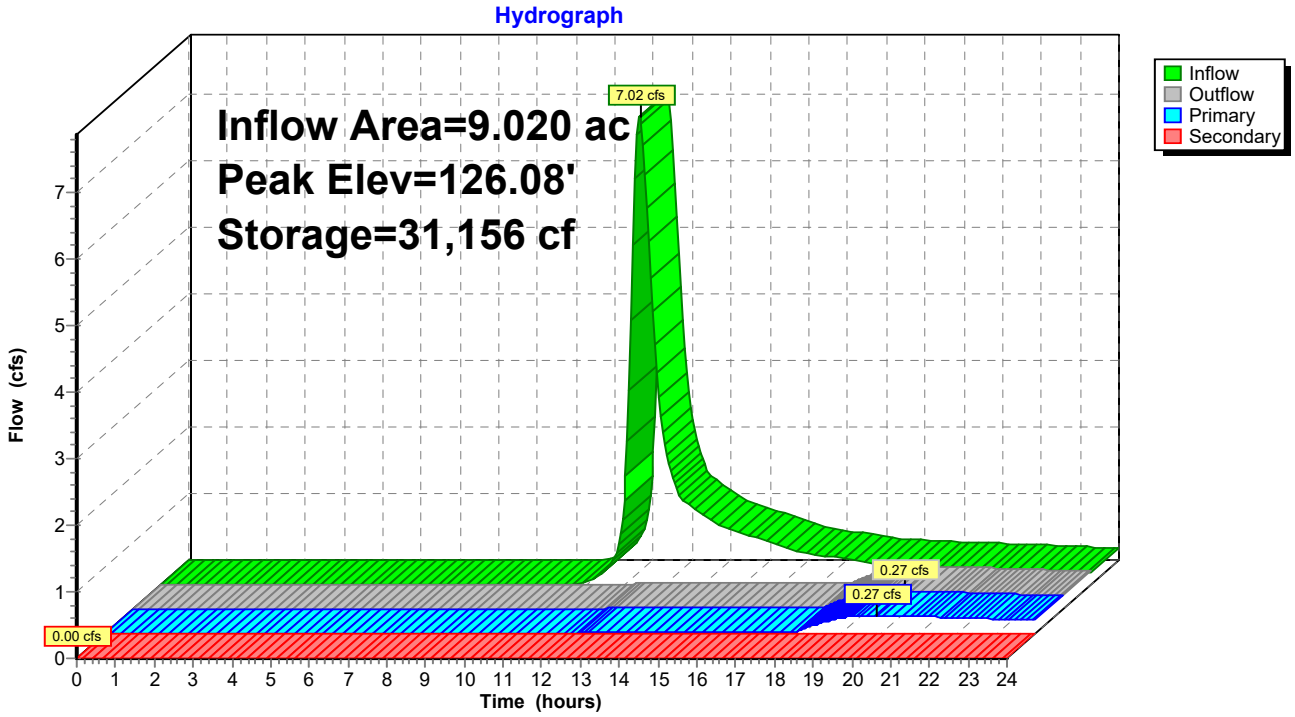
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
122.00	5,526	0	0
123.00	6,338	5,932	5,932
124.00	7,507	6,923	12,855
125.00	8,732	8,120	20,974
126.00	10,013	9,373	30,347
127.00	11,350	10,682	41,028
128.00	12,744	12,047	53,075
129.00	14,194	13,469	66,544

Device	Routing	Invert	Outlet Devices
#1	Primary	122.00'	**18.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 122.00' / 121.50' S= 0.0083 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	128.25'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Device 1	126.00'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	122.00'	**0.8" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.26 cfs @ 19.93 hrs HW=126.08' (Free Discharge)
└**1=Culvert** (Passes 0.26 cfs of 15.53 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.23 cfs @ 0.95 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.03 cfs @ 9.69 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4 - Pond: 4 - Pond



Hydrograph for Pond 4 - Pond: 4 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	122.00	0.00	0.00	**0.00**
0.50	0.00	0	122.00	0.00	0.00	0.00
1.00	0.00	0	122.00	0.00	0.00	0.00
1.50	0.00	0	122.00	0.00	0.00	0.00
2.00	0.00	0	122.00	0.00	0.00	0.00
2.50	0.00	0	122.00	0.00	0.00	0.00
3.00	0.00	0	122.00	0.00	0.00	0.00
3.50	0.00	0	122.00	0.00	0.00	0.00
4.00	0.00	0	122.00	0.00	0.00	0.00
4.50	0.00	0	122.00	0.00	0.00	0.00
5.00	0.00	0	122.00	0.00	0.00	0.00
5.50	0.00	0	122.00	0.00	0.00	0.00
6.00	0.00	0	122.00	0.00	0.00	0.00
6.50	0.00	0	122.00	0.00	0.00	0.00
7.00	0.00	0	122.00	0.00	0.00	0.00
7.50	0.00	0	122.00	0.00	0.00	0.00
8.00	0.00	0	122.00	0.00	0.00	0.00
8.50	0.00	0	122.00	0.00	0.00	0.00
9.00	0.00	0	122.00	0.00	0.00	0.00
9.50	0.00	0	122.00	0.00	0.00	0.00
10.00	0.00	0	122.00	0.00	0.00	0.00
10.50	0.00	0	122.00	0.00	0.00	0.00
11.00	0.04	17	122.00	0.00	0.00	0.00
11.50	0.22	220	122.04	0.00	0.00	0.00
12.00	**1.63**	1,338	122.24	0.01	0.01	0.00
12.50	**6.14**	10,569	123.69	0.02	0.02	0.00
13.00	2.11	17,371	124.57	0.03	0.03	0.00
13.50	1.25	20,150	124.90	0.03	0.03	0.00
14.00	1.03	22,139	125.13	0.03	0.03	0.00
14.50	0.87	23,786	125.31	0.03	0.03	0.00
15.00	0.78	25,214	125.47	0.03	0.03	0.00
15.50	0.68	26,468	125.60	0.03	0.03	0.00
16.00	0.58	27,542	125.71	0.03	0.03	0.00
16.50	0.49	28,438	125.81	0.03	0.03	0.00
17.00	0.44	29,221	125.89	0.03	0.03	0.00
17.50	0.40	29,921	125.96	0.03	0.03	0.00
18.00	0.35	30,523	126.02	0.08	0.08	0.00
18.50	0.32	30,893	126.05	0.17	0.17	0.00
19.00	0.30	31,079	126.07	0.24	0.24	0.00
19.50	0.29	**31,145**	**126.08**	**0.27**	**0.27**	0.00
20.00	0.27	**31,156**	**126.08**	**0.27**	**0.27**	0.00
20.50	0.26	31,145	126.08	0.27	0.27	0.00
21.00	0.25	31,126	126.08	0.26	0.26	0.00
21.50	0.24	31,105	126.08	0.25	0.25	0.00
22.00	0.23	31,082	126.07	0.24	0.24	0.00
22.50	0.22	31,059	126.07	0.23	0.23	0.00
23.00	0.21	31,036	126.07	0.22	0.22	0.00
23.50	0.19	31,012	126.07	0.21	0.21	0.00
24.00	0.18	30,988	126.06	0.20	0.20	0.00

Summary for Pond 5 - Pond: 5 - Pond

Inflow Area = 15.220 ac, 0.00% Impervious, Inflow Depth > 1.36" for 2-YEAR STORM event
Inflow = 13.52 cfs @ 12.44 hrs, Volume= 1.727 af
Outflow = 1.56 cfs @ 14.89 hrs, Volume= 0.695 af, Atten= 88%, Lag= 147.1 min
Primary = 1.56 cfs @ 14.89 hrs, Volume= 0.695 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 123.83' @ 14.89 hrs Surf.Area= 15,600 sf Storage= 47,648 cf

Plug-Flow detention time= 316.1 min calculated for 0.695 af (40% of inflow)
Center-of-Mass det. time= 188.1 min (1,054.7 - 866.7)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	85,683 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

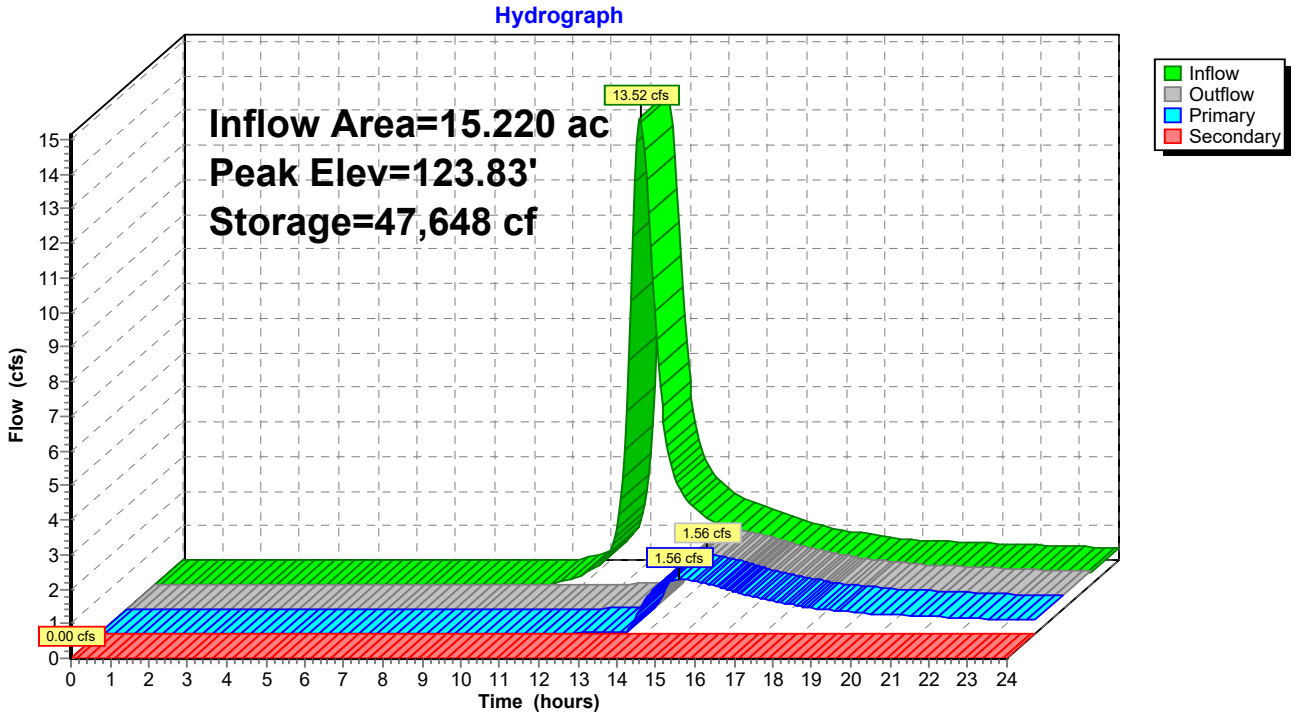
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	9,426	0	0
121.00	10,959	10,193	10,193
122.00	12,547	11,753	21,946
123.00	14,192	13,370	35,315
124.00	15,892	15,042	50,357
125.00	17,650	16,771	67,128
126.00	19,460	18,555	85,683

Device	Routing	Invert	Outlet Devices
#1	Device 2	123.55'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#2	Primary	120.00'	**30.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 120.00' / 117.00' S= 0.0500 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#3	Secondary	125.72'	**20.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#4	Device 2	120.00'	**1.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.56 cfs @ 14.89 hrs HW=123.83' (Free Discharge)
└**2=Culvert** (Passes 1.56 cfs of 37.95 cfs potential flow)
  ├**1=Sharp-Crested Rectangular Weir** (Weir Controls 1.51 cfs @ 1.84 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.05 cfs @ 9.37 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=120.00' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5 - Pond: 5 - Pond



Hydrograph for Pond 5 - Pond: 5 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	120.00	0.00	0.00	**0.00**
0.50	0.00	0	120.00	0.00	0.00	0.00
1.00	0.00	0	120.00	0.00	0.00	0.00
1.50	0.00	0	120.00	0.00	0.00	0.00
2.00	0.00	0	120.00	0.00	0.00	0.00
2.50	0.00	0	120.00	0.00	0.00	0.00
3.00	0.00	0	120.00	0.00	0.00	0.00
3.50	0.00	0	120.00	0.00	0.00	0.00
4.00	0.00	0	120.00	0.00	0.00	0.00
4.50	0.00	0	120.00	0.00	0.00	0.00
5.00	0.00	0	120.00	0.00	0.00	0.00
5.50	0.00	0	120.00	0.00	0.00	0.00
6.00	0.00	0	120.00	0.00	0.00	0.00
6.50	0.00	0	120.00	0.00	0.00	0.00
7.00	0.00	0	120.00	0.00	0.00	0.00
7.50	0.00	0	120.00	0.00	0.00	0.00
8.00	0.00	0	120.00	0.00	0.00	0.00
8.50	0.00	0	120.00	0.00	0.00	0.00
9.00	0.00	0	120.00	0.00	0.00	0.00
9.50	0.00	0	120.00	0.00	0.00	0.00
10.00	0.00	1	120.00	0.00	0.00	0.00
10.50	0.11	81	120.01	0.00	0.00	0.00
11.00	0.31	442	120.05	0.00	0.00	0.00
11.50	0.70	1,289	120.14	0.01	0.01	0.00
12.00	**3.07**	3,801	120.39	0.02	0.02	0.00
12.50	**13.19**	20,519	121.89	0.04	0.04	0.00
13.00	5.16	36,588	123.09	0.05	0.05	0.00
13.50	2.69	43,030	123.53	0.05	0.05	0.00
14.00	2.07	46,417	123.75	0.96	0.96	0.00
14.50	1.73	**47,507**	**123.82**	**1.49**	**1.49**	0.00
15.00	1.52	**47,641**	**123.83**	**1.56**	**1.56**	0.00
15.50	1.33	47,468	123.82	1.47	1.47	0.00
16.00	1.14	47,174	123.80	1.32	1.32	0.00
16.50	0.96	46,834	123.78	1.15	1.15	0.00
17.00	0.86	46,531	123.76	1.01	1.01	0.00
17.50	0.77	46,284	123.74	0.90	0.90	0.00
18.00	0.68	46,064	123.73	0.80	0.80	0.00
18.50	0.60	45,856	123.71	0.71	0.71	0.00
19.00	0.57	45,685	123.70	0.65	0.65	0.00
19.50	0.54	45,560	123.69	0.60	0.60	0.00
20.00	0.52	45,462	123.69	0.57	0.57	0.00
20.50	0.49	45,377	123.68	0.54	0.54	0.00
21.00	0.47	45,304	123.68	0.51	0.51	0.00
21.50	0.45	45,240	123.67	0.48	0.48	0.00
22.00	0.43	45,181	123.67	0.46	0.46	0.00
22.50	0.41	45,123	123.66	0.44	0.44	0.00
23.00	0.39	45,067	123.66	0.42	0.42	0.00
23.50	0.37	45,009	123.66	0.40	0.40	0.00
24.00	0.35	44,945	123.65	0.38	0.38	0.00

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>2.32"
Tc=42.6 min CN=73 Runoff=6.07 cfs 0.907 af

Subcatchment1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>2.16"
Tc=42.3 min CN=71 Runoff=12.64 cfs 1.893 af

Subcatchment1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>2.00"
Tc=35.2 min CN=69 Runoff=10.37 cfs 1.429 af

Subcatchment2: Runoff Area=9.600 ac 0.00% Impervious Runoff Depth>2.41"
Tc=40.3 min CN=74 Runoff=13.31 cfs 1.925 af

Subcatchment3: Runoff Area=4.120 ac 0.00% Impervious Runoff Depth>2.33"
Tc=24.4 min CN=73 Runoff=6.94 cfs 0.800 af

Subcatchment4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>2.33"
Tc=24.0 min CN=73 Runoff=15.29 cfs 1.752 af

Subcatchment5: Runoff Area=15.220 ac 0.00% Impervious Runoff Depth>2.67"
Tc=29.9 min CN=77 Runoff=27.13 cfs 3.391 af

Pond 1A - Pond: 1A - Pond Peak Elev=129.52' Storage=0.542 af Inflow=6.07 cfs 0.907 af
Primary=1.05 cfs 0.406 af Secondary=0.00 cfs 0.000 af Outflow=1.05 cfs 0.406 af

Pond 1B - Pond: 1B - Pond Peak Elev=127.01' Storage=0.924 af Inflow=12.64 cfs 1.893 af
Primary=3.96 cfs 1.084 af Secondary=0.00 cfs 0.000 af Outflow=3.96 cfs 1.084 af

Pond 1C-Pond: 1C - Pond Peak Elev=130.02' Storage=0.593 af Inflow=10.37 cfs 1.429 af
Primary=4.05 cfs 0.980 af Secondary=0.00 cfs 0.000 af Outflow=4.05 cfs 0.980 af

Pond 2 - Pond: 2 - Pond Peak Elev=137.15' Storage=0.770 af Inflow=13.31 cfs 1.925 af
Primary=7.15 cfs 1.316 af Secondary=0.00 cfs 0.000 af Outflow=7.15 cfs 1.316 af

Pond 3 - Pond: 3 - Pond Peak Elev=171.46' Storage=0.425 af Inflow=6.94 cfs 0.800 af
Primary=1.35 cfs 0.413 af Secondary=0.00 cfs 0.000 af Outflow=1.35 cfs 0.413 af

Pond 4 - Pond: 4 - Pond Peak Elev=126.56' Storage=36,182 cf Inflow=15.29 cfs 1.752 af
Primary=4.56 cfs 1.033 af Secondary=0.00 cfs 0.000 af Outflow=4.56 cfs 1.033 af

Pond 5 - Pond: 5 - Pond Peak Elev=124.66' Storage=61,235 cf Inflow=27.13 cfs 3.391 af
Primary=13.58 cfs 2.343 af Secondary=0.00 cfs 0.000 af Outflow=13.58 cfs 2.343 af

Total Runoff Area = 61.770 ac Runoff Volume = 12.098 af Average Runoff Depth = 2.35"
100.00% Pervious = 61.770 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

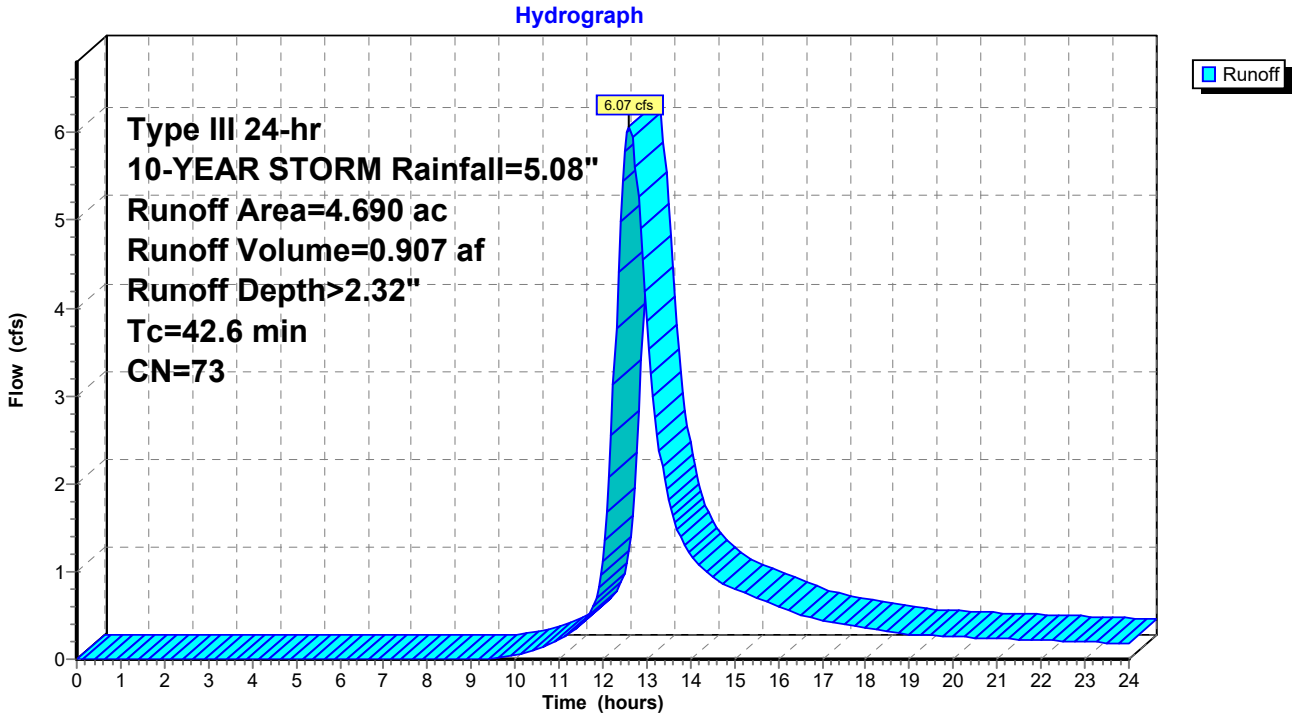
Runoff = 6.07 cfs @ 12.61 hrs, Volume= 0.907 af, Depth> 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	4.690	73	
	4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.6					**Direct Entry, SCS TR-55**

Subcatchment 1A:



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.00
9.50	0.84	0.00	0.00
9.75	0.90	0.01	0.02
10.00	0.96	0.01	0.04
10.25	1.03	0.02	0.07
10.50	1.10	0.03	0.11
10.75	1.18	0.05	0.16
11.00	1.27	0.07	0.21
11.25	1.38	0.09	0.29
11.50	1.51	0.13	0.39
11.75	1.80	0.24	0.56
12.00	2.54	0.59	1.12
12.25	3.28	1.03	3.14
12.50	3.57	1.22	**5.79**
12.75	3.70	1.32	**5.61**
13.00	3.81	1.39	3.85
13.25	3.90	1.46	2.55
13.50	3.98	1.51	1.82
13.75	4.05	1.57	1.42
14.00	4.12	1.61	1.20
14.25	4.18	1.66	1.05
14.50	4.24	1.70	0.94
14.75	4.29	1.74	0.86
15.00	4.34	1.78	0.80
15.25	4.39	1.81	0.75
15.50	4.43	1.84	0.70
15.75	4.47	1.87	0.65
16.00	4.50	1.90	0.60
16.25	4.53	1.92	0.55
16.50	4.56	1.94	0.51
16.75	4.59	1.97	0.47
17.00	4.62	1.99	0.45
17.25	4.65	2.01	0.42
17.50	4.67	2.03	0.40
17.75	4.69	2.04	0.38
18.00	4.71	2.06	0.35
18.25	4.73	2.07	0.33
18.50	4.75	2.09	0.31
18.75	4.77	2.10	0.30
19.00	4.79	2.12	0.29
19.25	4.81	2.13	0.28
19.50	4.83	2.15	0.27
19.75	4.84	2.16	0.27
20.00	4.86	2.17	0.26
20.25	4.88	2.19	0.25
20.50	4.89	2.20	0.25
20.75	4.91	2.21	0.24
21.00	4.92	2.22	0.24
21.25	4.94	2.23	0.23
21.50	4.95	2.24	0.23
21.75	4.97	2.26	0.22
22.00	4.98	2.27	0.22
22.25	5.00	2.28	0.21
22.50	5.01	2.29	0.21
22.75	5.02	2.30	0.20
23.00	5.03	2.31	0.20
23.25	5.05	2.32	0.19
23.50	5.06	2.33	0.18
23.75	5.07	2.33	0.18
24.00	**5.08**	**2.34**	0.17

Summary for Subcatchment 1B:

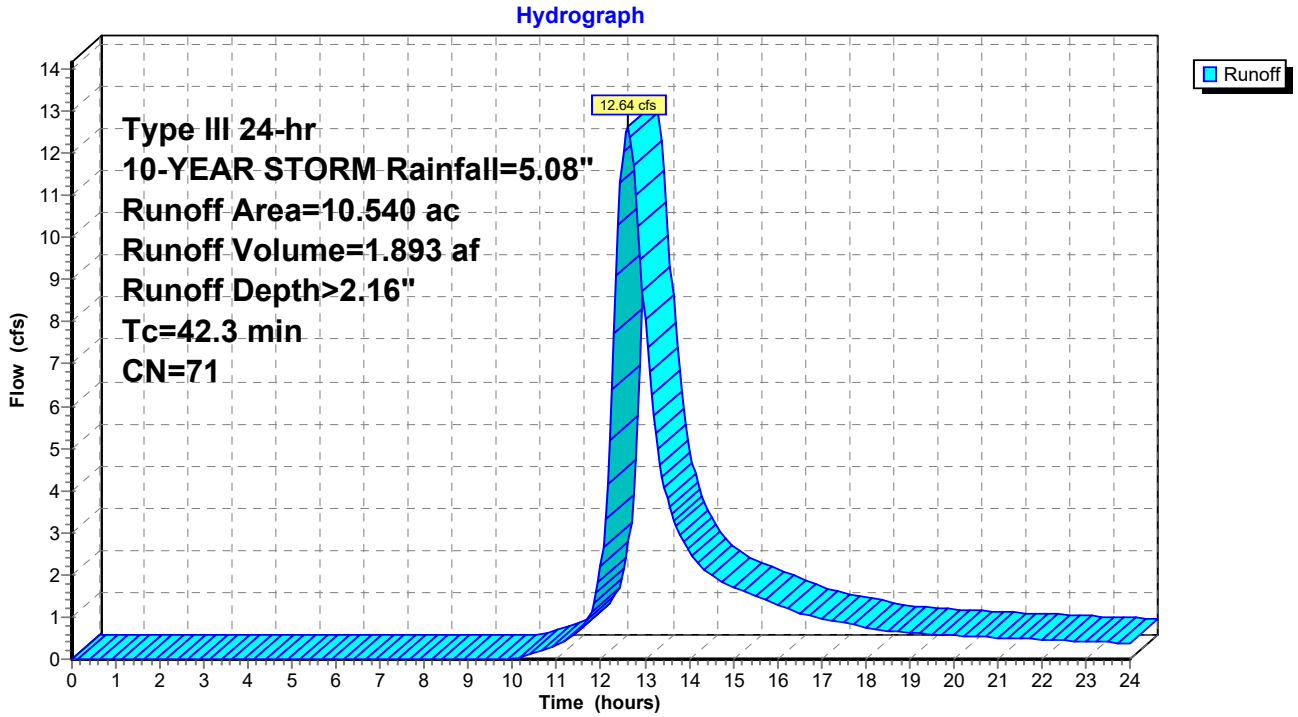
Runoff = 12.64 cfs @ 12.61 hrs, Volume= 1.893 af, Depth> 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	10.540	71	
	10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.3					**Direct Entry, SCS TR-55**

Subcatchment 1B:



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.00
9.50	0.84	0.00	0.00
9.75	0.90	0.00	0.00
10.00	0.96	0.00	0.03
10.25	1.03	0.01	0.07
10.50	1.10	0.02	0.14
10.75	1.18	0.03	0.23
11.00	1.27	0.05	0.35
11.25	1.38	0.07	0.49
11.50	1.51	0.10	0.69
11.75	1.80	0.19	1.05
12.00	2.54	0.51	2.20
12.25	3.28	0.92	6.40
12.50	3.57	1.11	**12.03**
12.75	3.70	1.19	**11.69**
13.00	3.81	1.27	8.04
13.25	3.90	1.33	5.34
13.50	3.98	1.38	3.83
13.75	4.05	1.43	3.02
14.00	4.12	1.48	2.56
14.25	4.18	1.52	2.24
14.50	4.24	1.56	2.00
14.75	4.29	1.60	1.84
15.00	4.34	1.63	1.72
15.25	4.39	1.66	1.61
15.50	4.43	1.69	1.50
15.75	4.47	1.72	1.40
16.00	4.50	1.75	1.30
16.25	4.53	1.77	1.19
16.50	4.56	1.79	1.09
16.75	4.59	1.81	1.02
17.00	4.62	1.83	0.96
17.25	4.65	1.85	0.91
17.50	4.67	1.87	0.86
17.75	4.69	1.89	0.81
18.00	4.71	1.90	0.76
18.25	4.73	1.92	0.72
18.50	4.75	1.93	0.67
18.75	4.77	1.95	0.64
19.00	4.79	1.96	0.62
19.25	4.81	1.97	0.61
19.50	4.83	1.99	0.59
19.75	4.84	2.00	0.58
20.00	4.86	2.01	0.56
20.25	4.88	2.02	0.55
20.50	4.89	2.04	0.53
20.75	4.91	2.05	0.52
21.00	4.92	2.06	0.51
21.25	4.94	2.07	0.50
21.50	4.95	2.08	0.49
21.75	4.97	2.09	0.48
22.00	4.98	2.10	0.47
22.25	5.00	2.11	0.46
22.50	5.01	2.12	0.44
22.75	5.02	2.13	0.43
23.00	5.03	2.14	0.42
23.25	5.05	2.15	0.41
23.50	5.06	2.16	0.40
23.75	5.07	2.17	0.39
24.00	**5.08**	**2.18**	0.38

Summary for Subcatchment 1C:

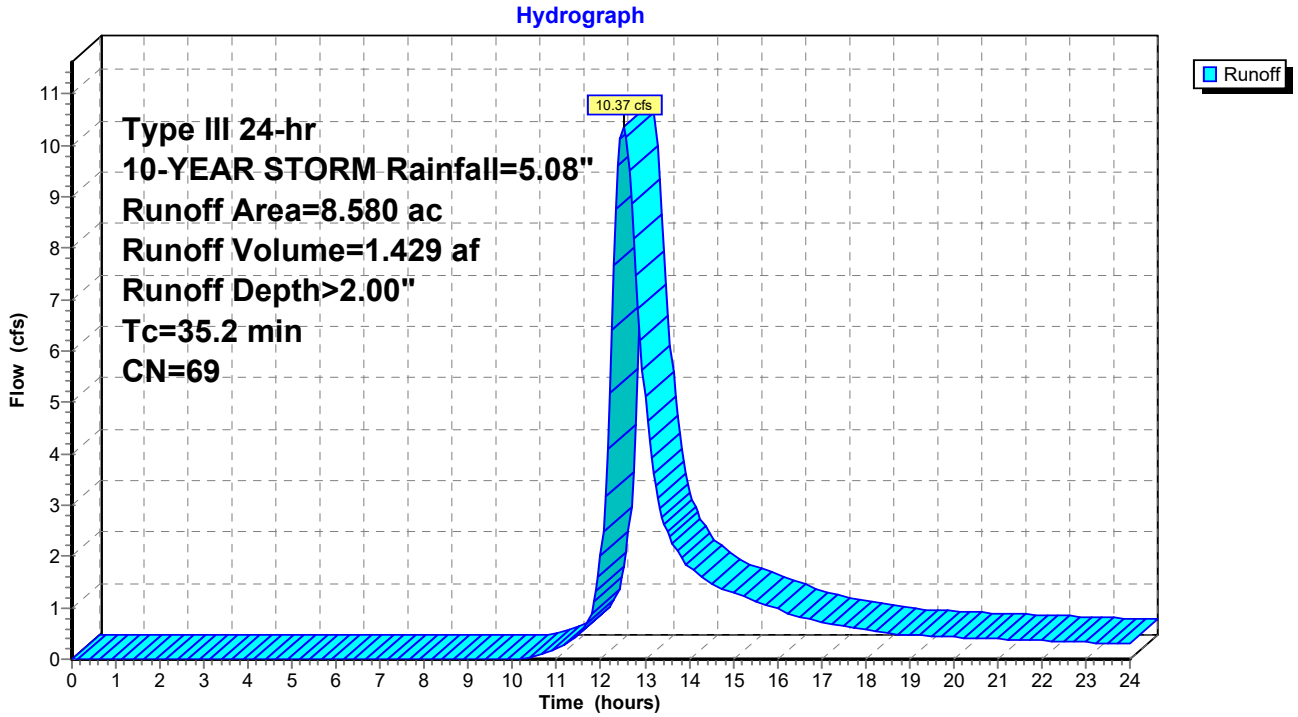
Runoff = 10.37 cfs @ 12.52 hrs, Volume= 1.429 af, Depth> 2.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	8.580	69	
	8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2					**Direct Entry, SCS TR-55**

Subcatchment 1C:



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.00
9.50	0.84	0.00	0.00
9.75	0.90	0.00	0.00
10.00	0.96	0.00	0.00
10.25	1.03	0.00	0.02
10.50	1.10	0.01	0.06
10.75	1.18	0.02	0.13
11.00	1.27	0.03	0.22
11.25	1.38	0.05	0.33
11.50	1.51	0.07	0.50
11.75	1.80	0.15	0.82
12.00	2.54	0.44	2.00
12.25	3.28	0.82	6.41
12.50	3.57	0.99	**10.36**
12.75	3.70	1.08	8.16
13.00	3.81	1.14	5.10
13.25	3.90	1.20	3.36
13.50	3.98	1.25	2.49
13.75	4.05	1.30	2.06
14.00	4.12	1.35	1.81
14.25	4.18	1.39	1.62
14.50	4.24	1.42	1.48
14.75	4.29	1.46	1.38
15.00	4.34	1.49	1.29
15.25	4.39	1.52	1.21
15.50	4.43	1.55	1.13
15.75	4.47	1.58	1.05
16.00	4.50	1.60	0.97
16.25	4.53	1.63	0.89
16.50	4.56	1.65	0.82
16.75	4.59	1.67	0.77
17.00	4.62	1.69	0.73
17.25	4.65	1.70	0.69
17.50	4.67	1.72	0.65
17.75	4.69	1.74	0.62
18.00	4.71	1.75	0.58
18.25	4.73	1.77	0.54
18.50	4.75	1.78	0.51
18.75	4.77	1.79	0.49
19.00	4.79	1.81	0.48
19.25	4.81	1.82	0.47
19.50	4.83	1.83	0.46
19.75	4.84	1.85	0.45
20.00	4.86	1.86	0.43
20.25	4.88	1.87	0.42
20.50	4.89	1.88	0.41
20.75	4.91	1.89	0.40
21.00	4.92	1.90	0.40
21.25	4.94	1.91	0.39
21.50	4.95	1.92	0.38
21.75	4.97	1.93	0.37
22.00	4.98	1.94	0.36
22.25	5.00	1.95	0.35
22.50	5.01	1.96	0.34
22.75	5.02	1.97	0.34
23.00	5.03	1.98	0.33
23.25	5.05	1.99	0.32
23.50	5.06	2.00	0.31
23.75	5.07	2.01	0.30
24.00	**5.08**	**2.02**	0.29

Summary for Subcatchment 2:

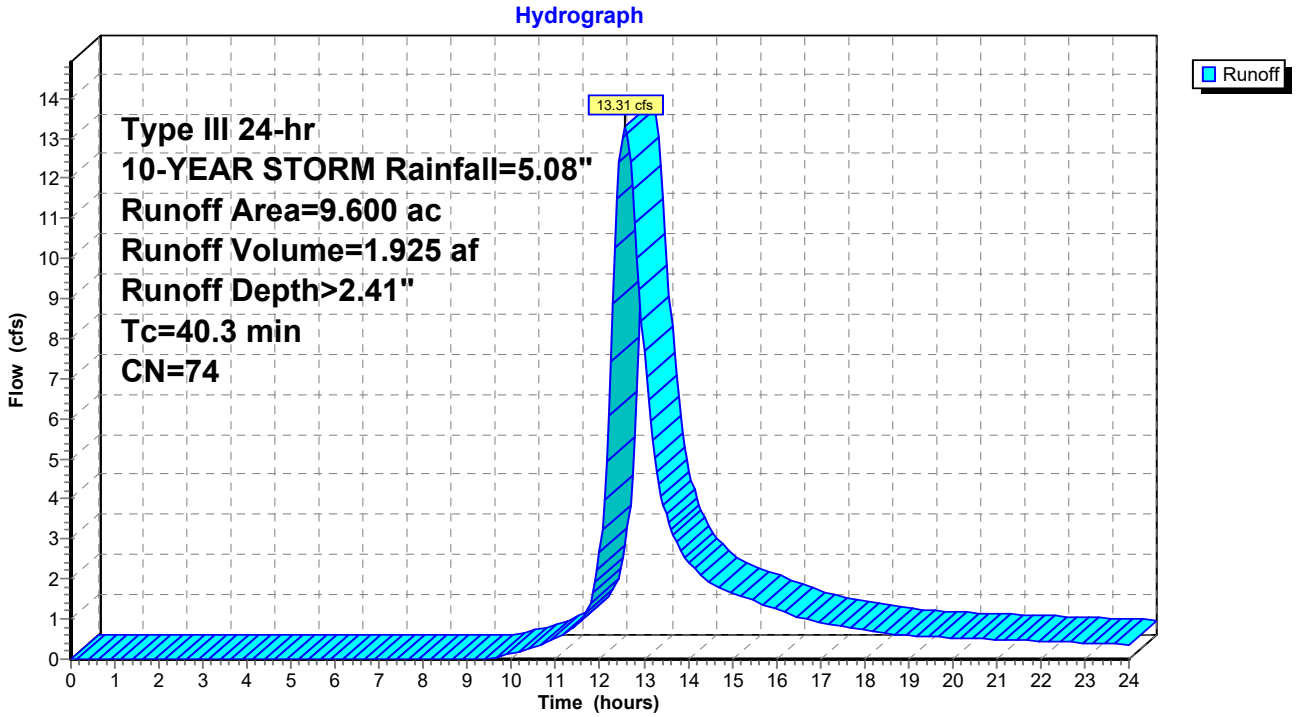
Runoff = 13.31 cfs @ 12.57 hrs, Volume= 1.925 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	9.600	74	
	9.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.3					**Direct Entry, SCS TR-55**

Subcatchment 2:



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.01
9.50	0.84	0.01	0.03
9.75	0.90	0.01	0.08
10.00	0.96	0.02	0.14
10.25	1.03	0.03	0.20
10.50	1.10	0.04	0.29
10.75	1.18	0.06	0.39
11.00	1.27	0.08	0.52
11.25	1.38	0.11	0.68
11.50	1.51	0.15	0.90
11.75	1.80	0.26	1.32
12.00	2.54	0.63	2.66
12.25	3.28	1.09	7.43
12.50	3.57	1.29	**13.02**
12.75	3.70	1.38	**11.71**
13.00	3.81	1.46	7.71
13.25	3.90	1.52	5.04
13.50	3.98	1.58	3.61
13.75	4.05	1.64	2.87
14.00	4.12	1.68	2.44
14.25	4.18	1.73	2.14
14.50	4.24	1.77	1.92
14.75	4.29	1.81	1.77
15.00	4.34	1.85	1.66
15.25	4.39	1.88	1.55
15.50	4.43	1.92	1.45
15.75	4.47	1.95	1.35
16.00	4.50	1.97	1.24
16.25	4.53	2.00	1.14
16.50	4.56	2.02	1.05
16.75	4.59	2.04	0.98
17.00	4.62	2.07	0.92
17.25	4.65	2.09	0.87
17.50	4.67	2.10	0.83
17.75	4.69	2.12	0.78
18.00	4.71	2.14	0.73
18.25	4.73	2.15	0.69
18.50	4.75	2.17	0.65
18.75	4.77	2.18	0.62
19.00	4.79	2.20	0.60
19.25	4.81	2.21	0.58
19.50	4.83	2.23	0.57
19.75	4.84	2.24	0.55
20.00	4.86	2.25	0.54
20.25	4.88	2.27	0.53
20.50	4.89	2.28	0.51
20.75	4.91	2.29	0.50
21.00	4.92	2.30	0.49
21.25	4.94	2.32	0.48
21.50	4.95	2.33	0.47
21.75	4.97	2.34	0.46
22.00	4.98	2.35	0.45
22.25	5.00	2.36	0.44
22.50	5.01	2.37	0.43
22.75	5.02	2.38	0.42
23.00	5.03	2.39	0.40
23.25	5.05	2.40	0.39
23.50	5.06	2.41	0.38
23.75	5.07	2.42	0.37
24.00	**5.08**	**2.43**	0.36

Summary for Subcatchment 3:

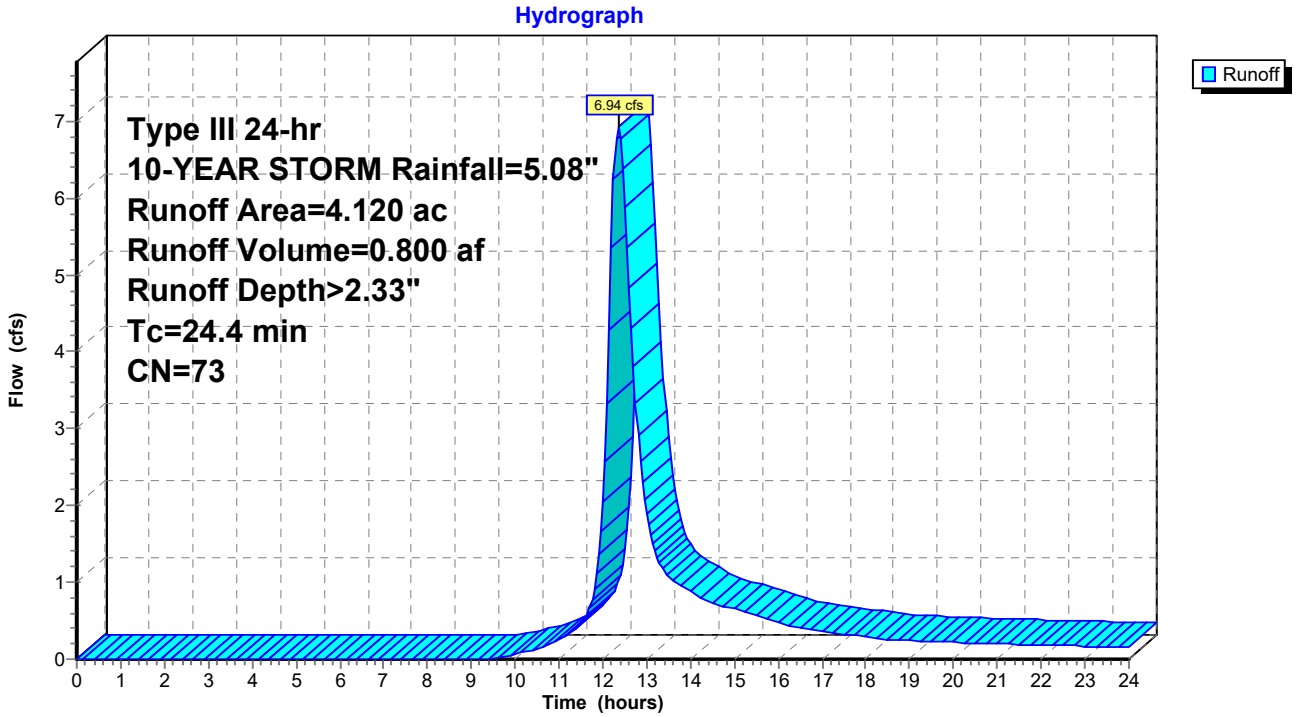
Runoff = 6.94 cfs @ 12.35 hrs, Volume= 0.800 af, Depth> 2.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	4.120	73	
	4.120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.4					**Direct Entry, SCS TR-55**

Subcatchment 3:



Hydrograph for Subcatchment 3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.00
9.50	0.84	0.00	0.01
9.75	0.90	0.01	0.04
10.00	0.96	0.01	0.06
10.25	1.03	0.02	0.10
10.50	1.10	0.03	0.14
10.75	1.18	0.05	0.19
11.00	1.27	0.07	0.25
11.25	1.38	0.09	0.33
11.50	1.51	0.13	0.47
11.75	1.80	0.24	0.77
12.00	2.54	0.59	2.06
12.25	3.28	1.03	**6.24**
12.50	3.57	1.22	**5.89**
12.75	3.70	1.32	3.34
13.00	3.81	1.39	1.90
13.25	3.90	1.46	1.33
13.50	3.98	1.51	1.08
13.75	4.05	1.57	0.97
14.00	4.12	1.61	0.88
14.25	4.18	1.66	0.80
14.50	4.24	1.70	0.74
14.75	4.29	1.74	0.69
15.00	4.34	1.78	0.65
15.25	4.39	1.81	0.61
15.50	4.43	1.84	0.57
15.75	4.47	1.87	0.52
16.00	4.50	1.90	0.48
16.25	4.53	1.92	0.44
16.50	4.56	1.94	0.41
16.75	4.59	1.97	0.39
17.00	4.62	1.99	0.37
17.25	4.65	2.01	0.35
17.50	4.67	2.03	0.33
17.75	4.69	2.04	0.31
18.00	4.71	2.06	0.29
18.25	4.73	2.07	0.27
18.50	4.75	2.09	0.26
18.75	4.77	2.10	0.25
19.00	4.79	2.12	0.25
19.25	4.81	2.13	0.24
19.50	4.83	2.15	0.23
19.75	4.84	2.16	0.23
20.00	4.86	2.17	0.22
20.25	4.88	2.19	0.22
20.50	4.89	2.20	0.21
20.75	4.91	2.21	0.21
21.00	4.92	2.22	0.20
21.25	4.94	2.23	0.20
21.50	4.95	2.24	0.19
21.75	4.97	2.26	0.19
22.00	4.98	2.27	0.18
22.25	5.00	2.28	0.18
22.50	5.01	2.29	0.18
22.75	5.02	2.30	0.17
23.00	5.03	2.31	0.17
23.25	5.05	2.32	0.16
23.50	5.06	2.33	0.16
23.75	5.07	2.33	0.15
24.00	**5.08**	**2.34**	0.15

Summary for Subcatchment 4:

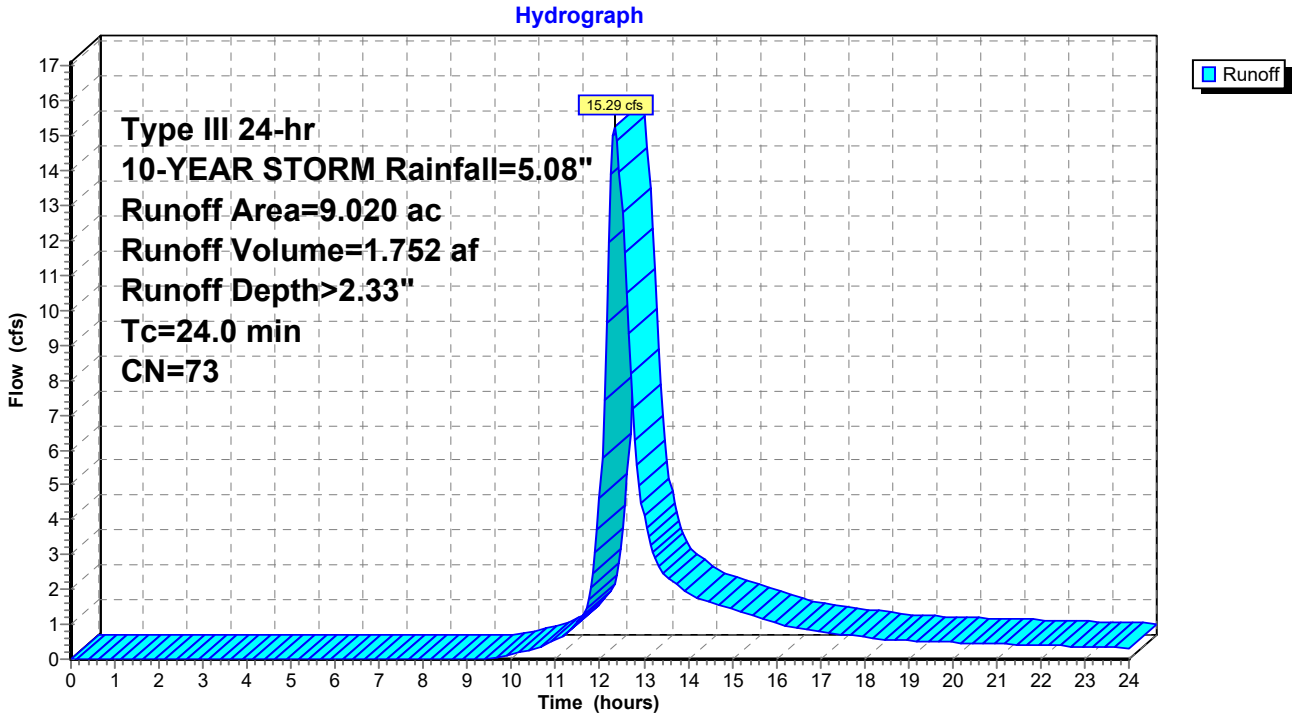
Runoff = 15.29 cfs @ 12.34 hrs, Volume= 1.752 af, Depth> 2.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	9.020	73	
	9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					**Direct Entry, SCS TR-55**

Subcatchment 4:



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.00
9.50	0.84	0.00	0.03
9.75	0.90	0.01	0.08
10.00	0.96	0.01	0.14
10.25	1.03	0.02	0.21
10.50	1.10	0.03	0.31
10.75	1.18	0.05	0.42
11.00	1.27	0.07	0.56
11.25	1.38	0.09	0.73
11.50	1.51	0.13	1.04
11.75	1.80	0.24	1.71
12.00	2.54	0.59	4.60
12.25	3.28	1.03	**13.89**
12.50	3.57	1.22	**12.81**
12.75	3.70	1.32	7.18
13.00	3.81	1.39	4.10
13.25	3.90	1.46	2.89
13.50	3.98	1.51	2.36
13.75	4.05	1.57	2.12
14.00	4.12	1.61	1.92
14.25	4.18	1.66	1.74
14.50	4.24	1.70	1.61
14.75	4.29	1.74	1.52
15.00	4.34	1.78	1.42
15.25	4.39	1.81	1.33
15.50	4.43	1.84	1.24
15.75	4.47	1.87	1.14
16.00	4.50	1.90	1.05
16.25	4.53	1.92	0.96
16.50	4.56	1.94	0.89
16.75	4.59	1.97	0.84
17.00	4.62	1.99	0.80
17.25	4.65	2.01	0.76
17.50	4.67	2.03	0.72
17.75	4.69	2.04	0.67
18.00	4.71	2.06	0.63
18.25	4.73	2.07	0.59
18.50	4.75	2.09	0.56
18.75	4.77	2.10	0.55
19.00	4.79	2.12	0.54
19.25	4.81	2.13	0.52
19.50	4.83	2.15	0.51
19.75	4.84	2.16	0.50
20.00	4.86	2.17	0.49
20.25	4.88	2.19	0.47
20.50	4.89	2.20	0.46
20.75	4.91	2.21	0.45
21.00	4.92	2.22	0.44
21.25	4.94	2.23	0.43
21.50	4.95	2.24	0.42
21.75	4.97	2.26	0.41
22.00	4.98	2.27	0.40
22.25	5.00	2.28	0.39
22.50	5.01	2.29	0.38
22.75	5.02	2.30	0.37
23.00	5.03	2.31	0.36
23.25	5.05	2.32	0.35
23.50	5.06	2.33	0.34
23.75	5.07	2.33	0.33
24.00	**5.08**	**2.34**	0.32

Summary for Subcatchment 5:

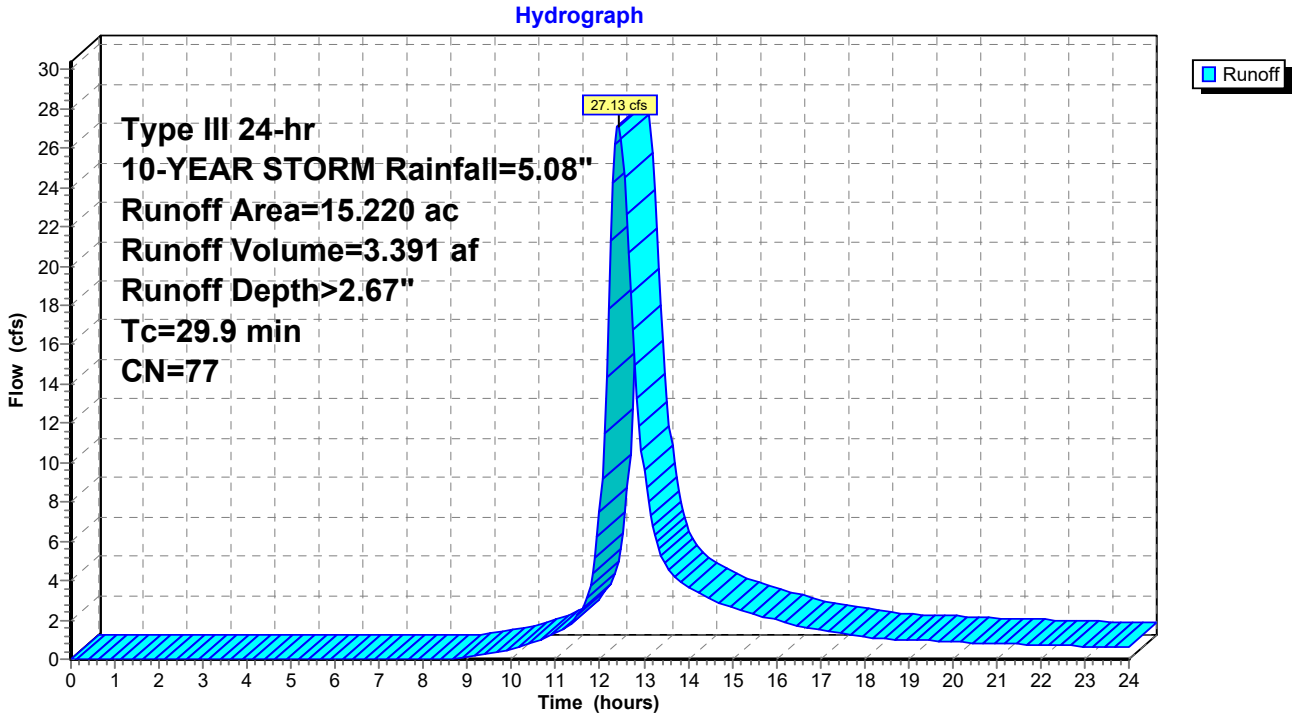
Runoff = 27.13 cfs @ 12.42 hrs, Volume= 3.391 af, Depth> 2.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	15.220	77	
	15.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.9					**Direct Entry, SCS TR-55**

Subcatchment 5:



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.01
8.75	0.69	0.00	0.05
9.00	0.74	0.01	0.11
9.25	0.79	0.01	0.19
9.50	0.84	0.02	0.28
9.75	0.90	0.03	0.39
10.00	0.96	0.04	0.52
10.25	1.03	0.05	0.66
10.50	1.10	0.07	0.84
10.75	1.18	0.10	1.06
11.00	1.27	0.12	1.33
11.25	1.38	0.16	1.65
11.50	1.51	0.22	2.18
11.75	1.80	0.35	3.26
12.00	2.54	0.77	7.49
12.25	3.28	1.27	**21.30**
12.50	3.57	1.48	**26.05**
12.75	3.70	1.58	16.75
13.00	3.81	1.66	9.58
13.25	3.90	1.73	6.34
13.50	3.98	1.80	4.84
13.75	4.05	1.85	4.11
14.00	4.12	1.91	3.68
14.25	4.18	1.95	3.32
14.50	4.24	2.00	3.04
14.75	4.29	2.04	2.84
15.00	4.34	2.08	2.66
15.25	4.39	2.12	2.49
15.50	4.43	2.15	2.32
15.75	4.47	2.18	2.15
16.00	4.50	2.21	1.97
16.25	4.53	2.24	1.80
16.50	4.56	2.26	1.66
16.75	4.59	2.29	1.57
17.00	4.62	2.31	1.48
17.25	4.65	2.33	1.41
17.50	4.67	2.35	1.33
17.75	4.69	2.37	1.25
18.00	4.71	2.39	1.17
18.25	4.73	2.40	1.10
18.50	4.75	2.42	1.04
18.75	4.77	2.43	1.00
19.00	4.79	2.45	0.98
19.25	4.81	2.46	0.95
19.50	4.83	2.48	0.93
19.75	4.84	2.49	0.91
20.00	4.86	2.51	0.88
20.25	4.88	2.52	0.86
20.50	4.89	2.53	0.84
20.75	4.91	2.55	0.82
21.00	4.92	2.56	0.80
21.25	4.94	2.57	0.79
21.50	4.95	2.58	0.77
21.75	4.97	2.60	0.75
22.00	4.98	2.61	0.73
22.25	5.00	2.62	0.72
22.50	5.01	2.63	0.70
22.75	5.02	2.64	0.68
23.00	5.03	2.65	0.66
23.25	5.05	2.66	0.64
23.50	5.06	2.67	0.63
23.75	5.07	2.68	0.61
24.00	**5.08**	**2.69**	0.59

Summary for Pond 1A - Pond: 1A - Pond

Inflow Area = 4.690 ac, 0.00% Impervious, Inflow Depth > 2.32" for 10-YEAR STORM event
Inflow = 6.07 cfs @ 12.61 hrs, Volume= 0.907 af
Outflow = 1.05 cfs @ 14.26 hrs, Volume= 0.406 af, Atten= 83%, Lag= 99.1 min
Primary = 1.05 cfs @ 14.26 hrs, Volume= 0.406 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 129.52' @ 14.26 hrs Surf.Area= 0.272 ac Storage= 0.542 af

Plug-Flow detention time= 282.6 min calculated for 0.406 af (45% of inflow)
Center-of-Mass det. time= 161.5 min (1,028.8 - 867.3)

Volume	Invert	Avail.Storage	Storage Description
#1	127.25'	0.975 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

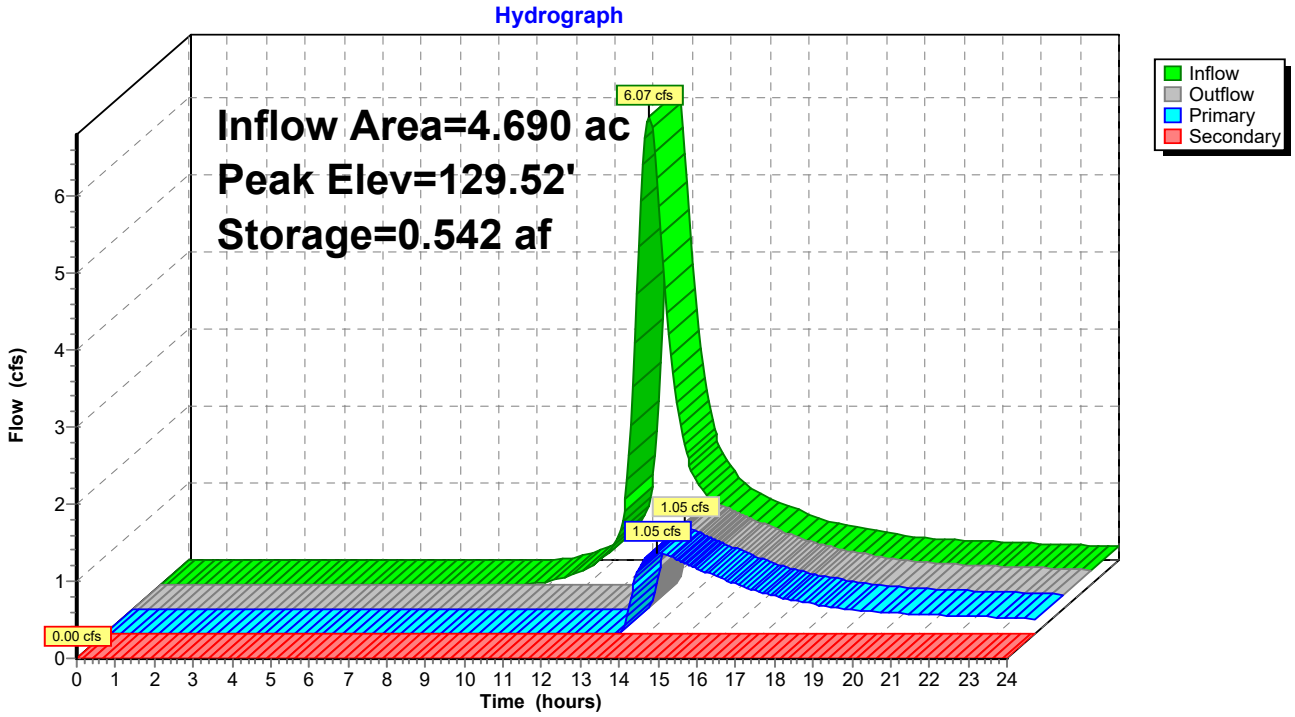
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
127.25	0.200	0.000	0.000
128.00	0.230	0.161	0.161
129.00	0.257	0.244	0.405
130.00	0.285	0.271	0.676
131.00	0.314	0.300	0.975

Device	Routing	Invert	Outlet Devices
#1	Secondary	130.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	127.25'	**18.0" Round Culvert** L= 55.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 127.25' / 127.00' S= 0.0045 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#3	Device 2	129.30'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	127.25'	**0.5" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.05 cfs @ 14.26 hrs HW=129.52' (Free Discharge)
└**2=Culvert** (Passes 1.05 cfs of 9.32 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 1.04 cfs @ 1.61 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.01 cfs @ 7.22 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=127.25' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A - Pond: 1A - Pond



Hydrograph for Pond 1A - Pond: 1A - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	127.25	0.00	0.00	**0.00**
0.50	0.00	0.000	127.25	0.00	0.00	0.00
1.00	0.00	0.000	127.25	0.00	0.00	0.00
1.50	0.00	0.000	127.25	0.00	0.00	0.00
2.00	0.00	0.000	127.25	0.00	0.00	0.00
2.50	0.00	0.000	127.25	0.00	0.00	0.00
3.00	0.00	0.000	127.25	0.00	0.00	0.00
3.50	0.00	0.000	127.25	0.00	0.00	0.00
4.00	0.00	0.000	127.25	0.00	0.00	0.00
4.50	0.00	0.000	127.25	0.00	0.00	0.00
5.00	0.00	0.000	127.25	0.00	0.00	0.00
5.50	0.00	0.000	127.25	0.00	0.00	0.00
6.00	0.00	0.000	127.25	0.00	0.00	0.00
6.50	0.00	0.000	127.25	0.00	0.00	0.00
7.00	0.00	0.000	127.25	0.00	0.00	0.00
7.50	0.00	0.000	127.25	0.00	0.00	0.00
8.00	0.00	0.000	127.25	0.00	0.00	0.00
8.50	0.00	0.000	127.25	0.00	0.00	0.00
9.00	0.00	0.000	127.25	0.00	0.00	0.00
9.50	0.00	0.000	127.25	0.00	0.00	0.00
10.00	0.04	0.001	127.25	0.00	0.00	0.00
10.50	0.11	0.004	127.27	0.00	0.00	0.00
11.00	0.21	0.010	127.30	0.00	0.00	0.00
11.50	0.39	0.022	127.36	0.00	0.00	0.00
12.00	1.12	0.048	127.48	0.00	0.00	0.00
12.50	**5.79**	0.184	128.10	0.01	0.01	0.00
13.00	**3.85**	0.404	129.00	0.01	0.01	0.00
13.50	1.82	0.511	129.40	0.34	0.34	0.00
14.00	1.20	**0.540**	**129.51**	**1.00**	**1.00**	0.00
14.50	0.94	**0.541**	**129.51**	**1.02**	**1.02**	0.00
15.00	0.80	0.536	129.50	0.91	0.91	0.00
15.50	0.70	0.532	129.48	0.80	0.80	0.00
16.00	0.60	0.528	129.47	0.70	0.70	0.00
16.50	0.51	0.524	129.45	0.61	0.61	0.00
17.00	0.45	0.520	129.44	0.53	0.53	0.00
17.50	0.40	0.517	129.43	0.46	0.46	0.00
18.00	0.35	0.514	129.42	0.41	0.41	0.00
18.50	0.31	0.512	129.41	0.37	0.37	0.00
19.00	0.29	0.510	129.40	0.33	0.33	0.00
19.50	0.27	0.508	129.39	0.30	0.30	0.00
20.00	0.26	0.507	129.39	0.28	0.28	0.00
20.50	0.25	0.506	129.39	0.27	0.27	0.00
21.00	0.24	0.506	129.38	0.26	0.26	0.00
21.50	0.23	0.505	129.38	0.24	0.24	0.00
22.00	0.22	0.504	129.38	0.23	0.23	0.00
22.50	0.21	0.503	129.38	0.22	0.22	0.00
23.00	0.20	0.503	129.37	0.21	0.21	0.00
23.50	0.18	0.502	129.37	0.20	0.20	0.00
24.00	0.17	0.501	129.37	0.19	0.19	0.00

Summary for Pond 1B - Pond: 1B - Pond

Inflow Area = 10.540 ac, 0.00% Impervious, Inflow Depth > 2.16" for 10-YEAR STORM event
Inflow = 12.64 cfs @ 12.61 hrs, Volume= 1.893 af
Outflow = 3.96 cfs @ 13.47 hrs, Volume= 1.084 af, Atten= 69%, Lag= 52.0 min
Primary = 3.96 cfs @ 13.47 hrs, Volume= 1.084 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 127.01' @ 13.47 hrs Surf.Area= 0.290 ac Storage= 0.924 af

Plug-Flow detention time= 223.8 min calculated for 1.084 af (57% of inflow)
Center-of-Mass det. time= 111.5 min (983.5 - 872.0)

Volume	Invert	Avail.Storage	Storage Description
#1	123.00'	1.560 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

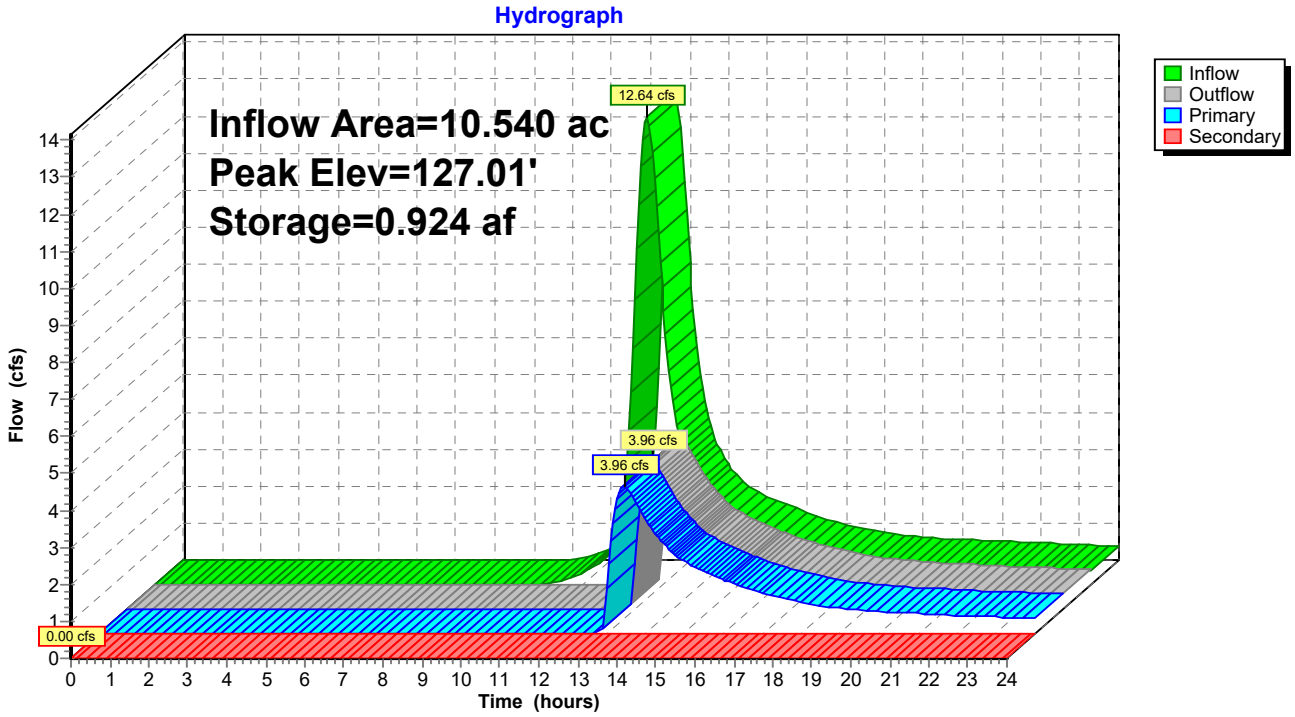
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
123.00	0.170	0.000	0.000
124.00	0.200	0.185	0.185
125.00	0.230	0.215	0.400
126.00	0.260	0.245	0.645
127.00	0.290	0.275	0.920
128.00	0.320	0.305	1.225
129.00	0.350	0.335	1.560

Device	Routing	Invert	Outlet Devices
#1	Primary	123.00'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 123.00' / 122.00' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	128.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	126.50'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	123.00'	**0.7" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=3.96 cfs @ 13.47 hrs HW=127.01' (Free Discharge)
↑└**1=Culvert** (Passes 3.96 cfs of 15.37 cfs potential flow)
↑ └**3=Sharp-Crested Rectangular Weir** (Weir Controls 3.93 cfs @ 2.64 fps)
└**4=Orifice/Grate** (Orifice Controls 0.03 cfs @ 9.61 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=123.00' (Free Discharge)
↑└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1B - Pond: 1B - Pond



Hydrograph for Pond 1B - Pond: 1B - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	123.00	0.00	0.00	**0.00**
0.50	0.00	0.000	123.00	0.00	0.00	0.00
1.00	0.00	0.000	123.00	0.00	0.00	0.00
1.50	0.00	0.000	123.00	0.00	0.00	0.00
2.00	0.00	0.000	123.00	0.00	0.00	0.00
2.50	0.00	0.000	123.00	0.00	0.00	0.00
3.00	0.00	0.000	123.00	0.00	0.00	0.00
3.50	0.00	0.000	123.00	0.00	0.00	0.00
4.00	0.00	0.000	123.00	0.00	0.00	0.00
4.50	0.00	0.000	123.00	0.00	0.00	0.00
5.00	0.00	0.000	123.00	0.00	0.00	0.00
5.50	0.00	0.000	123.00	0.00	0.00	0.00
6.00	0.00	0.000	123.00	0.00	0.00	0.00
6.50	0.00	0.000	123.00	0.00	0.00	0.00
7.00	0.00	0.000	123.00	0.00	0.00	0.00
7.50	0.00	0.000	123.00	0.00	0.00	0.00
8.00	0.00	0.000	123.00	0.00	0.00	0.00
8.50	0.00	0.000	123.00	0.00	0.00	0.00
9.00	0.00	0.000	123.00	0.00	0.00	0.00
9.50	0.00	0.000	123.00	0.00	0.00	0.00
10.00	0.03	0.000	123.00	0.00	0.00	0.00
10.50	0.14	0.003	123.02	0.00	0.00	0.00
11.00	0.35	0.013	123.08	0.00	0.00	0.00
11.50	0.69	0.034	123.19	0.01	0.01	0.00
12.00	2.20	0.082	123.46	0.01	0.01	0.00
12.50	**12.03**	0.360	124.82	0.02	0.02	0.00
13.00	**8.04**	**0.817**	**126.64**	**0.55**	**0.55**	0.00
13.50	3.83	**0.924**	**127.01**	**3.96**	**3.96**	0.00
14.00	2.56	0.903	126.94	3.13	3.13	0.00
14.50	2.00	0.883	126.87	2.40	2.40	0.00
15.00	1.72	0.870	126.83	1.97	1.97	0.00
15.50	1.50	0.861	126.80	1.69	1.69	0.00
16.00	1.30	0.854	126.77	1.47	1.47	0.00
16.50	1.09	0.847	126.74	1.27	1.27	0.00
17.00	0.96	0.840	126.72	1.09	1.09	0.00
17.50	0.86	0.836	126.70	0.97	0.97	0.00
18.00	0.76	0.831	126.69	0.87	0.87	0.00
18.50	0.67	0.827	126.67	0.77	0.77	0.00
19.00	0.62	0.824	126.66	0.69	0.69	0.00
19.50	0.59	0.822	126.65	0.64	0.64	0.00
20.00	0.56	0.820	126.65	0.60	0.60	0.00
20.50	0.53	0.818	126.64	0.57	0.57	0.00
21.00	0.51	0.817	126.64	0.54	0.54	0.00
21.50	0.49	0.815	126.63	0.52	0.52	0.00
22.00	0.47	0.814	126.63	0.49	0.49	0.00
22.50	0.44	0.813	126.62	0.47	0.47	0.00
23.00	0.42	0.812	126.62	0.45	0.45	0.00
23.50	0.40	0.811	126.62	0.43	0.43	0.00
24.00	0.38	0.810	126.61	0.41	0.41	0.00

Summary for Pond 1C-Pond: 1C - Pond

Inflow Area = 8.580 ac, 0.00% Impervious, Inflow Depth > 2.00" for 10-YEAR STORM event
Inflow = 10.37 cfs @ 12.52 hrs, Volume= 1.429 af
Outflow = 4.05 cfs @ 13.13 hrs, Volume= 0.980 af, Atten= 61%, Lag= 37.0 min
Primary = 4.05 cfs @ 13.13 hrs, Volume= 0.980 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 130.02' @ 13.13 hrs Surf.Area= 0.351 ac Storage= 0.593 af

Plug-Flow detention time= 185.2 min calculated for 0.980 af (69% of inflow)
Center-of-Mass det. time= 85.2 min (956.7 - 871.4)

Volume	Invert	Avail.Storage	Storage Description
#1	128.00'	1.875 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

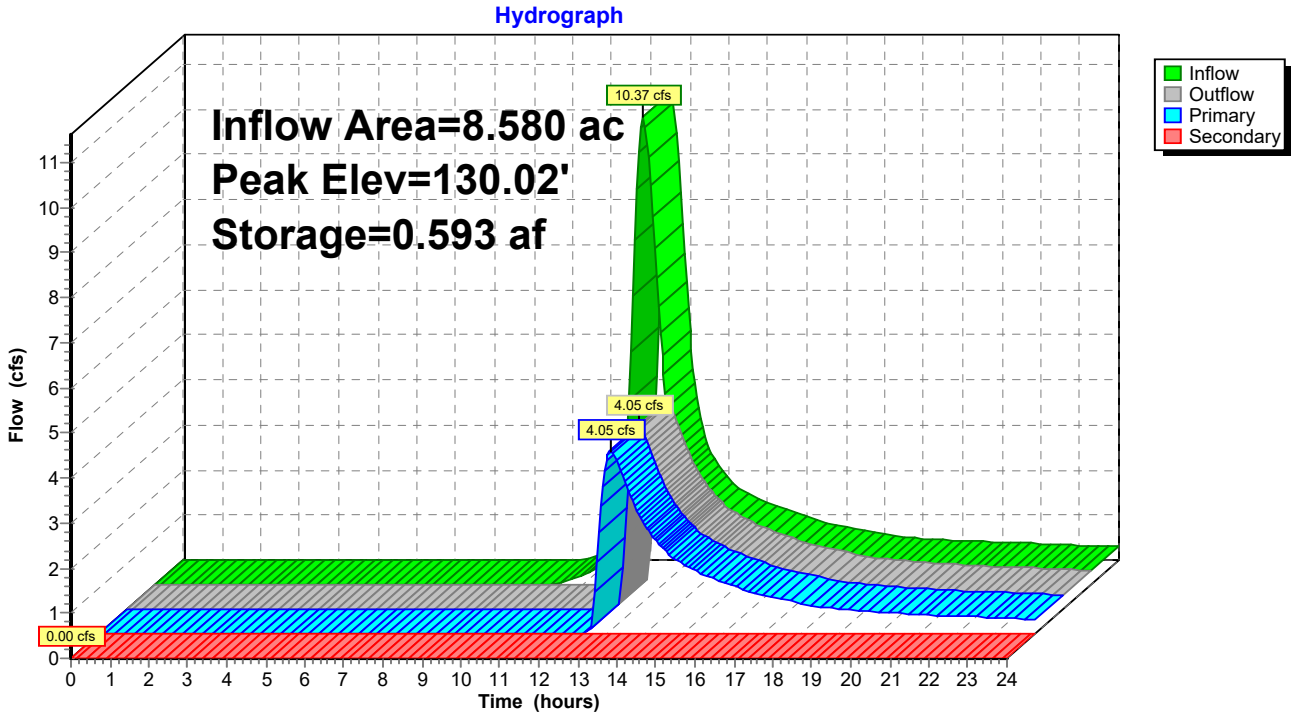
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
128.00	0.240	0.000	0.000
129.00	0.290	0.265	0.265
130.00	0.350	0.320	0.585
131.00	0.400	0.375	0.960
132.00	0.460	0.430	1.390
133.00	0.510	0.485	1.875

Device	Routing	Invert	Outlet Devices
#1	Primary	128.00'	**18.0" Round Culvert** L= 45.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 128.00' / 127.75' S= 0.0056 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	131.75'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	129.50'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	128.00'	**0.7" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=4.04 cfs @ 13.13 hrs HW=130.02' (Free Discharge)
└**1=Culvert** (Passes 4.04 cfs of 8.39 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 4.02 cfs @ 2.66 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.02 cfs @ 6.80 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-Pond: 1C - Pond



Hydrograph for Pond 1C-Pond: 1C - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	128.00	0.00	0.00	**0.00**
0.50	0.00	0.000	128.00	0.00	0.00	0.00
1.00	0.00	0.000	128.00	0.00	0.00	0.00
1.50	0.00	0.000	128.00	0.00	0.00	0.00
2.00	0.00	0.000	128.00	0.00	0.00	0.00
2.50	0.00	0.000	128.00	0.00	0.00	0.00
3.00	0.00	0.000	128.00	0.00	0.00	0.00
3.50	0.00	0.000	128.00	0.00	0.00	0.00
4.00	0.00	0.000	128.00	0.00	0.00	0.00
4.50	0.00	0.000	128.00	0.00	0.00	0.00
5.00	0.00	0.000	128.00	0.00	0.00	0.00
5.50	0.00	0.000	128.00	0.00	0.00	0.00
6.00	0.00	0.000	128.00	0.00	0.00	0.00
6.50	0.00	0.000	128.00	0.00	0.00	0.00
7.00	0.00	0.000	128.00	0.00	0.00	0.00
7.50	0.00	0.000	128.00	0.00	0.00	0.00
8.00	0.00	0.000	128.00	0.00	0.00	0.00
8.50	0.00	0.000	128.00	0.00	0.00	0.00
9.00	0.00	0.000	128.00	0.00	0.00	0.00
9.50	0.00	0.000	128.00	0.00	0.00	0.00
10.00	0.00	0.000	128.00	0.00	0.00	0.00
10.50	0.06	0.001	128.00	0.00	0.00	0.00
11.00	0.22	0.006	128.03	0.00	0.00	0.00
11.50	0.50	0.020	128.08	0.00	0.00	0.00
12.00	2.00	0.060	128.24	0.01	0.01	0.00
12.50	**10.36**	0.323	129.19	0.01	0.01	0.00
13.00	5.10	**0.587**	**130.00**	**3.83**	**3.83**	0.00
13.50	2.49	**0.573**	**129.97**	**3.39**	**3.39**	0.00
14.00	1.81	0.541	129.87	2.41	2.41	0.00
14.50	1.48	0.522	129.82	1.86	1.86	0.00
15.00	1.29	0.509	129.78	1.54	1.54	0.00
15.50	1.13	0.500	129.75	1.32	1.32	0.00
16.00	0.97	0.493	129.73	1.15	1.15	0.00
16.50	0.82	0.486	129.71	0.99	0.99	0.00
17.00	0.73	0.479	129.69	0.86	0.86	0.00
17.50	0.65	0.474	129.68	0.76	0.76	0.00
18.00	0.58	0.470	129.66	0.68	0.68	0.00
18.50	0.51	0.466	129.65	0.60	0.60	0.00
19.00	0.48	0.463	129.64	0.55	0.55	0.00
19.50	0.46	0.460	129.63	0.51	0.51	0.00
20.00	0.43	0.459	129.63	0.48	0.48	0.00
20.50	0.41	0.457	129.62	0.45	0.45	0.00
21.00	0.40	0.456	129.62	0.43	0.43	0.00
21.50	0.38	0.454	129.61	0.41	0.41	0.00
22.00	0.36	0.453	129.61	0.39	0.39	0.00
22.50	0.34	0.452	129.61	0.37	0.37	0.00
23.00	0.33	0.451	129.60	0.35	0.35	0.00
23.50	0.31	0.450	129.60	0.34	0.34	0.00
24.00	0.29	0.449	129.60	0.32	0.32	0.00

Summary for Pond 2 - Pond: 2 - Pond

Inflow Area = 9.600 ac, 0.00% Impervious, Inflow Depth > 2.41" for 10-YEAR STORM event
Inflow = 13.31 cfs @ 12.57 hrs, Volume= 1.925 af
Outflow = 7.15 cfs @ 13.05 hrs, Volume= 1.316 af, Atten= 46%, Lag= 28.4 min
Primary = 7.15 cfs @ 13.05 hrs, Volume= 1.316 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 137.15' @ 13.05 hrs Surf.Area= 0.263 ac Storage= 0.770 af

Plug-Flow detention time= 172.9 min calculated for 1.314 af (68% of inflow)
Center-of-Mass det. time= 76.8 min (939.8 - 863.1)

Volume	Invert	Avail.Storage	Storage Description
#1	133.00'	1.326 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

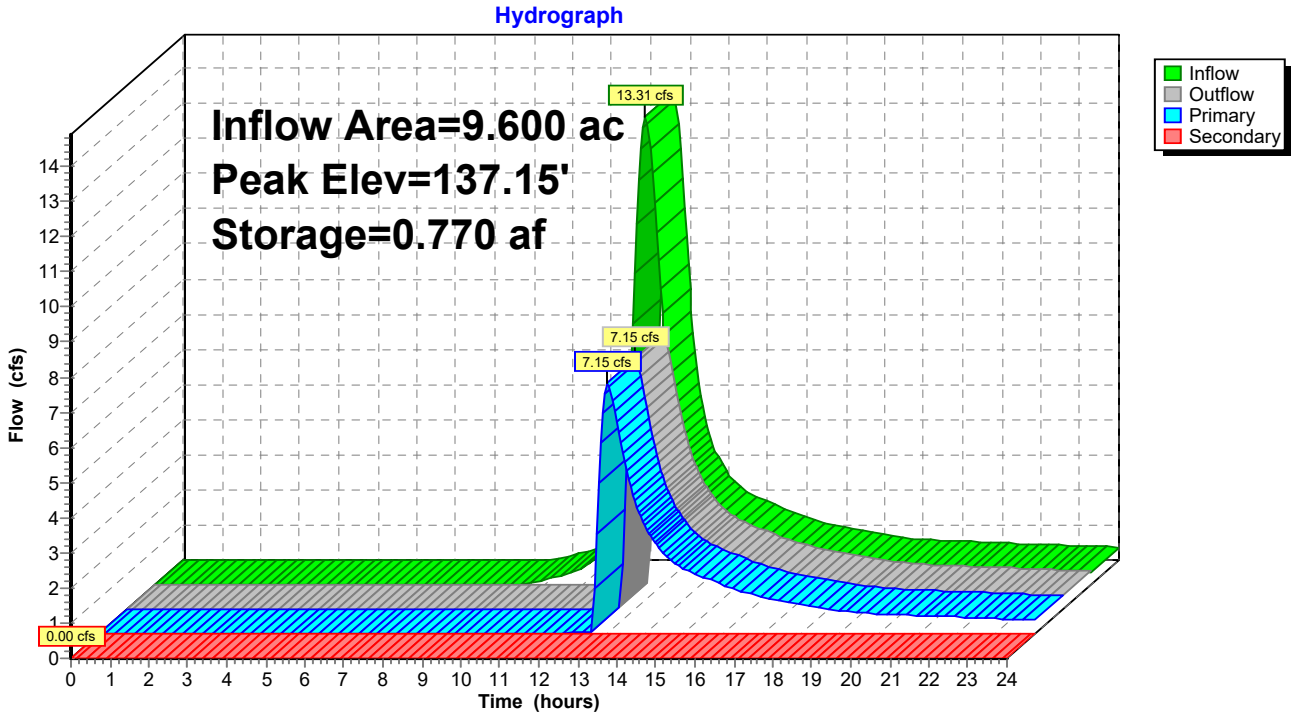
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
133.00	0.113	0.000	0.000
134.00	0.147	0.130	0.130
135.00	0.182	0.164	0.294
136.00	0.218	0.200	0.494
137.00	0.257	0.237	0.732
138.00	0.297	0.277	1.009
139.00	0.338	0.317	1.326

Device	Routing	Invert	Outlet Devices
#1	Device 2	136.40'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#2	Primary	133.00'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.00' / 132.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#3	Secondary	138.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#4	Device 2	133.00'	**1.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=7.14 cfs @ 13.05 hrs HW=137.15' (Free Discharge)
└**2=Culvert** (Passes 7.14 cfs of 15.68 cfs potential flow)
  ├**1=Sharp-Crested Rectangular Weir** (Weir Controls 7.09 cfs @ 3.34 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.05 cfs @ 9.75 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.00' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2 - Pond: 2 - Pond



Hydrograph for Pond 2 - Pond: 2 - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	133.00	0.00	0.00	**0.00**
0.50	0.00	0.000	133.00	0.00	0.00	0.00
1.00	0.00	0.000	133.00	0.00	0.00	0.00
1.50	0.00	0.000	133.00	0.00	0.00	0.00
2.00	0.00	0.000	133.00	0.00	0.00	0.00
2.50	0.00	0.000	133.00	0.00	0.00	0.00
3.00	0.00	0.000	133.00	0.00	0.00	0.00
3.50	0.00	0.000	133.00	0.00	0.00	0.00
4.00	0.00	0.000	133.00	0.00	0.00	0.00
4.50	0.00	0.000	133.00	0.00	0.00	0.00
5.00	0.00	0.000	133.00	0.00	0.00	0.00
5.50	0.00	0.000	133.00	0.00	0.00	0.00
6.00	0.00	0.000	133.00	0.00	0.00	0.00
6.50	0.00	0.000	133.00	0.00	0.00	0.00
7.00	0.00	0.000	133.00	0.00	0.00	0.00
7.50	0.00	0.000	133.00	0.00	0.00	0.00
8.00	0.00	0.000	133.00	0.00	0.00	0.00
8.50	0.00	0.000	133.00	0.00	0.00	0.00
9.00	0.00	0.000	133.00	0.00	0.00	0.00
9.50	0.03	0.000	133.00	0.00	0.00	0.00
10.00	0.14	0.004	133.03	0.00	0.00	0.00
10.50	0.29	0.012	133.10	0.01	0.01	0.00
11.00	0.52	0.028	133.24	0.01	0.01	0.00
11.50	0.90	0.056	133.46	0.02	0.02	0.00
12.00	2.66	0.116	133.90	0.02	0.02	0.00
12.50	**13.02**	0.431	135.70	0.04	0.04	0.00
13.00	**7.71**	**0.769**	**137.14**	**7.09**	**7.09**	0.00
13.50	3.61	**0.728**	**136.98**	**4.87**	**4.87**	0.00
14.00	2.44	0.690	136.83	3.07	3.07	0.00
14.50	1.92	0.671	136.76	2.27	2.27	0.00
15.00	1.66	0.660	136.71	1.86	1.86	0.00
15.50	1.45	0.652	136.68	1.61	1.61	0.00
16.00	1.24	0.646	136.66	1.39	1.39	0.00
16.50	1.05	0.640	136.63	1.20	1.20	0.00
17.00	0.92	0.635	136.61	1.03	1.03	0.00
17.50	0.83	0.631	136.59	0.91	0.91	0.00
18.00	0.73	0.627	136.58	0.82	0.82	0.00
18.50	0.65	0.624	136.56	0.73	0.73	0.00
19.00	0.60	0.621	136.55	0.65	0.65	0.00
19.50	0.57	0.619	136.54	0.60	0.60	0.00
20.00	0.54	0.618	136.54	0.57	0.57	0.00
20.50	0.51	0.616	136.53	0.54	0.54	0.00
21.00	0.49	0.615	136.53	0.52	0.52	0.00
21.50	0.47	0.614	136.52	0.49	0.49	0.00
22.00	0.45	0.613	136.52	0.47	0.47	0.00
22.50	0.43	0.612	136.52	0.45	0.45	0.00
23.00	0.40	0.611	136.51	0.43	0.43	0.00
23.50	0.38	0.610	136.51	0.41	0.41	0.00
24.00	0.36	0.609	136.50	0.39	0.39	0.00

Summary for Pond 3 - Pond: 3 - Pond

Inflow Area = 4.120 ac, 0.00% Impervious, Inflow Depth > 2.33" for 10-YEAR STORM event
Inflow = 6.94 cfs @ 12.35 hrs, Volume= 0.800 af
Outflow = 1.35 cfs @ 13.25 hrs, Volume= 0.413 af, Atten= 81%, Lag= 53.7 min
Primary = 1.35 cfs @ 13.25 hrs, Volume= 0.413 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 171.46' @ 13.25 hrs Surf.Area= 0.190 ac Storage= 0.425 af

Plug-Flow detention time= 246.0 min calculated for 0.413 af (52% of inflow)
Center-of-Mass det. time= 129.1 min (982.2 - 853.1)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	1.043 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

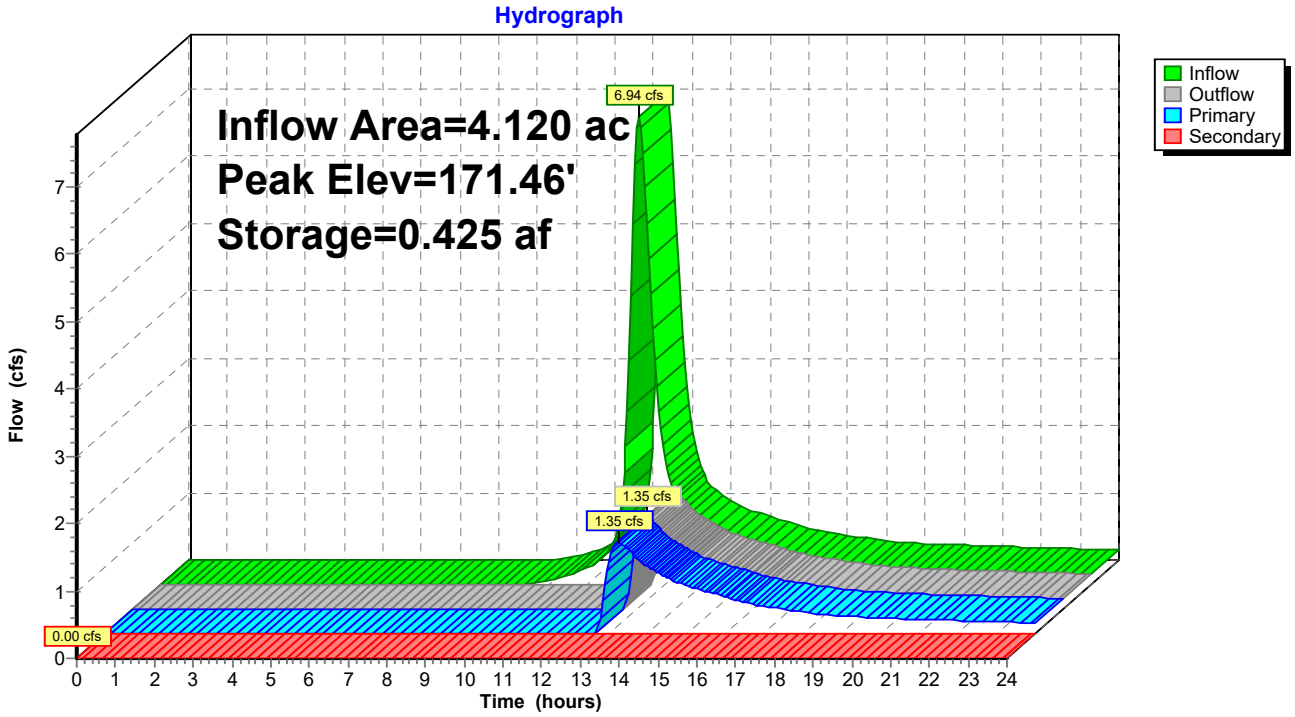
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.058	0.000	0.000
169.00	0.094	0.076	0.076
170.00	0.133	0.113	0.189
171.00	0.172	0.152	0.342
172.00	0.211	0.191	0.533
173.00	0.254	0.233	0.766
174.00	0.299	0.276	1.043

Device	Routing	Invert	Outlet Devices
#1	Primary	168.00'	**18.0" Round Culvert** L= 55.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 168.00' / 164.50' S= 0.0636 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	173.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Device 1	171.20'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	168.00'	**0.4" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.34 cfs @ 13.25 hrs HW=171.46' (Free Discharge)
└**1=Culvert** (Passes 1.34 cfs of 14.00 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 1.33 cfs @ 1.76 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.01 cfs @ 8.93 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=168.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3 - Pond: 3 - Pond



Hydrograph for Pond 3 - Pond: 3 - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	168.00	0.00	0.00	**0.00**
0.50	0.00	0.000	168.00	0.00	0.00	0.00
1.00	0.00	0.000	168.00	0.00	0.00	0.00
1.50	0.00	0.000	168.00	0.00	0.00	0.00
2.00	0.00	0.000	168.00	0.00	0.00	0.00
2.50	0.00	0.000	168.00	0.00	0.00	0.00
3.00	0.00	0.000	168.00	0.00	0.00	0.00
3.50	0.00	0.000	168.00	0.00	0.00	0.00
4.00	0.00	0.000	168.00	0.00	0.00	0.00
4.50	0.00	0.000	168.00	0.00	0.00	0.00
5.00	0.00	0.000	168.00	0.00	0.00	0.00
5.50	0.00	0.000	168.00	0.00	0.00	0.00
6.00	0.00	0.000	168.00	0.00	0.00	0.00
6.50	0.00	0.000	168.00	0.00	0.00	0.00
7.00	0.00	0.000	168.00	0.00	0.00	0.00
7.50	0.00	0.000	168.00	0.00	0.00	0.00
8.00	0.00	0.000	168.00	0.00	0.00	0.00
8.50	0.00	0.000	168.00	0.00	0.00	0.00
9.00	0.00	0.000	168.00	0.00	0.00	0.00
9.50	0.01	0.000	168.00	0.00	0.00	0.00
10.00	0.06	0.002	168.03	0.00	0.00	0.00
10.50	0.14	0.006	168.10	0.00	0.00	0.00
11.00	0.25	0.014	168.22	0.00	0.00	0.00
11.50	0.47	0.028	168.42	0.00	0.00	0.00
12.00	**2.06**	0.066	168.90	0.00	0.00	0.00
12.50	**5.89**	0.284	170.65	0.01	0.01	0.00
13.00	1.90	**0.418**	**171.42**	**1.07**	**1.07**	0.00
13.50	1.08	**0.422**	**171.44**	**1.25**	**1.25**	0.00
14.00	0.88	0.416	171.41	1.01	1.01	0.00
14.50	0.74	0.411	171.39	0.84	0.84	0.00
15.00	0.65	0.408	171.37	0.72	0.72	0.00
15.50	0.57	0.406	171.36	0.63	0.63	0.00
16.00	0.48	0.403	171.34	0.55	0.55	0.00
16.50	0.41	0.400	171.33	0.47	0.47	0.00
17.00	0.37	0.398	171.32	0.41	0.41	0.00
17.50	0.33	0.397	171.31	0.36	0.36	0.00
18.00	0.29	0.395	171.30	0.32	0.32	0.00
18.50	0.26	0.394	171.29	0.29	0.29	0.00
19.00	0.25	0.393	171.29	0.27	0.27	0.00
19.50	0.23	0.392	171.28	0.25	0.25	0.00
20.00	0.22	0.391	171.28	0.24	0.24	0.00
20.50	0.21	0.391	171.27	0.22	0.22	0.00
21.00	0.20	0.390	171.27	0.21	0.21	0.00
21.50	0.19	0.390	171.27	0.20	0.20	0.00
22.00	0.18	0.389	171.27	0.19	0.19	0.00
22.50	0.18	0.389	171.27	0.19	0.19	0.00
23.00	0.17	0.389	171.26	0.18	0.18	0.00
23.50	0.16	0.388	171.26	0.17	0.17	0.00
24.00	0.15	0.388	171.26	0.16	0.16	0.00

Summary for Pond 4 - Pond: 4 - Pond

Inflow Area = 9.020 ac, 0.00% Impervious, Inflow Depth > 2.33" for 10-YEAR STORM event
Inflow = 15.29 cfs @ 12.34 hrs, Volume= 1.752 af
Outflow = 4.56 cfs @ 12.95 hrs, Volume= 1.033 af, Atten= 70%, Lag= 36.1 min
Primary = 4.56 cfs @ 12.95 hrs, Volume= 1.033 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 126.56' @ 12.95 hrs Surf.Area= 10,764 sf Storage= 36,182 cf

Plug-Flow detention time= 213.8 min calculated for 1.033 af (59% of inflow)
Center-of-Mass det. time= 103.0 min (955.8 - 852.8)

Volume	Invert	Avail.Storage	Storage Description
#1	122.00'	66,544 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

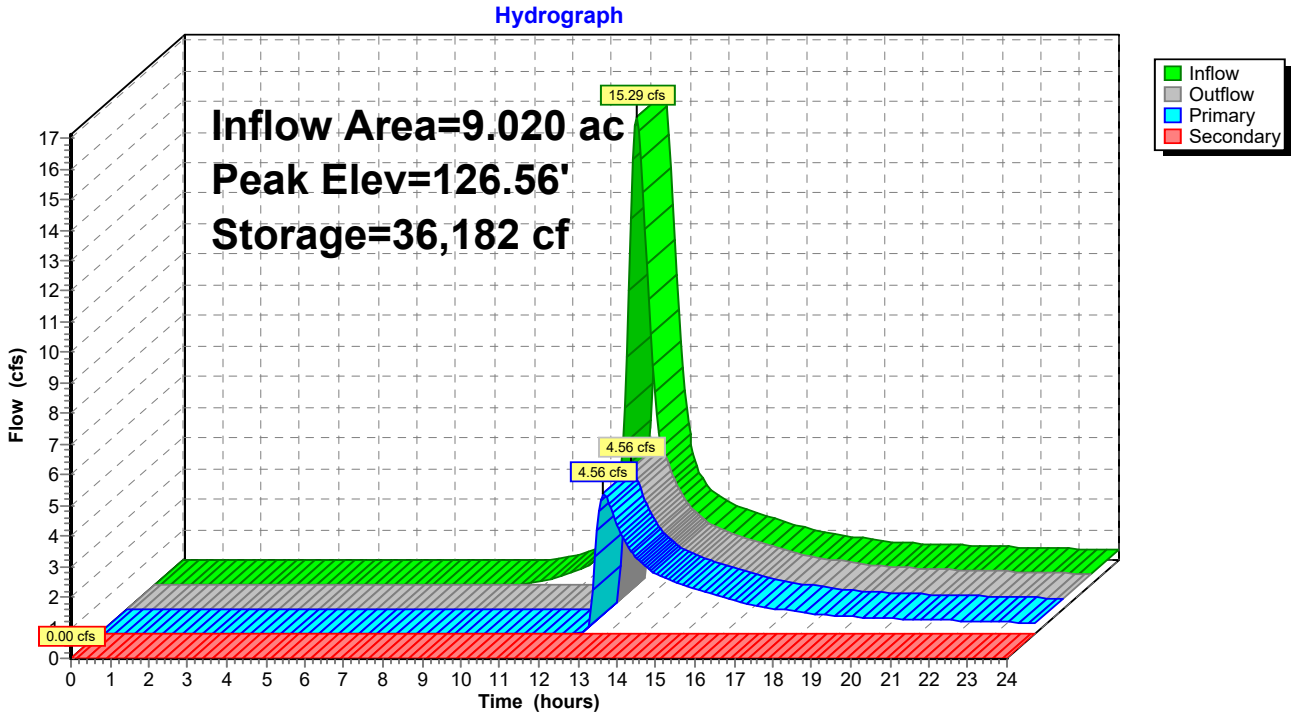
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
122.00	5,526	0	0
123.00	6,338	5,932	5,932
124.00	7,507	6,923	12,855
125.00	8,732	8,120	20,974
126.00	10,013	9,373	30,347
127.00	11,350	10,682	41,028
128.00	12,744	12,047	53,075
129.00	14,194	13,469	66,544

Device	Routing	Invert	Outlet Devices
#1	Primary	122.00'	**18.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 122.00' / 121.50' S= 0.0083 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	128.25'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Device 1	126.00'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	122.00'	**0.8" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=4.55 cfs @ 12.95 hrs HW=126.56' (Free Discharge)
└**1=Culvert** (Passes 4.55 cfs of 16.61 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 4.52 cfs @ 2.79 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.04 cfs @ 10.25 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4 - Pond: 4 - Pond



Hydrograph for Pond 4 - Pond: 4 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	122.00	0.00	0.00	**0.00**
0.50	0.00	0	122.00	0.00	0.00	0.00
1.00	0.00	0	122.00	0.00	0.00	0.00
1.50	0.00	0	122.00	0.00	0.00	0.00
2.00	0.00	0	122.00	0.00	0.00	0.00
2.50	0.00	0	122.00	0.00	0.00	0.00
3.00	0.00	0	122.00	0.00	0.00	0.00
3.50	0.00	0	122.00	0.00	0.00	0.00
4.00	0.00	0	122.00	0.00	0.00	0.00
4.50	0.00	0	122.00	0.00	0.00	0.00
5.00	0.00	0	122.00	0.00	0.00	0.00
5.50	0.00	0	122.00	0.00	0.00	0.00
6.00	0.00	0	122.00	0.00	0.00	0.00
6.50	0.00	0	122.00	0.00	0.00	0.00
7.00	0.00	0	122.00	0.00	0.00	0.00
7.50	0.00	0	122.00	0.00	0.00	0.00
8.00	0.00	0	122.00	0.00	0.00	0.00
8.50	0.00	0	122.00	0.00	0.00	0.00
9.00	0.00	0	122.00	0.00	0.00	0.00
9.50	0.03	14	122.00	0.00	0.00	0.00
10.00	0.14	163	122.03	0.00	0.00	0.00
10.50	0.31	549	122.10	0.00	0.00	0.00
11.00	0.56	1,301	122.23	0.01	0.01	0.00
11.50	1.04	2,639	122.46	0.01	0.01	0.00
12.00	**4.60**	6,386	123.07	0.02	0.02	0.00
12.50	**12.81**	**27,307**	**125.69**	**0.03**	**0.03**	0.00
13.00	4.10	**36,138**	**126.56**	**4.51**	**4.51**	0.00
13.50	2.36	34,774	126.43	3.01	3.01	0.00
14.00	1.92	33,976	126.35	2.23	2.23	0.00
14.50	1.61	33,509	126.31	1.82	1.82	0.00
15.00	1.42	33,205	126.28	1.57	1.57	0.00
15.50	1.24	32,962	126.26	1.37	1.37	0.00
16.00	1.05	32,713	126.23	1.19	1.19	0.00
16.50	0.89	32,467	126.21	1.01	1.01	0.00
17.00	0.80	32,290	126.19	0.89	0.89	0.00
17.50	0.72	32,139	126.18	0.80	0.80	0.00
18.00	0.63	31,996	126.16	0.71	0.71	0.00
18.50	0.56	31,862	126.15	0.63	0.63	0.00
19.00	0.54	31,774	126.14	0.57	0.57	0.00
19.50	0.51	31,716	126.14	0.54	0.54	0.00
20.00	0.49	31,669	126.13	0.51	0.51	0.00
20.50	0.46	31,623	126.13	0.49	0.49	0.00
21.00	0.44	31,578	126.12	0.47	0.47	0.00
21.50	0.42	31,534	126.12	0.45	0.45	0.00
22.00	0.40	31,491	126.11	0.43	0.43	0.00
22.50	0.38	31,448	126.11	0.41	0.41	0.00
23.00	0.36	31,405	126.10	0.39	0.39	0.00
23.50	0.34	31,362	126.10	0.37	0.37	0.00
24.00	0.32	31,319	126.10	0.35	0.35	0.00

Summary for Pond 5 - Pond: 5 - Pond

Inflow Area = 15.220 ac, 0.00% Impervious, Inflow Depth > 2.67" for 10-YEAR STORM event
Inflow = 27.13 cfs @ 12.42 hrs, Volume= 3.391 af
Outflow = 13.58 cfs @ 12.85 hrs, Volume= 2.343 af, Atten= 50%, Lag= 25.5 min
Primary = 13.58 cfs @ 12.85 hrs, Volume= 2.343 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 124.66' @ 12.85 hrs Surf.Area= 17,053 sf Storage= 61,235 cf

Plug-Flow detention time= 173.3 min calculated for 2.343 af (69% of inflow)
Center-of-Mass det. time= 77.9 min (925.3 - 847.4)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	85,683 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

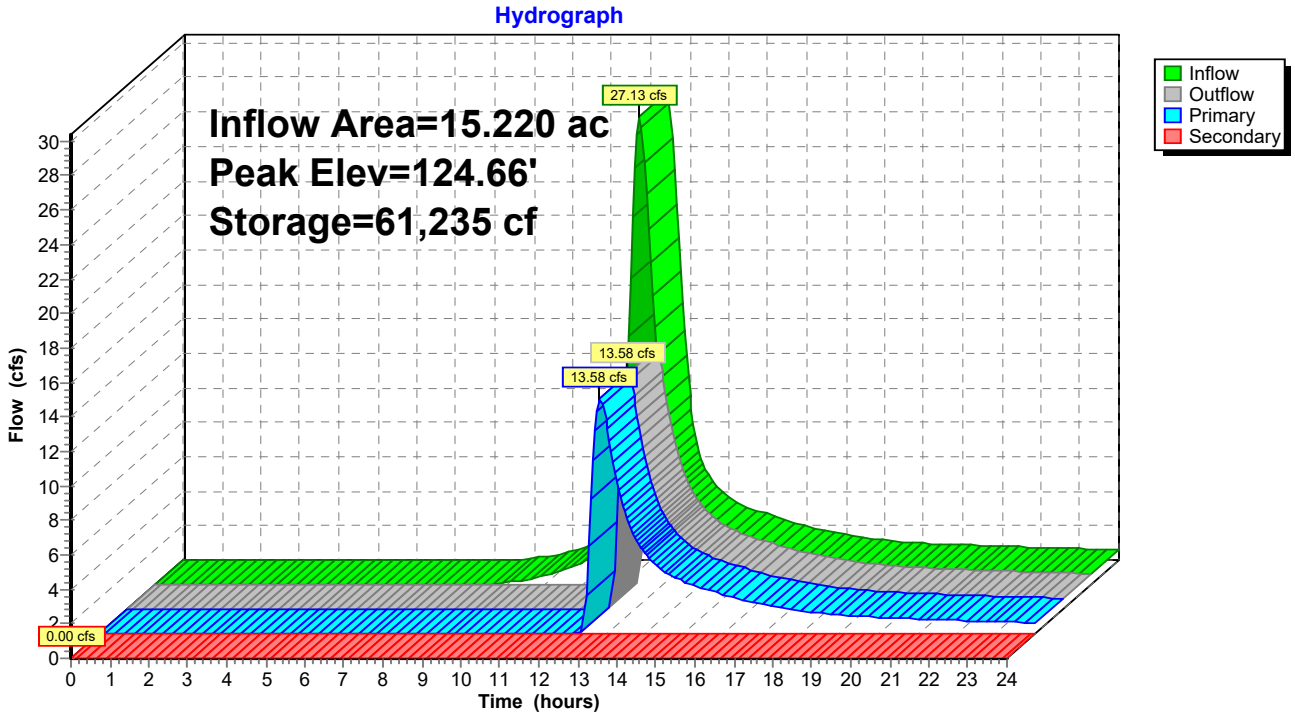
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	9,426	0	0
121.00	10,959	10,193	10,193
122.00	12,547	11,753	21,946
123.00	14,192	13,370	35,315
124.00	15,892	15,042	50,357
125.00	17,650	16,771	67,128
126.00	19,460	18,555	85,683

Device	Routing	Invert	Outlet Devices
#1	Device 2	123.55'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#2	Primary	120.00'	**30.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 120.00' / 117.00' S= 0.0500 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#3	Secondary	125.72'	**20.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#4	Device 2	120.00'	**1.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=13.56 cfs @ 12.85 hrs HW=124.66' (Free Discharge)
└**2=Culvert** (Passes 13.56 cfs of 43.64 cfs potential flow)
  ├**1=Sharp-Crested Rectangular Weir** (Weir Controls 13.50 cfs @ 4.38 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.06 cfs @ 10.35 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=120.00' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5 - Pond: 5 - Pond



Hydrograph for Pond 5 - Pond: 5 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	120.00	0.00	0.00	**0.00**
0.50	0.00	0	120.00	0.00	0.00	0.00
1.00	0.00	0	120.00	0.00	0.00	0.00
1.50	0.00	0	120.00	0.00	0.00	0.00
2.00	0.00	0	120.00	0.00	0.00	0.00
2.50	0.00	0	120.00	0.00	0.00	0.00
3.00	0.00	0	120.00	0.00	0.00	0.00
3.50	0.00	0	120.00	0.00	0.00	0.00
4.00	0.00	0	120.00	0.00	0.00	0.00
4.50	0.00	0	120.00	0.00	0.00	0.00
5.00	0.00	0	120.00	0.00	0.00	0.00
5.50	0.00	0	120.00	0.00	0.00	0.00
6.00	0.00	0	120.00	0.00	0.00	0.00
6.50	0.00	0	120.00	0.00	0.00	0.00
7.00	0.00	0	120.00	0.00	0.00	0.00
7.50	0.00	0	120.00	0.00	0.00	0.00
8.00	0.00	0	120.00	0.00	0.00	0.00
8.50	0.01	2	120.00	0.00	0.00	0.00
9.00	0.11	91	120.01	0.00	0.00	0.00
9.50	0.28	430	120.05	0.00	0.00	0.00
10.00	0.52	1,133	120.12	0.01	0.01	0.00
10.50	0.84	2,316	120.24	0.01	0.01	0.00
11.00	1.33	4,216	120.43	0.02	0.02	0.00
11.50	2.18	7,213	120.72	0.02	0.02	0.00
12.00	**7.49**	13,999	121.34	0.03	0.03	0.00
12.50	**26.05**	**48,856**	**123.91**	**2.26**	**2.26**	0.00
13.00	9.58	**60,252**	**124.60**	**12.45**	**12.45**	0.00
13.50	4.84	55,032	124.29	7.06	7.06	0.00
14.00	3.68	52,281	124.12	4.69	4.69	0.00
14.50	3.04	50,895	124.03	3.63	3.63	0.00
15.00	2.66	50,062	123.98	3.04	3.04	0.00
15.50	2.32	49,455	123.94	2.64	2.64	0.00
16.00	1.97	48,895	123.91	2.28	2.28	0.00
16.50	1.66	48,342	123.87	1.95	1.95	0.00
17.00	1.48	47,895	123.84	1.69	1.69	0.00
17.50	1.33	47,547	123.82	1.51	1.51	0.00
18.00	1.17	47,229	123.80	1.35	1.35	0.00
18.50	1.04	46,928	123.78	1.19	1.19	0.00
19.00	0.98	46,699	123.77	1.08	1.08	0.00
19.50	0.93	46,535	123.76	1.01	1.01	0.00
20.00	0.88	46,404	123.75	0.95	0.95	0.00
20.50	0.84	46,289	123.74	0.90	0.90	0.00
21.00	0.80	46,189	123.73	0.86	0.86	0.00
21.50	0.77	46,101	123.73	0.82	0.82	0.00
22.00	0.73	46,018	123.72	0.78	0.78	0.00
22.50	0.70	45,937	123.72	0.74	0.74	0.00
23.00	0.66	45,849	123.71	0.71	0.71	0.00
23.50	0.63	45,758	123.71	0.68	0.68	0.00
24.00	0.59	45,664	123.70	0.64	0.64	0.00

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>3.15"
Tc=42.6 min CN=73 Runoff=8.30 cfs 1.232 af

Subcatchment1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>2.96"
Tc=42.3 min CN=71 Runoff=17.54 cfs 2.600 af

Subcatchment1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>2.78"
Tc=35.2 min CN=69 Runoff=14.62 cfs 1.985 af

Subcatchment2: Runoff Area=9.600 ac 0.00% Impervious Runoff Depth>3.25"
Tc=40.3 min CN=74 Runoff=18.06 cfs 2.600 af

Subcatchment3: Runoff Area=4.120 ac 0.00% Impervious Runoff Depth>3.16"
Tc=24.4 min CN=73 Runoff=9.49 cfs 1.086 af

Subcatchment4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>3.16"
Tc=24.0 min CN=73 Runoff=20.90 cfs 2.379 af

Subcatchment5: Runoff Area=15.220 ac 0.00% Impervious Runoff Depth>3.55"
Tc=29.9 min CN=77 Runoff=36.10 cfs 4.509 af

Pond 1A - Pond: 1A - Pond Peak Elev=129.73' Storage=0.601 af Inflow=8.30 cfs 1.232 af
Primary=3.03 cfs 0.727 af Secondary=0.00 cfs 0.000 af Outflow=3.03 cfs 0.727 af

Pond 1B - Pond: 1B - Pond Peak Elev=127.40' Storage=1.039 af Inflow=17.54 cfs 2.600 af
Primary=9.69 cfs 1.784 af Secondary=0.00 cfs 0.000 af Outflow=9.69 cfs 1.784 af

Pond 1C-Pond: 1C - Pond Peak Elev=130.33' Storage=0.702 af Inflow=14.62 cfs 1.985 af
Primary=8.40 cfs 1.531 af Secondary=0.00 cfs 0.000 af Outflow=8.40 cfs 1.531 af

Pond 2 - Pond: 2 - Pond Peak Elev=137.49' Storage=0.864 af Inflow=18.06 cfs 2.600 af
Primary=13.23 cfs 1.986 af Secondary=0.00 cfs 0.000 af Outflow=13.23 cfs 1.986 af

Pond 3 - Pond: 3 - Pond Peak Elev=171.73' Storage=0.478 af Inflow=9.49 cfs 1.086 af
Primary=4.15 cfs 0.697 af Secondary=0.00 cfs 0.000 af Outflow=4.15 cfs 0.697 af

Pond 4 - Pond: 4 - Pond Peak Elev=127.00' Storage=41,012 cf Inflow=20.90 cfs 2.379 af
Primary=11.41 cfs 1.655 af Secondary=0.00 cfs 0.000 af Outflow=11.41 cfs 1.655 af

Pond 5 - Pond: 5 - Pond Peak Elev=125.14' Storage=69,580 cf Inflow=36.10 cfs 4.509 af
Primary=24.43 cfs 3.451 af Secondary=0.00 cfs 0.000 af Outflow=24.43 cfs 3.451 af

Total Runoff Area = 61.770 ac Runoff Volume = 16.390 af Average Runoff Depth = 3.18"
100.00% Pervious = 61.770 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

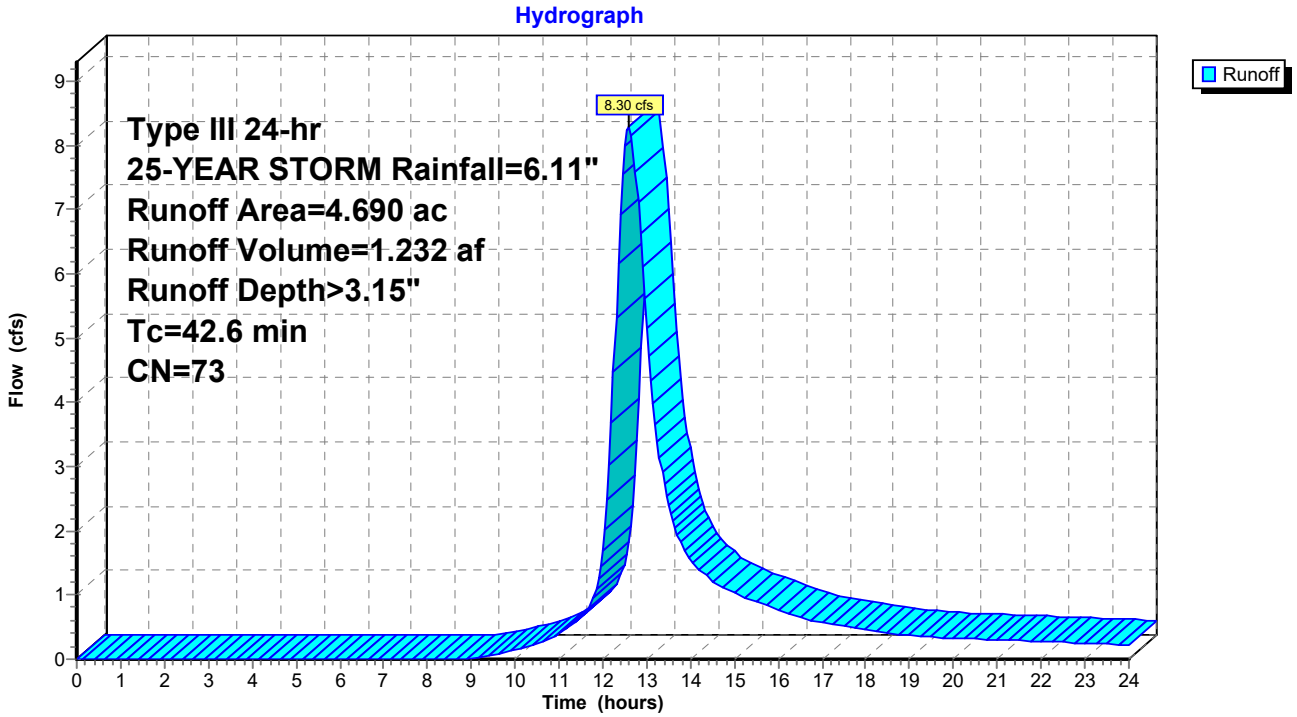
Runoff = 8.30 cfs @ 12.59 hrs, Volume= 1.232 af, Depth> 3.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=6.11"

	Area (ac)	CN	Description
*	4.690	73	
	4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.6					**Direct Entry, SCS TR-55**

Subcatchment 1A:



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.12	0.00	0.00
2.25	0.14	0.00	0.00
2.50	0.15	0.00	0.00
2.75	0.17	0.00	0.00
3.00	0.19	0.00	0.00
3.25	0.21	0.00	0.00
3.50	0.22	0.00	0.00
3.75	0.24	0.00	0.00
4.00	0.26	0.00	0.00
4.25	0.28	0.00	0.00
4.50	0.30	0.00	0.00
4.75	0.32	0.00	0.00
5.00	0.35	0.00	0.00
5.25	0.37	0.00	0.00
5.50	0.39	0.00	0.00
5.75	0.42	0.00	0.00
6.00	0.44	0.00	0.00
6.25	0.47	0.00	0.00
6.50	0.49	0.00	0.00
6.75	0.52	0.00	0.00
7.00	0.55	0.00	0.00
7.25	0.59	0.00	0.00
7.50	0.62	0.00	0.00
7.75	0.66	0.00	0.00
8.00	0.70	0.00	0.00
8.25	0.74	0.00	0.00
8.50	0.78	0.00	0.00
8.75	0.84	0.00	0.00
9.00	0.89	0.01	0.02
9.25	0.95	0.01	0.04
9.50	1.01	0.02	0.07
9.75	1.08	0.03	0.10
10.00	1.15	0.04	0.14
10.25	1.23	0.06	0.19
10.50	1.32	0.08	0.24
10.75	1.42	0.11	0.31
11.00	1.53	0.14	0.40
11.25	1.66	0.18	0.50
11.50	1.82	0.24	0.64
11.75	2.17	0.40	0.90
12.00	3.05	0.89	1.70
12.25	3.94	1.48	4.47
12.50	4.29	1.74	**7.99**
12.75	4.45	1.86	**7.59**
13.00	4.58	1.96	5.15
13.25	4.69	2.04	3.38
13.50	4.79	2.11	2.39
13.75	4.88	2.18	1.86
14.00	4.96	2.25	1.57
14.25	5.03	2.30	1.37
14.50	5.10	2.36	1.21
14.75	5.16	2.41	1.11
15.00	5.22	2.45	1.03
15.25	5.27	2.50	0.97
15.50	5.33	2.54	0.90
15.75	5.37	2.58	0.84
16.00	5.41	2.61	0.77
16.25	5.45	2.64	0.71
16.50	5.49	2.67	0.65
16.75	5.52	2.70	0.61
17.00	5.56	2.73	0.57
17.25	5.59	2.75	0.54
17.50	5.62	2.77	0.51
17.75	5.64	2.80	0.48
18.00	5.67	2.82	0.45
18.25	5.69	2.84	0.42
18.50	5.72	2.86	0.40
18.75	5.74	2.87	0.38
19.00	5.76	2.89	0.37
19.25	5.79	2.91	0.36
19.50	5.81	2.93	0.35
19.75	5.83	2.95	0.34
20.00	5.85	2.96	0.33
20.25	5.87	2.98	0.32
20.50	5.89	2.99	0.32
20.75	5.90	3.01	0.31
21.00	5.92	3.03	0.30
21.25	5.94	3.04	0.29
21.50	5.96	3.05	0.29
21.75	5.98	3.07	0.28
22.00	5.99	3.08	0.27
22.25	6.01	3.10	0.27
22.50	6.02	3.11	0.26
22.75	6.04	3.12	0.26
23.00	6.05	3.13	0.25
23.25	6.07	3.15	0.24
23.50	6.08	3.16	0.24
23.75	6.10	3.17	0.23
24.00	**6.11**	**3.18**	0.22

Summary for Subcatchment 1B:

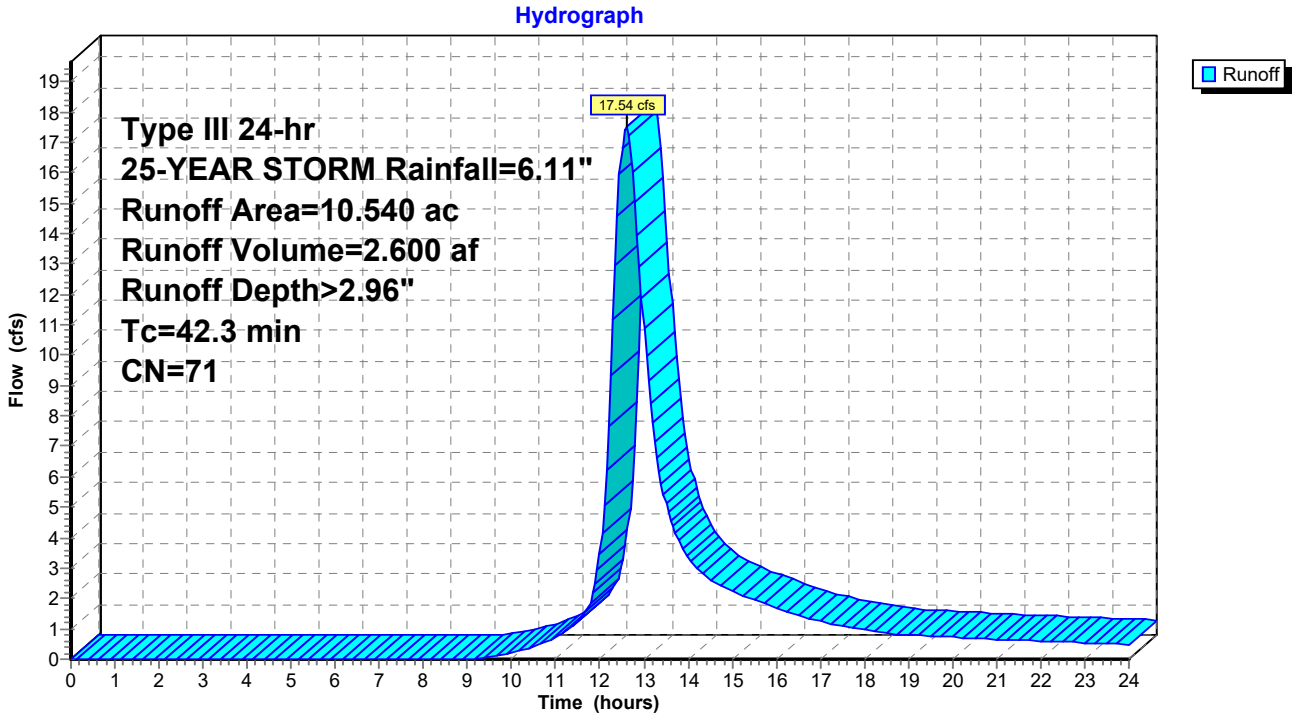
Runoff = 17.54 cfs @ 12.60 hrs, Volume= 2.600 af, Depth> 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=6.11"

	Area (ac)	CN	Description
*	10.540	71	
	10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.3					**Direct Entry, SCS TR-55**

Subcatchment 1B:



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.12	0.00	0.00
2.25	0.14	0.00	0.00
2.50	0.15	0.00	0.00
2.75	0.17	0.00	0.00
3.00	0.19	0.00	0.00
3.25	0.21	0.00	0.00
3.50	0.22	0.00	0.00
3.75	0.24	0.00	0.00
4.00	0.26	0.00	0.00
4.25	0.28	0.00	0.00
4.50	0.30	0.00	0.00
4.75	0.32	0.00	0.00
5.00	0.35	0.00	0.00
5.25	0.37	0.00	0.00
5.50	0.39	0.00	0.00
5.75	0.42	0.00	0.00
6.00	0.44	0.00	0.00
6.25	0.47	0.00	0.00
6.50	0.49	0.00	0.00
6.75	0.52	0.00	0.00
7.00	0.55	0.00	0.00
7.25	0.59	0.00	0.00
7.50	0.62	0.00	0.00
7.75	0.66	0.00	0.00
8.00	0.70	0.00	0.00
8.25	0.74	0.00	0.00
8.50	0.78	0.00	0.00
8.75	0.84	0.00	0.00
9.00	0.89	0.00	0.00
9.25	0.95	0.00	0.02
9.50	1.01	0.01	0.06
9.75	1.08	0.02	0.13
10.00	1.15	0.03	0.21
10.25	1.23	0.04	0.30
10.50	1.32	0.06	0.41
10.75	1.42	0.08	0.55
11.00	1.53	0.11	0.73
11.25	1.66	0.14	0.94
11.50	1.82	0.20	1.23
11.75	2.17	0.34	1.76
12.00	3.05	0.79	3.44
12.25	3.94	1.35	9.32
12.50	4.29	1.60	**16.85**
12.75	4.45	1.71	**16.04**
13.00	4.58	1.81	10.89
13.25	4.69	1.88	7.16
13.50	4.79	1.96	5.10
13.75	4.88	2.02	3.99
14.00	4.96	2.08	3.36
14.25	5.03	2.14	2.94
14.50	5.10	2.19	2.62
14.75	5.16	2.24	2.40
15.00	5.22	2.28	2.24
15.25	5.27	2.33	2.09
15.50	5.33	2.37	1.95
15.75	5.37	2.40	1.82
16.00	5.41	2.43	1.68
16.25	5.45	2.46	1.54
16.50	5.49	2.49	1.42
16.75	5.52	2.52	1.32
17.00	5.56	2.55	1.24
17.25	5.59	2.57	1.18
17.50	5.62	2.59	1.11
17.75	5.64	2.62	1.05
18.00	5.67	2.64	0.99
18.25	5.69	2.65	0.92
18.50	5.72	2.67	0.87
18.75	5.74	2.69	0.83
19.00	5.76	2.71	0.80
19.25	5.79	2.73	0.78
19.50	5.81	2.74	0.76
19.75	5.83	2.76	0.74
20.00	5.85	2.78	0.72
20.25	5.87	2.79	0.71
20.50	5.89	2.81	0.69
20.75	5.90	2.82	0.67
21.00	5.92	2.84	0.66
21.25	5.94	2.85	0.64
21.50	5.96	2.87	0.63
21.75	5.98	2.88	0.61
22.00	5.99	2.89	0.60
22.25	6.01	2.91	0.59
22.50	6.02	2.92	0.57
22.75	6.04	2.93	0.56
23.00	6.05	2.94	0.54
23.25	6.07	2.95	0.53
23.50	6.08	2.97	0.51
23.75	6.10	2.98	0.50
24.00	**6.11**	**2.99**	0.49

Summary for Subcatchment 1C:

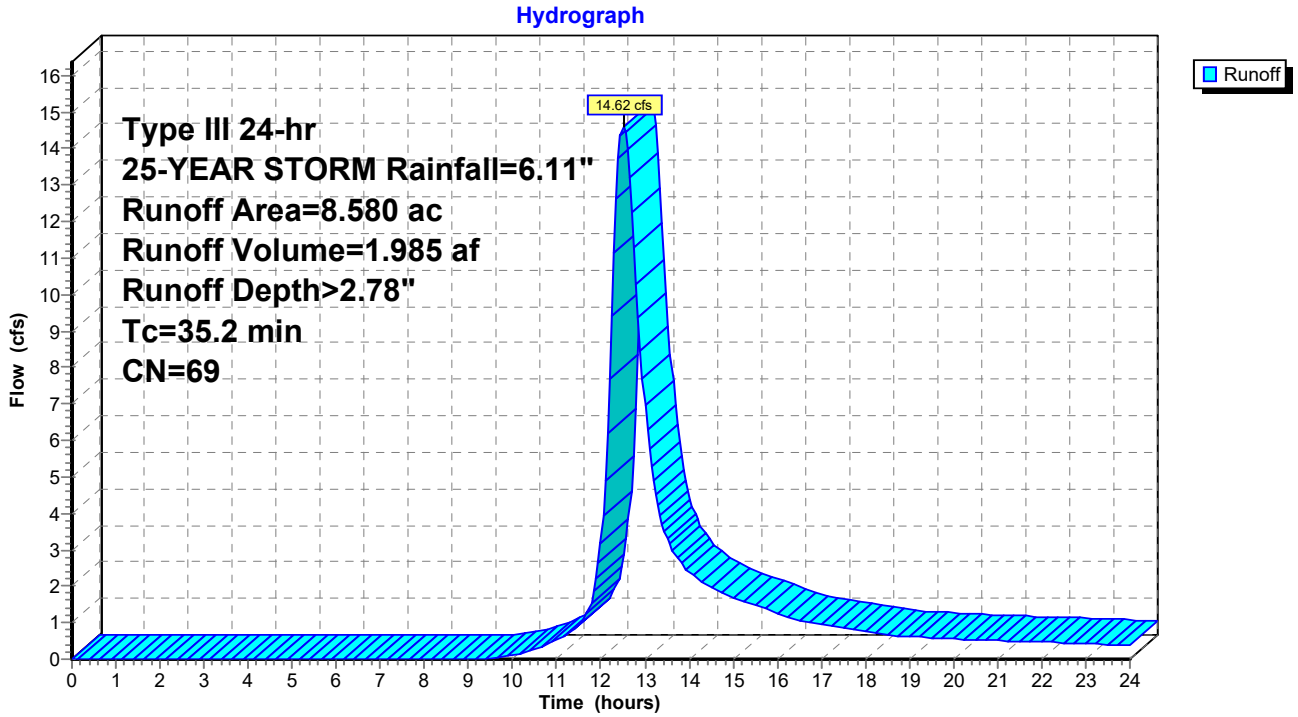
Runoff = 14.62 cfs @ 12.51 hrs, Volume= 1.985 af, Depth> 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=6.11"

	Area (ac)	CN	Description
*	8.580	69	
	8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2					**Direct Entry, SCS TR-55**

Subcatchment 1C:



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.12	0.00	0.00
2.25	0.14	0.00	0.00
2.50	0.15	0.00	0.00
2.75	0.17	0.00	0.00
3.00	0.19	0.00	0.00
3.25	0.21	0.00	0.00
3.50	0.22	0.00	0.00
3.75	0.24	0.00	0.00
4.00	0.26	0.00	0.00
4.25	0.28	0.00	0.00
4.50	0.30	0.00	0.00
4.75	0.32	0.00	0.00
5.00	0.35	0.00	0.00
5.25	0.37	0.00	0.00
5.50	0.39	0.00	0.00
5.75	0.42	0.00	0.00
6.00	0.44	0.00	0.00
6.25	0.47	0.00	0.00
6.50	0.49	0.00	0.00
6.75	0.52	0.00	0.00
7.00	0.55	0.00	0.00
7.25	0.59	0.00	0.00
7.50	0.62	0.00	0.00
7.75	0.66	0.00	0.00
8.00	0.70	0.00	0.00
8.25	0.74	0.00	0.00
8.50	0.78	0.00	0.00
8.75	0.84	0.00	0.00
9.00	0.89	0.00	0.00
9.25	0.95	0.00	0.00
9.50	1.01	0.00	0.01
9.75	1.08	0.01	0.05
10.00	1.15	0.01	0.11
10.25	1.23	0.02	0.18
10.50	1.32	0.04	0.27
10.75	1.42	0.05	0.38
11.00	1.53	0.08	0.52
11.25	1.66	0.11	0.69
11.50	1.82	0.16	0.94
11.75	2.17	0.28	1.43
12.00	3.05	0.70	3.19
12.25	3.94	1.23	9.42
12.50	4.29	1.46	**14.62**
12.75	4.45	1.57	11.26
13.00	4.58	1.66	6.94
13.25	4.69	1.73	4.53
13.50	4.79	1.80	3.34
13.75	4.88	1.87	2.74
14.00	4.96	1.92	2.39
14.25	5.03	1.98	2.14
14.50	5.10	2.03	1.95
14.75	5.16	2.07	1.81
15.00	5.22	2.12	1.70
15.25	5.27	2.16	1.59
15.50	5.33	2.20	1.49
15.75	5.37	2.23	1.38
16.00	5.41	2.26	1.27
16.25	5.45	2.29	1.16
16.50	5.49	2.32	1.07
16.75	5.52	2.35	1.00
17.00	5.56	2.37	0.95
17.25	5.59	2.40	0.90
17.50	5.62	2.42	0.85
17.75	5.64	2.44	0.80
18.00	5.67	2.46	0.75
18.25	5.69	2.48	0.71
18.50	5.72	2.49	0.67
18.75	5.74	2.51	0.64
19.00	5.76	2.53	0.62
19.25	5.79	2.55	0.61
19.50	5.81	2.56	0.59
19.75	5.83	2.58	0.58
20.00	5.85	2.59	0.56
20.25	5.87	2.61	0.55
20.50	5.89	2.62	0.54
20.75	5.90	2.64	0.52
21.00	5.92	2.65	0.51
21.25	5.94	2.67	0.50
21.50	5.96	2.68	0.49
21.75	5.98	2.69	0.48
22.00	5.99	2.71	0.47
22.25	6.01	2.72	0.46
22.50	6.02	2.73	0.45
22.75	6.04	2.74	0.43
23.00	6.05	2.76	0.42
23.25	6.07	2.77	0.41
23.50	6.08	2.78	0.40
23.75	6.10	2.79	0.39
24.00	**6.11**	**2.80**	0.38

Summary for Subcatchment 2:

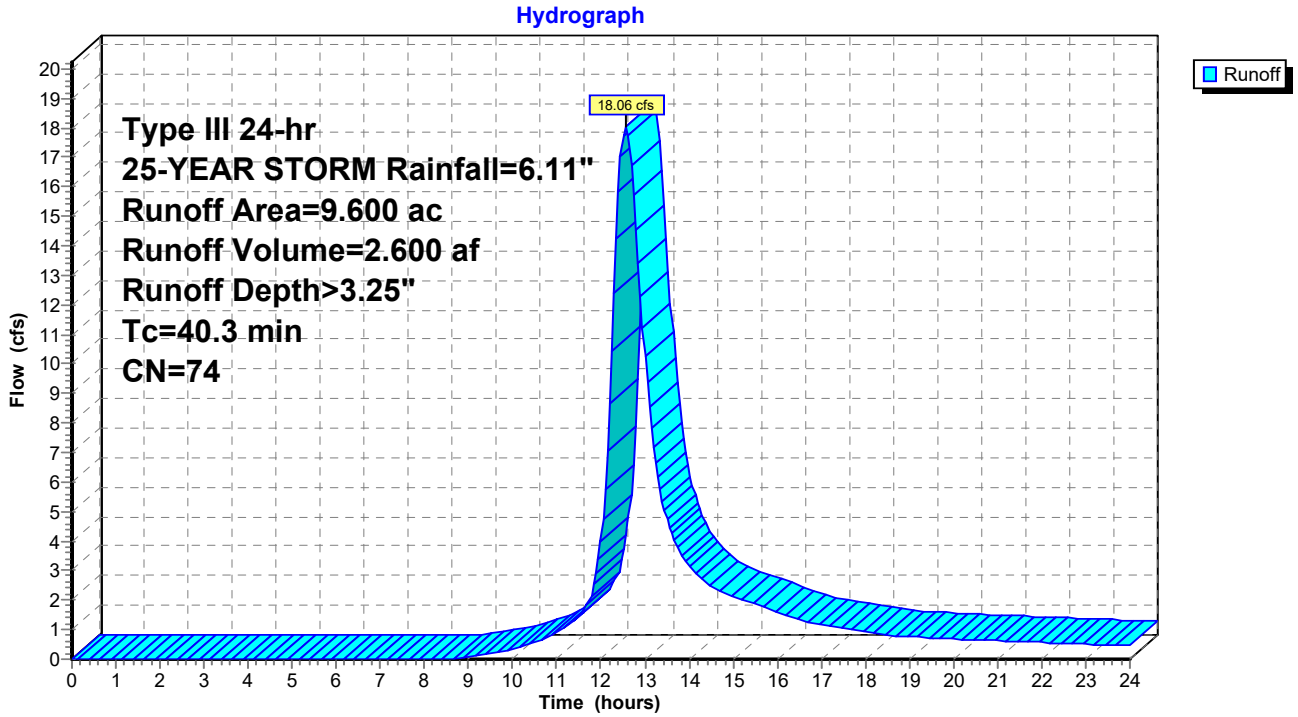
Runoff = 18.06 cfs @ 12.56 hrs, Volume= 2.600 af, Depth> 3.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=6.11"

	Area (ac)	CN	Description
*	9.600	74	
	9.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.3					**Direct Entry, SCS TR-55**

Subcatchment 2:



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.12	0.00	0.00
2.25	0.14	0.00	0.00
2.50	0.15	0.00	0.00
2.75	0.17	0.00	0.00
3.00	0.19	0.00	0.00
3.25	0.21	0.00	0.00
3.50	0.22	0.00	0.00
3.75	0.24	0.00	0.00
4.00	0.26	0.00	0.00
4.25	0.28	0.00	0.00
4.50	0.30	0.00	0.00
4.75	0.32	0.00	0.00
5.00	0.35	0.00	0.00
5.25	0.37	0.00	0.00
5.50	0.39	0.00	0.00
5.75	0.42	0.00	0.00
6.00	0.44	0.00	0.00
6.25	0.47	0.00	0.00
6.50	0.49	0.00	0.00
6.75	0.52	0.00	0.00
7.00	0.55	0.00	0.00
7.25	0.59	0.00	0.00
7.50	0.62	0.00	0.00
7.75	0.66	0.00	0.00
8.00	0.70	0.00	0.00
8.25	0.74	0.00	0.00
8.50	0.78	0.00	0.01
8.75	0.84	0.00	0.03
9.00	0.89	0.01	0.07
9.25	0.95	0.02	0.12
9.50	1.01	0.03	0.19
9.75	1.08	0.04	0.27
10.00	1.15	0.05	0.36
10.25	1.23	0.07	0.46
10.50	1.32	0.09	0.58
10.75	1.42	0.12	0.73
11.00	1.53	0.16	0.92
11.25	1.66	0.20	1.14
11.50	1.82	0.27	1.46
11.75	2.17	0.43	2.05
12.00	3.05	0.94	3.95
12.25	3.94	1.55	10.47
12.50	4.29	1.81	**17.76**
12.75	4.45	1.94	**15.70**
13.00	4.58	2.04	10.24
13.25	4.69	2.12	6.64
13.50	4.79	2.20	4.73
13.75	4.88	2.27	3.73
14.00	4.96	2.33	3.16
14.25	5.03	2.39	2.77
14.50	5.10	2.44	2.48
14.75	5.16	2.49	2.28
15.00	5.22	2.54	2.13
15.25	5.27	2.59	1.99
15.50	5.33	2.63	1.86
15.75	5.37	2.66	1.73
16.00	5.41	2.70	1.59
16.25	5.45	2.73	1.46
16.50	5.49	2.76	1.34
16.75	5.52	2.79	1.25
17.00	5.56	2.82	1.18
17.25	5.59	2.84	1.11
17.50	5.62	2.87	1.05
17.75	5.64	2.89	0.99
18.00	5.67	2.91	0.93
18.25	5.69	2.93	0.87
18.50	5.72	2.95	0.82
18.75	5.74	2.97	0.79
19.00	5.76	2.99	0.76
19.25	5.79	3.01	0.74
19.50	5.81	3.02	0.72
19.75	5.83	3.04	0.70
20.00	5.85	3.06	0.69
20.25	5.87	3.07	0.67
20.50	5.89	3.09	0.65
20.75	5.90	3.11	0.64
21.00	5.92	3.12	0.62
21.25	5.94	3.14	0.61
21.50	5.96	3.15	0.60
21.75	5.98	3.16	0.58
22.00	5.99	3.18	0.57
22.25	6.01	3.19	0.55
22.50	6.02	3.21	0.54
22.75	6.04	3.22	0.53
23.00	6.05	3.23	0.51
23.25	6.07	3.24	0.50
23.50	6.08	3.25	0.49
23.75	6.10	3.27	0.47
24.00	**6.11**	**3.28**	0.46

Summary for Subcatchment 3:

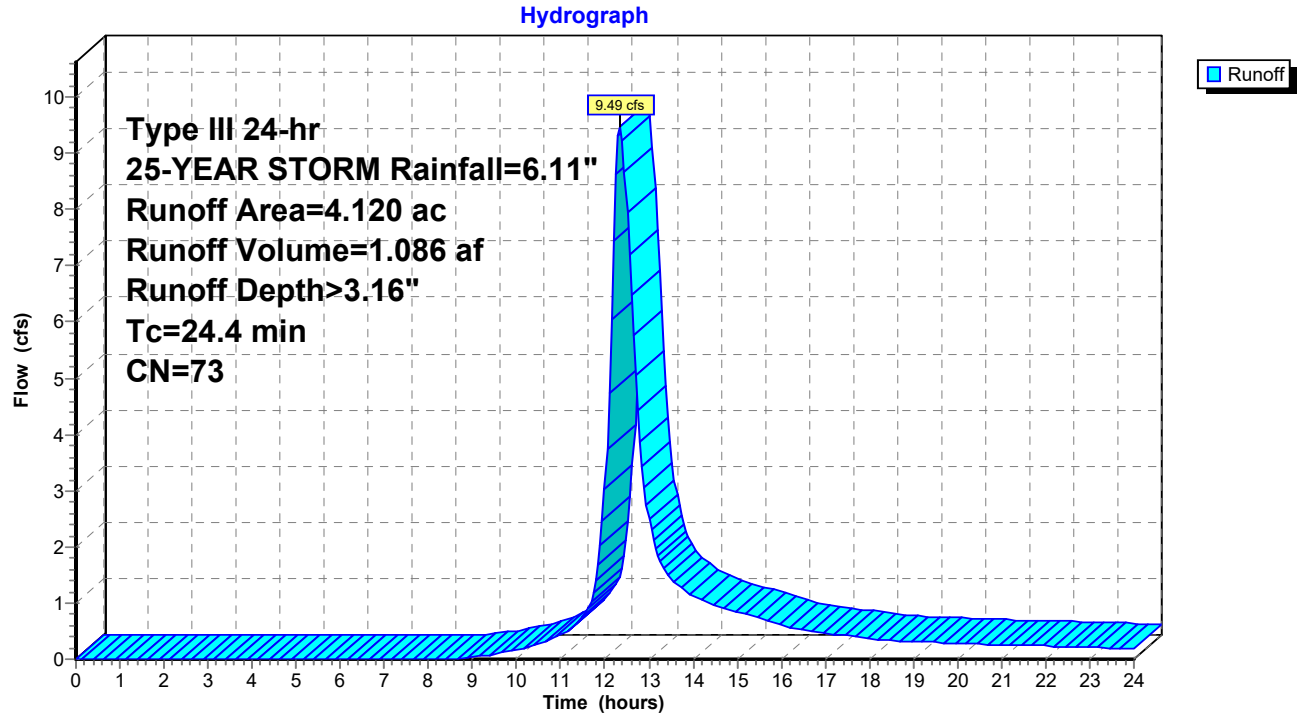
Runoff = 9.49 cfs @ 12.34 hrs, Volume= 1.086 af, Depth> 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=6.11"

	Area (ac)	CN	Description
*	4.120	73	
	4.120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.4					**Direct Entry, SCS TR-55**

Subcatchment 3:



Hydrograph for Subcatchment 3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.12	0.00	0.00
2.25	0.14	0.00	0.00
2.50	0.15	0.00	0.00
2.75	0.17	0.00	0.00
3.00	0.19	0.00	0.00
3.25	0.21	0.00	0.00
3.50	0.22	0.00	0.00
3.75	0.24	0.00	0.00
4.00	0.26	0.00	0.00
4.25	0.28	0.00	0.00
4.50	0.30	0.00	0.00
4.75	0.32	0.00	0.00
5.00	0.35	0.00	0.00
5.25	0.37	0.00	0.00
5.50	0.39	0.00	0.00
5.75	0.42	0.00	0.00
6.00	0.44	0.00	0.00
6.25	0.47	0.00	0.00
6.50	0.49	0.00	0.00
6.75	0.52	0.00	0.00
7.00	0.55	0.00	0.00
7.25	0.59	0.00	0.00
7.50	0.62	0.00	0.00
7.75	0.66	0.00	0.00
8.00	0.70	0.00	0.00
8.25	0.74	0.00	0.00
8.50	0.78	0.00	0.00
8.75	0.84	0.00	0.01
9.00	0.89	0.01	0.03
9.25	0.95	0.01	0.06
9.50	1.01	0.02	0.09
9.75	1.08	0.03	0.13
10.00	1.15	0.04	0.17
10.25	1.23	0.06	0.22
10.50	1.32	0.08	0.28
10.75	1.42	0.11	0.35
11.00	1.53	0.14	0.44
11.25	1.66	0.18	0.55
11.50	1.82	0.24	0.75
11.75	2.17	0.40	1.19
12.00	3.05	0.89	3.02
12.25	3.94	1.48	**8.63**
12.50	4.29	1.74	**7.93**
12.75	4.45	1.86	4.43
13.00	4.58	1.96	2.50
13.25	4.69	2.04	1.74
13.50	4.79	2.11	1.41
13.75	4.88	2.18	1.26
14.00	4.96	2.25	1.14
14.25	5.03	2.30	1.03
14.50	5.10	2.36	0.95
14.75	5.16	2.41	0.89
15.00	5.22	2.45	0.84
15.25	5.27	2.50	0.79
15.50	5.33	2.54	0.73
15.75	5.37	2.58	0.67
16.00	5.41	2.61	0.62
16.25	5.45	2.64	0.56
16.50	5.49	2.67	0.52
16.75	5.52	2.70	0.50
17.00	5.56	2.73	0.47
17.25	5.59	2.75	0.45
17.50	5.62	2.77	0.42
17.75	5.64	2.80	0.40
18.00	5.67	2.82	0.37
18.25	5.69	2.84	0.35
18.50	5.72	2.86	0.33
18.75	5.74	2.87	0.32
19.00	5.76	2.89	0.31
19.25	5.79	2.91	0.31
19.50	5.81	2.93	0.30
19.75	5.83	2.95	0.29
20.00	5.85	2.96	0.28
20.25	5.87	2.98	0.28
20.50	5.89	2.99	0.27
20.75	5.90	3.01	0.26
21.00	5.92	3.03	0.26
21.25	5.94	3.04	0.25
21.50	5.96	3.05	0.25
21.75	5.98	3.07	0.24
22.00	5.99	3.08	0.23
22.25	6.01	3.10	0.23
22.50	6.02	3.11	0.22
22.75	6.04	3.12	0.22
23.00	6.05	3.13	0.21
23.25	6.07	3.15	0.21
23.50	6.08	3.16	0.20
23.75	6.10	3.17	0.19
24.00	**6.11**	**3.18**	0.19

Summary for Subcatchment 4:

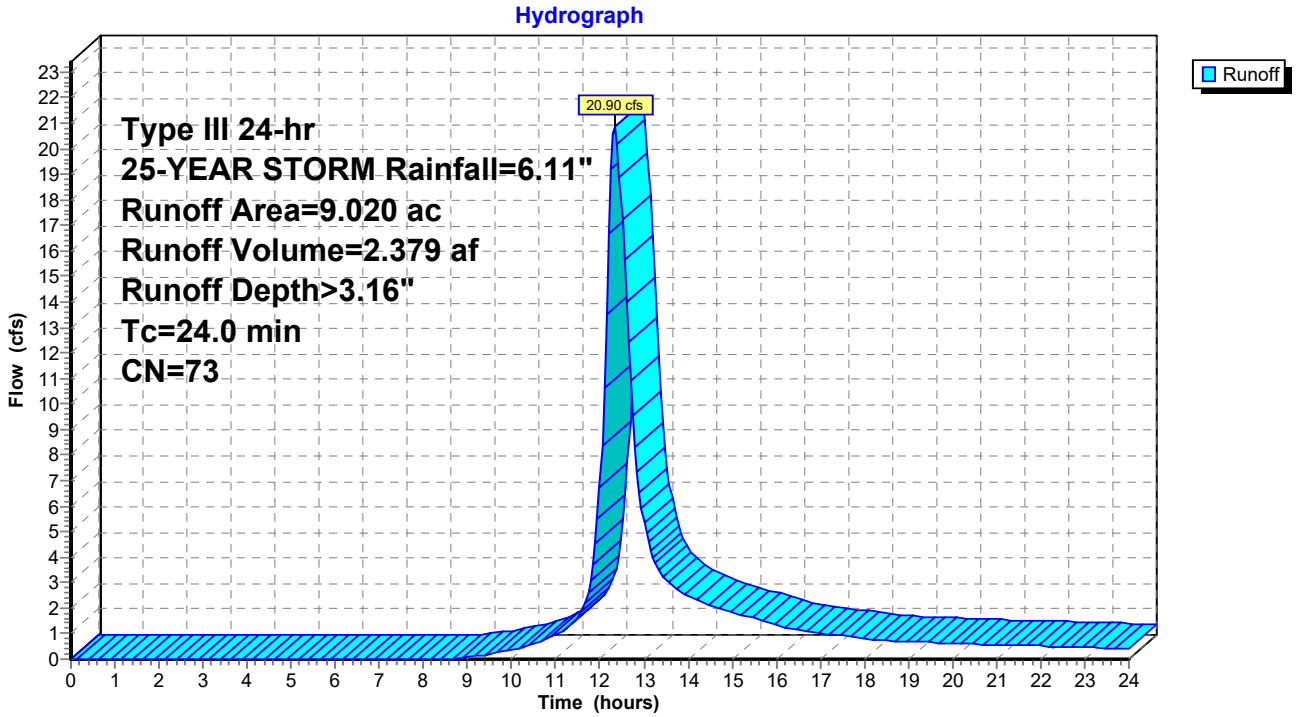
Runoff = 20.90 cfs @ 12.34 hrs, Volume= 2.379 af, Depth> 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=6.11"

	Area (ac)	CN	Description
*	9.020	73	
	9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					**Direct Entry, SCS TR-55**

Subcatchment 4:



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.12	0.00	0.00
2.25	0.14	0.00	0.00
2.50	0.15	0.00	0.00
2.75	0.17	0.00	0.00
3.00	0.19	0.00	0.00
3.25	0.21	0.00	0.00
3.50	0.22	0.00	0.00
3.75	0.24	0.00	0.00
4.00	0.26	0.00	0.00
4.25	0.28	0.00	0.00
4.50	0.30	0.00	0.00
4.75	0.32	0.00	0.00
5.00	0.35	0.00	0.00
5.25	0.37	0.00	0.00
5.50	0.39	0.00	0.00
5.75	0.42	0.00	0.00
6.00	0.44	0.00	0.00
6.25	0.47	0.00	0.00
6.50	0.49	0.00	0.00
6.75	0.52	0.00	0.00
7.00	0.55	0.00	0.00
7.25	0.59	0.00	0.00
7.50	0.62	0.00	0.00
7.75	0.66	0.00	0.00
8.00	0.70	0.00	0.00
8.25	0.74	0.00	0.00
8.50	0.78	0.00	0.00
8.75	0.84	0.00	0.03
9.00	0.89	0.01	0.07
9.25	0.95	0.01	0.13
9.50	1.01	0.02	0.20
9.75	1.08	0.03	0.28
10.00	1.15	0.04	0.37
10.25	1.23	0.06	0.47
10.50	1.32	0.08	0.61
10.75	1.42	0.11	0.78
11.00	1.53	0.14	0.97
11.25	1.66	0.18	1.21
11.50	1.82	0.24	1.66
11.75	2.17	0.40	2.63
12.00	3.05	0.89	6.72
12.25	3.94	1.48	**19.21**
12.50	4.29	1.74	**17.24**
12.75	4.45	1.86	9.53
13.00	4.58	1.96	5.38
13.25	4.69	2.04	3.77
13.50	4.79	2.11	3.07
13.75	4.88	2.18	2.75
14.00	4.96	2.25	2.49
14.25	5.03	2.30	2.26
14.50	5.10	2.36	2.08
14.75	5.16	2.41	1.96
15.00	5.22	2.45	1.84
15.25	5.27	2.50	1.72
15.50	5.33	2.54	1.59
15.75	5.37	2.58	1.47
16.00	5.41	2.61	1.35
16.25	5.45	2.64	1.23
16.50	5.49	2.67	1.14
16.75	5.52	2.70	1.08
17.00	5.56	2.73	1.03
17.25	5.59	2.75	0.97
17.50	5.62	2.77	0.92
17.75	5.64	2.80	0.86
18.00	5.67	2.82	0.81
18.25	5.69	2.84	0.76
18.50	5.72	2.86	0.72
18.75	5.74	2.87	0.70
19.00	5.76	2.89	0.69
19.25	5.79	2.91	0.67
19.50	5.81	2.93	0.65
19.75	5.83	2.95	0.64
20.00	5.85	2.96	0.62
20.25	5.87	2.98	0.60
20.50	5.89	2.99	0.59
20.75	5.90	3.01	0.58
21.00	5.92	3.03	0.56
21.25	5.94	3.04	0.55
21.50	5.96	3.05	0.54
21.75	5.98	3.07	0.53
22.00	5.99	3.08	0.51
22.25	6.01	3.10	0.50
22.50	6.02	3.11	0.49
22.75	6.04	3.12	0.48
23.00	6.05	3.13	0.46
23.25	6.07	3.15	0.45
23.50	6.08	3.16	0.44
23.75	6.10	3.17	0.43
24.00	**6.11**	**3.18**	0.41

Summary for Subcatchment 5:

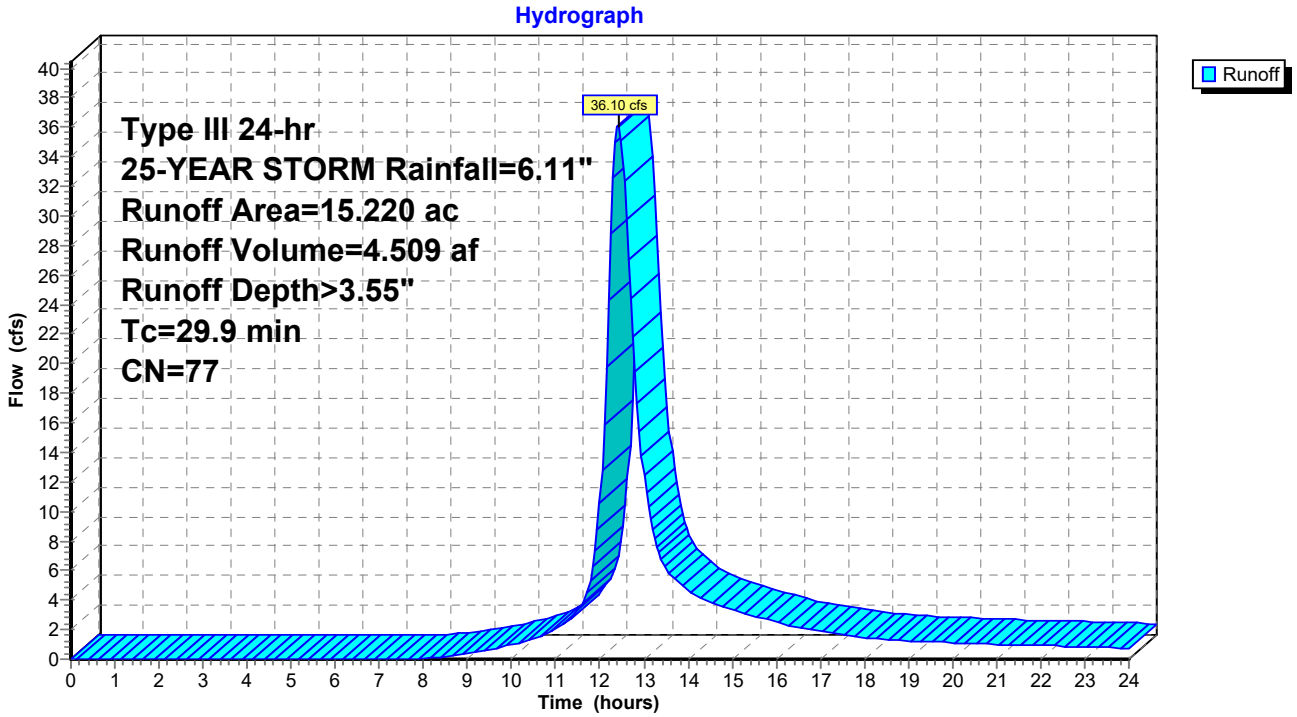
Runoff = 36.10 cfs @ 12.41 hrs, Volume= 4.509 af, Depth> 3.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR STORM Rainfall=6.11"

	Area (ac)	CN	Description
*	15.220	77	
	15.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.9					**Direct Entry, SCS TR-55**

Subcatchment 5:



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.06	0.00	0.00
1.25	0.08	0.00	0.00
1.50	0.09	0.00	0.00
1.75	0.11	0.00	0.00
2.00	0.12	0.00	0.00
2.25	0.14	0.00	0.00
2.50	0.15	0.00	0.00
2.75	0.17	0.00	0.00
3.00	0.19	0.00	0.00
3.25	0.21	0.00	0.00
3.50	0.22	0.00	0.00
3.75	0.24	0.00	0.00
4.00	0.26	0.00	0.00
4.25	0.28	0.00	0.00
4.50	0.30	0.00	0.00
4.75	0.32	0.00	0.00
5.00	0.35	0.00	0.00
5.25	0.37	0.00	0.00
5.50	0.39	0.00	0.00
5.75	0.42	0.00	0.00
6.00	0.44	0.00	0.00
6.25	0.47	0.00	0.00
6.50	0.49	0.00	0.00
6.75	0.52	0.00	0.00
7.00	0.55	0.00	0.00
7.25	0.59	0.00	0.00
7.50	0.62	0.00	0.00
7.75	0.66	0.00	0.01
8.00	0.70	0.00	0.05
8.25	0.74	0.01	0.10
8.50	0.78	0.01	0.17
8.75	0.84	0.02	0.26
9.00	0.89	0.03	0.37
9.25	0.95	0.04	0.49
9.50	1.01	0.05	0.63
9.75	1.08	0.07	0.79
10.00	1.15	0.09	0.97
10.25	1.23	0.11	1.16
10.50	1.32	0.14	1.41
10.75	1.42	0.18	1.73
11.00	1.53	0.22	2.09
11.25	1.66	0.28	2.53
11.50	1.82	0.36	3.27
11.75	2.17	0.54	4.75
12.00	3.05	1.11	10.57
12.25	3.94	1.76	**28.81**
12.50	4.29	2.04	**34.45**
12.75	4.45	2.17	21.87
13.00	4.58	2.28	12.41
13.25	4.69	2.37	8.16
13.50	4.79	2.45	6.19
13.75	4.88	2.52	5.25
14.00	4.96	2.59	4.69
14.25	5.03	2.65	4.23
14.50	5.10	2.70	3.87
14.75	5.16	2.76	3.61
15.00	5.22	2.81	3.38
15.25	5.27	2.85	3.16
15.50	5.33	2.90	2.94
15.75	5.37	2.94	2.72
16.00	5.41	2.97	2.50
16.25	5.45	3.01	2.28
16.50	5.49	3.04	2.10
16.75	5.52	3.07	1.98
17.00	5.56	3.10	1.87
17.25	5.59	3.12	1.77
17.50	5.62	3.15	1.68
17.75	5.64	3.17	1.58
18.00	5.67	3.19	1.48
18.25	5.69	3.21	1.38
18.50	5.72	3.23	1.31
18.75	5.74	3.25	1.27
19.00	5.76	3.27	1.23
19.25	5.79	3.29	1.20
19.50	5.81	3.31	1.17
19.75	5.83	3.33	1.14
20.00	5.85	3.35	1.11
20.25	5.87	3.36	1.08
20.50	5.89	3.38	1.06
20.75	5.90	3.40	1.03
21.00	5.92	3.41	1.01
21.25	5.94	3.43	0.99
21.50	5.96	3.44	0.97
21.75	5.98	3.46	0.94
22.00	5.99	3.47	0.92
22.25	6.01	3.49	0.90
22.50	6.02	3.50	0.88
22.75	6.04	3.51	0.85
23.00	6.05	3.53	0.83
23.25	6.07	3.54	0.81
23.50	6.08	3.55	0.79
23.75	6.10	3.56	0.76
24.00	**6.11**	**3.58**	0.74

Summary for Pond 1A - Pond: 1A - Pond

Inflow Area = 4.690 ac, 0.00% Impervious, Inflow Depth > 3.15" for 25-YEAR STORM event
Inflow = 8.30 cfs @ 12.59 hrs, Volume= 1.232 af
Outflow = 3.03 cfs @ 13.32 hrs, Volume= 0.727 af, Atten= 63%, Lag= 43.8 min
Primary = 3.03 cfs @ 13.32 hrs, Volume= 0.727 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 129.73' @ 13.32 hrs Surf.Area= 0.278 ac Storage= 0.601 af

Plug-Flow detention time= 212.4 min calculated for 0.727 af (59% of inflow)
Center-of-Mass det. time= 106.0 min (964.8 - 858.8)

Volume	Invert	Avail.Storage	Storage Description
#1	127.25'	0.975 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

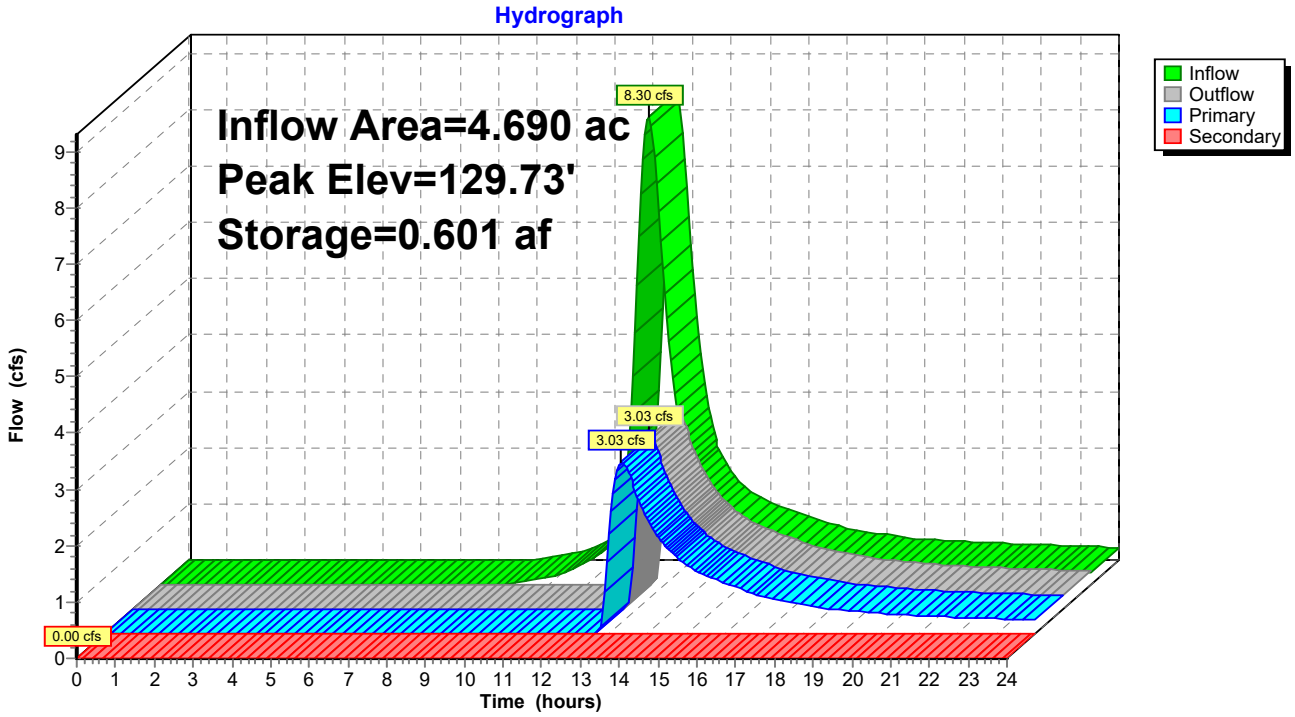
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
127.25	0.200	0.000	0.000
128.00	0.230	0.161	0.161
129.00	0.257	0.244	0.405
130.00	0.285	0.271	0.676
131.00	0.314	0.300	0.975

Device	Routing	Invert	Outlet Devices
#1	Secondary	130.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	127.25'	**18.0" Round Culvert** L= 55.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 127.25' / 127.00' S= 0.0045 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#3	Device 2	129.30'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	127.25'	**0.5" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=3.03 cfs @ 13.32 hrs HW=129.73' (Free Discharge)
└**2=Culvert** (Passes 3.03 cfs of 10.26 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 3.02 cfs @ 2.38 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.01 cfs @ 7.56 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=127.25' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A - Pond: 1A - Pond



Hydrograph for Pond 1A - Pond: 1A - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	127.25	0.00	0.00	**0.00**
0.50	0.00	0.000	127.25	0.00	0.00	0.00
1.00	0.00	0.000	127.25	0.00	0.00	0.00
1.50	0.00	0.000	127.25	0.00	0.00	0.00
2.00	0.00	0.000	127.25	0.00	0.00	0.00
2.50	0.00	0.000	127.25	0.00	0.00	0.00
3.00	0.00	0.000	127.25	0.00	0.00	0.00
3.50	0.00	0.000	127.25	0.00	0.00	0.00
4.00	0.00	0.000	127.25	0.00	0.00	0.00
4.50	0.00	0.000	127.25	0.00	0.00	0.00
5.00	0.00	0.000	127.25	0.00	0.00	0.00
5.50	0.00	0.000	127.25	0.00	0.00	0.00
6.00	0.00	0.000	127.25	0.00	0.00	0.00
6.50	0.00	0.000	127.25	0.00	0.00	0.00
7.00	0.00	0.000	127.25	0.00	0.00	0.00
7.50	0.00	0.000	127.25	0.00	0.00	0.00
8.00	0.00	0.000	127.25	0.00	0.00	0.00
8.50	0.00	0.000	127.25	0.00	0.00	0.00
9.00	0.02	0.000	127.25	0.00	0.00	0.00
9.50	0.07	0.002	127.26	0.00	0.00	0.00
10.00	0.14	0.006	127.28	0.00	0.00	0.00
10.50	0.24	0.014	127.32	0.00	0.00	0.00
11.00	0.40	0.027	127.38	0.00	0.00	0.00
11.50	0.64	0.048	127.48	0.00	0.00	0.00
12.00	1.70	0.088	127.67	0.00	0.00	0.00
12.50	**7.99**	0.280	128.50	0.01	0.01	0.00
13.00	**5.15**	**0.566**	**129.61**	**1.77**	**1.77**	0.00
13.50	2.39	**0.597**	**129.72**	**2.87**	**2.87**	0.00
14.00	1.57	0.574	129.64	2.05	2.05	0.00
14.50	1.21	0.558	129.58	1.52	1.52	0.00
15.00	1.03	0.548	129.54	1.22	1.22	0.00
15.50	0.90	0.541	129.52	1.04	1.04	0.00
16.00	0.77	0.536	129.50	0.90	0.90	0.00
16.50	0.65	0.531	129.48	0.77	0.77	0.00
17.00	0.57	0.526	129.46	0.67	0.67	0.00
17.50	0.51	0.523	129.45	0.59	0.59	0.00
18.00	0.45	0.520	129.44	0.52	0.52	0.00
18.50	0.40	0.517	129.43	0.46	0.46	0.00
19.00	0.37	0.515	129.42	0.42	0.42	0.00
19.50	0.35	0.513	129.41	0.39	0.39	0.00
20.00	0.33	0.512	129.41	0.36	0.36	0.00
20.50	0.32	0.510	129.40	0.34	0.34	0.00
21.00	0.30	0.509	129.40	0.32	0.32	0.00
21.50	0.29	0.509	129.40	0.31	0.31	0.00
22.00	0.27	0.508	129.39	0.29	0.29	0.00
22.50	0.26	0.507	129.39	0.28	0.28	0.00
23.00	0.25	0.506	129.39	0.27	0.27	0.00
23.50	0.24	0.506	129.38	0.25	0.25	0.00
24.00	0.22	0.505	129.38	0.24	0.24	0.00

Summary for Pond 1B - Pond: 1B - Pond

Inflow Area = 10.540 ac, 0.00% Impervious, Inflow Depth > 2.96" for 25-YEAR STORM event
Inflow = 17.54 cfs @ 12.60 hrs, Volume= 2.600 af
Outflow = 9.69 cfs @ 13.07 hrs, Volume= 1.784 af, Atten= 45%, Lag= 28.5 min
Primary = 9.69 cfs @ 13.07 hrs, Volume= 1.784 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 127.40' @ 13.07 hrs Surf.Area= 0.302 ac Storage= 1.039 af

Plug-Flow detention time= 171.9 min calculated for 1.781 af (68% of inflow)
Center-of-Mass det. time= 76.7 min (939.8 - 863.1)

Volume	Invert	Avail.Storage	Storage Description
#1	123.00'	1.560 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

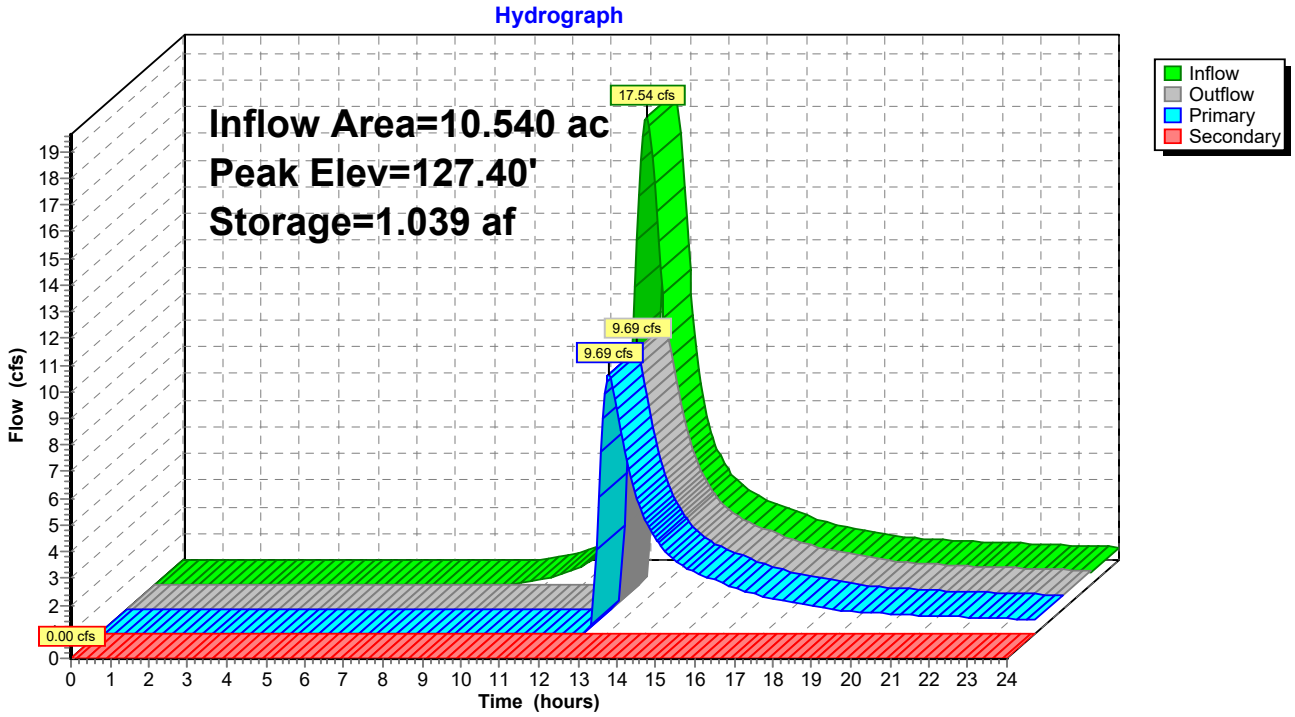
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
123.00	0.170	0.000	0.000
124.00	0.200	0.185	0.185
125.00	0.230	0.215	0.400
126.00	0.260	0.245	0.645
127.00	0.290	0.275	0.920
128.00	0.320	0.305	1.225
129.00	0.350	0.335	1.560

Device	Routing	Invert	Outlet Devices
#1	Primary	123.00'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 123.00' / 122.00' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	128.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	126.50'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	123.00'	**0.7" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=9.66 cfs @ 13.07 hrs HW=127.40' (Free Discharge)
└**1=Culvert** (Passes 9.66 cfs of 16.26 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 9.63 cfs @ 3.79 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.03 cfs @ 10.07 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=123.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1B - Pond: 1B - Pond



Hydrograph for Pond 1B - Pond: 1B - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	123.00	0.00	0.00	**0.00**
0.50	0.00	0.000	123.00	0.00	0.00	0.00
1.00	0.00	0.000	123.00	0.00	0.00	0.00
1.50	0.00	0.000	123.00	0.00	0.00	0.00
2.00	0.00	0.000	123.00	0.00	0.00	0.00
2.50	0.00	0.000	123.00	0.00	0.00	0.00
3.00	0.00	0.000	123.00	0.00	0.00	0.00
3.50	0.00	0.000	123.00	0.00	0.00	0.00
4.00	0.00	0.000	123.00	0.00	0.00	0.00
4.50	0.00	0.000	123.00	0.00	0.00	0.00
5.00	0.00	0.000	123.00	0.00	0.00	0.00
5.50	0.00	0.000	123.00	0.00	0.00	0.00
6.00	0.00	0.000	123.00	0.00	0.00	0.00
6.50	0.00	0.000	123.00	0.00	0.00	0.00
7.00	0.00	0.000	123.00	0.00	0.00	0.00
7.50	0.00	0.000	123.00	0.00	0.00	0.00
8.00	0.00	0.000	123.00	0.00	0.00	0.00
8.50	0.00	0.000	123.00	0.00	0.00	0.00
9.00	0.00	0.000	123.00	0.00	0.00	0.00
9.50	0.06	0.001	123.01	0.00	0.00	0.00
10.00	0.21	0.006	123.04	0.00	0.00	0.00
10.50	0.41	0.019	123.11	0.00	0.00	0.00
11.00	0.73	0.042	123.24	0.01	0.01	0.00
11.50	1.23	0.081	123.46	0.01	0.01	0.00
12.00	3.44	0.161	123.88	0.01	0.01	0.00
12.50	**16.85**	0.562	125.67	0.02	0.02	0.00
13.00	**10.89**	**1.035**	**127.39**	**9.47**	**9.47**	0.00
13.50	5.10	**0.987**	**127.23**	**6.86**	**6.86**	0.00
14.00	3.36	0.932	127.04	4.29	4.29	0.00
14.50	2.62	0.903	126.94	3.14	3.14	0.00
15.00	2.24	0.887	126.89	2.54	2.54	0.00
15.50	1.95	0.877	126.85	2.18	2.18	0.00
16.00	1.68	0.868	126.82	1.89	1.89	0.00
16.50	1.42	0.859	126.79	1.62	1.62	0.00
17.00	1.24	0.852	126.76	1.40	1.40	0.00
17.50	1.11	0.846	126.74	1.24	1.24	0.00
18.00	0.99	0.841	126.72	1.10	1.10	0.00
18.50	0.87	0.836	126.71	0.98	0.98	0.00
19.00	0.80	0.832	126.69	0.88	0.88	0.00
19.50	0.76	0.829	126.68	0.82	0.82	0.00
20.00	0.72	0.827	126.67	0.77	0.77	0.00
20.50	0.69	0.825	126.67	0.73	0.73	0.00
21.00	0.66	0.824	126.66	0.69	0.69	0.00
21.50	0.63	0.823	126.66	0.66	0.66	0.00
22.00	0.60	0.821	126.65	0.63	0.63	0.00
22.50	0.57	0.820	126.65	0.61	0.61	0.00
23.00	0.54	0.818	126.64	0.58	0.58	0.00
23.50	0.51	0.817	126.64	0.55	0.55	0.00
24.00	0.49	0.816	126.63	0.52	0.52	0.00

Summary for Pond 1C-Pond: 1C - Pond

Inflow Area = 8.580 ac, 0.00% Impervious, Inflow Depth > 2.78" for 25-YEAR STORM event
Inflow = 14.62 cfs @ 12.51 hrs, Volume= 1.985 af
Outflow = 8.40 cfs @ 12.91 hrs, Volume= 1.531 af, Atten= 43%, Lag= 24.1 min
Primary = 8.40 cfs @ 12.91 hrs, Volume= 1.531 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 130.33' @ 12.91 hrs Surf.Area= 0.366 ac Storage= 0.702 af

Plug-Flow detention time= 144.7 min calculated for 1.528 af (77% of inflow)
Center-of-Mass det. time= 63.0 min (925.1 - 862.0)

Volume	Invert	Avail.Storage	Storage Description
#1	128.00'	1.875 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

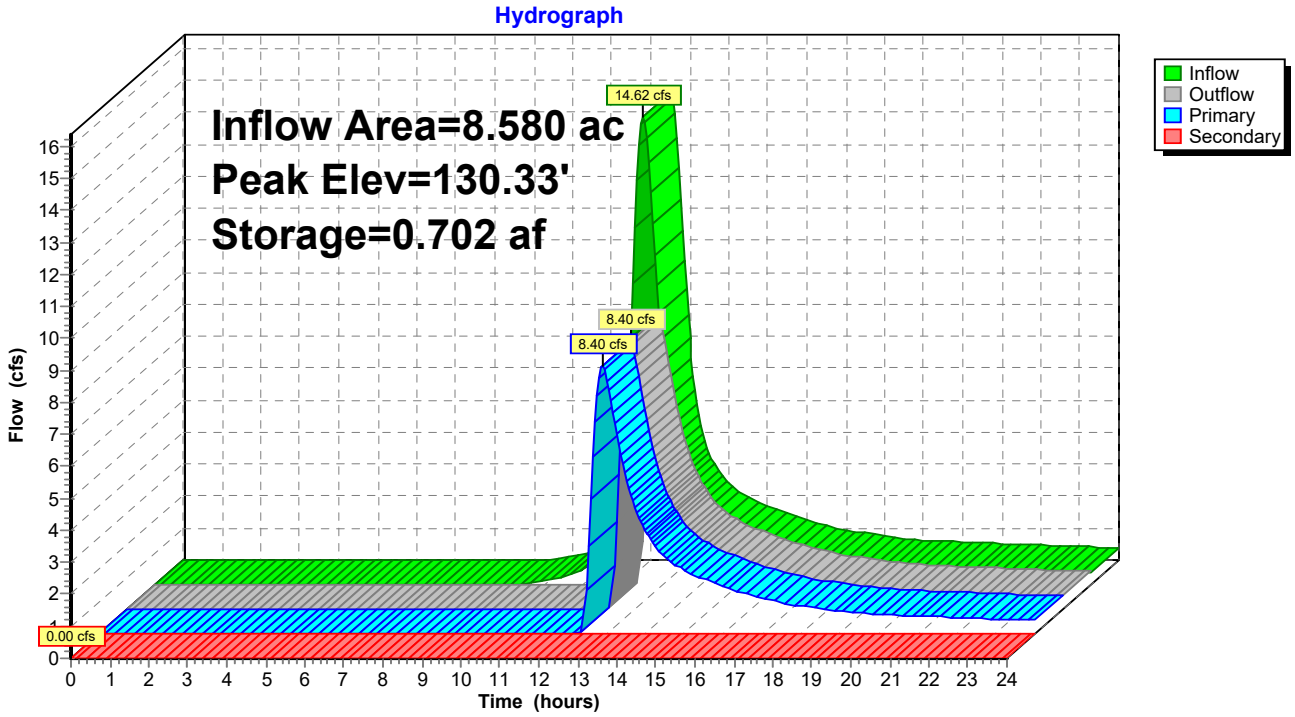
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
128.00	0.240	0.000	0.000
129.00	0.290	0.265	0.265
130.00	0.350	0.320	0.585
131.00	0.400	0.375	0.960
132.00	0.460	0.430	1.390
133.00	0.510	0.485	1.875

Device	Routing	Invert	Outlet Devices
#1	Primary	128.00'	**18.0" Round Culvert** L= 45.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 128.00' / 127.75' S= 0.0056 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	131.75'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	129.50'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	128.00'	**0.7" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=8.39 cfs @ 12.91 hrs HW=130.33' (Free Discharge)
└**1=Culvert** (Passes 8.39 cfs of 9.92 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 8.37 cfs @ 3.57 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.02 cfs @ 7.30 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-Pond: 1C - Pond



Hydrograph for Pond 1C-Pond: 1C - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	128.00	0.00	0.00	**0.00**
0.50	0.00	0.000	128.00	0.00	0.00	0.00
1.00	0.00	0.000	128.00	0.00	0.00	0.00
1.50	0.00	0.000	128.00	0.00	0.00	0.00
2.00	0.00	0.000	128.00	0.00	0.00	0.00
2.50	0.00	0.000	128.00	0.00	0.00	0.00
3.00	0.00	0.000	128.00	0.00	0.00	0.00
3.50	0.00	0.000	128.00	0.00	0.00	0.00
4.00	0.00	0.000	128.00	0.00	0.00	0.00
4.50	0.00	0.000	128.00	0.00	0.00	0.00
5.00	0.00	0.000	128.00	0.00	0.00	0.00
5.50	0.00	0.000	128.00	0.00	0.00	0.00
6.00	0.00	0.000	128.00	0.00	0.00	0.00
6.50	0.00	0.000	128.00	0.00	0.00	0.00
7.00	0.00	0.000	128.00	0.00	0.00	0.00
7.50	0.00	0.000	128.00	0.00	0.00	0.00
8.00	0.00	0.000	128.00	0.00	0.00	0.00
8.50	0.00	0.000	128.00	0.00	0.00	0.00
9.00	0.00	0.000	128.00	0.00	0.00	0.00
9.50	0.01	0.000	128.00	0.00	0.00	0.00
10.00	0.11	0.002	128.01	0.00	0.00	0.00
10.50	0.27	0.010	128.04	0.00	0.00	0.00
11.00	0.52	0.026	128.11	0.00	0.00	0.00
11.50	0.94	0.054	128.22	0.01	0.01	0.00
12.00	3.19	0.122	128.48	0.01	0.01	0.00
12.50	**14.62**	**0.501**	**129.76**	**1.35**	**1.35**	0.00
13.00	6.94	**0.697**	**130.31**	**8.17**	**8.17**	0.00
13.50	3.34	0.620	130.10	5.03	5.03	0.00
14.00	2.39	0.569	129.95	3.25	3.25	0.00
14.50	1.95	0.542	129.88	2.43	2.43	0.00
15.00	1.70	0.527	129.83	1.99	1.99	0.00
15.50	1.49	0.516	129.80	1.71	1.71	0.00
16.00	1.27	0.507	129.77	1.49	1.49	0.00
16.50	1.07	0.498	129.75	1.27	1.27	0.00
17.00	0.95	0.491	129.72	1.11	1.11	0.00
17.50	0.85	0.485	129.71	0.98	0.98	0.00
18.00	0.75	0.480	129.69	0.87	0.87	0.00
18.50	0.67	0.475	129.68	0.78	0.78	0.00
19.00	0.62	0.471	129.67	0.70	0.70	0.00
19.50	0.59	0.469	129.66	0.65	0.65	0.00
20.00	0.56	0.467	129.65	0.61	0.61	0.00
20.50	0.54	0.465	129.65	0.58	0.58	0.00
21.00	0.51	0.463	129.64	0.55	0.55	0.00
21.50	0.49	0.462	129.64	0.53	0.53	0.00
22.00	0.47	0.460	129.63	0.50	0.50	0.00
22.50	0.45	0.459	129.63	0.48	0.48	0.00
23.00	0.42	0.457	129.62	0.46	0.46	0.00
23.50	0.40	0.456	129.62	0.43	0.43	0.00
24.00	0.38	0.455	129.61	0.41	0.41	0.00

Summary for Pond 2 - Pond: 2 - Pond

Inflow Area = 9.600 ac, 0.00% Impervious, Inflow Depth > 3.25" for 25-YEAR STORM event
Inflow = 18.06 cfs @ 12.56 hrs, Volume= 2.600 af
Outflow = 13.23 cfs @ 12.86 hrs, Volume= 1.986 af, Atten= 27%, Lag= 17.8 min
Primary = 13.23 cfs @ 12.86 hrs, Volume= 1.986 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 137.49' @ 12.86 hrs Surf.Area= 0.277 ac Storage= 0.864 af

Plug-Flow detention time= 138.8 min calculated for 1.982 af (76% of inflow)
Center-of-Mass det. time= 57.6 min (912.3 - 854.7)

Volume	Invert	Avail.Storage	Storage Description
#1	133.00'	1.326 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

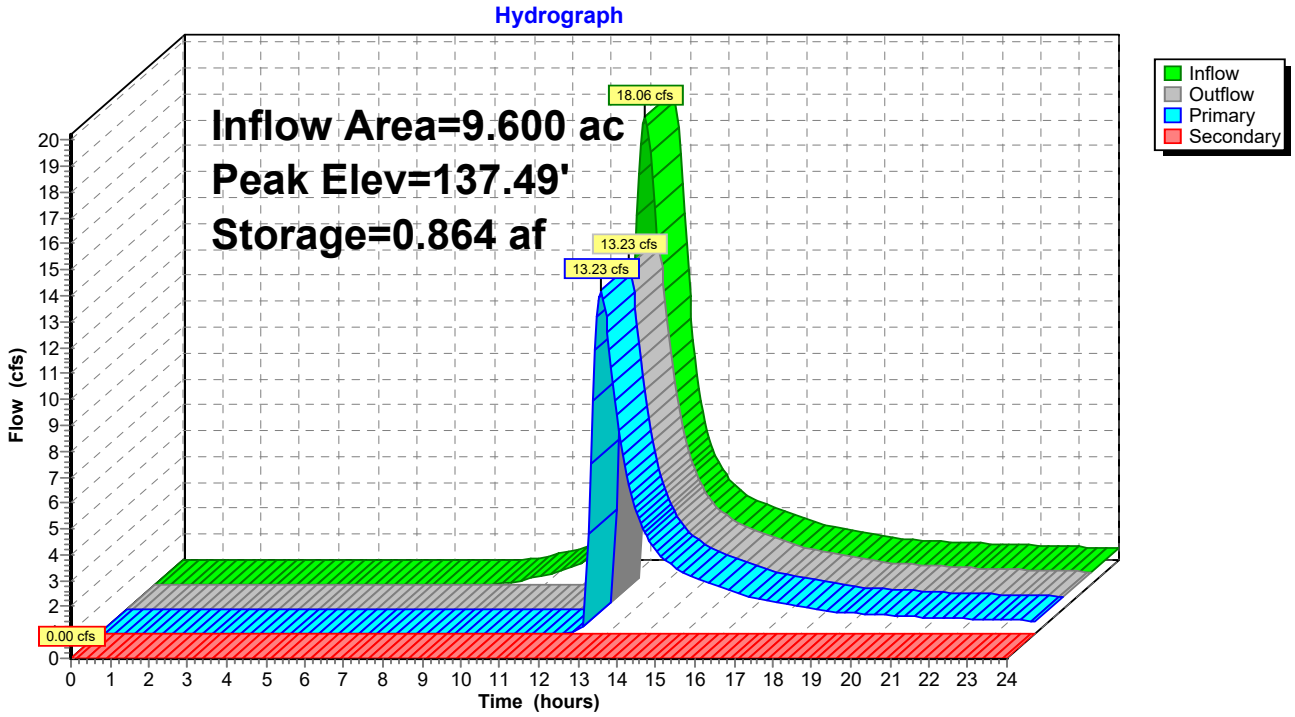
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
133.00	0.113	0.000	0.000
134.00	0.147	0.130	0.130
135.00	0.182	0.164	0.294
136.00	0.218	0.200	0.494
137.00	0.257	0.237	0.732
138.00	0.297	0.277	1.009
139.00	0.338	0.317	1.326

Device	Routing	Invert	Outlet Devices
#1	Device 2	136.40'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#2	Primary	133.00'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.00' / 132.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#3	Secondary	138.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#4	Device 2	133.00'	**1.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=13.19 cfs @ 12.86 hrs HW=137.49' (Free Discharge)
└**2=Culvert** (Passes 13.19 cfs of 16.46 cfs potential flow)
  ├**1=Sharp-Crested Rectangular Weir** (Weir Controls 13.14 cfs @ 4.33 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.06 cfs @ 10.16 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.00' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2 - Pond: 2 - Pond



Hydrograph for Pond 2 - Pond: 2 - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	133.00	0.00	0.00	**0.00**
0.50	0.00	0.000	133.00	0.00	0.00	0.00
1.00	0.00	0.000	133.00	0.00	0.00	0.00
1.50	0.00	0.000	133.00	0.00	0.00	0.00
2.00	0.00	0.000	133.00	0.00	0.00	0.00
2.50	0.00	0.000	133.00	0.00	0.00	0.00
3.00	0.00	0.000	133.00	0.00	0.00	0.00
3.50	0.00	0.000	133.00	0.00	0.00	0.00
4.00	0.00	0.000	133.00	0.00	0.00	0.00
4.50	0.00	0.000	133.00	0.00	0.00	0.00
5.00	0.00	0.000	133.00	0.00	0.00	0.00
5.50	0.00	0.000	133.00	0.00	0.00	0.00
6.00	0.00	0.000	133.00	0.00	0.00	0.00
6.50	0.00	0.000	133.00	0.00	0.00	0.00
7.00	0.00	0.000	133.00	0.00	0.00	0.00
7.50	0.00	0.000	133.00	0.00	0.00	0.00
8.00	0.00	0.000	133.00	0.00	0.00	0.00
8.50	0.01	0.000	133.00	0.00	0.00	0.00
9.00	0.07	0.001	133.01	0.00	0.00	0.00
9.50	0.19	0.006	133.06	0.00	0.00	0.00
10.00	0.36	0.017	133.15	0.01	0.01	0.00
10.50	0.58	0.036	133.31	0.01	0.01	0.00
11.00	0.92	0.066	133.54	0.02	0.02	0.00
11.50	1.46	0.113	133.88	0.02	0.02	0.00
12.00	3.95	0.205	134.48	0.03	0.03	0.00
12.50	**17.76**	**0.643**	**136.65**	**1.30**	**1.30**	0.00
13.00	**10.24**	**0.850**	**137.44**	**12.25**	**12.25**	0.00
13.50	4.73	0.758	137.10	6.47	6.47	0.00
14.00	3.16	0.709	136.91	3.92	3.92	0.00
14.50	2.48	0.686	136.82	2.89	2.89	0.00
15.00	2.13	0.673	136.77	2.37	2.37	0.00
15.50	1.86	0.665	136.73	2.04	2.04	0.00
16.00	1.59	0.657	136.70	1.77	1.77	0.00
16.50	1.34	0.650	136.67	1.51	1.51	0.00
17.00	1.18	0.644	136.65	1.31	1.31	0.00
17.50	1.05	0.639	136.63	1.16	1.16	0.00
18.00	0.93	0.635	136.61	1.03	1.03	0.00
18.50	0.82	0.631	136.59	0.92	0.92	0.00
19.00	0.76	0.627	136.58	0.83	0.83	0.00
19.50	0.72	0.625	136.57	0.77	0.77	0.00
20.00	0.69	0.623	136.56	0.72	0.72	0.00
20.50	0.65	0.622	136.56	0.69	0.69	0.00
21.00	0.62	0.621	136.55	0.65	0.65	0.00
21.50	0.60	0.620	136.55	0.62	0.62	0.00
22.00	0.57	0.619	136.54	0.59	0.59	0.00
22.50	0.54	0.618	136.54	0.57	0.57	0.00
23.00	0.51	0.616	136.53	0.54	0.54	0.00
23.50	0.49	0.615	136.53	0.52	0.52	0.00
24.00	0.46	0.614	136.52	0.49	0.49	0.00

Summary for Pond 3 - Pond: 3 - Pond

Inflow Area = 4.120 ac, 0.00% Impervious, Inflow Depth > 3.16" for 25-YEAR STORM event
Inflow = 9.49 cfs @ 12.34 hrs, Volume= 1.086 af
Outflow = 4.15 cfs @ 12.78 hrs, Volume= 0.697 af, Atten= 56%, Lag= 26.0 min
Primary = 4.15 cfs @ 12.78 hrs, Volume= 0.697 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 171.73' @ 12.78 hrs Surf.Area= 0.201 ac Storage= 0.478 af

Plug-Flow detention time= 187.8 min calculated for 0.695 af (64% of inflow)
Center-of-Mass det. time= 86.1 min (930.4 - 844.4)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	1.043 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

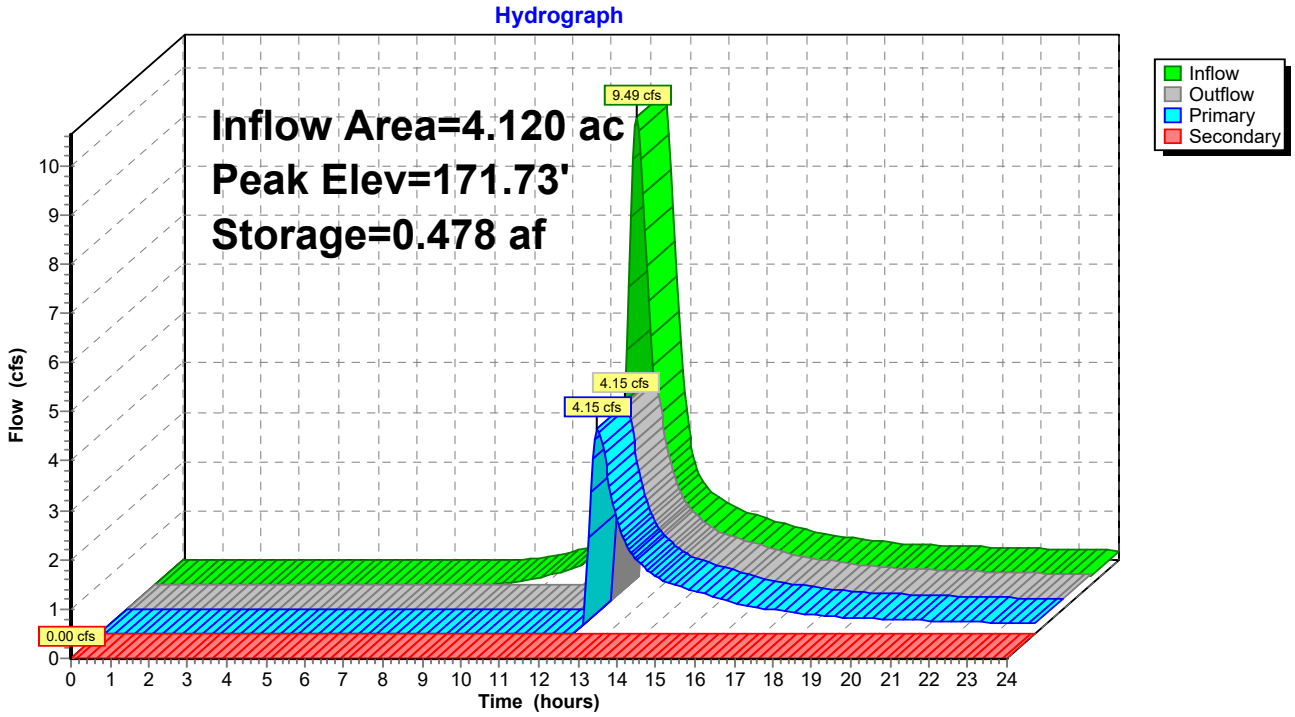
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.058	0.000	0.000
169.00	0.094	0.076	0.076
170.00	0.133	0.113	0.189
171.00	0.172	0.152	0.342
172.00	0.211	0.191	0.533
173.00	0.254	0.233	0.766
174.00	0.299	0.276	1.043

Device	Routing	Invert	Outlet Devices
#1	Primary	168.00'	**18.0" Round Culvert** L= 55.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 168.00' / 164.50' S= 0.0636 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	173.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Device 1	171.20'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	168.00'	**0.4" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=4.13 cfs @ 12.78 hrs HW=171.73' (Free Discharge)
└**1=Culvert** (Passes 4.13 cfs of 14.69 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 4.12 cfs @ 2.69 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.01 cfs @ 9.28 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=168.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3 - Pond: 3 - Pond



Hydrograph for Pond 3 - Pond: 3 - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	168.00	0.00	0.00	**0.00**
0.50	0.00	0.000	168.00	0.00	0.00	0.00
1.00	0.00	0.000	168.00	0.00	0.00	0.00
1.50	0.00	0.000	168.00	0.00	0.00	0.00
2.00	0.00	0.000	168.00	0.00	0.00	0.00
2.50	0.00	0.000	168.00	0.00	0.00	0.00
3.00	0.00	0.000	168.00	0.00	0.00	0.00
3.50	0.00	0.000	168.00	0.00	0.00	0.00
4.00	0.00	0.000	168.00	0.00	0.00	0.00
4.50	0.00	0.000	168.00	0.00	0.00	0.00
5.00	0.00	0.000	168.00	0.00	0.00	0.00
5.50	0.00	0.000	168.00	0.00	0.00	0.00
6.00	0.00	0.000	168.00	0.00	0.00	0.00
6.50	0.00	0.000	168.00	0.00	0.00	0.00
7.00	0.00	0.000	168.00	0.00	0.00	0.00
7.50	0.00	0.000	168.00	0.00	0.00	0.00
8.00	0.00	0.000	168.00	0.00	0.00	0.00
8.50	0.00	0.000	168.00	0.00	0.00	0.00
9.00	0.03	0.001	168.01	0.00	0.00	0.00
9.50	0.09	0.003	168.05	0.00	0.00	0.00
10.00	0.17	0.008	168.14	0.00	0.00	0.00
10.50	0.28	0.017	168.27	0.00	0.00	0.00
11.00	0.44	0.032	168.48	0.00	0.00	0.00
11.50	0.75	0.055	168.77	0.00	0.00	0.00
12.00	**3.02**	0.114	169.38	0.00	0.00	0.00
12.50	**7.93**	**0.412**	**171.39**	**0.87**	**0.87**	0.00
13.00	2.50	**0.466**	**171.67**	**3.42**	**3.42**	0.00
13.50	1.41	0.436	171.52	1.87	1.87	0.00
14.00	1.14	0.424	171.45	1.33	1.33	0.00
14.50	0.95	0.418	171.42	1.07	1.07	0.00
15.00	0.84	0.414	171.40	0.92	0.92	0.00
15.50	0.73	0.411	171.38	0.81	0.81	0.00
16.00	0.62	0.408	171.37	0.69	0.69	0.00
16.50	0.52	0.404	171.35	0.59	0.59	0.00
17.00	0.47	0.402	171.34	0.52	0.52	0.00
17.50	0.42	0.400	171.33	0.46	0.46	0.00
18.00	0.37	0.398	171.32	0.41	0.41	0.00
18.50	0.33	0.397	171.31	0.36	0.36	0.00
19.00	0.31	0.396	171.30	0.33	0.33	0.00
19.50	0.30	0.395	171.30	0.31	0.31	0.00
20.00	0.28	0.394	171.29	0.30	0.30	0.00
20.50	0.27	0.394	171.29	0.29	0.29	0.00
21.00	0.26	0.393	171.29	0.27	0.27	0.00
21.50	0.25	0.392	171.28	0.26	0.26	0.00
22.00	0.23	0.392	171.28	0.25	0.25	0.00
22.50	0.22	0.391	171.28	0.24	0.24	0.00
23.00	0.21	0.391	171.28	0.22	0.22	0.00
23.50	0.20	0.390	171.27	0.21	0.21	0.00
24.00	0.19	0.390	171.27	0.20	0.20	0.00

Summary for Pond 4 - Pond: 4 - Pond

Inflow Area = 9.020 ac, 0.00% Impervious, Inflow Depth > 3.16" for 25-YEAR STORM event
Inflow = 20.90 cfs @ 12.34 hrs, Volume= 2.379 af
Outflow = 11.41 cfs @ 12.69 hrs, Volume= 1.655 af, Atten= 45%, Lag= 20.9 min
Primary = 11.41 cfs @ 12.69 hrs, Volume= 1.655 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 127.00' @ 12.69 hrs Surf.Area= 11,348 sf Storage= 41,012 cf

Plug-Flow detention time= 167.3 min calculated for 1.655 af (70% of inflow)
Center-of-Mass det. time= 71.8 min (915.8 - 844.1)

Volume	Invert	Avail.Storage	Storage Description
#1	122.00'	66,544 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

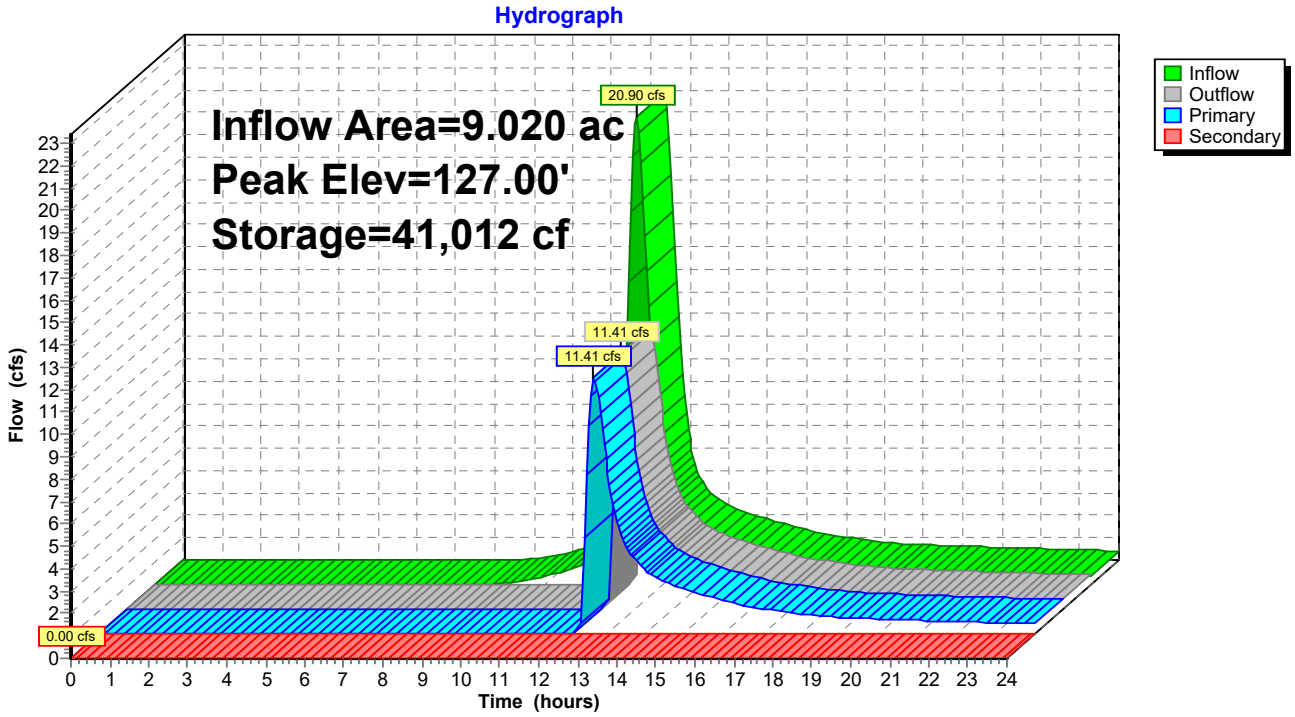
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
122.00	5,526	0	0
123.00	6,338	5,932	5,932
124.00	7,507	6,923	12,855
125.00	8,732	8,120	20,974
126.00	10,013	9,373	30,347
127.00	11,350	10,682	41,028
128.00	12,744	12,047	53,075
129.00	14,194	13,469	66,544

Device	Routing	Invert	Outlet Devices
#1	Primary	122.00'	**18.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 122.00' / 121.50' S= 0.0083 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	128.25'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Device 1	126.00'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	122.00'	**0.8" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=11.37 cfs @ 12.69 hrs HW=127.00' (Free Discharge)
└**1=Culvert** (Passes 11.37 cfs of 17.53 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 11.33 cfs @ 4.06 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.04 cfs @ 10.73 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4 - Pond: 4 - Pond



Hydrograph for Pond 4 - Pond: 4 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	122.00	0.00	0.00	**0.00**
0.50	0.00	0	122.00	0.00	0.00	0.00
1.00	0.00	0	122.00	0.00	0.00	0.00
1.50	0.00	0	122.00	0.00	0.00	0.00
2.00	0.00	0	122.00	0.00	0.00	0.00
2.50	0.00	0	122.00	0.00	0.00	0.00
3.00	0.00	0	122.00	0.00	0.00	0.00
3.50	0.00	0	122.00	0.00	0.00	0.00
4.00	0.00	0	122.00	0.00	0.00	0.00
4.50	0.00	0	122.00	0.00	0.00	0.00
5.00	0.00	0	122.00	0.00	0.00	0.00
5.50	0.00	0	122.00	0.00	0.00	0.00
6.00	0.00	0	122.00	0.00	0.00	0.00
6.50	0.00	0	122.00	0.00	0.00	0.00
7.00	0.00	0	122.00	0.00	0.00	0.00
7.50	0.00	0	122.00	0.00	0.00	0.00
8.00	0.00	0	122.00	0.00	0.00	0.00
8.50	0.00	0	122.00	0.00	0.00	0.00
9.00	0.07	55	122.01	0.00	0.00	0.00
9.50	0.20	291	122.05	0.00	0.00	0.00
10.00	0.37	791	122.14	0.01	0.01	0.00
10.50	0.61	1,642	122.29	0.01	0.01	0.00
11.00	0.97	3,030	122.53	0.01	0.01	0.00
11.50	1.66	5,253	122.89	0.02	0.02	0.00
12.00	**6.72**	10,941	123.74	0.02	0.02	0.00
12.50	**17.24**	**38,193**	**126.75**	**7.15**	**7.15**	0.00
13.00	5.38	**38,667**	**126.79**	**7.82**	**7.82**	0.00
13.50	3.07	35,715	126.52	4.02	4.02	0.00
14.00	2.49	34,646	126.42	2.88	2.88	0.00
14.50	2.08	34,079	126.36	2.33	2.33	0.00
15.00	1.84	33,725	126.33	2.01	2.01	0.00
15.50	1.59	33,429	126.30	1.76	1.76	0.00
16.00	1.35	33,139	126.27	1.51	1.51	0.00
16.50	1.14	32,848	126.25	1.29	1.29	0.00
17.00	1.03	32,630	126.22	1.13	1.13	0.00
17.50	0.92	32,462	126.21	1.01	1.01	0.00
18.00	0.81	32,305	126.19	0.90	0.90	0.00
18.50	0.72	32,144	126.18	0.80	0.80	0.00
19.00	0.69	32,033	126.17	0.73	0.73	0.00
19.50	0.65	31,960	126.16	0.69	0.69	0.00
20.00	0.62	31,900	126.15	0.65	0.65	0.00
20.50	0.59	31,845	126.15	0.62	0.62	0.00
21.00	0.56	31,797	126.14	0.59	0.59	0.00
21.50	0.54	31,754	126.14	0.56	0.56	0.00
22.00	0.51	31,713	126.14	0.54	0.54	0.00
22.50	0.49	31,672	126.13	0.51	0.51	0.00
23.00	0.46	31,628	126.13	0.49	0.49	0.00
23.50	0.44	31,578	126.12	0.47	0.47	0.00
24.00	0.41	31,525	126.12	0.44	0.44	0.00

Summary for Pond 5 - Pond: 5 - Pond

Inflow Area = 15.220 ac, 0.00% Impervious, Inflow Depth > 3.55" for 25-YEAR STORM event
Inflow = 36.10 cfs @ 12.41 hrs, Volume= 4.509 af
Outflow = 24.43 cfs @ 12.70 hrs, Volume= 3.451 af, Atten= 32%, Lag= 17.3 min
Primary = 24.43 cfs @ 12.70 hrs, Volume= 3.451 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 125.14' @ 12.70 hrs Surf.Area= 17,900 sf Storage= 69,580 cf

Plug-Flow detention time= 141.8 min calculated for 3.444 af (76% of inflow)
Center-of-Mass det. time= 60.9 min (900.3 - 839.4)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	85,683 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

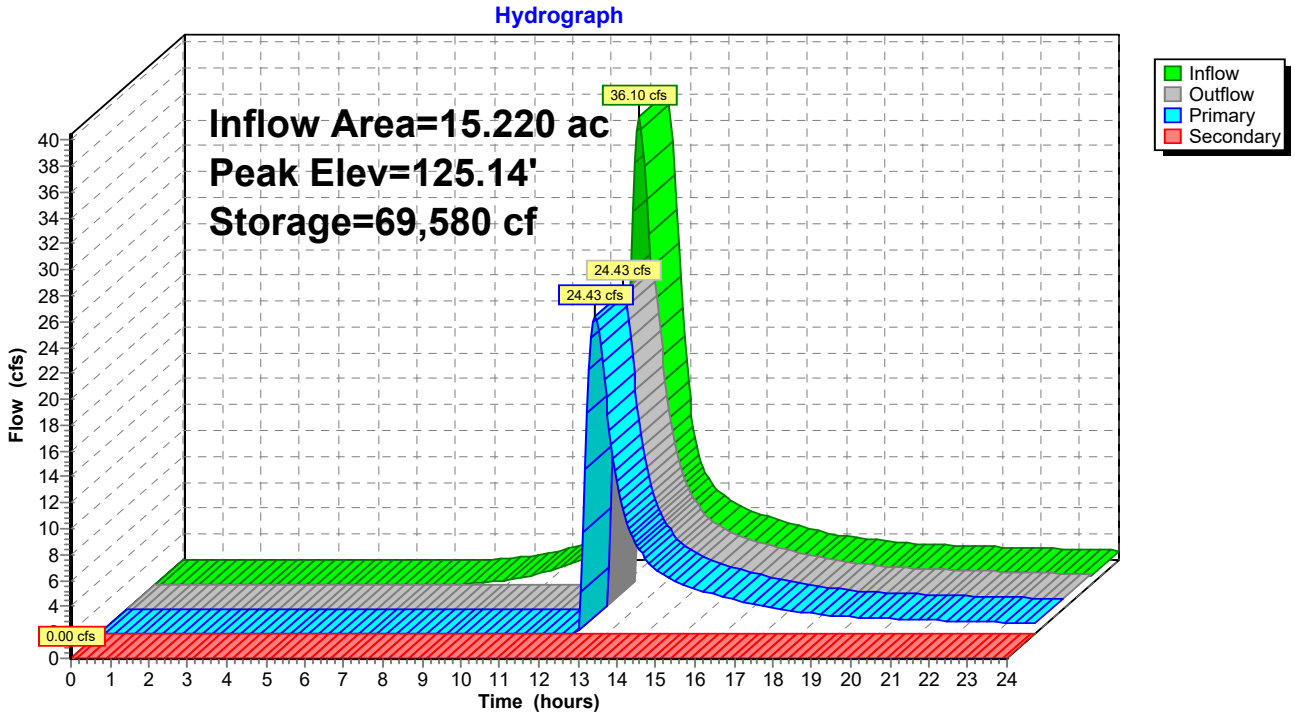
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	9,426	0	0
121.00	10,959	10,193	10,193
122.00	12,547	11,753	21,946
123.00	14,192	13,370	35,315
124.00	15,892	15,042	50,357
125.00	17,650	16,771	67,128
126.00	19,460	18,555	85,683

Device	Routing	Invert	Outlet Devices
#1	Device 2	123.55'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#2	Primary	120.00'	**30.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 120.00' / 117.00' S= 0.0500 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#3	Secondary	125.72'	**20.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#4	Device 2	120.00'	**1.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=24.41 cfs @ 12.70 hrs HW=125.14' (Free Discharge)
└**2=Culvert** (Passes 24.41 cfs of 46.60 cfs potential flow)
  ├**1=Sharp-Crested Rectangular Weir** (Weir Controls 24.35 cfs @ 5.72 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.06 cfs @ 10.87 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=120.00' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5 - Pond: 5 - Pond



Hydrograph for Pond 5 - Pond: 5 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	120.00	0.00	0.00	**0.00**
0.50	0.00	0	120.00	0.00	0.00	0.00
1.00	0.00	0	120.00	0.00	0.00	0.00
1.50	0.00	0	120.00	0.00	0.00	0.00
2.00	0.00	0	120.00	0.00	0.00	0.00
2.50	0.00	0	120.00	0.00	0.00	0.00
3.00	0.00	0	120.00	0.00	0.00	0.00
3.50	0.00	0	120.00	0.00	0.00	0.00
4.00	0.00	0	120.00	0.00	0.00	0.00
4.50	0.00	0	120.00	0.00	0.00	0.00
5.00	0.00	0	120.00	0.00	0.00	0.00
5.50	0.00	0	120.00	0.00	0.00	0.00
6.00	0.00	0	120.00	0.00	0.00	0.00
6.50	0.00	0	120.00	0.00	0.00	0.00
7.00	0.00	0	120.00	0.00	0.00	0.00
7.50	0.00	0	120.00	0.00	0.00	0.00
8.00	0.05	30	120.00	0.00	0.00	0.00
8.50	0.17	222	120.02	0.00	0.00	0.00
9.00	0.37	691	120.07	0.00	0.00	0.00
9.50	0.63	1,564	120.16	0.01	0.01	0.00
10.00	0.97	2,970	120.31	0.01	0.01	0.00
10.50	1.41	5,052	120.51	0.02	0.02	0.00
11.00	2.09	8,140	120.81	0.02	0.02	0.00
11.50	3.27	12,736	121.23	0.03	0.03	0.00
12.00	**10.57**	22,569	122.05	0.04	0.04	0.00
12.50	**34.45**	**64,091**	**124.83**	**17.05**	**17.05**	0.00
13.00	12.41	**65,010**	**124.88**	**18.22**	**18.22**	0.00
13.50	6.19	57,101	124.41	9.07	9.07	0.00
14.00	4.69	53,711	124.21	5.88	5.88	0.00
14.50	3.87	52,100	124.11	4.55	4.55	0.00
15.00	3.38	51,142	124.05	3.81	3.81	0.00
15.50	2.94	50,445	124.01	3.30	3.30	0.00
16.00	2.50	49,795	123.96	2.86	2.86	0.00
16.50	2.10	49,145	123.92	2.44	2.44	0.00
17.00	1.87	48,630	123.89	2.12	2.12	0.00
17.50	1.68	48,225	123.86	1.89	1.89	0.00
18.00	1.48	47,861	123.84	1.67	1.67	0.00
18.50	1.31	47,509	123.82	1.49	1.49	0.00
19.00	1.23	47,241	123.80	1.35	1.35	0.00
19.50	1.17	47,061	123.79	1.26	1.26	0.00
20.00	1.11	46,920	123.78	1.19	1.19	0.00
20.50	1.06	46,792	123.77	1.13	1.13	0.00
21.00	1.01	46,674	123.77	1.07	1.07	0.00
21.50	0.97	46,565	123.76	1.02	1.02	0.00
22.00	0.92	46,462	123.75	0.98	0.98	0.00
22.50	0.88	46,361	123.75	0.93	0.93	0.00
23.00	0.83	46,260	123.74	0.89	0.89	0.00
23.50	0.79	46,160	123.73	0.84	0.84	0.00
24.00	0.74	46,059	123.73	0.80	0.80	0.00

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>3.80"
Tc=42.6 min CN=73 Runoff=10.02 cfs 1.485 af

Subcatchment1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>3.59"
Tc=42.3 min CN=71 Runoff=21.35 cfs 3.153 af

Subcatchment1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>3.39"
Tc=35.2 min CN=69 Runoff=17.94 cfs 2.424 af

Subcatchment2: Runoff Area=9.600 ac 0.00% Impervious Runoff Depth>3.91"
Tc=40.3 min CN=74 Runoff=21.71 cfs 3.125 af

Subcatchment3: Runoff Area=4.120 ac 0.00% Impervious Runoff Depth>3.81"
Tc=24.4 min CN=73 Runoff=11.45 cfs 1.309 af

Subcatchment4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>3.81"
Tc=24.0 min CN=73 Runoff=25.22 cfs 2.867 af

Subcatchment5: Runoff Area=15.220 ac 0.00% Impervious Runoff Depth>4.23"
Tc=29.9 min CN=77 Runoff=42.93 cfs 5.371 af

Pond 1A - Pond: 1A - Pond Peak Elev=129.90' Storage=0.648 af Inflow=10.02 cfs 1.485 af
Primary=5.07 cfs 0.978 af Secondary=0.00 cfs 0.000 af Outflow=5.07 cfs 0.978 af

Pond 1B - Pond: 1B - Pond Peak Elev=127.66' Storage=1.118 af Inflow=21.35 cfs 3.153 af
Primary=14.57 cfs 2.334 af Secondary=0.00 cfs 0.000 af Outflow=14.57 cfs 2.334 af

Pond 1C-Pond: 1C - Pond Peak Elev=130.56' Storage=0.791 af Inflow=17.94 cfs 2.424 af
Primary=10.96 cfs 1.965 af Secondary=0.00 cfs 0.000 af Outflow=10.96 cfs 1.965 af

Pond 2 - Pond: 2 - Pond Peak Elev=137.73' Storage=0.930 af Inflow=21.71 cfs 3.125 af
Primary=16.97 cfs 2.507 af Secondary=0.00 cfs 0.000 af Outflow=16.97 cfs 2.507 af

Pond 3 - Pond: 3 - Pond Peak Elev=171.92' Storage=0.516 af Inflow=11.45 cfs 1.309 af
Primary=6.66 cfs 0.918 af Secondary=0.00 cfs 0.000 af Outflow=6.66 cfs 0.918 af

Pond 4 - Pond: 4 - Pond Peak Elev=127.27' Storage=44,169 cf Inflow=25.22 cfs 2.867 af
Primary=16.94 cfs 2.140 af Secondary=0.00 cfs 0.000 af Outflow=16.94 cfs 2.140 af

Pond 5 - Pond: 5 - Pond Peak Elev=125.44' Storage=75,054 cf Inflow=42.93 cfs 5.371 af
Primary=32.62 cfs 4.307 af Secondary=0.00 cfs 0.000 af Outflow=32.62 cfs 4.307 af

Total Runoff Area = 61.770 ac Runoff Volume = 19.734 af Average Runoff Depth = 3.83"
100.00% Pervious = 61.770 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

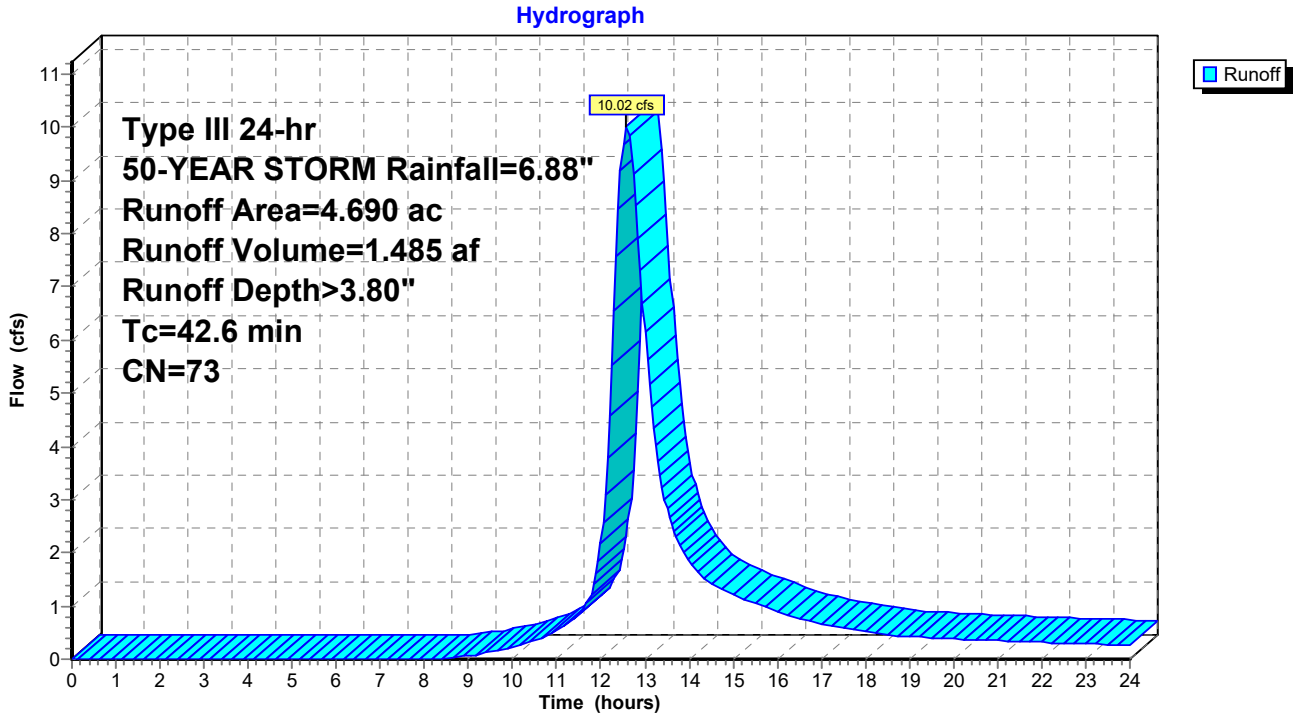
Runoff = 10.02 cfs @ 12.59 hrs, Volume= 1.485 af, Depth> 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR STORM Rainfall=6.88"

	Area (ac)	CN	Description
*	4.690	73	
	4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.6					**Direct Entry, SCS TR-55**

Subcatchment 1A:



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.16	2.41	6.14
0.25	0.02	0.00	0.00	13.25	5.28	2.50	4.01
0.50	0.03	0.00	0.00	13.50	5.39	2.59	2.83
0.75	0.05	0.00	0.00	13.75	5.49	2.67	2.20
1.00	0.07	0.00	0.00	14.00	5.58	2.74	1.84
1.25	0.09	0.00	0.00	14.25	5.66	2.81	1.60
1.50	0.10	0.00	0.00	14.50	5.74	2.87	1.42
1.75	0.12	0.00	0.00	14.75	5.81	2.93	1.30
2.00	0.14	0.00	0.00	15.00	5.88	2.99	1.21
2.25	0.16	0.00	0.00	15.25	5.94	3.04	1.13
2.50	0.17	0.00	0.00	15.50	6.00	3.09	1.05
2.75	0.19	0.00	0.00	15.75	6.05	3.13	0.98
3.00	0.21	0.00	0.00	16.00	6.10	3.17	0.90
3.25	0.23	0.00	0.00	16.25	6.14	3.20	0.83
3.50	0.25	0.00	0.00	16.50	6.18	3.24	0.76
3.75	0.27	0.00	0.00	16.75	6.22	3.27	0.71
4.00	0.30	0.00	0.00	17.00	6.26	3.30	0.67
4.25	0.32	0.00	0.00	17.25	6.29	3.33	0.63
4.50	0.34	0.00	0.00	17.50	6.33	3.36	0.59
4.75	0.37	0.00	0.00	17.75	6.36	3.39	0.56
5.00	0.39	0.00	0.00	18.00	6.38	3.41	0.53
5.25	0.42	0.00	0.00	18.25	6.41	3.43	0.49
5.50	0.44	0.00	0.00	18.50	6.44	3.46	0.46
5.75	0.47	0.00	0.00	18.75	6.46	3.48	0.44
6.00	0.50	0.00	0.00	19.00	6.49	3.50	0.43
6.25	0.52	0.00	0.00	19.25	6.51	3.52	0.42
6.50	0.55	0.00	0.00	19.50	6.54	3.54	0.41
6.75	0.59	0.00	0.00	19.75	6.56	3.56	0.40
7.00	0.62	0.00	0.00	20.00	6.58	3.58	0.39
7.25	0.66	0.00	0.00	20.25	6.61	3.60	0.38
7.50	0.70	0.00	0.00	20.50	6.63	3.62	0.37
7.75	0.74	0.00	0.00	20.75	6.65	3.63	0.36
8.00	0.78	0.00	0.00	21.00	6.67	3.65	0.35
8.25	0.83	0.00	0.00	21.25	6.69	3.67	0.34
8.50	0.88	0.01	0.02	21.50	6.71	3.69	0.33
8.75	0.94	0.01	0.03	21.75	6.73	3.70	0.33
9.00	1.00	0.02	0.06	22.00	6.75	3.72	0.32
9.25	1.07	0.03	0.09	22.25	6.77	3.73	0.31
9.50	1.14	0.04	0.13	22.50	6.78	3.75	0.30
9.75	1.22	0.05	0.18	22.75	6.80	3.76	0.30
10.00	1.30	0.07	0.23	23.00	6.82	3.78	0.29
10.25	1.39	0.10	0.29	23.25	6.83	3.79	0.28
10.50	1.49	0.13	0.36	23.50	6.85	3.81	0.27
10.75	1.60	0.16	0.45	23.75	6.87	3.82	0.27
11.00	1.72	0.21	0.55	24.00	**6.88**	**3.83**	0.26
11.25	1.87	0.26	0.67				
11.50	2.05	0.34	0.85				
11.75	2.44	0.54	1.17				
12.00	3.44	1.14	2.16				
12.25	4.44	1.85	5.52				
12.50	4.83	2.15	**9.68**				
12.75	5.01	2.29	**9.11**				

Summary for Subcatchment 1B:

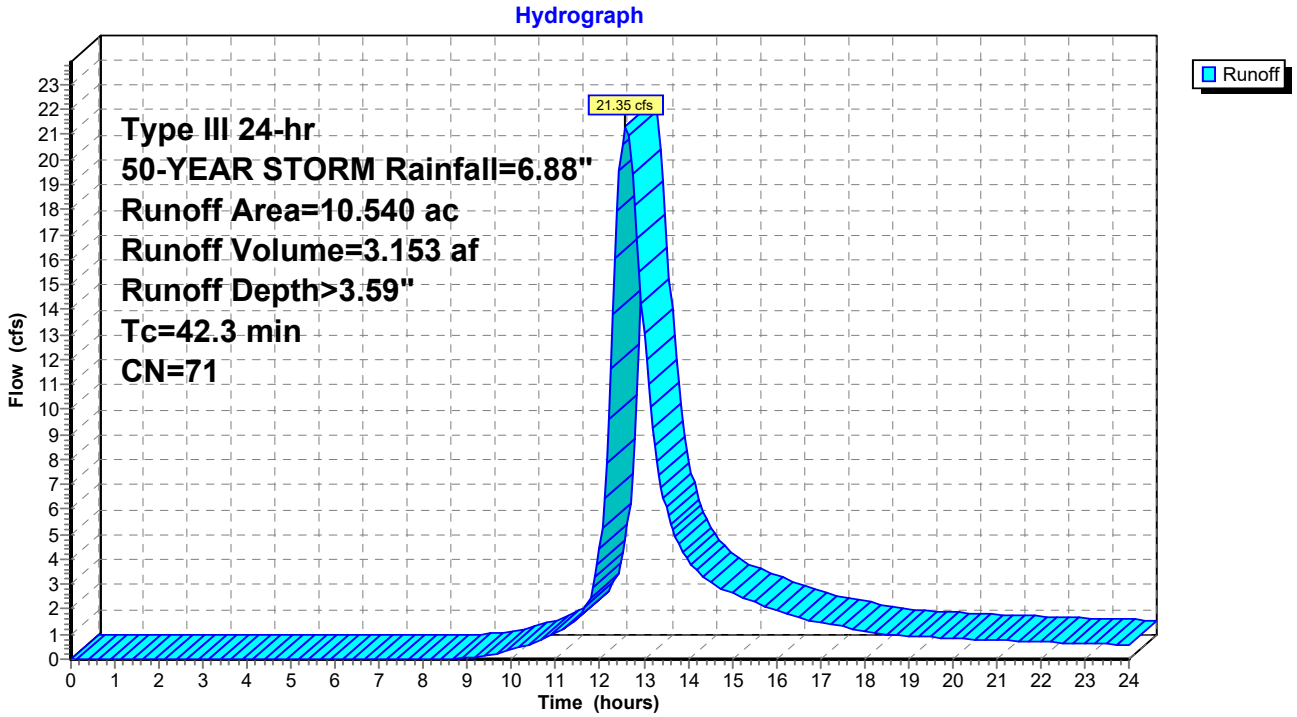
Runoff = 21.35 cfs @ 12.59 hrs, Volume= 3.153 af, Depth> 3.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR STORM Rainfall=6.88"

	Area (ac)	CN	Description
*	10.540	71	
	10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.3					**Direct Entry, SCS TR-55**

Subcatchment 1B:



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.07	0.00	0.00
1.25	0.09	0.00	0.00
1.50	0.10	0.00	0.00
1.75	0.12	0.00	0.00
2.00	0.14	0.00	0.00
2.25	0.16	0.00	0.00
2.50	0.17	0.00	0.00
2.75	0.19	0.00	0.00
3.00	0.21	0.00	0.00
3.25	0.23	0.00	0.00
3.50	0.25	0.00	0.00
3.75	0.27	0.00	0.00
4.00	0.30	0.00	0.00
4.25	0.32	0.00	0.00
4.50	0.34	0.00	0.00
4.75	0.37	0.00	0.00
5.00	0.39	0.00	0.00
5.25	0.42	0.00	0.00
5.50	0.44	0.00	0.00
5.75	0.47	0.00	0.00
6.00	0.50	0.00	0.00
6.25	0.52	0.00	0.00
6.50	0.55	0.00	0.00
6.75	0.59	0.00	0.00
7.00	0.62	0.00	0.00
7.25	0.66	0.00	0.00
7.50	0.70	0.00	0.00
7.75	0.74	0.00	0.00
8.00	0.78	0.00	0.00
8.25	0.83	0.00	0.00
8.50	0.88	0.00	0.00
8.75	0.94	0.00	0.02
9.00	1.00	0.01	0.06
9.25	1.07	0.01	0.11
9.50	1.14	0.02	0.19
9.75	1.22	0.04	0.28
10.00	1.30	0.05	0.39
10.25	1.39	0.07	0.51
10.50	1.49	0.10	0.65
10.75	1.60	0.13	0.83
11.00	1.72	0.16	1.05
11.25	1.87	0.21	1.31
11.50	2.05	0.29	1.68
11.75	2.44	0.46	2.34
12.00	3.44	1.03	4.44
12.25	4.44	1.70	11.63
12.50	4.83	1.99	**20.60**
12.75	5.01	2.13	**19.40**
13.00	5.16	2.24	13.07
13.25	5.28	2.33	8.56
13.50	5.39	2.42	6.07
13.75	5.49	2.49	4.73
14.00	5.58	2.56	3.97
14.25	5.66	2.63	3.47
14.50	5.74	2.69	3.08
14.75	5.81	2.75	2.82
15.00	5.88	2.80	2.63
15.25	5.94	2.85	2.46
15.50	6.00	2.90	2.29
15.75	6.05	2.94	2.13
16.00	6.10	2.98	1.97
16.25	6.14	3.01	1.81
16.50	6.18	3.05	1.66
16.75	6.22	3.08	1.54
17.00	6.26	3.11	1.45
17.25	6.29	3.14	1.37
17.50	6.33	3.16	1.30
17.75	6.36	3.19	1.23
18.00	6.38	3.21	1.15
18.25	6.41	3.23	1.08
18.50	6.44	3.26	1.02
18.75	6.46	3.28	0.97
19.00	6.49	3.30	0.94
19.25	6.51	3.32	0.91
19.50	6.54	3.34	0.89
19.75	6.56	3.36	0.87
20.00	6.58	3.38	0.84
20.25	6.61	3.39	0.82
20.50	6.63	3.41	0.80
20.75	6.65	3.43	0.78
21.00	6.67	3.45	0.77
21.25	6.69	3.46	0.75
21.50	6.71	3.48	0.73
21.75	6.73	3.50	0.72
22.00	6.75	3.51	0.70
22.25	6.77	3.53	0.68
22.50	6.78	3.54	0.67
22.75	6.80	3.56	0.65
23.00	6.82	3.57	0.63
23.25	6.83	3.58	0.62
23.50	6.85	3.60	0.60
23.75	6.87	3.61	0.58
24.00	**6.88**	**3.62**	0.57

Summary for Subcatchment 1C:

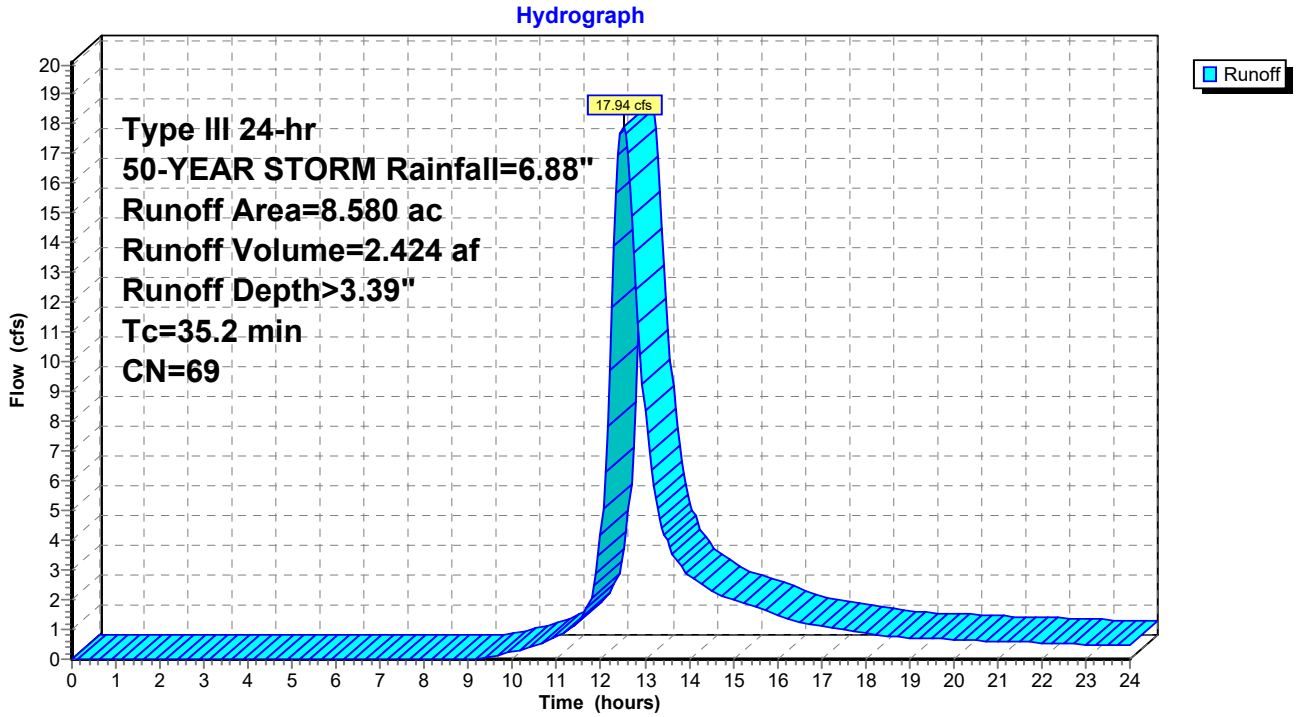
Runoff = 17.94 cfs @ 12.50 hrs, Volume= 2.424 af, Depth> 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR STORM Rainfall=6.88"

	Area (ac)	CN	Description
*	8.580	69	
	8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2					**Direct Entry, SCS TR-55**

Subcatchment 1C:



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.16	2.07	8.36
0.25	0.02	0.00	0.00	13.25	5.28	2.16	5.43
0.50	0.03	0.00	0.00	13.50	5.39	2.25	3.98
0.75	0.05	0.00	0.00	13.75	5.49	2.32	3.26
1.00	0.07	0.00	0.00	14.00	5.58	2.39	2.83
1.25	0.09	0.00	0.00	14.25	5.66	2.45	2.53
1.50	0.10	0.00	0.00	14.50	5.74	2.51	2.31
1.75	0.12	0.00	0.00	14.75	5.81	2.57	2.14
2.00	0.14	0.00	0.00	15.00	5.88	2.62	2.01
2.25	0.16	0.00	0.00	15.25	5.94	2.67	1.88
2.50	0.17	0.00	0.00	15.50	6.00	2.71	1.75
2.75	0.19	0.00	0.00	15.75	6.05	2.75	1.63
3.00	0.21	0.00	0.00	16.00	6.10	2.79	1.50
3.25	0.23	0.00	0.00	16.25	6.14	2.82	1.37
3.50	0.25	0.00	0.00	16.50	6.18	2.85	1.26
3.75	0.27	0.00	0.00	16.75	6.22	2.89	1.18
4.00	0.30	0.00	0.00	17.00	6.26	2.91	1.12
4.25	0.32	0.00	0.00	17.25	6.29	2.94	1.06
4.50	0.34	0.00	0.00	17.50	6.33	2.97	1.00
4.75	0.37	0.00	0.00	17.75	6.36	2.99	0.94
5.00	0.39	0.00	0.00	18.00	6.38	3.02	0.89
5.25	0.42	0.00	0.00	18.25	6.41	3.04	0.83
5.50	0.44	0.00	0.00	18.50	6.44	3.06	0.78
5.75	0.47	0.00	0.00	18.75	6.46	3.08	0.75
6.00	0.50	0.00	0.00	19.00	6.49	3.10	0.73
6.25	0.52	0.00	0.00	19.25	6.51	3.12	0.71
6.50	0.55	0.00	0.00	19.50	6.54	3.14	0.69
6.75	0.59	0.00	0.00	19.75	6.56	3.16	0.68
7.00	0.62	0.00	0.00	20.00	6.58	3.18	0.66
7.25	0.66	0.00	0.00	20.25	6.61	3.19	0.64
7.50	0.70	0.00	0.00	20.50	6.63	3.21	0.63
7.75	0.74	0.00	0.00	20.75	6.65	3.23	0.61
8.00	0.78	0.00	0.00	21.00	6.67	3.25	0.60
8.25	0.83	0.00	0.00	21.25	6.69	3.26	0.59
8.50	0.88	0.00	0.00	21.50	6.71	3.28	0.57
8.75	0.94	0.00	0.00	21.75	6.73	3.29	0.56
9.00	1.00	0.00	0.01	22.00	6.75	3.31	0.55
9.25	1.07	0.01	0.04	22.25	6.77	3.32	0.53
9.50	1.14	0.01	0.10	22.50	6.78	3.34	0.52
9.75	1.22	0.02	0.17	22.75	6.80	3.35	0.51
10.00	1.30	0.03	0.25	23.00	6.82	3.36	0.49
10.25	1.39	0.05	0.34	23.25	6.83	3.38	0.48
10.50	1.49	0.07	0.46	23.50	6.85	3.39	0.47
10.75	1.60	0.09	0.60	23.75	6.87	3.40	0.46
11.00	1.72	0.13	0.78	24.00	**6.88**	**3.42**	0.44
11.25	1.87	0.17	0.99				
11.50	2.05	0.23	1.31				
11.75	2.44	0.40	1.93				
12.00	3.44	0.92	4.16				
12.25	4.44	1.56	11.81				
12.50	4.83	1.83	**17.94**				
12.75	5.01	1.97	13.66				

Summary for Subcatchment 2:

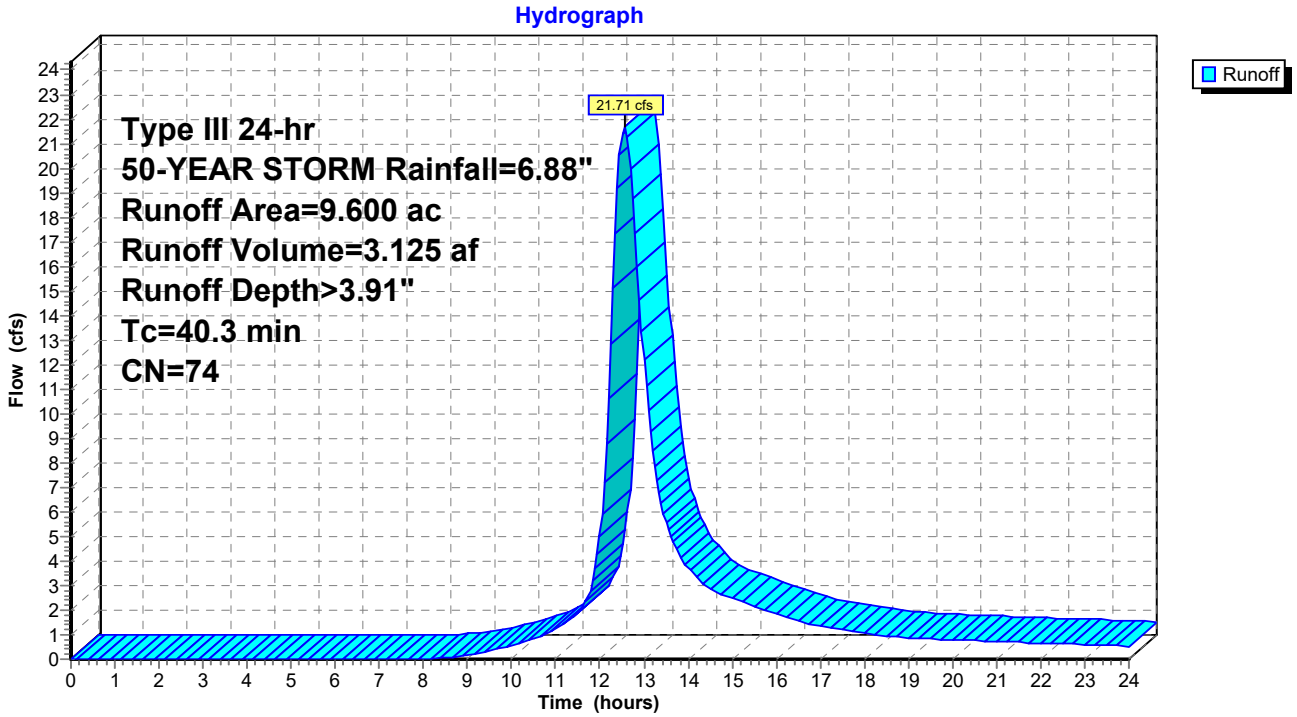
Runoff = 21.71 cfs @ 12.56 hrs, Volume= 3.125 af, Depth> 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR STORM Rainfall=6.88"

	Area (ac)	CN	Description
*	9.600	74	
	9.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.3					**Direct Entry, SCS TR-55**

Subcatchment 2:



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.07	0.00	0.00
1.25	0.09	0.00	0.00
1.50	0.10	0.00	0.00
1.75	0.12	0.00	0.00
2.00	0.14	0.00	0.00
2.25	0.16	0.00	0.00
2.50	0.17	0.00	0.00
2.75	0.19	0.00	0.00
3.00	0.21	0.00	0.00
3.25	0.23	0.00	0.00
3.50	0.25	0.00	0.00
3.75	0.27	0.00	0.00
4.00	0.30	0.00	0.00
4.25	0.32	0.00	0.00
4.50	0.34	0.00	0.00
4.75	0.37	0.00	0.00
5.00	0.39	0.00	0.00
5.25	0.42	0.00	0.00
5.50	0.44	0.00	0.00
5.75	0.47	0.00	0.00
6.00	0.50	0.00	0.00
6.25	0.52	0.00	0.00
6.50	0.55	0.00	0.00
6.75	0.59	0.00	0.00
7.00	0.62	0.00	0.00
7.25	0.66	0.00	0.00
7.50	0.70	0.00	0.00
7.75	0.74	0.00	0.00
8.00	0.78	0.00	0.01
8.25	0.83	0.00	0.03
8.50	0.88	0.01	0.06
8.75	0.94	0.02	0.11
9.00	1.00	0.02	0.18
9.25	1.07	0.03	0.25
9.50	1.14	0.05	0.34
9.75	1.22	0.07	0.44
10.00	1.30	0.09	0.55
10.25	1.39	0.11	0.68
10.50	1.49	0.14	0.83
10.75	1.60	0.18	1.02
11.00	1.72	0.23	1.25
11.25	1.87	0.29	1.52
11.50	2.05	0.37	1.91
11.75	2.44	0.58	2.63
12.00	3.44	1.20	4.98
12.25	4.44	1.92	12.83
12.50	4.83	2.23	**21.42**
12.75	5.01	2.38	**18.76**
13.00	5.16	2.49	12.16
13.25	5.28	2.59	7.85
13.50	5.39	2.68	5.57
13.75	5.49	2.76	4.38
14.00	5.58	2.83	3.71
14.25	5.66	2.90	3.24
14.50	5.74	2.97	2.90
14.75	5.81	3.03	2.67
15.00	5.88	3.08	2.49
15.25	5.94	3.13	2.32
15.50	6.00	3.18	2.16
15.75	6.05	3.23	2.01
16.00	6.10	3.27	1.85
16.25	6.14	3.30	1.70
16.50	6.18	3.34	1.56
16.75	6.22	3.37	1.45
17.00	6.26	3.40	1.37
17.25	6.29	3.43	1.30
17.50	6.33	3.46	1.22
17.75	6.36	3.49	1.15
18.00	6.38	3.51	1.08
18.25	6.41	3.53	1.01
18.50	6.44	3.56	0.96
18.75	6.46	3.58	0.91
19.00	6.49	3.60	0.88
19.25	6.51	3.62	0.86
19.50	6.54	3.64	0.84
19.75	6.56	3.66	0.82
20.00	6.58	3.68	0.80
20.25	6.61	3.70	0.78
20.50	6.63	3.72	0.76
20.75	6.65	3.74	0.74
21.00	6.67	3.76	0.72
21.25	6.69	3.77	0.71
21.50	6.71	3.79	0.69
21.75	6.73	3.81	0.67
22.00	6.75	3.82	0.66
22.25	6.77	3.84	0.64
22.50	6.78	3.85	0.63
22.75	6.80	3.87	0.61
23.00	6.82	3.88	0.60
23.25	6.83	3.90	0.58
23.50	6.85	3.91	0.56
23.75	6.87	3.92	0.55
24.00	**6.88**	**3.94**	0.53

Summary for Subcatchment 3:

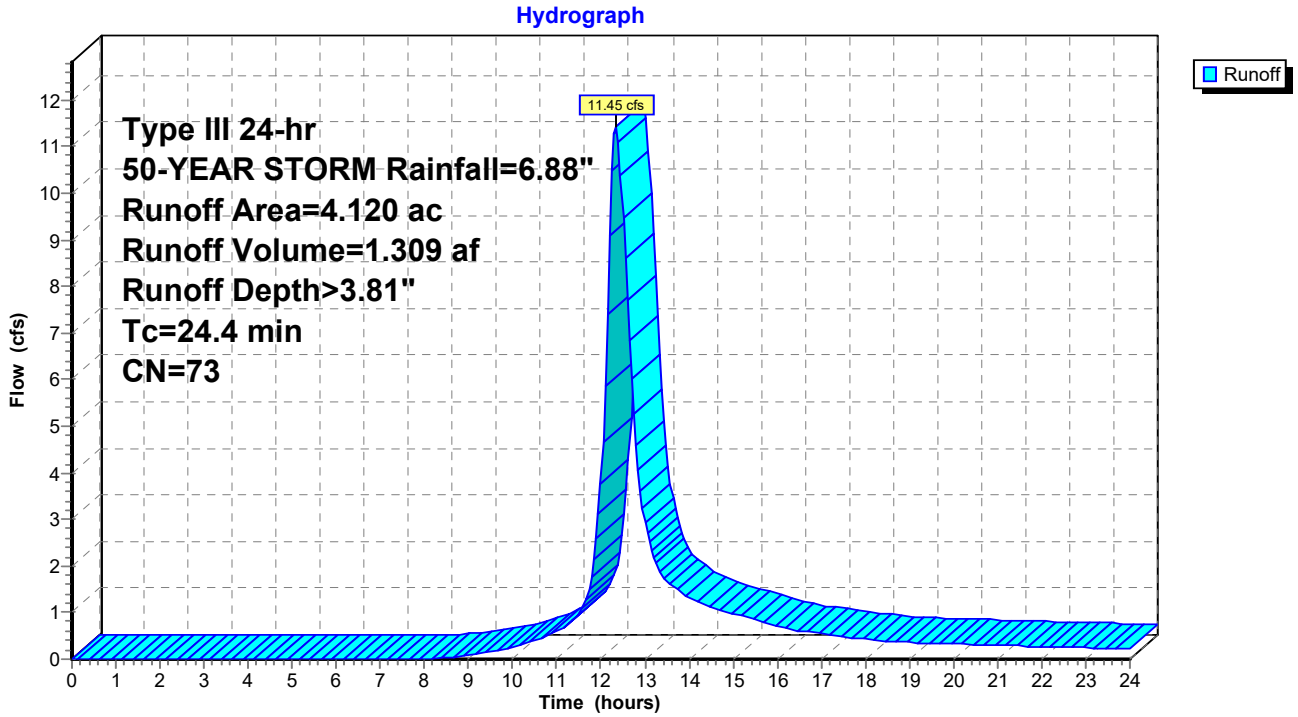
Runoff = 11.45 cfs @ 12.34 hrs, Volume= 1.309 af, Depth> 3.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR STORM Rainfall=6.88"

	Area (ac)	CN	Description
*	4.120	73	
	4.120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.4					**Direct Entry, SCS TR-55**

Subcatchment 3:



Hydrograph for Subcatchment 3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.16	2.41	2.95
0.25	0.02	0.00	0.00	13.25	5.28	2.50	2.05
0.50	0.03	0.00	0.00	13.50	5.39	2.59	1.66
0.75	0.05	0.00	0.00	13.75	5.49	2.67	1.48
1.00	0.07	0.00	0.00	14.00	5.58	2.74	1.34
1.25	0.09	0.00	0.00	14.25	5.66	2.81	1.21
1.50	0.10	0.00	0.00	14.50	5.74	2.87	1.12
1.75	0.12	0.00	0.00	14.75	5.81	2.93	1.05
2.00	0.14	0.00	0.00	15.00	5.88	2.99	0.98
2.25	0.16	0.00	0.00	15.25	5.94	3.04	0.92
2.50	0.17	0.00	0.00	15.50	6.00	3.09	0.85
2.75	0.19	0.00	0.00	15.75	6.05	3.13	0.79
3.00	0.21	0.00	0.00	16.00	6.10	3.17	0.72
3.25	0.23	0.00	0.00	16.25	6.14	3.20	0.66
3.50	0.25	0.00	0.00	16.50	6.18	3.24	0.61
3.75	0.27	0.00	0.00	16.75	6.22	3.27	0.58
4.00	0.30	0.00	0.00	17.00	6.26	3.30	0.55
4.25	0.32	0.00	0.00	17.25	6.29	3.33	0.52
4.50	0.34	0.00	0.00	17.50	6.33	3.36	0.49
4.75	0.37	0.00	0.00	17.75	6.36	3.39	0.46
5.00	0.39	0.00	0.00	18.00	6.38	3.41	0.43
5.25	0.42	0.00	0.00	18.25	6.41	3.43	0.40
5.50	0.44	0.00	0.00	18.50	6.44	3.46	0.38
5.75	0.47	0.00	0.00	18.75	6.46	3.48	0.37
6.00	0.50	0.00	0.00	19.00	6.49	3.50	0.36
6.25	0.52	0.00	0.00	19.25	6.51	3.52	0.36
6.50	0.55	0.00	0.00	19.50	6.54	3.54	0.35
6.75	0.59	0.00	0.00	19.75	6.56	3.56	0.34
7.00	0.62	0.00	0.00	20.00	6.58	3.58	0.33
7.25	0.66	0.00	0.00	20.25	6.61	3.60	0.32
7.50	0.70	0.00	0.00	20.50	6.63	3.62	0.31
7.75	0.74	0.00	0.00	20.75	6.65	3.63	0.31
8.00	0.78	0.00	0.00	21.00	6.67	3.65	0.30
8.25	0.83	0.00	0.01	21.25	6.69	3.67	0.29
8.50	0.88	0.01	0.03	21.50	6.71	3.69	0.29
8.75	0.94	0.01	0.05	21.75	6.73	3.70	0.28
9.00	1.00	0.02	0.08	22.00	6.75	3.72	0.27
9.25	1.07	0.03	0.12	22.25	6.77	3.73	0.27
9.50	1.14	0.04	0.16	22.50	6.78	3.75	0.26
9.75	1.22	0.05	0.21	22.75	6.80	3.76	0.25
10.00	1.30	0.07	0.26	23.00	6.82	3.78	0.25
10.25	1.39	0.10	0.32	23.25	6.83	3.79	0.24
10.50	1.49	0.13	0.39	23.50	6.85	3.81	0.23
10.75	1.60	0.16	0.49	23.75	6.87	3.82	0.23
11.00	1.72	0.21	0.60	24.00	**6.88**	**3.83**	0.22
11.25	1.87	0.26	0.73				
11.50	2.05	0.34	0.98				
11.75	2.44	0.54	1.52				
12.00	3.44	1.14	3.77				
12.25	4.44	1.85	**10.49**				
12.50	4.83	2.15	**9.49**				
12.75	5.01	2.29	5.26				

Summary for Subcatchment 4:

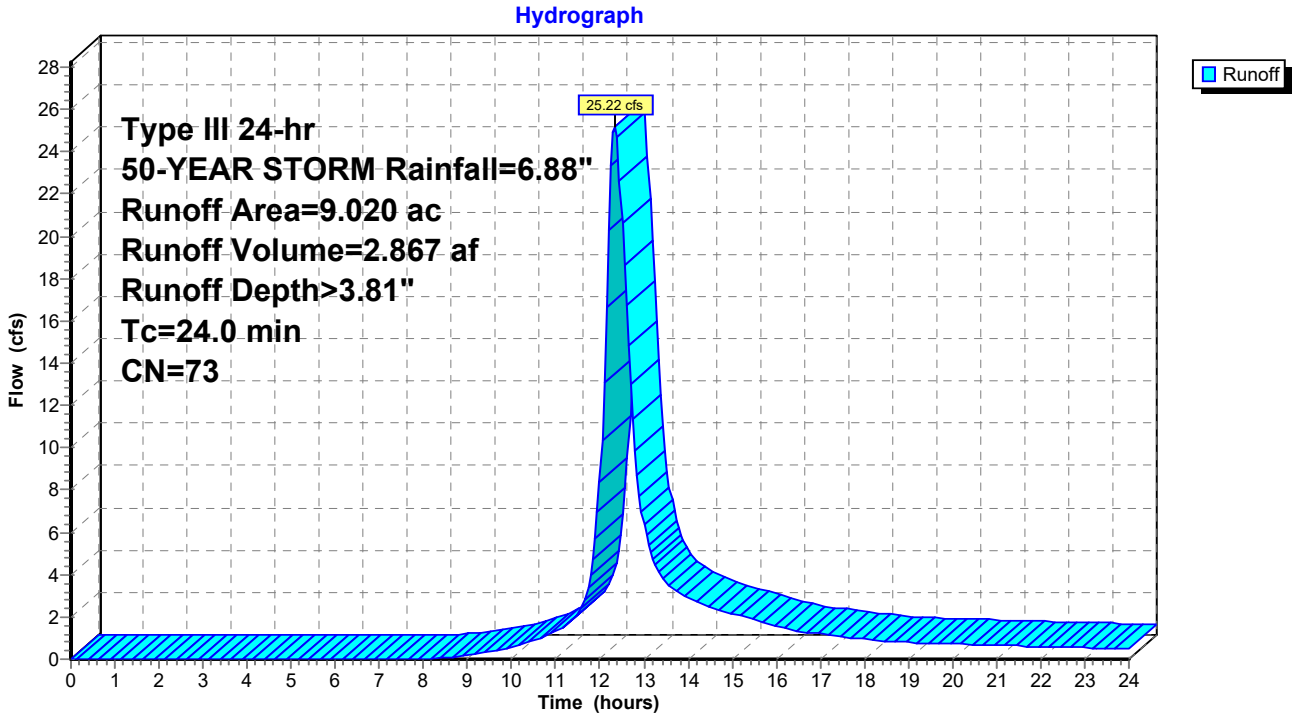
Runoff = 25.22 cfs @ 12.33 hrs, Volume= 2.867 af, Depth> 3.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR STORM Rainfall=6.88"

	Area (ac)	CN	Description
*	9.020	73	
	9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					**Direct Entry, SCS TR-55**

Subcatchment 4:



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.05	0.00	0.00
1.00	0.07	0.00	0.00
1.25	0.09	0.00	0.00
1.50	0.10	0.00	0.00
1.75	0.12	0.00	0.00
2.00	0.14	0.00	0.00
2.25	0.16	0.00	0.00
2.50	0.17	0.00	0.00
2.75	0.19	0.00	0.00
3.00	0.21	0.00	0.00
3.25	0.23	0.00	0.00
3.50	0.25	0.00	0.00
3.75	0.27	0.00	0.00
4.00	0.30	0.00	0.00
4.25	0.32	0.00	0.00
4.50	0.34	0.00	0.00
4.75	0.37	0.00	0.00
5.00	0.39	0.00	0.00
5.25	0.42	0.00	0.00
5.50	0.44	0.00	0.00
5.75	0.47	0.00	0.00
6.00	0.50	0.00	0.00
6.25	0.52	0.00	0.00
6.50	0.55	0.00	0.00
6.75	0.59	0.00	0.00
7.00	0.62	0.00	0.00
7.25	0.66	0.00	0.00
7.50	0.70	0.00	0.00
7.75	0.74	0.00	0.00
8.00	0.78	0.00	0.00
8.25	0.83	0.00	0.02
8.50	0.88	0.01	0.07
8.75	0.94	0.01	0.12
9.00	1.00	0.02	0.18
9.25	1.07	0.03	0.26
9.50	1.14	0.04	0.35
9.75	1.22	0.05	0.45
10.00	1.30	0.07	0.57
10.25	1.39	0.10	0.70
10.50	1.49	0.13	0.86
10.75	1.60	0.16	1.07
11.00	1.72	0.21	1.31
11.25	1.87	0.26	1.61
11.50	2.05	0.34	2.17
11.75	2.44	0.54	3.37
12.00	3.44	1.14	8.41
12.25	4.44	1.85	**23.32**
12.50	4.83	2.15	**20.63**
12.75	5.01	2.29	11.31
13.00	5.16	2.41	6.36
13.25	5.28	2.50	4.44
13.50	5.39	2.59	3.61
13.75	5.49	2.67	3.22
14.00	5.58	2.74	2.92
14.25	5.66	2.81	2.64
14.50	5.74	2.87	2.44
14.75	5.81	2.93	2.29
15.00	5.88	2.99	2.14
15.25	5.94	3.04	2.00
15.50	6.00	3.09	1.86
15.75	6.05	3.13	1.72
16.00	6.10	3.17	1.57
16.25	6.14	3.20	1.43
16.50	6.18	3.24	1.33
16.75	6.22	3.27	1.26
17.00	6.26	3.30	1.20
17.25	6.29	3.33	1.13
17.50	6.33	3.36	1.07
17.75	6.36	3.39	1.01
18.00	6.38	3.41	0.94
18.25	6.41	3.43	0.88
18.50	6.44	3.46	0.84
18.75	6.46	3.48	0.82
19.00	6.49	3.50	0.80
19.25	6.51	3.52	0.78
19.50	6.54	3.54	0.76
19.75	6.56	3.56	0.74
20.00	6.58	3.58	0.72
20.25	6.61	3.60	0.70
20.50	6.63	3.62	0.68
20.75	6.65	3.63	0.67
21.00	6.67	3.65	0.65
21.25	6.69	3.67	0.64
21.50	6.71	3.69	0.63
21.75	6.73	3.70	0.61
22.00	6.75	3.72	0.60
22.25	6.77	3.73	0.58
22.50	6.78	3.75	0.57
22.75	6.80	3.76	0.55
23.00	6.82	3.78	0.54
23.25	6.83	3.79	0.52
23.50	6.85	3.81	0.51
23.75	6.87	3.82	0.49
24.00	**6.88**	**3.83**	0.48

Summary for Subcatchment 5:

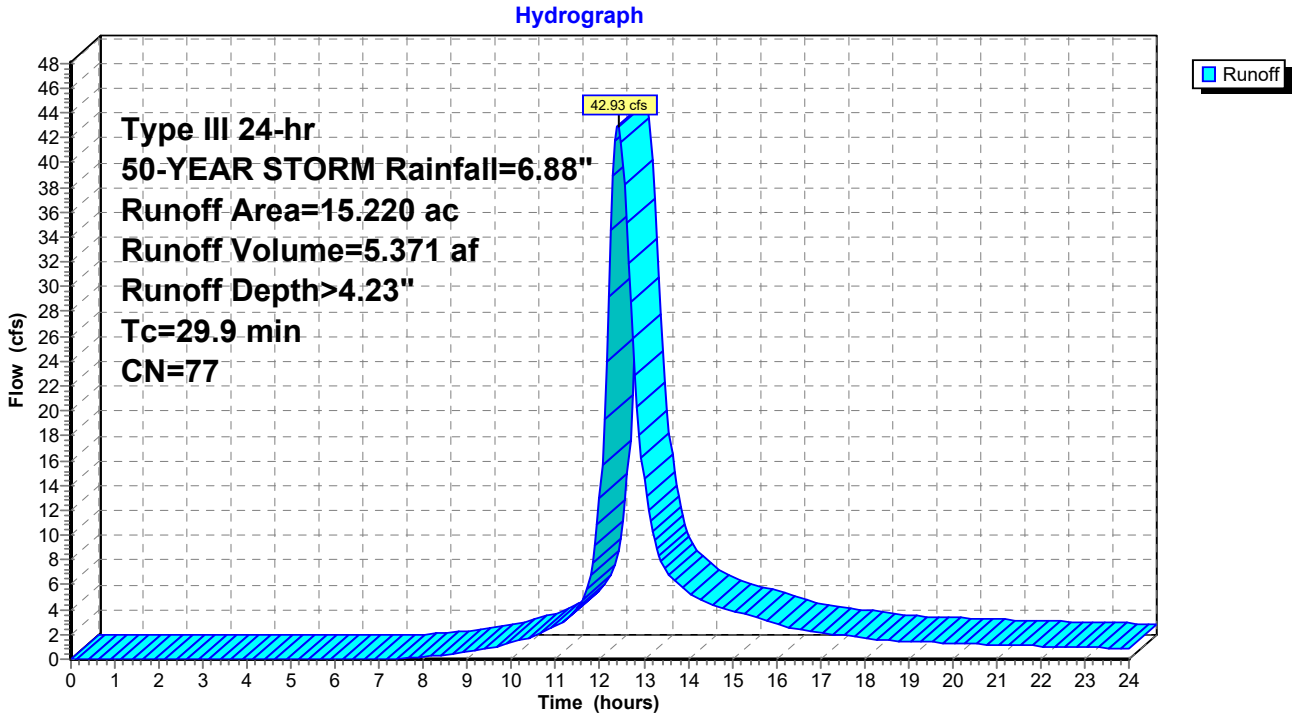
Runoff = 42.93 cfs @ 12.41 hrs, Volume= 5.371 af, Depth> 4.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-YEAR STORM Rainfall=6.88"

	Area (ac)	CN	Description
*	15.220	77	
	15.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.9					**Direct Entry, SCS TR-55**

Subcatchment 5:



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.16	2.76	14.53
0.25	0.02	0.00	0.00	13.25	5.28	2.86	9.53
0.50	0.03	0.00	0.00	13.50	5.39	2.95	7.21
0.75	0.05	0.00	0.00	13.75	5.49	3.04	6.11
1.00	0.07	0.00	0.00	14.00	5.58	3.11	5.45
1.25	0.09	0.00	0.00	14.25	5.66	3.19	4.91
1.50	0.10	0.00	0.00	14.50	5.74	3.25	4.49
1.75	0.12	0.00	0.00	14.75	5.81	3.31	4.18
2.00	0.14	0.00	0.00	15.00	5.88	3.37	3.92
2.25	0.16	0.00	0.00	15.25	5.94	3.43	3.66
2.50	0.17	0.00	0.00	15.50	6.00	3.48	3.40
2.75	0.19	0.00	0.00	15.75	6.05	3.52	3.15
3.00	0.21	0.00	0.00	16.00	6.10	3.56	2.89
3.25	0.23	0.00	0.00	16.25	6.14	3.60	2.63
3.50	0.25	0.00	0.00	16.50	6.18	3.64	2.43
3.75	0.27	0.00	0.00	16.75	6.22	3.67	2.29
4.00	0.30	0.00	0.00	17.00	6.26	3.70	2.17
4.25	0.32	0.00	0.00	17.25	6.29	3.74	2.05
4.50	0.34	0.00	0.00	17.50	6.33	3.76	1.94
4.75	0.37	0.00	0.00	17.75	6.36	3.79	1.82
5.00	0.39	0.00	0.00	18.00	6.38	3.82	1.71
5.25	0.42	0.00	0.00	18.25	6.41	3.84	1.59
5.50	0.44	0.00	0.00	18.50	6.44	3.86	1.51
5.75	0.47	0.00	0.00	18.75	6.46	3.89	1.46
6.00	0.50	0.00	0.00	19.00	6.49	3.91	1.42
6.25	0.52	0.00	0.00	19.25	6.51	3.93	1.39
6.50	0.55	0.00	0.00	19.50	6.54	3.95	1.35
6.75	0.59	0.00	0.00	19.75	6.56	3.97	1.32
7.00	0.62	0.00	0.00	20.00	6.58	3.99	1.28
7.25	0.66	0.00	0.01	20.25	6.61	4.01	1.25
7.50	0.70	0.00	0.05	20.50	6.63	4.03	1.22
7.75	0.74	0.01	0.11	20.75	6.65	4.05	1.19
8.00	0.78	0.01	0.17	21.00	6.67	4.07	1.17
8.25	0.83	0.02	0.25	21.25	6.69	4.09	1.14
8.50	0.88	0.03	0.34	21.50	6.71	4.11	1.11
8.75	0.94	0.04	0.45	21.75	6.73	4.12	1.09
9.00	1.00	0.05	0.59	22.00	6.75	4.14	1.06
9.25	1.07	0.06	0.75	22.25	6.77	4.16	1.04
9.50	1.14	0.08	0.93	22.50	6.78	4.17	1.01
9.75	1.22	0.11	1.12	22.75	6.80	4.19	0.98
10.00	1.30	0.13	1.34	23.00	6.82	4.20	0.96
10.25	1.39	0.17	1.58	23.25	6.83	4.22	0.93
10.50	1.49	0.21	1.88	23.50	6.85	4.23	0.91
10.75	1.60	0.25	2.27	23.75	6.87	4.24	0.88
11.00	1.72	0.31	2.71	24.00	**6.88**	**4.26**	0.85
11.25	1.87	0.38	3.23				
11.50	2.05	0.48	4.13				
11.75	2.44	0.71	5.94				
12.00	3.44	1.39	12.97				
12.25	4.44	2.16	**34.57**				
12.50	4.83	2.48	**40.83**				
12.75	5.01	2.64	25.74				

Summary for Pond 1A - Pond: 1A - Pond

Inflow Area = 4.690 ac, 0.00% Impervious, Inflow Depth > 3.80" for 50-YEAR STORM event
Inflow = 10.02 cfs @ 12.59 hrs, Volume= 1.485 af
Outflow = 5.07 cfs @ 13.11 hrs, Volume= 0.978 af, Atten= 49%, Lag= 31.5 min
Primary = 5.07 cfs @ 13.11 hrs, Volume= 0.978 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 129.90' @ 13.11 hrs Surf.Area= 0.282 ac Storage= 0.648 af

Plug-Flow detention time= 183.0 min calculated for 0.976 af (66% of inflow)
Center-of-Mass det. time= 86.3 min (939.8 - 853.6)

Volume	Invert	Avail.Storage	Storage Description
#1	127.25'	0.975 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

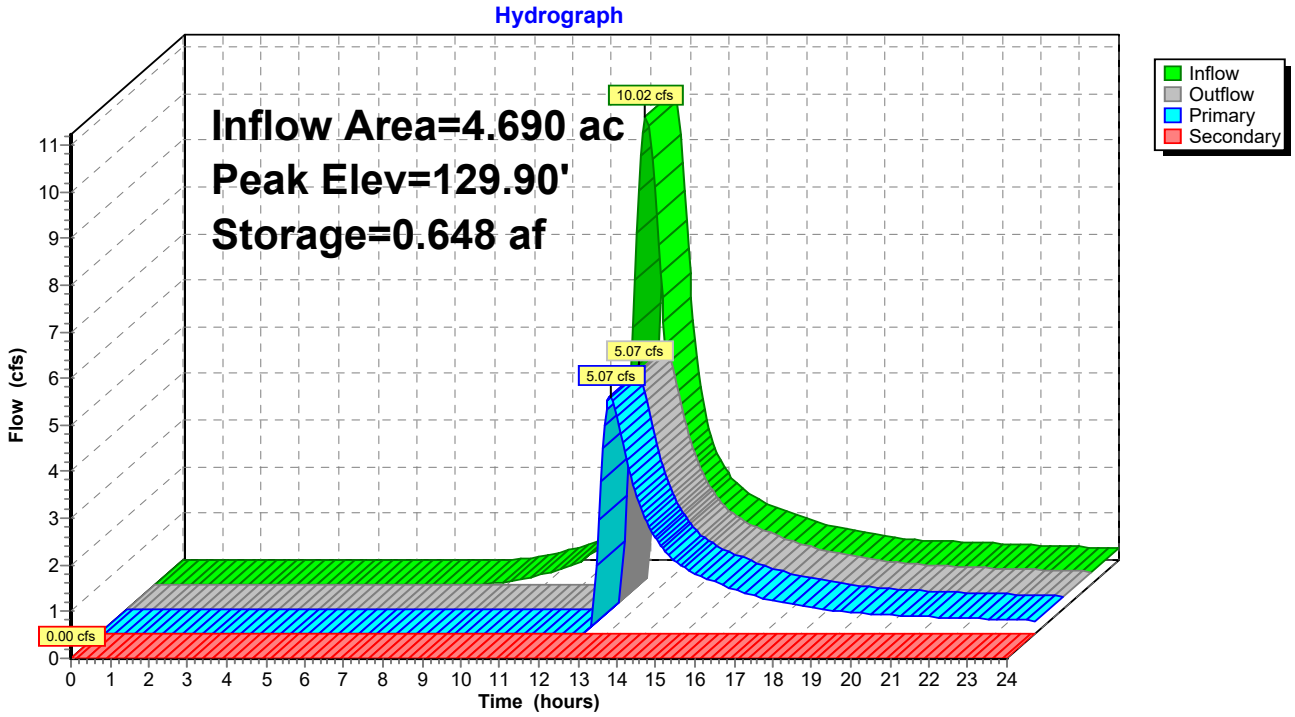
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
127.25	0.200	0.000	0.000
128.00	0.230	0.161	0.161
129.00	0.257	0.244	0.405
130.00	0.285	0.271	0.676
131.00	0.314	0.300	0.975

Device	Routing	Invert	Outlet Devices
#1	Secondary	130.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	127.25'	**18.0" Round Culvert** L= 55.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 127.25' / 127.00' S= 0.0045 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#3	Device 2	129.30'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	127.25'	**0.5" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=5.06 cfs @ 13.11 hrs HW=129.90' (Free Discharge)
└**2=Culvert** (Passes 5.06 cfs of 10.94 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 5.05 cfs @ 2.91 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.01 cfs @ 7.81 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=127.25' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A - Pond: 1A - Pond



Hydrograph for Pond 1A - Pond: 1A - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	127.25	0.00	0.00	**0.00**
0.50	0.00	0.000	127.25	0.00	0.00	0.00
1.00	0.00	0.000	127.25	0.00	0.00	0.00
1.50	0.00	0.000	127.25	0.00	0.00	0.00
2.00	0.00	0.000	127.25	0.00	0.00	0.00
2.50	0.00	0.000	127.25	0.00	0.00	0.00
3.00	0.00	0.000	127.25	0.00	0.00	0.00
3.50	0.00	0.000	127.25	0.00	0.00	0.00
4.00	0.00	0.000	127.25	0.00	0.00	0.00
4.50	0.00	0.000	127.25	0.00	0.00	0.00
5.00	0.00	0.000	127.25	0.00	0.00	0.00
5.50	0.00	0.000	127.25	0.00	0.00	0.00
6.00	0.00	0.000	127.25	0.00	0.00	0.00
6.50	0.00	0.000	127.25	0.00	0.00	0.00
7.00	0.00	0.000	127.25	0.00	0.00	0.00
7.50	0.00	0.000	127.25	0.00	0.00	0.00
8.00	0.00	0.000	127.25	0.00	0.00	0.00
8.50	0.02	0.000	127.25	0.00	0.00	0.00
9.00	0.06	0.002	127.26	0.00	0.00	0.00
9.50	0.13	0.006	127.28	0.00	0.00	0.00
10.00	0.23	0.013	127.31	0.00	0.00	0.00
10.50	0.36	0.025	127.37	0.00	0.00	0.00
11.00	0.55	0.043	127.46	0.00	0.00	0.00
11.50	0.85	0.071	127.60	0.00	0.00	0.00
12.00	2.16	0.124	127.84	0.00	0.00	0.00
12.50	**9.68**	0.360	128.83	0.01	0.01	0.00
13.00	**6.14**	**0.643**	**129.88**	**4.81**	**4.81**	0.00
13.50	2.83	**0.622**	**129.81**	**3.89**	**3.89**	0.00
14.00	1.84	0.586	129.68	2.48	2.48	0.00
14.50	1.42	0.566	129.61	1.79	1.79	0.00
15.00	1.21	0.555	129.57	1.42	1.42	0.00
15.50	1.05	0.547	129.54	1.21	1.21	0.00
16.00	0.90	0.541	129.52	1.04	1.04	0.00
16.50	0.76	0.536	129.50	0.89	0.89	0.00
17.00	0.67	0.531	129.48	0.77	0.77	0.00
17.50	0.59	0.527	129.46	0.68	0.68	0.00
18.00	0.53	0.524	129.45	0.61	0.61	0.00
18.50	0.46	0.520	129.44	0.54	0.54	0.00
19.00	0.43	0.518	129.43	0.48	0.48	0.00
19.50	0.41	0.516	129.42	0.44	0.44	0.00
20.00	0.39	0.515	129.42	0.42	0.42	0.00
20.50	0.37	0.513	129.41	0.39	0.39	0.00
21.00	0.35	0.512	129.41	0.37	0.37	0.00
21.50	0.33	0.511	129.41	0.36	0.36	0.00
22.00	0.32	0.510	129.40	0.34	0.34	0.00
22.50	0.30	0.510	129.40	0.32	0.32	0.00
23.00	0.29	0.509	129.40	0.31	0.31	0.00
23.50	0.27	0.508	129.39	0.29	0.29	0.00
24.00	0.26	0.507	129.39	0.28	0.28	0.00

Summary for Pond 1B - Pond: 1B - Pond

Inflow Area = 10.540 ac, 0.00% Impervious, Inflow Depth > 3.59" for 50-YEAR STORM event
Inflow = 21.35 cfs @ 12.59 hrs, Volume= 3.153 af
Outflow = 14.57 cfs @ 12.94 hrs, Volume= 2.334 af, Atten= 32%, Lag= 21.2 min
Primary = 14.57 cfs @ 12.94 hrs, Volume= 2.334 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 127.66' @ 12.94 hrs Surf.Area= 0.310 ac Storage= 1.118 af

Plug-Flow detention time= 149.1 min calculated for 2.329 af (74% of inflow)
Center-of-Mass det. time= 63.6 min (921.2 - 857.7)

Volume	Invert	Avail.Storage	Storage Description
#1	123.00'	1.560 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

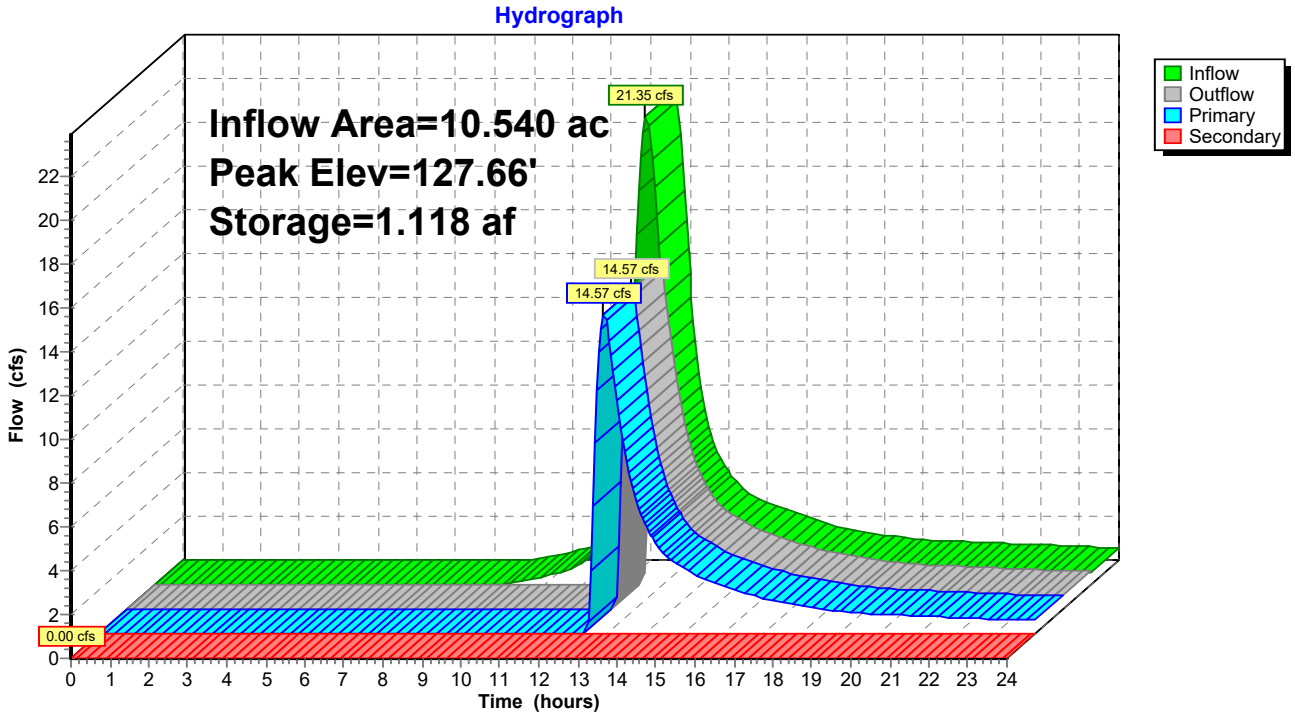
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
123.00	0.170	0.000	0.000
124.00	0.200	0.185	0.185
125.00	0.230	0.215	0.400
126.00	0.260	0.245	0.645
127.00	0.290	0.275	0.920
128.00	0.320	0.305	1.225
129.00	0.350	0.335	1.560

Device	Routing	Invert	Outlet Devices
#1	Primary	123.00'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 123.00' / 122.00' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	128.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	126.50'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	123.00'	**0.7" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=14.54 cfs @ 12.94 hrs HW=127.66' (Free Discharge)
└─**1=Culvert** (Passes 14.54 cfs of 16.82 cfs potential flow)
  ├─**3=Sharp-Crested Rectangular Weir** (Weir Controls 14.52 cfs @ 4.52 fps)
  └─**4=Orifice/Grate** (Orifice Controls 0.03 cfs @ 10.36 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=123.00' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1B - Pond: 1B - Pond



Hydrograph for Pond 1B - Pond: 1B - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	123.00	0.00	0.00	**0.00**
0.50	0.00	0.000	123.00	0.00	0.00	0.00
1.00	0.00	0.000	123.00	0.00	0.00	0.00
1.50	0.00	0.000	123.00	0.00	0.00	0.00
2.00	0.00	0.000	123.00	0.00	0.00	0.00
2.50	0.00	0.000	123.00	0.00	0.00	0.00
3.00	0.00	0.000	123.00	0.00	0.00	0.00
3.50	0.00	0.000	123.00	0.00	0.00	0.00
4.00	0.00	0.000	123.00	0.00	0.00	0.00
4.50	0.00	0.000	123.00	0.00	0.00	0.00
5.00	0.00	0.000	123.00	0.00	0.00	0.00
5.50	0.00	0.000	123.00	0.00	0.00	0.00
6.00	0.00	0.000	123.00	0.00	0.00	0.00
6.50	0.00	0.000	123.00	0.00	0.00	0.00
7.00	0.00	0.000	123.00	0.00	0.00	0.00
7.50	0.00	0.000	123.00	0.00	0.00	0.00
8.00	0.00	0.000	123.00	0.00	0.00	0.00
8.50	0.00	0.000	123.00	0.00	0.00	0.00
9.00	0.06	0.001	123.01	0.00	0.00	0.00
9.50	0.19	0.006	123.03	0.00	0.00	0.00
10.00	0.39	0.017	123.10	0.00	0.00	0.00
10.50	0.65	0.038	123.22	0.01	0.01	0.00
11.00	1.05	0.073	123.41	0.01	0.01	0.00
11.50	1.68	0.127	123.70	0.01	0.01	0.00
12.00	4.44	0.233	124.24	0.01	0.01	0.00
12.50	**20.60**	**0.731**	**126.33**	**0.02**	**0.02**	0.00
13.00	**13.07**	**1.115**	**127.65**	**14.35**	**14.35**	0.00
13.50	6.07	1.014	127.32	8.30	8.30	0.00
14.00	3.97	0.949	127.10	5.03	5.03	0.00
14.50	3.08	0.917	126.99	3.66	3.66	0.00
15.00	2.63	0.899	126.93	2.96	2.96	0.00
15.50	2.29	0.887	126.89	2.54	2.54	0.00
16.00	1.97	0.877	126.85	2.20	2.20	0.00
16.50	1.66	0.868	126.82	1.89	1.89	0.00
17.00	1.45	0.859	126.79	1.63	1.63	0.00
17.50	1.30	0.853	126.77	1.44	1.44	0.00
18.00	1.15	0.847	126.75	1.28	1.28	0.00
18.50	1.02	0.842	126.73	1.14	1.14	0.00
19.00	0.94	0.838	126.71	1.02	1.02	0.00
19.50	0.89	0.835	126.70	0.95	0.95	0.00
20.00	0.84	0.832	126.69	0.90	0.90	0.00
20.50	0.80	0.830	126.69	0.85	0.85	0.00
21.00	0.77	0.829	126.68	0.80	0.80	0.00
21.50	0.73	0.827	126.67	0.77	0.77	0.00
22.00	0.70	0.826	126.67	0.73	0.73	0.00
22.50	0.67	0.824	126.66	0.70	0.70	0.00
23.00	0.63	0.823	126.66	0.67	0.67	0.00
23.50	0.60	0.821	126.65	0.64	0.64	0.00
24.00	0.57	0.820	126.65	0.60	0.60	0.00

Summary for Pond 1C-Pond: 1C - Pond

Inflow Area = 8.580 ac, 0.00% Impervious, Inflow Depth > 3.39" for 50-YEAR STORM event
Inflow = 17.94 cfs @ 12.50 hrs, Volume= 2.424 af
Outflow = 10.96 cfs @ 12.87 hrs, Volume= 1.965 af, Atten= 39%, Lag= 22.0 min
Primary = 10.96 cfs @ 12.87 hrs, Volume= 1.965 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 130.56' @ 12.87 hrs Surf.Area= 0.378 ac Storage= 0.791 af

Plug-Flow detention time= 127.4 min calculated for 1.965 af (81% of inflow)
Center-of-Mass det. time= 54.4 min (910.8 - 856.4)

Volume	Invert	Avail.Storage	Storage Description
#1	128.00'	1.875 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

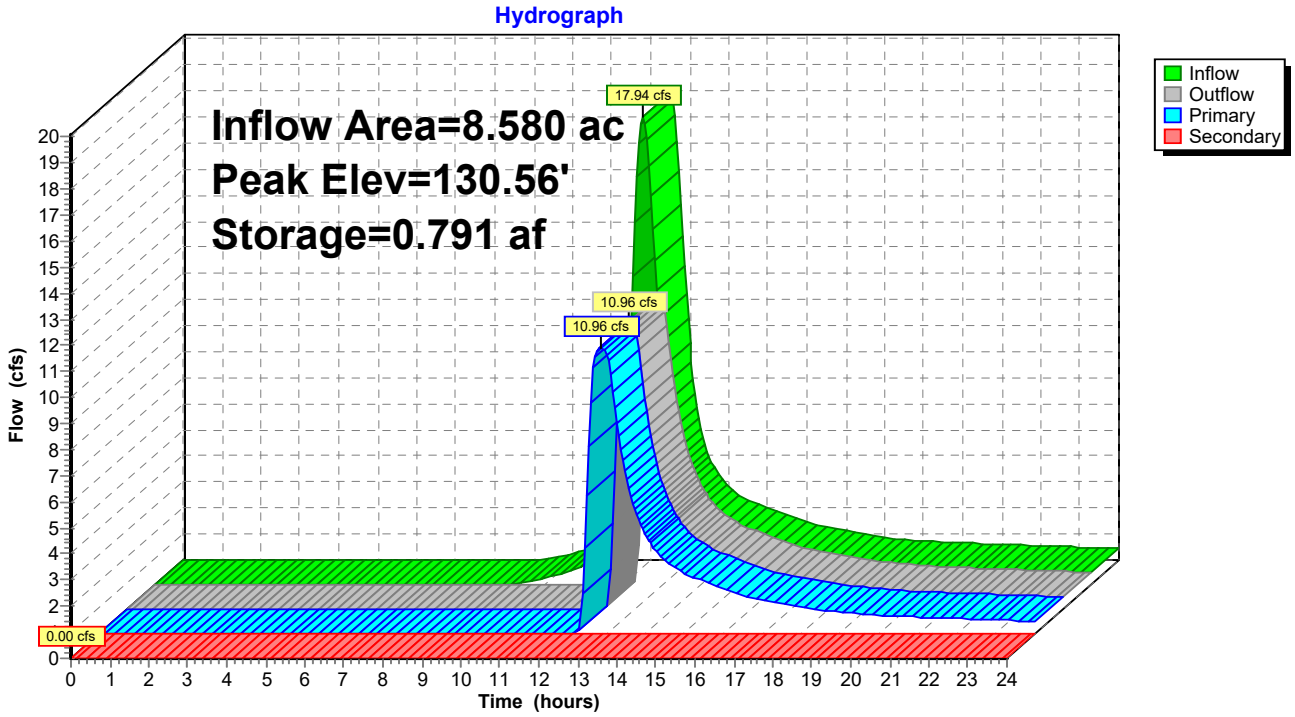
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
128.00	0.240	0.000	0.000
129.00	0.290	0.265	0.265
130.00	0.350	0.320	0.585
131.00	0.400	0.375	0.960
132.00	0.460	0.430	1.390
133.00	0.510	0.485	1.875

Device	Routing	Invert	Outlet Devices
#1	Primary	128.00'	**18.0" Round Culvert** L= 45.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 128.00' / 127.75' S= 0.0056 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	131.75'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	129.50'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	128.00'	**0.7" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=10.95 cfs @ 12.87 hrs HW=130.56' (Free Discharge)
└**1=Culvert** (Barrel Controls 10.95 cfs @ 6.20 fps)
  ├**3=Sharp-Crested Rectangular Weir** (Passes < 12.60 cfs potential flow)
  └**4=Orifice/Grate** (Passes < 0.02 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-Pond: 1C - Pond



Hydrograph for Pond 1C-Pond: 1C - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	128.00	0.00	0.00	**0.00**
0.50	0.00	0.000	128.00	0.00	0.00	0.00
1.00	0.00	0.000	128.00	0.00	0.00	0.00
1.50	0.00	0.000	128.00	0.00	0.00	0.00
2.00	0.00	0.000	128.00	0.00	0.00	0.00
2.50	0.00	0.000	128.00	0.00	0.00	0.00
3.00	0.00	0.000	128.00	0.00	0.00	0.00
3.50	0.00	0.000	128.00	0.00	0.00	0.00
4.00	0.00	0.000	128.00	0.00	0.00	0.00
4.50	0.00	0.000	128.00	0.00	0.00	0.00
5.00	0.00	0.000	128.00	0.00	0.00	0.00
5.50	0.00	0.000	128.00	0.00	0.00	0.00
6.00	0.00	0.000	128.00	0.00	0.00	0.00
6.50	0.00	0.000	128.00	0.00	0.00	0.00
7.00	0.00	0.000	128.00	0.00	0.00	0.00
7.50	0.00	0.000	128.00	0.00	0.00	0.00
8.00	0.00	0.000	128.00	0.00	0.00	0.00
8.50	0.00	0.000	128.00	0.00	0.00	0.00
9.00	0.01	0.000	128.00	0.00	0.00	0.00
9.50	0.10	0.002	128.01	0.00	0.00	0.00
10.00	0.25	0.009	128.04	0.00	0.00	0.00
10.50	0.46	0.023	128.10	0.00	0.00	0.00
11.00	0.78	0.048	128.20	0.01	0.01	0.00
11.50	1.31	0.089	128.36	0.01	0.01	0.00
12.00	4.16	0.180	128.70	0.01	0.01	0.00
12.50	**17.94**	**0.627**	**130.12**	**5.28**	**5.28**	0.00
13.00	8.36	**0.776**	**130.53**	**10.80**	**10.80**	0.00
13.50	3.98	0.651	130.19	6.25	6.25	0.00
14.00	2.83	0.587	130.01	3.86	3.86	0.00
14.50	2.31	0.556	129.92	2.85	2.85	0.00
15.00	2.01	0.539	129.87	2.33	2.33	0.00
15.50	1.75	0.527	129.83	2.01	2.01	0.00
16.00	1.50	0.517	129.80	1.73	1.73	0.00
16.50	1.26	0.507	129.77	1.49	1.49	0.00
17.00	1.12	0.499	129.75	1.29	1.29	0.00
17.50	1.00	0.493	129.73	1.14	1.14	0.00
18.00	0.89	0.487	129.71	1.02	1.02	0.00
18.50	0.78	0.482	129.70	0.90	0.90	0.00
19.00	0.73	0.477	129.68	0.82	0.82	0.00
19.50	0.69	0.474	129.67	0.76	0.76	0.00
20.00	0.66	0.472	129.67	0.71	0.71	0.00
20.50	0.63	0.470	129.66	0.67	0.67	0.00
21.00	0.60	0.468	129.66	0.64	0.64	0.00
21.50	0.57	0.467	129.65	0.61	0.61	0.00
22.00	0.55	0.465	129.65	0.58	0.58	0.00
22.50	0.52	0.464	129.64	0.56	0.56	0.00
23.00	0.49	0.462	129.64	0.53	0.53	0.00
23.50	0.47	0.460	129.63	0.51	0.51	0.00
24.00	0.44	0.459	129.63	0.48	0.48	0.00

Summary for Pond 2 - Pond: 2 - Pond

Inflow Area = 9.600 ac, 0.00% Impervious, Inflow Depth > 3.91" for 50-YEAR STORM event
Inflow = 21.71 cfs @ 12.56 hrs, Volume= 3.125 af
Outflow = 16.97 cfs @ 12.81 hrs, Volume= 2.507 af, Atten= 22%, Lag= 15.3 min
Primary = 16.97 cfs @ 12.81 hrs, Volume= 2.507 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 137.73' @ 12.81 hrs Surf.Area= 0.286 ac Storage= 0.930 af

Plug-Flow detention time= 122.8 min calculated for 2.502 af (80% of inflow)
Center-of-Mass det. time= 50.0 min (899.6 - 849.5)

Volume	Invert	Avail.Storage	Storage Description
#1	133.00'	1.326 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

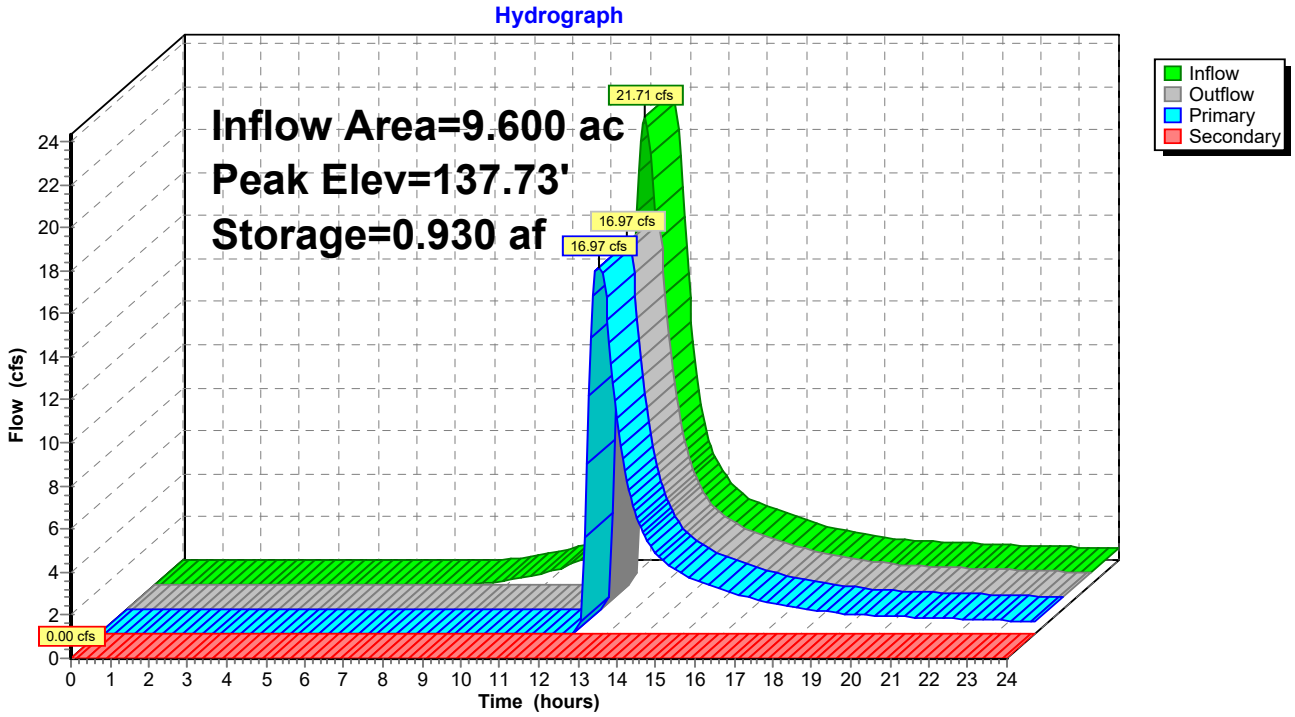
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
133.00	0.113	0.000	0.000
134.00	0.147	0.130	0.130
135.00	0.182	0.164	0.294
136.00	0.218	0.200	0.494
137.00	0.257	0.237	0.732
138.00	0.297	0.277	1.009
139.00	0.338	0.317	1.326

Device	Routing	Invert	Outlet Devices
#1	Device 2	136.40'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#2	Primary	133.00'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.00' / 132.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#3	Secondary	138.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#4	Device 2	133.00'	**1.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=16.97 cfs @ 12.81 hrs HW=137.73' (Free Discharge)
└**2=Culvert** (Inlet Controls 16.97 cfs @ 9.60 fps)
  ├**1=Sharp-Crested Rectangular Weir** (Passes < 18.11 cfs potential flow)
  └**4=Orifice/Grate** (Passes < 0.06 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.00' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2 - Pond: 2 - Pond



Hydrograph for Pond 2 - Pond: 2 - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	133.00	0.00	0.00	**0.00**
0.50	0.00	0.000	133.00	0.00	0.00	0.00
1.00	0.00	0.000	133.00	0.00	0.00	0.00
1.50	0.00	0.000	133.00	0.00	0.00	0.00
2.00	0.00	0.000	133.00	0.00	0.00	0.00
2.50	0.00	0.000	133.00	0.00	0.00	0.00
3.00	0.00	0.000	133.00	0.00	0.00	0.00
3.50	0.00	0.000	133.00	0.00	0.00	0.00
4.00	0.00	0.000	133.00	0.00	0.00	0.00
4.50	0.00	0.000	133.00	0.00	0.00	0.00
5.00	0.00	0.000	133.00	0.00	0.00	0.00
5.50	0.00	0.000	133.00	0.00	0.00	0.00
6.00	0.00	0.000	133.00	0.00	0.00	0.00
6.50	0.00	0.000	133.00	0.00	0.00	0.00
7.00	0.00	0.000	133.00	0.00	0.00	0.00
7.50	0.00	0.000	133.00	0.00	0.00	0.00
8.00	0.01	0.000	133.00	0.00	0.00	0.00
8.50	0.06	0.001	133.01	0.00	0.00	0.00
9.00	0.18	0.006	133.05	0.00	0.00	0.00
9.50	0.34	0.016	133.14	0.01	0.01	0.00
10.00	0.55	0.034	133.29	0.01	0.01	0.00
10.50	0.83	0.062	133.51	0.02	0.02	0.00
11.00	1.25	0.103	133.81	0.02	0.02	0.00
11.50	1.91	0.166	134.24	0.03	0.03	0.00
12.00	4.98	0.284	134.94	0.04	0.04	0.00
12.50	**21.42**	**0.782**	**137.19**	**7.87**	**7.87**	0.00
13.00	**12.16**	**0.897**	**137.61**	**15.64**	**15.64**	0.00
13.50	5.57	0.777	137.17	7.59	7.59	0.00
14.00	3.71	0.722	136.96	4.55	4.55	0.00
14.50	2.90	0.696	136.86	3.35	3.35	0.00
15.00	2.49	0.682	136.80	2.74	2.74	0.00
15.50	2.16	0.673	136.77	2.37	2.37	0.00
16.00	1.85	0.665	136.73	2.05	2.05	0.00
16.50	1.56	0.657	136.70	1.75	1.75	0.00
17.00	1.37	0.650	136.67	1.51	1.51	0.00
17.50	1.22	0.645	136.65	1.34	1.34	0.00
18.00	1.08	0.640	136.63	1.19	1.19	0.00
18.50	0.96	0.635	136.61	1.06	1.06	0.00
19.00	0.88	0.632	136.60	0.95	0.95	0.00
19.50	0.84	0.630	136.59	0.89	0.89	0.00
20.00	0.80	0.628	136.58	0.84	0.84	0.00
20.50	0.76	0.626	136.57	0.79	0.79	0.00
21.00	0.72	0.625	136.57	0.76	0.76	0.00
21.50	0.69	0.623	136.56	0.72	0.72	0.00
22.00	0.66	0.622	136.56	0.69	0.69	0.00
22.50	0.63	0.621	136.55	0.66	0.66	0.00
23.00	0.60	0.620	136.55	0.62	0.62	0.00
23.50	0.56	0.619	136.54	0.59	0.59	0.00
24.00	0.53	0.617	136.54	0.56	0.56	0.00

Summary for Pond 3 - Pond: 3 - Pond

Inflow Area = 4.120 ac, 0.00% Impervious, Inflow Depth > 3.81" for 50-YEAR STORM event
Inflow = 11.45 cfs @ 12.34 hrs, Volume= 1.309 af
Outflow = 6.66 cfs @ 12.66 hrs, Volume= 0.918 af, Atten= 42%, Lag= 19.4 min
Primary = 6.66 cfs @ 12.66 hrs, Volume= 0.918 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 171.92' @ 12.66 hrs Surf.Area= 0.208 ac Storage= 0.516 af

Plug-Flow detention time= 164.1 min calculated for 0.918 af (70% of inflow)
Center-of-Mass det. time= 70.5 min (909.6 - 839.1)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	1.043 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

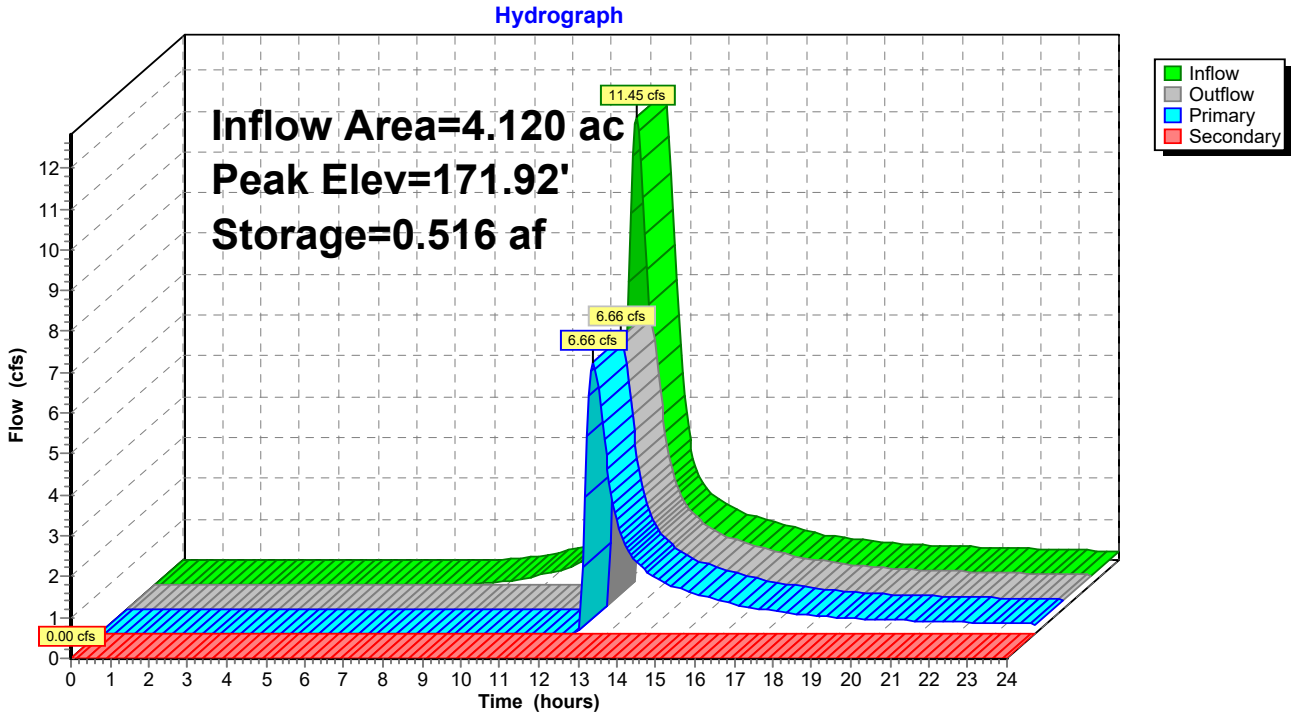
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.058	0.000	0.000
169.00	0.094	0.076	0.076
170.00	0.133	0.113	0.189
171.00	0.172	0.152	0.342
172.00	0.211	0.191	0.533
173.00	0.254	0.233	0.766
174.00	0.299	0.276	1.043

Device	Routing	Invert	Outlet Devices
#1	Primary	168.00'	**18.0" Round Culvert** L= 55.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 168.00' / 164.50' S= 0.0636 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	173.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Device 1	171.20'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	168.00'	**0.4" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=6.63 cfs @ 12.66 hrs HW=171.91' (Free Discharge)
└**1=Culvert** (Passes 6.63 cfs of 15.14 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 6.62 cfs @ 3.25 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.01 cfs @ 9.51 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=168.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3 - Pond: 3 - Pond



Hydrograph for Pond 3 - Pond: 3 - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	168.00	0.00	0.00	**0.00**
0.50	0.00	0.000	168.00	0.00	0.00	0.00
1.00	0.00	0.000	168.00	0.00	0.00	0.00
1.50	0.00	0.000	168.00	0.00	0.00	0.00
2.00	0.00	0.000	168.00	0.00	0.00	0.00
2.50	0.00	0.000	168.00	0.00	0.00	0.00
3.00	0.00	0.000	168.00	0.00	0.00	0.00
3.50	0.00	0.000	168.00	0.00	0.00	0.00
4.00	0.00	0.000	168.00	0.00	0.00	0.00
4.50	0.00	0.000	168.00	0.00	0.00	0.00
5.00	0.00	0.000	168.00	0.00	0.00	0.00
5.50	0.00	0.000	168.00	0.00	0.00	0.00
6.00	0.00	0.000	168.00	0.00	0.00	0.00
6.50	0.00	0.000	168.00	0.00	0.00	0.00
7.00	0.00	0.000	168.00	0.00	0.00	0.00
7.50	0.00	0.000	168.00	0.00	0.00	0.00
8.00	0.00	0.000	168.00	0.00	0.00	0.00
8.50	0.03	0.001	168.01	0.00	0.00	0.00
9.00	0.08	0.003	168.05	0.00	0.00	0.00
9.50	0.16	0.008	168.13	0.00	0.00	0.00
10.00	0.26	0.016	168.26	0.00	0.00	0.00
10.50	0.39	0.029	168.44	0.00	0.00	0.00
11.00	0.60	0.049	168.70	0.00	0.00	0.00
11.50	0.98	0.080	169.05	0.00	0.00	0.00
12.00	**3.77**	0.155	169.73	0.01	0.01	0.00
12.50	**9.49**	**0.489**	**171.78**	**4.83**	**4.83**	0.00
13.00	2.95	**0.482**	**171.75**	**4.36**	**4.36**	0.00
13.50	1.66	0.443	171.55	2.19	2.19	0.00
14.00	1.34	0.429	171.48	1.55	1.55	0.00
14.50	1.12	0.422	171.44	1.25	1.25	0.00
15.00	0.98	0.418	171.42	1.07	1.07	0.00
15.50	0.85	0.414	171.40	0.94	0.94	0.00
16.00	0.72	0.411	171.38	0.81	0.81	0.00
16.50	0.61	0.407	171.36	0.68	0.68	0.00
17.00	0.55	0.405	171.35	0.60	0.60	0.00
17.50	0.49	0.403	171.34	0.54	0.54	0.00
18.00	0.43	0.401	171.33	0.48	0.48	0.00
18.50	0.38	0.399	171.32	0.42	0.42	0.00
19.00	0.36	0.397	171.31	0.39	0.39	0.00
19.50	0.35	0.397	171.31	0.36	0.36	0.00
20.00	0.33	0.396	171.30	0.34	0.34	0.00
20.50	0.31	0.395	171.30	0.33	0.33	0.00
21.00	0.30	0.395	171.30	0.31	0.31	0.00
21.50	0.29	0.394	171.29	0.30	0.30	0.00
22.00	0.27	0.394	171.29	0.29	0.29	0.00
22.50	0.26	0.393	171.29	0.27	0.27	0.00
23.00	0.25	0.392	171.28	0.26	0.26	0.00
23.50	0.23	0.392	171.28	0.25	0.25	0.00
24.00	0.22	0.391	171.28	0.23	0.23	0.00

Summary for Pond 4 - Pond: 4 - Pond

Inflow Area = 9.020 ac, 0.00% Impervious, Inflow Depth > 3.81" for 50-YEAR STORM event
Inflow = 25.22 cfs @ 12.33 hrs, Volume= 2.867 af
Outflow = 16.94 cfs @ 12.60 hrs, Volume= 2.140 af, Atten= 33%, Lag= 15.8 min
Primary = 16.94 cfs @ 12.60 hrs, Volume= 2.140 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 127.27' @ 12.60 hrs Surf.Area= 11,729 sf Storage= 44,169 cf

Plug-Flow detention time= 146.4 min calculated for 2.140 af (75% of inflow)
Center-of-Mass det. time= 60.0 min (898.8 - 838.8)

Volume	Invert	Avail.Storage	Storage Description
#1	122.00'	66,544 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

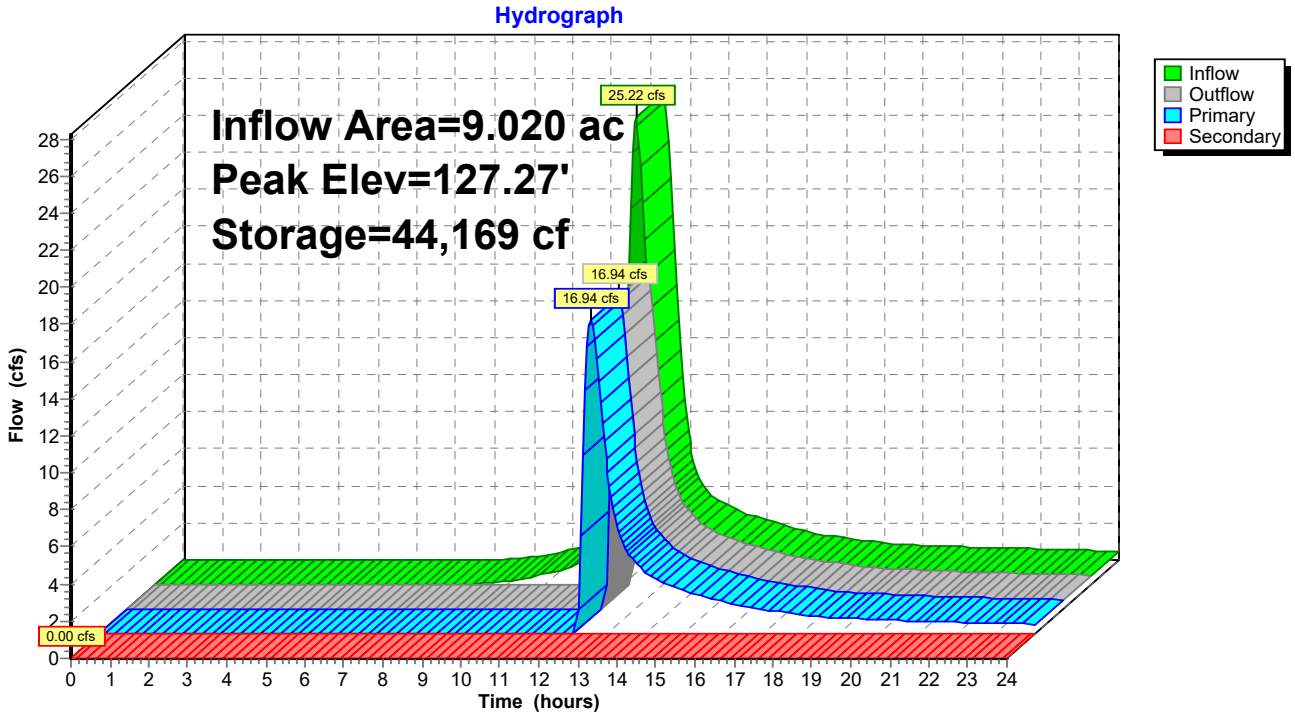
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
122.00	5,526	0	0
123.00	6,338	5,932	5,932
124.00	7,507	6,923	12,855
125.00	8,732	8,120	20,974
126.00	10,013	9,373	30,347
127.00	11,350	10,682	41,028
128.00	12,744	12,047	53,075
129.00	14,194	13,469	66,544

Device	Routing	Invert	Outlet Devices
#1	Primary	122.00'	**18.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 122.00' / 121.50' S= 0.0083 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	128.25'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Device 1	126.00'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	122.00'	**0.8" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=16.92 cfs @ 12.60 hrs HW=127.27' (Free Discharge)
└**1=Culvert** (Passes 16.92 cfs of 18.09 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 16.88 cfs @ 4.83 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.04 cfs @ 11.02 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4 - Pond: 4 - Pond



Hydrograph for Pond 4 - Pond: 4 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	122.00	0.00	0.00	**0.00**
0.50	0.00	0	122.00	0.00	0.00	0.00
1.00	0.00	0	122.00	0.00	0.00	0.00
1.50	0.00	0	122.00	0.00	0.00	0.00
2.00	0.00	0	122.00	0.00	0.00	0.00
2.50	0.00	0	122.00	0.00	0.00	0.00
3.00	0.00	0	122.00	0.00	0.00	0.00
3.50	0.00	0	122.00	0.00	0.00	0.00
4.00	0.00	0	122.00	0.00	0.00	0.00
4.50	0.00	0	122.00	0.00	0.00	0.00
5.00	0.00	0	122.00	0.00	0.00	0.00
5.50	0.00	0	122.00	0.00	0.00	0.00
6.00	0.00	0	122.00	0.00	0.00	0.00
6.50	0.00	0	122.00	0.00	0.00	0.00
7.00	0.00	0	122.00	0.00	0.00	0.00
7.50	0.00	0	122.00	0.00	0.00	0.00
8.00	0.00	1	122.00	0.00	0.00	0.00
8.50	0.07	50	122.01	0.00	0.00	0.00
9.00	0.18	266	122.05	0.00	0.00	0.00
9.50	0.35	735	122.13	0.01	0.01	0.00
10.00	0.57	1,544	122.27	0.01	0.01	0.00
10.50	0.86	2,792	122.49	0.01	0.01	0.00
11.00	1.31	4,710	122.80	0.01	0.01	0.00
11.50	2.17	7,661	123.27	0.02	0.02	0.00
12.00	**8.41**	14,903	124.27	0.03	0.03	0.00
12.50	**20.63**	**43,362**	**127.20**	**15.45**	**15.45**	0.00
13.00	6.36	**39,776**	**126.89**	**9.46**	**9.46**	0.00
13.50	3.61	36,275	126.57	4.67	4.67	0.00
14.00	2.92	35,096	126.46	3.35	3.35	0.00
14.50	2.44	34,477	126.40	2.71	2.71	0.00
15.00	2.14	34,080	126.36	2.33	2.33	0.00
15.50	1.86	33,762	126.33	2.04	2.04	0.00
16.00	1.57	33,434	126.30	1.76	1.76	0.00
16.50	1.33	33,112	126.27	1.49	1.49	0.00
17.00	1.20	32,876	126.25	1.31	1.31	0.00
17.50	1.07	32,685	126.23	1.17	1.17	0.00
18.00	0.94	32,506	126.21	1.04	1.04	0.00
18.50	0.84	32,340	126.20	0.92	0.92	0.00
19.00	0.80	32,223	126.19	0.85	0.85	0.00
19.50	0.76	32,141	126.18	0.80	0.80	0.00
20.00	0.72	32,072	126.17	0.76	0.76	0.00
20.50	0.68	32,008	126.16	0.72	0.72	0.00
21.00	0.65	31,953	126.16	0.68	0.68	0.00
21.50	0.63	31,903	126.15	0.65	0.65	0.00
22.00	0.60	31,854	126.15	0.62	0.62	0.00
22.50	0.57	31,806	126.14	0.59	0.59	0.00
23.00	0.54	31,758	126.14	0.56	0.56	0.00
23.50	0.51	31,710	126.13	0.54	0.54	0.00
24.00	0.48	31,662	126.13	0.51	0.51	0.00

Summary for Pond 5 - Pond: 5 - Pond

Inflow Area = 15.220 ac, 0.00% Impervious, Inflow Depth > 4.23" for 50-YEAR STORM event
Inflow = 42.93 cfs @ 12.41 hrs, Volume= 5.371 af
Outflow = 32.62 cfs @ 12.64 hrs, Volume= 4.307 af, Atten= 24%, Lag= 13.8 min
Primary = 32.62 cfs @ 12.64 hrs, Volume= 4.307 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 125.44' @ 12.64 hrs Surf.Area= 18,445 sf Storage= 75,054 cf

Plug-Flow detention time= 127.8 min calculated for 4.307 af (80% of inflow)
Center-of-Mass det. time= 53.9 min (888.4 - 834.5)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	85,683 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

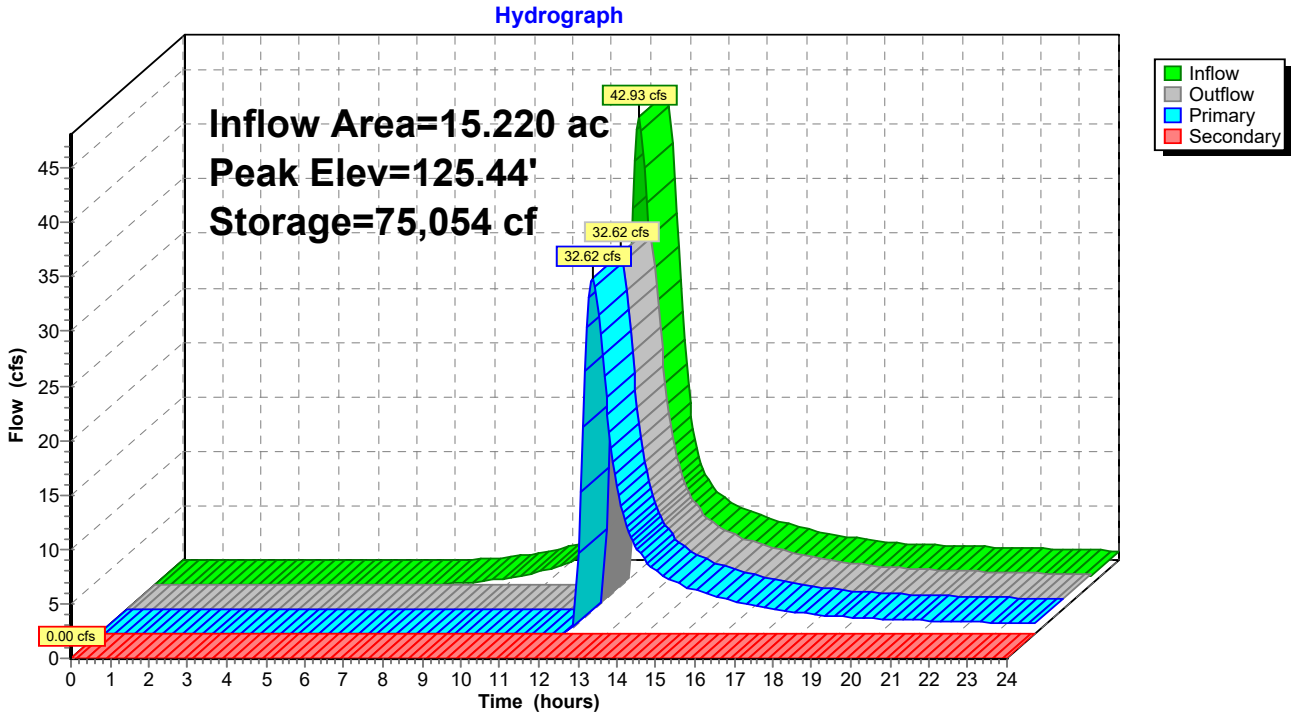
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	9,426	0	0
121.00	10,959	10,193	10,193
122.00	12,547	11,753	21,946
123.00	14,192	13,370	35,315
124.00	15,892	15,042	50,357
125.00	17,650	16,771	67,128
126.00	19,460	18,555	85,683

Device	Routing	Invert	Outlet Devices
#1	Device 2	123.55'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#2	Primary	120.00'	**30.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 120.00' / 117.00' S= 0.0500 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#3	Secondary	125.72'	**20.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#4	Device 2	120.00'	**1.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=32.56 cfs @ 12.64 hrs HW=125.44' (Free Discharge)
└**2=Culvert** (Passes 32.56 cfs of 48.36 cfs potential flow)
  ├**1=Sharp-Crested Rectangular Weir** (Weir Controls 32.50 cfs @ 6.57 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.06 cfs @ 11.18 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=120.00' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5 - Pond: 5 - Pond



Hydrograph for Pond 5 - Pond: 5 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	120.00	0.00	0.00	**0.00**
0.50	0.00	0	120.00	0.00	0.00	0.00
1.00	0.00	0	120.00	0.00	0.00	0.00
1.50	0.00	0	120.00	0.00	0.00	0.00
2.00	0.00	0	120.00	0.00	0.00	0.00
2.50	0.00	0	120.00	0.00	0.00	0.00
3.00	0.00	0	120.00	0.00	0.00	0.00
3.50	0.00	0	120.00	0.00	0.00	0.00
4.00	0.00	0	120.00	0.00	0.00	0.00
4.50	0.00	0	120.00	0.00	0.00	0.00
5.00	0.00	0	120.00	0.00	0.00	0.00
5.50	0.00	0	120.00	0.00	0.00	0.00
6.00	0.00	0	120.00	0.00	0.00	0.00
6.50	0.00	0	120.00	0.00	0.00	0.00
7.00	0.00	0	120.00	0.00	0.00	0.00
7.50	0.05	33	120.00	0.00	0.00	0.00
8.00	0.17	231	120.02	0.00	0.00	0.00
8.50	0.34	679	120.07	0.00	0.00	0.00
9.00	0.59	1,493	120.16	0.01	0.01	0.00
9.50	0.93	2,826	120.29	0.01	0.01	0.00
10.00	1.34	4,827	120.49	0.02	0.02	0.00
10.50	1.88	7,656	120.76	0.02	0.02	0.00
11.00	2.71	11,713	121.14	0.03	0.03	0.00
11.50	4.13	17,596	121.65	0.03	0.03	0.00
12.00	**12.97**	29,830	122.60	0.04	0.04	0.00
12.50	**40.83**	**72,144**	**125.28**	**28.17**	**28.17**	0.00
13.00	14.53	**67,685**	**125.03**	**21.78**	**21.78**	0.00
13.50	7.21	58,414	124.49	10.43	10.43	0.00
14.00	5.45	54,678	124.27	6.74	6.74	0.00
14.50	4.49	52,932	124.16	5.22	5.22	0.00
15.00	3.92	51,894	124.10	4.38	4.38	0.00
15.50	3.40	51,131	124.05	3.80	3.80	0.00
16.00	2.89	50,419	124.00	3.28	3.28	0.00
16.50	2.43	49,705	123.96	2.80	2.80	0.00
17.00	2.17	49,137	123.92	2.43	2.43	0.00
17.50	1.94	48,701	123.90	2.16	2.16	0.00
18.00	1.71	48,298	123.87	1.93	1.93	0.00
18.50	1.51	47,912	123.84	1.70	1.70	0.00
19.00	1.42	47,627	123.83	1.55	1.55	0.00
19.50	1.35	47,428	123.81	1.45	1.45	0.00
20.00	1.28	47,269	123.80	1.37	1.37	0.00
20.50	1.22	47,128	123.79	1.29	1.29	0.00
21.00	1.17	47,004	123.79	1.23	1.23	0.00
21.50	1.11	46,894	123.78	1.17	1.17	0.00
22.00	1.06	46,785	123.77	1.12	1.12	0.00
22.50	1.01	46,672	123.77	1.07	1.07	0.00
23.00	0.96	46,558	123.76	1.02	1.02	0.00
23.50	0.91	46,443	123.75	0.97	0.97	0.00
24.00	0.85	46,327	123.74	0.92	0.92	0.00

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>4.51"
Tc=42.6 min CN=73 Runoff=11.89 cfs 1.761 af

Subcatchment1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>4.28"
Tc=42.3 min CN=71 Runoff=25.49 cfs 3.761 af

Subcatchment1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>4.07"
Tc=35.2 min CN=69 Runoff=21.57 cfs 2.907 af

Subcatchment2: Runoff Area=9.600 ac 0.00% Impervious Runoff Depth>4.62"
Tc=40.3 min CN=74 Runoff=25.67 cfs 3.697 af

Subcatchment3: Runoff Area=4.120 ac 0.00% Impervious Runoff Depth>4.52"
Tc=24.4 min CN=73 Runoff=13.58 cfs 1.553 af

Subcatchment4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>4.52"
Tc=24.0 min CN=73 Runoff=29.91 cfs 3.401 af

Subcatchment5: Runoff Area=15.220 ac 0.00% Impervious Runoff Depth>4.97"
Tc=29.9 min CN=77 Runoff=50.28 cfs 6.307 af

Pond 1A - Pond: 1A - Pond Peak Elev=130.05' Storage=0.691 af Inflow=11.89 cfs 1.761 af
Primary=7.22 cfs 1.241 af Secondary=0.63 cfs 0.011 af Outflow=7.84 cfs 1.252 af

Pond 1B - Pond: 1B - Pond Peak Elev=127.99' Storage=1.222 af Inflow=25.49 cfs 3.761 af
Primary=17.52 cfs 2.938 af Secondary=0.00 cfs 0.000 af Outflow=17.52 cfs 2.938 af

Pond 1C-Pond: 1C - Pond Peak Elev=130.93' Storage=0.930 af Inflow=21.57 cfs 2.907 af
Primary=12.37 cfs 2.444 af Secondary=0.00 cfs 0.000 af Outflow=12.37 cfs 2.444 af

Pond 2 - Pond: 2 - Pond Peak Elev=138.12' Storage=1.045 af Inflow=25.67 cfs 3.697 af
Primary=17.79 cfs 3.042 af Secondary=2.15 cfs 0.035 af Outflow=19.94 cfs 3.077 af

Pond 3 - Pond: 3 - Pond Peak Elev=172.09' Storage=0.552 af Inflow=13.58 cfs 1.553 af
Primary=9.38 cfs 1.161 af Secondary=0.00 cfs 0.000 af Outflow=9.38 cfs 1.161 af

Pond 4 - Pond: 4 - Pond Peak Elev=127.69' Storage=49,206 cf Inflow=29.91 cfs 3.401 af
Primary=18.91 cfs 2.671 af Secondary=0.00 cfs 0.000 af Outflow=18.91 cfs 2.671 af

Pond 5 - Pond: 5 - Pond Peak Elev=125.72' Storage=80,266 cf Inflow=50.28 cfs 6.307 af
Primary=41.06 cfs 5.237 af Secondary=0.00 cfs 0.000 af Outflow=41.06 cfs 5.237 af

Total Runoff Area = 61.770 ac Runoff Volume = 23.389 af Average Runoff Depth = 4.54"
100.00% Pervious = 61.770 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

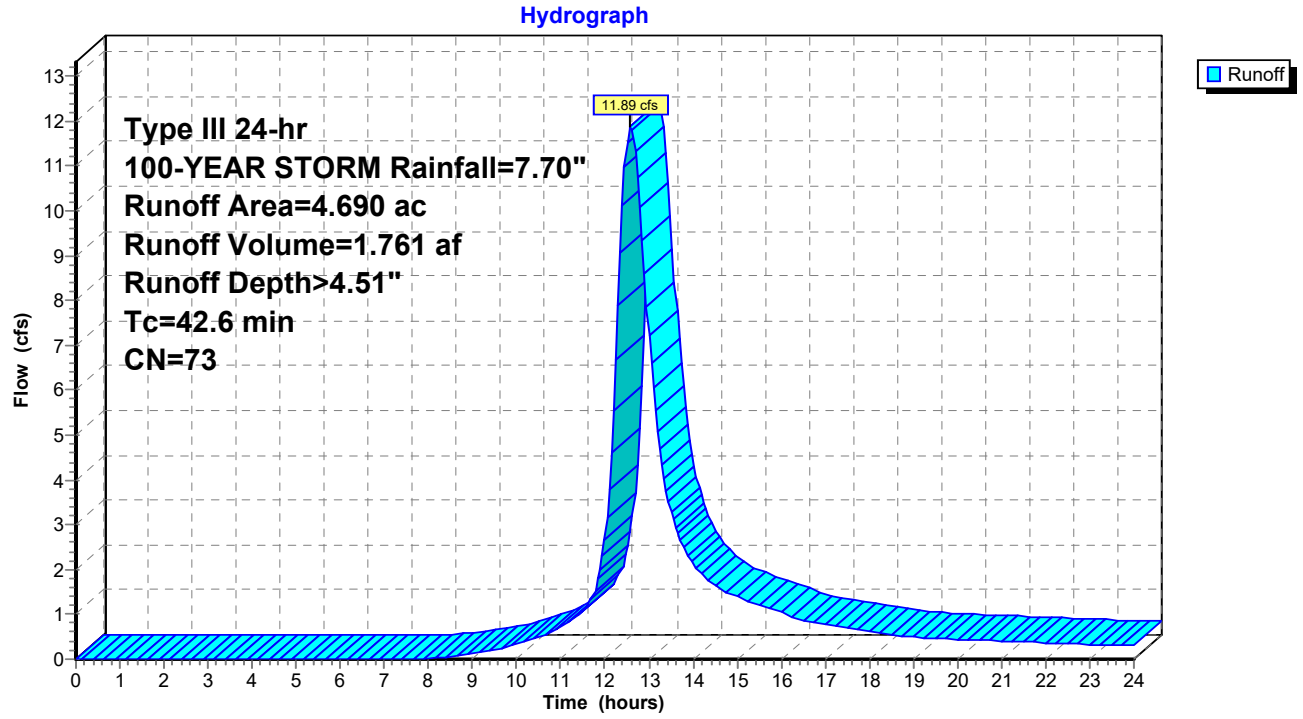
Runoff = 11.89 cfs @ 12.58 hrs, Volume= 1.761 af, Depth> 4.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

	Area (ac)	CN	Description
*	4.690	73	
	4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.6					**Direct Entry, SCS TR-55**

Subcatchment 1A:



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.77	2.90	7.21
0.25	0.02	0.00	0.00	13.25	5.91	3.01	4.69
0.50	0.04	0.00	0.00	13.50	6.03	3.12	3.30
0.75	0.06	0.00	0.00	13.75	6.14	3.21	2.55
1.00	0.08	0.00	0.00	14.00	6.24	3.29	2.13
1.25	0.10	0.00	0.00	14.25	6.34	3.37	1.85
1.50	0.12	0.00	0.00	14.50	6.42	3.44	1.64
1.75	0.13	0.00	0.00	14.75	6.50	3.51	1.50
2.00	0.15	0.00	0.00	15.00	6.58	3.57	1.40
2.25	0.17	0.00	0.00	15.25	6.65	3.63	1.30
2.50	0.19	0.00	0.00	15.50	6.71	3.69	1.22
2.75	0.21	0.00	0.00	15.75	6.77	3.74	1.13
3.00	0.24	0.00	0.00	16.00	6.82	3.78	1.04
3.25	0.26	0.00	0.00	16.25	6.87	3.82	0.96
3.50	0.28	0.00	0.00	16.50	6.92	3.86	0.88
3.75	0.31	0.00	0.00	16.75	6.96	3.90	0.81
4.00	0.33	0.00	0.00	17.00	7.00	3.94	0.77
4.25	0.36	0.00	0.00	17.25	7.04	3.97	0.72
4.50	0.38	0.00	0.00	17.50	7.08	4.00	0.68
4.75	0.41	0.00	0.00	17.75	7.11	4.03	0.65
5.00	0.44	0.00	0.00	18.00	7.15	4.06	0.61
5.25	0.47	0.00	0.00	18.25	7.18	4.09	0.57
5.50	0.49	0.00	0.00	18.50	7.21	4.11	0.53
5.75	0.52	0.00	0.00	18.75	7.23	4.14	0.51
6.00	0.55	0.00	0.00	19.00	7.26	4.16	0.49
6.25	0.59	0.00	0.00	19.25	7.29	4.19	0.48
6.50	0.62	0.00	0.00	19.50	7.32	4.21	0.47
6.75	0.66	0.00	0.00	19.75	7.34	4.23	0.45
7.00	0.70	0.00	0.00	20.00	7.37	4.26	0.44
7.25	0.74	0.00	0.00	20.25	7.39	4.28	0.43
7.50	0.78	0.00	0.00	20.50	7.42	4.30	0.42
7.75	0.83	0.00	0.00	20.75	7.44	4.32	0.41
8.00	0.88	0.00	0.01	21.00	7.46	4.34	0.40
8.25	0.93	0.01	0.03	21.25	7.49	4.36	0.39
8.50	0.99	0.02	0.05	21.50	7.51	4.38	0.38
8.75	1.05	0.02	0.08	21.75	7.53	4.40	0.37
9.00	1.12	0.04	0.12	22.00	7.55	4.41	0.37
9.25	1.20	0.05	0.16	22.25	7.57	4.43	0.36
9.50	1.28	0.07	0.21	22.50	7.59	4.45	0.35
9.75	1.36	0.09	0.27	22.75	7.61	4.47	0.34
10.00	1.46	0.12	0.34	23.00	7.63	4.48	0.33
10.25	1.56	0.15	0.41	23.25	7.65	4.50	0.32
10.50	1.67	0.19	0.49	23.50	7.67	4.52	0.31
10.75	1.79	0.23	0.60	23.75	7.68	4.53	0.30
11.00	1.93	0.29	0.72	24.00	**7.70**	**4.55**	0.30
11.25	2.09	0.36	0.87				
11.50	2.29	0.46	1.09				
11.75	2.74	0.70	1.47				
12.00	3.85	1.42	2.67				
12.25	4.96	2.25	6.67				
12.50	5.41	2.60	**11.52**				
12.75	5.61	2.77	**10.76**				

Summary for Subcatchment 1B:

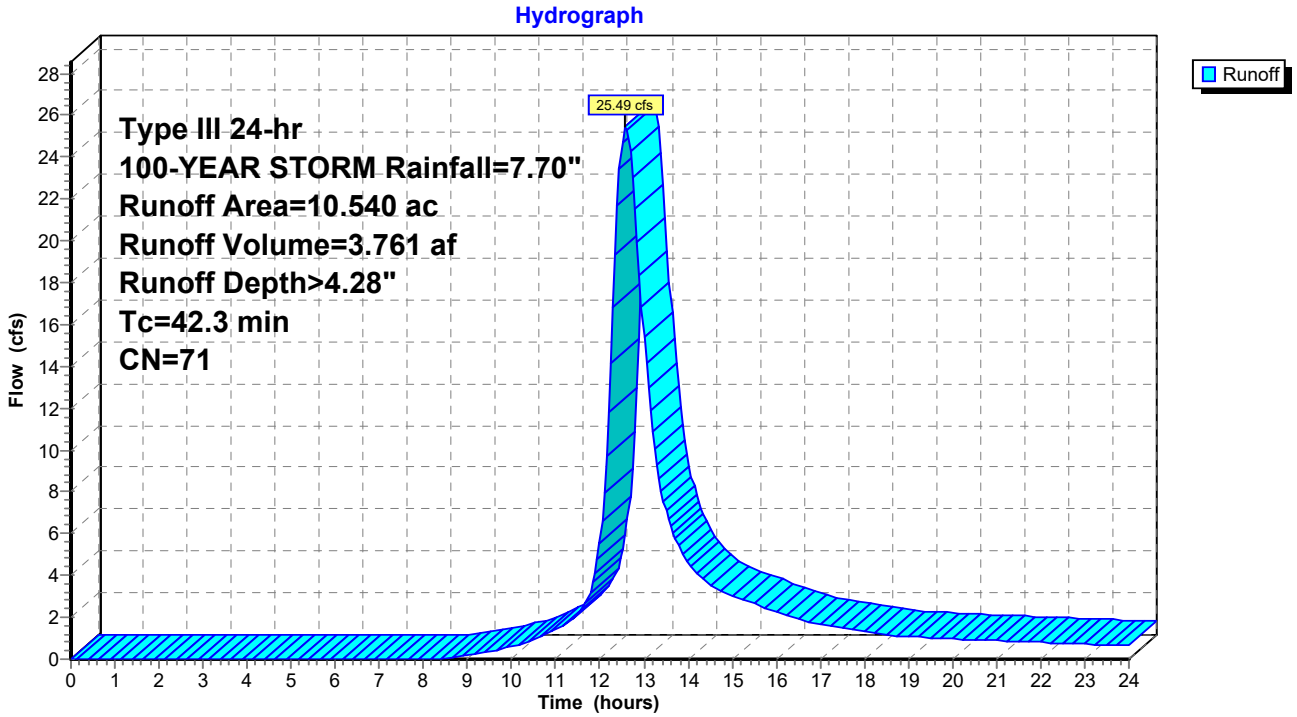
Runoff = 25.49 cfs @ 12.58 hrs, Volume= 3.761 af, Depth> 4.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

	Area (ac)	CN	Description
*	10.540	71	
	10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.3					**Direct Entry, SCS TR-55**

Subcatchment 1B:



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.77	2.72	15.44
0.25	0.02	0.00	0.00	13.25	5.91	2.83	10.06
0.50	0.04	0.00	0.00	13.50	6.03	2.93	7.10
0.75	0.06	0.00	0.00	13.75	6.14	3.02	5.52
1.00	0.08	0.00	0.00	14.00	6.24	3.10	4.63
1.25	0.10	0.00	0.00	14.25	6.34	3.17	4.03
1.50	0.12	0.00	0.00	14.50	6.42	3.24	3.58
1.75	0.13	0.00	0.00	14.75	6.50	3.31	3.28
2.00	0.15	0.00	0.00	15.00	6.58	3.37	3.05
2.25	0.17	0.00	0.00	15.25	6.65	3.43	2.85
2.50	0.19	0.00	0.00	15.50	6.71	3.48	2.66
2.75	0.21	0.00	0.00	15.75	6.77	3.53	2.47
3.00	0.24	0.00	0.00	16.00	6.82	3.57	2.28
3.25	0.26	0.00	0.00	16.25	6.87	3.62	2.09
3.50	0.28	0.00	0.00	16.50	6.92	3.65	1.92
3.75	0.31	0.00	0.00	16.75	6.96	3.69	1.78
4.00	0.33	0.00	0.00	17.00	7.00	3.73	1.68
4.25	0.36	0.00	0.00	17.25	7.04	3.76	1.59
4.50	0.38	0.00	0.00	17.50	7.08	3.79	1.50
4.75	0.41	0.00	0.00	17.75	7.11	3.82	1.41
5.00	0.44	0.00	0.00	18.00	7.15	3.85	1.33
5.25	0.47	0.00	0.00	18.25	7.18	3.87	1.25
5.50	0.49	0.00	0.00	18.50	7.21	3.90	1.17
5.75	0.52	0.00	0.00	18.75	7.23	3.92	1.12
6.00	0.55	0.00	0.00	19.00	7.26	3.95	1.08
6.25	0.59	0.00	0.00	19.25	7.29	3.97	1.05
6.50	0.62	0.00	0.00	19.50	7.32	3.99	1.03
6.75	0.66	0.00	0.00	19.75	7.34	4.01	1.00
7.00	0.70	0.00	0.00	20.00	7.37	4.04	0.97
7.25	0.74	0.00	0.00	20.25	7.39	4.06	0.95
7.50	0.78	0.00	0.00	20.50	7.42	4.08	0.92
7.75	0.83	0.00	0.00	20.75	7.44	4.10	0.90
8.00	0.88	0.00	0.00	21.00	7.46	4.12	0.88
8.25	0.93	0.00	0.01	21.25	7.49	4.14	0.86
8.50	0.99	0.01	0.05	21.50	7.51	4.16	0.84
8.75	1.05	0.01	0.10	21.75	7.53	4.17	0.82
9.00	1.12	0.02	0.17	22.00	7.55	4.19	0.80
9.25	1.20	0.03	0.25	22.25	7.57	4.21	0.79
9.50	1.28	0.05	0.35	22.50	7.59	4.23	0.77
9.75	1.36	0.06	0.47	22.75	7.61	4.24	0.75
10.00	1.46	0.09	0.60	23.00	7.63	4.26	0.73
10.25	1.56	0.11	0.75	23.25	7.65	4.28	0.71
10.50	1.67	0.15	0.93	23.50	7.67	4.29	0.69
10.75	1.79	0.19	1.15	23.75	7.68	4.31	0.67
11.00	1.93	0.24	1.42	24.00	**7.70**	**4.32**	0.65
11.25	2.09	0.30	1.73				
11.50	2.29	0.39	2.18				
11.75	2.74	0.61	3.00				
12.00	3.85	1.29	5.56				
12.25	4.96	2.09	14.18				
12.50	5.41	2.43	**24.69**				
12.75	5.61	2.59	**23.04**				

Summary for Subcatchment 1C:

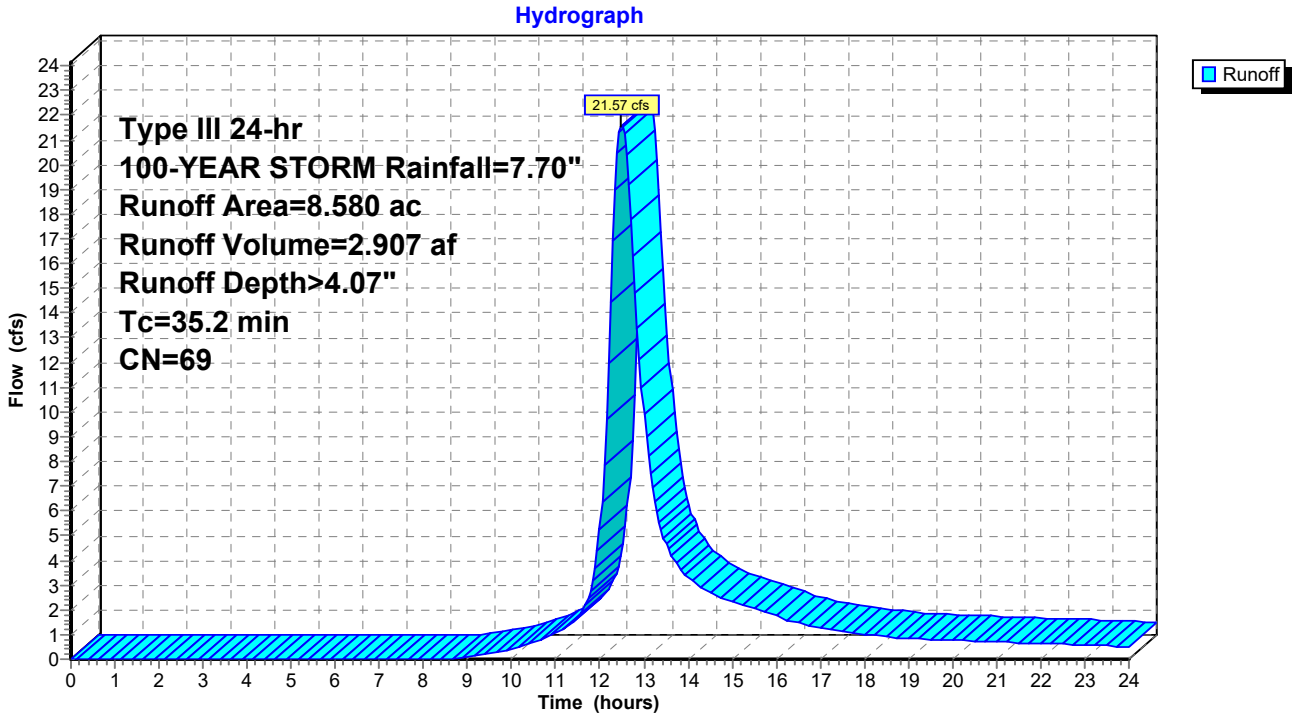
Runoff = 21.57 cfs @ 12.50 hrs, Volume= 2.907 af, Depth> 4.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

	Area (ac)	CN	Description
*	8.580	69	
	8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2					**Direct Entry, SCS TR-55**

Subcatchment 1C:



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	5.77	2.54	9.90
0.25	0.02	0.00	0.00	13.25	5.91	2.64	6.40
0.50	0.04	0.00	0.00	13.50	6.03	2.74	4.67
0.75	0.06	0.00	0.00	13.75	6.14	2.83	3.82
1.00	0.08	0.00	0.00	14.00	6.24	2.90	3.31
1.25	0.10	0.00	0.00	14.25	6.34	2.98	2.95
1.50	0.12	0.00	0.00	14.50	6.42	3.05	2.69
1.75	0.13	0.00	0.00	14.75	6.50	3.11	2.49
2.00	0.15	0.00	0.00	15.00	6.58	3.17	2.33
2.25	0.17	0.00	0.00	15.25	6.65	3.23	2.18
2.50	0.19	0.00	0.00	15.50	6.71	3.28	2.04
2.75	0.21	0.00	0.00	15.75	6.77	3.33	1.89
3.00	0.24	0.00	0.00	16.00	6.82	3.37	1.74
3.25	0.26	0.00	0.00	16.25	6.87	3.41	1.59
3.50	0.28	0.00	0.00	16.50	6.92	3.45	1.46
3.75	0.31	0.00	0.00	16.75	6.96	3.48	1.37
4.00	0.33	0.00	0.00	17.00	7.00	3.52	1.30
4.25	0.36	0.00	0.00	17.25	7.04	3.55	1.23
4.50	0.38	0.00	0.00	17.50	7.08	3.58	1.16
4.75	0.41	0.00	0.00	17.75	7.11	3.61	1.09
5.00	0.44	0.00	0.00	18.00	7.15	3.63	1.03
5.25	0.47	0.00	0.00	18.25	7.18	3.66	0.96
5.50	0.49	0.00	0.00	18.50	7.21	3.68	0.91
5.75	0.52	0.00	0.00	18.75	7.23	3.71	0.87
6.00	0.55	0.00	0.00	19.00	7.26	3.73	0.85
6.25	0.59	0.00	0.00	19.25	7.29	3.75	0.82
6.50	0.62	0.00	0.00	19.50	7.32	3.78	0.80
6.75	0.66	0.00	0.00	19.75	7.34	3.80	0.78
7.00	0.70	0.00	0.00	20.00	7.37	3.82	0.76
7.25	0.74	0.00	0.00	20.25	7.39	3.84	0.74
7.50	0.78	0.00	0.00	20.50	7.42	3.86	0.73
7.75	0.83	0.00	0.00	20.75	7.44	3.88	0.71
8.00	0.88	0.00	0.00	21.00	7.46	3.90	0.69
8.25	0.93	0.00	0.00	21.25	7.49	3.92	0.68
8.50	0.99	0.00	0.01	21.50	7.51	3.94	0.66
8.75	1.05	0.01	0.03	21.75	7.53	3.95	0.65
9.00	1.12	0.01	0.08	22.00	7.55	3.97	0.63
9.25	1.20	0.02	0.15	22.25	7.57	3.99	0.62
9.50	1.28	0.03	0.22	22.50	7.59	4.01	0.60
9.75	1.36	0.04	0.31	22.75	7.61	4.02	0.59
10.00	1.46	0.06	0.42	23.00	7.63	4.04	0.57
10.25	1.56	0.08	0.54	23.25	7.65	4.05	0.56
10.50	1.67	0.11	0.68	23.50	7.67	4.07	0.54
10.75	1.79	0.15	0.86	23.75	7.68	4.08	0.53
11.00	1.93	0.19	1.08	24.00	**7.70**	**4.10**	0.51
11.25	2.09	0.25	1.33				
11.50	2.29	0.33	1.73				
11.75	2.74	0.53	2.50				
12.00	3.85	1.17	5.25				
12.25	4.96	1.93	14.45				
12.50	5.41	2.26	**21.57**				
12.75	5.61	2.41	16.27				

Summary for Subcatchment 2:

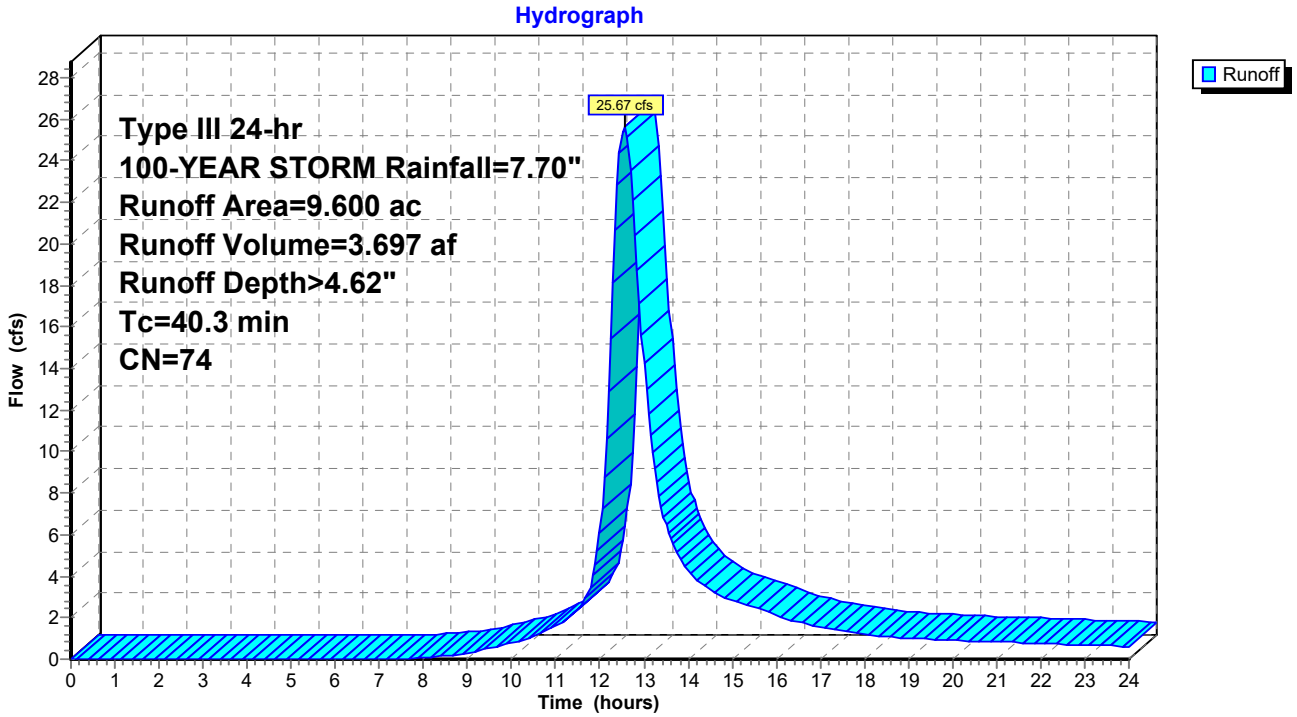
Runoff = 25.67 cfs @ 12.55 hrs, Volume= 3.697 af, Depth> 4.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

	Area (ac)	CN	Description
*	9.600	74	
	9.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.3					**Direct Entry, SCS TR-55**

Subcatchment 2:



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.04	0.00	0.00
0.75	0.06	0.00	0.00
1.00	0.08	0.00	0.00
1.25	0.10	0.00	0.00
1.50	0.12	0.00	0.00
1.75	0.13	0.00	0.00
2.00	0.15	0.00	0.00
2.25	0.17	0.00	0.00
2.50	0.19	0.00	0.00
2.75	0.21	0.00	0.00
3.00	0.24	0.00	0.00
3.25	0.26	0.00	0.00
3.50	0.28	0.00	0.00
3.75	0.31	0.00	0.00
4.00	0.33	0.00	0.00
4.25	0.36	0.00	0.00
4.50	0.38	0.00	0.00
4.75	0.41	0.00	0.00
5.00	0.44	0.00	0.00
5.25	0.47	0.00	0.00
5.50	0.49	0.00	0.00
5.75	0.52	0.00	0.00
6.00	0.55	0.00	0.00
6.25	0.59	0.00	0.00
6.50	0.62	0.00	0.00
6.75	0.66	0.00	0.00
7.00	0.70	0.00	0.00
7.25	0.74	0.00	0.00
7.50	0.78	0.00	0.01
7.75	0.83	0.00	0.03
8.00	0.88	0.01	0.06
8.25	0.93	0.01	0.11
8.50	0.99	0.02	0.16
8.75	1.05	0.03	0.23
9.00	1.12	0.04	0.31
9.25	1.20	0.06	0.40
9.50	1.28	0.08	0.51
9.75	1.36	0.10	0.64
10.00	1.46	0.13	0.78
10.25	1.56	0.17	0.93
10.50	1.67	0.21	1.12
10.75	1.79	0.26	1.35
11.00	1.93	0.32	1.62
11.25	2.09	0.39	1.95
11.50	2.29	0.50	2.42
11.75	2.74	0.75	3.29
12.00	3.85	1.49	6.11
12.25	4.96	2.34	15.41
12.50	5.41	2.69	**25.37**
12.75	5.61	2.86	**22.05**
13.00	5.77	3.00	14.23
13.25	5.91	3.11	9.15
13.50	6.03	3.21	6.46
13.75	6.14	3.31	5.07
14.00	6.24	3.39	4.29
14.25	6.34	3.47	3.73
14.50	6.42	3.54	3.34
14.75	6.50	3.61	3.07
15.00	6.58	3.68	2.86
15.25	6.65	3.74	2.67
15.50	6.71	3.79	2.49
15.75	6.77	3.84	2.31
16.00	6.82	3.89	2.13
16.25	6.87	3.93	1.95
16.50	6.92	3.97	1.79
16.75	6.96	4.01	1.67
17.00	7.00	4.04	1.57
17.25	7.04	4.08	1.49
17.50	7.08	4.11	1.41
17.75	7.11	4.14	1.32
18.00	7.15	4.17	1.24
18.25	7.18	4.20	1.16
18.50	7.21	4.22	1.10
18.75	7.23	4.25	1.05
19.00	7.26	4.27	1.01
19.25	7.29	4.30	0.99
19.50	7.32	4.32	0.96
19.75	7.34	4.34	0.94
20.00	7.37	4.37	0.91
20.25	7.39	4.39	0.89
20.50	7.42	4.41	0.87
20.75	7.44	4.43	0.85
21.00	7.46	4.45	0.83
21.25	7.49	4.47	0.81
21.50	7.51	4.49	0.79
21.75	7.53	4.51	0.77
22.00	7.55	4.53	0.75
22.25	7.57	4.54	0.74
22.50	7.59	4.56	0.72
22.75	7.61	4.58	0.70
23.00	7.63	4.60	0.68
23.25	7.65	4.61	0.66
23.50	7.67	4.63	0.65
23.75	7.68	4.64	0.63
24.00	**7.70**	**4.66**	0.61

Summary for Subcatchment 3:

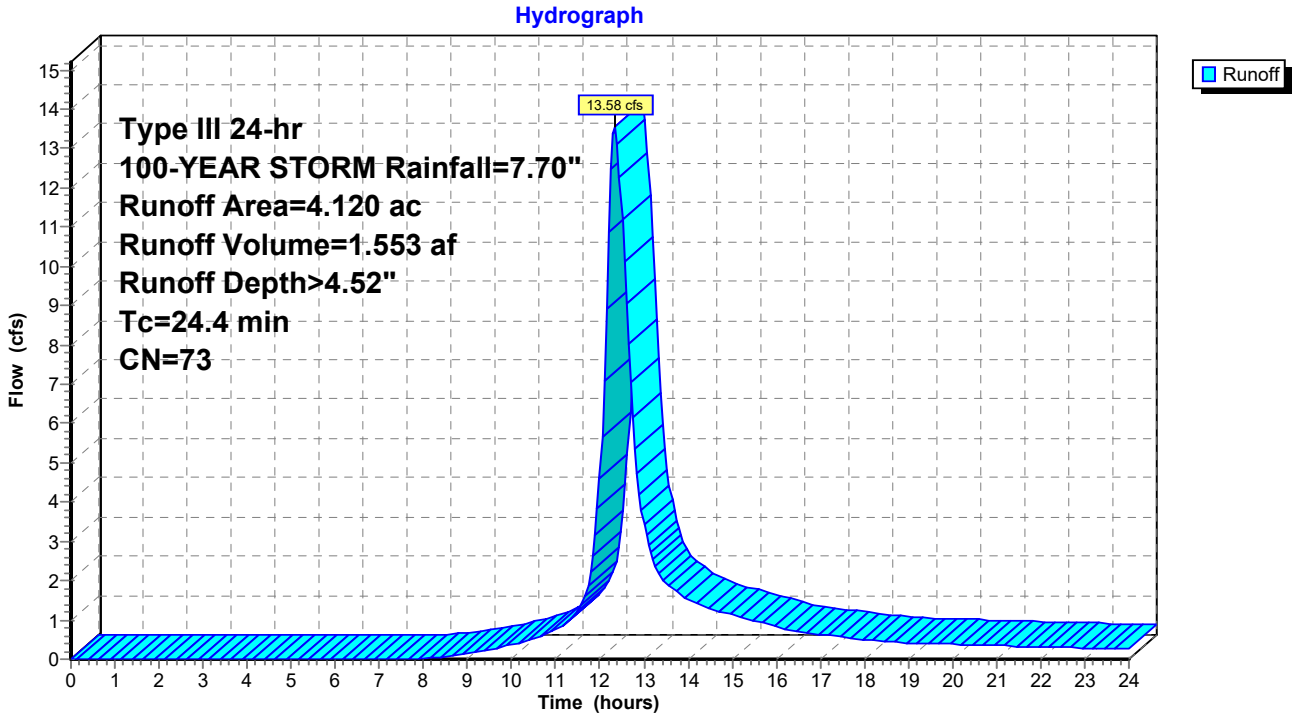
Runoff = 13.58 cfs @ 12.34 hrs, Volume= 1.553 af, Depth> 4.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

	Area (ac)	CN	Description
*	4.120	73	
	4.120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.4					**Direct Entry, SCS TR-55**

Subcatchment 3:



Hydrograph for Subcatchment 3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.04	0.00	0.00
0.75	0.06	0.00	0.00
1.00	0.08	0.00	0.00
1.25	0.10	0.00	0.00
1.50	0.12	0.00	0.00
1.75	0.13	0.00	0.00
2.00	0.15	0.00	0.00
2.25	0.17	0.00	0.00
2.50	0.19	0.00	0.00
2.75	0.21	0.00	0.00
3.00	0.24	0.00	0.00
3.25	0.26	0.00	0.00
3.50	0.28	0.00	0.00
3.75	0.31	0.00	0.00
4.00	0.33	0.00	0.00
4.25	0.36	0.00	0.00
4.50	0.38	0.00	0.00
4.75	0.41	0.00	0.00
5.00	0.44	0.00	0.00
5.25	0.47	0.00	0.00
5.50	0.49	0.00	0.00
5.75	0.52	0.00	0.00
6.00	0.55	0.00	0.00
6.25	0.59	0.00	0.00
6.50	0.62	0.00	0.00
6.75	0.66	0.00	0.00
7.00	0.70	0.00	0.00
7.25	0.74	0.00	0.00
7.50	0.78	0.00	0.00
7.75	0.83	0.00	0.01
8.00	0.88	0.00	0.03
8.25	0.93	0.01	0.05
8.50	0.99	0.02	0.07
8.75	1.05	0.02	0.11
9.00	1.12	0.04	0.15
9.25	1.20	0.05	0.19
9.50	1.28	0.07	0.24
9.75	1.36	0.09	0.30
10.00	1.46	0.12	0.36
10.25	1.56	0.15	0.43
10.50	1.67	0.19	0.53
10.75	1.79	0.23	0.64
11.00	1.93	0.29	0.77
11.25	2.09	0.36	0.94
11.50	2.29	0.46	1.24
11.75	2.74	0.70	1.89
12.00	3.85	1.42	4.60
12.25	4.96	2.25	**12.50**
12.50	5.41	2.60	**11.18**
12.75	5.61	2.77	6.15
13.00	5.77	2.90	3.43
13.25	5.91	3.01	2.38
13.50	6.03	3.12	1.92
13.75	6.14	3.21	1.71
14.00	6.24	3.29	1.55
14.25	6.34	3.37	1.40
14.50	6.42	3.44	1.29
14.75	6.50	3.51	1.21
15.00	6.58	3.57	1.13
15.25	6.65	3.63	1.06
15.50	6.71	3.69	0.98
15.75	6.77	3.74	0.91
16.00	6.82	3.78	0.83
16.25	6.87	3.82	0.75
16.50	6.92	3.86	0.70
16.75	6.96	3.90	0.66
17.00	7.00	3.94	0.63
17.25	7.04	3.97	0.60
17.50	7.08	4.00	0.56
17.75	7.11	4.03	0.53
18.00	7.15	4.06	0.49
18.25	7.18	4.09	0.46
18.50	7.21	4.11	0.44
18.75	7.23	4.14	0.43
19.00	7.26	4.16	0.42
19.25	7.29	4.19	0.41
19.50	7.32	4.21	0.40
19.75	7.34	4.23	0.39
20.00	7.37	4.26	0.38
20.25	7.39	4.28	0.37
20.50	7.42	4.30	0.36
20.75	7.44	4.32	0.35
21.00	7.46	4.34	0.34
21.25	7.49	4.36	0.34
21.50	7.51	4.38	0.33
21.75	7.53	4.40	0.32
22.00	7.55	4.41	0.31
22.25	7.57	4.43	0.31
22.50	7.59	4.45	0.30
22.75	7.61	4.47	0.29
23.00	7.63	4.48	0.28
23.25	7.65	4.50	0.27
23.50	7.67	4.52	0.27
23.75	7.68	4.53	0.26
24.00	**7.70**	**4.55**	0.25

Summary for Subcatchment 4:

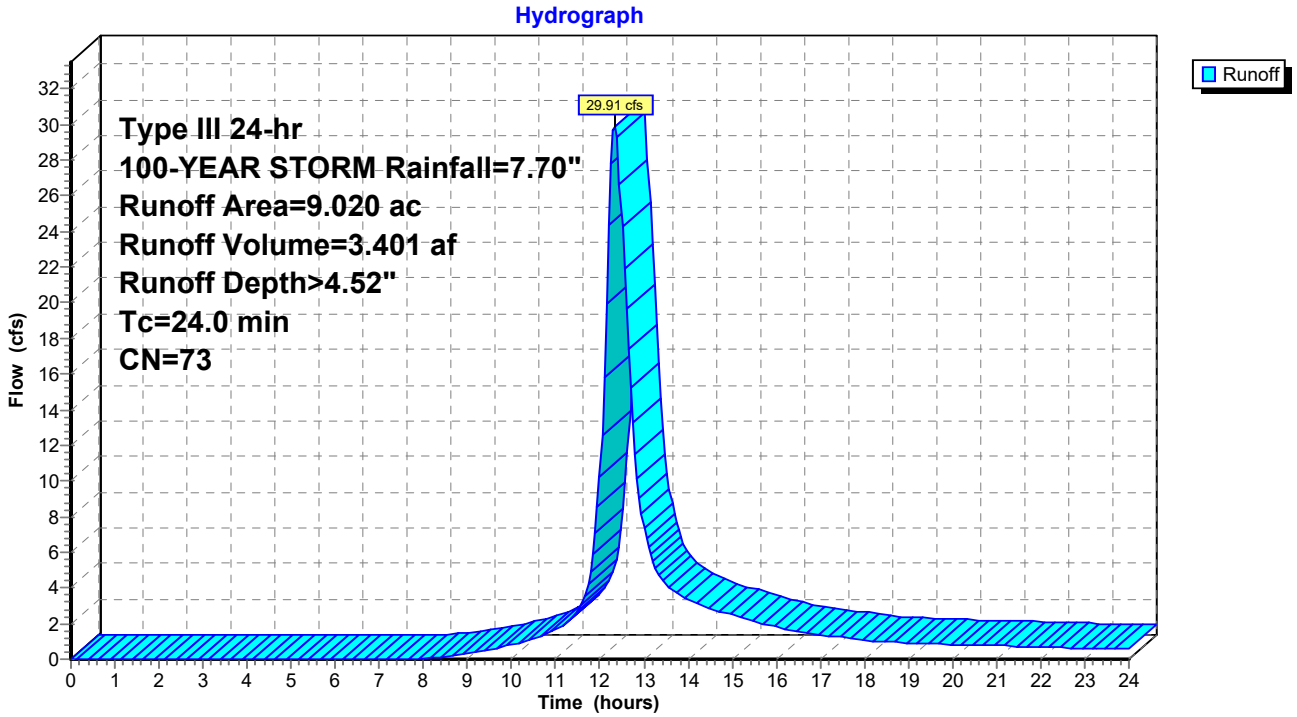
Runoff = 29.91 cfs @ 12.33 hrs, Volume= 3.401 af, Depth> 4.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

	Area (ac)	CN	Description
*	9.020	73	
	9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					**Direct Entry, SCS TR-55**

Subcatchment 4:



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.04	0.00	0.00
0.75	0.06	0.00	0.00
1.00	0.08	0.00	0.00
1.25	0.10	0.00	0.00
1.50	0.12	0.00	0.00
1.75	0.13	0.00	0.00
2.00	0.15	0.00	0.00
2.25	0.17	0.00	0.00
2.50	0.19	0.00	0.00
2.75	0.21	0.00	0.00
3.00	0.24	0.00	0.00
3.25	0.26	0.00	0.00
3.50	0.28	0.00	0.00
3.75	0.31	0.00	0.00
4.00	0.33	0.00	0.00
4.25	0.36	0.00	0.00
4.50	0.38	0.00	0.00
4.75	0.41	0.00	0.00
5.00	0.44	0.00	0.00
5.25	0.47	0.00	0.00
5.50	0.49	0.00	0.00
5.75	0.52	0.00	0.00
6.00	0.55	0.00	0.00
6.25	0.59	0.00	0.00
6.50	0.62	0.00	0.00
6.75	0.66	0.00	0.00
7.00	0.70	0.00	0.00
7.25	0.74	0.00	0.00
7.50	0.78	0.00	0.00
7.75	0.83	0.00	0.02
8.00	0.88	0.00	0.06
8.25	0.93	0.01	0.11
8.50	0.99	0.02	0.16
8.75	1.05	0.02	0.24
9.00	1.12	0.04	0.32
9.25	1.20	0.05	0.42
9.50	1.28	0.07	0.53
9.75	1.36	0.09	0.66
10.00	1.46	0.12	0.80
10.25	1.56	0.15	0.95
10.50	1.67	0.19	1.16
10.75	1.79	0.23	1.41
11.00	1.93	0.29	1.70
11.25	2.09	0.36	2.06
11.50	2.29	0.46	2.73
11.75	2.74	0.70	4.19
12.00	3.85	1.42	10.26
12.25	4.96	2.25	**27.79**
12.50	5.41	2.60	**24.29**
12.75	5.61	2.77	13.23
13.00	5.77	2.90	7.40
13.25	5.91	3.01	5.15
13.50	6.03	3.12	4.18
13.75	6.14	3.21	3.73
14.00	6.24	3.29	3.38
14.25	6.34	3.37	3.05
14.50	6.42	3.44	2.82
14.75	6.50	3.51	2.64
15.00	6.58	3.57	2.47
15.25	6.65	3.63	2.31
15.50	6.71	3.69	2.15
15.75	6.77	3.74	1.98
16.00	6.82	3.78	1.81
16.25	6.87	3.82	1.65
16.50	6.92	3.86	1.53
16.75	6.96	3.90	1.45
17.00	7.00	3.94	1.38
17.25	7.04	3.97	1.30
17.50	7.08	4.00	1.23
17.75	7.11	4.03	1.16
18.00	7.15	4.06	1.08
18.25	7.18	4.09	1.01
18.50	7.21	4.11	0.97
18.75	7.23	4.14	0.94
19.00	7.26	4.16	0.92
19.25	7.29	4.19	0.89
19.50	7.32	4.21	0.87
19.75	7.34	4.23	0.85
20.00	7.37	4.26	0.83
20.25	7.39	4.28	0.80
20.50	7.42	4.30	0.79
20.75	7.44	4.32	0.77
21.00	7.46	4.34	0.75
21.25	7.49	4.36	0.74
21.50	7.51	4.38	0.72
21.75	7.53	4.40	0.70
22.00	7.55	4.41	0.68
22.25	7.57	4.43	0.67
22.50	7.59	4.45	0.65
22.75	7.61	4.47	0.63
23.00	7.63	4.48	0.62
23.25	7.65	4.50	0.60
23.50	7.67	4.52	0.58
23.75	7.68	4.53	0.57
24.00	**7.70**	**4.55**	0.55

Summary for Subcatchment 5:

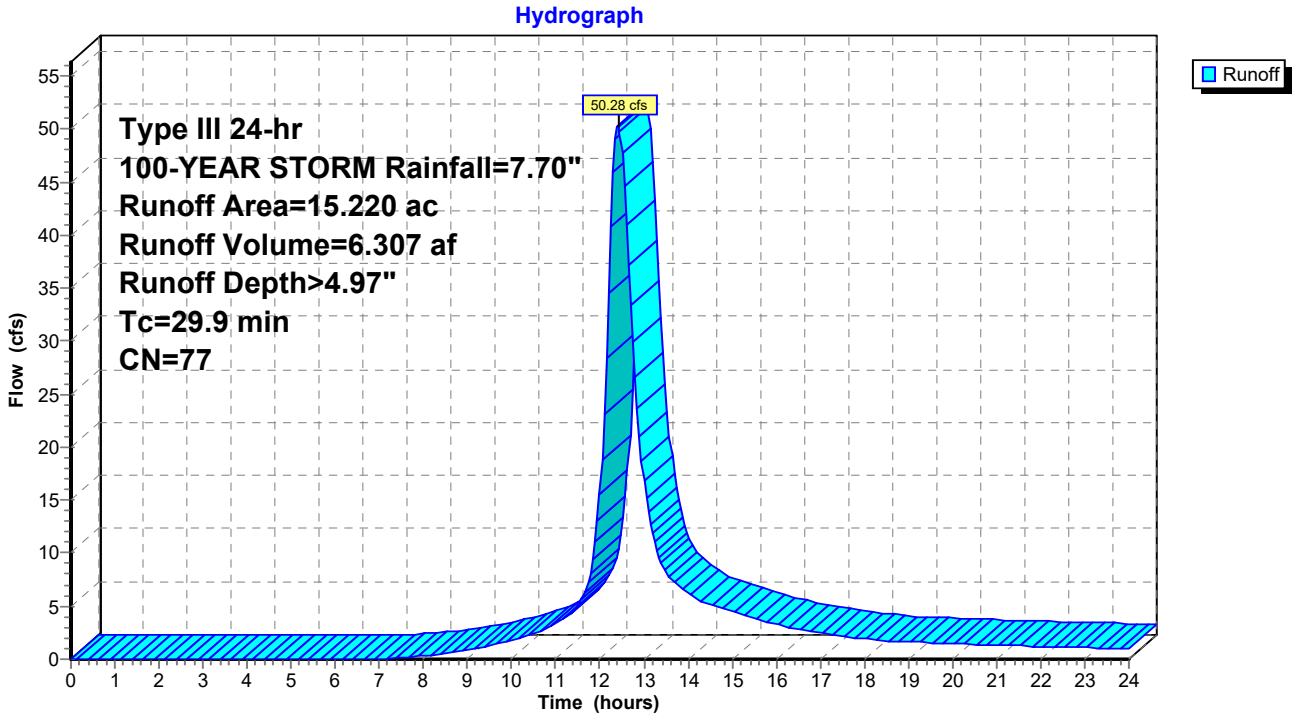
Runoff = 50.28 cfs @ 12.41 hrs, Volume= 6.307 af, Depth> 4.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR STORM Rainfall=7.70"

	Area (ac)	CN	Description
*	15.220	77	
	15.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.9					**Direct Entry, SCS TR-55**

Subcatchment 5:



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.02	0.00	0.00
0.50	0.04	0.00	0.00
0.75	0.06	0.00	0.00
1.00	0.08	0.00	0.00
1.25	0.10	0.00	0.00
1.50	0.12	0.00	0.00
1.75	0.13	0.00	0.00
2.00	0.15	0.00	0.00
2.25	0.17	0.00	0.00
2.50	0.19	0.00	0.00
2.75	0.21	0.00	0.00
3.00	0.24	0.00	0.00
3.25	0.26	0.00	0.00
3.50	0.28	0.00	0.00
3.75	0.31	0.00	0.00
4.00	0.33	0.00	0.00
4.25	0.36	0.00	0.00
4.50	0.38	0.00	0.00
4.75	0.41	0.00	0.00
5.00	0.44	0.00	0.00
5.25	0.47	0.00	0.00
5.50	0.49	0.00	0.00
5.75	0.52	0.00	0.00
6.00	0.55	0.00	0.00
6.25	0.59	0.00	0.00
6.50	0.62	0.00	0.00
6.75	0.66	0.00	0.01
7.00	0.70	0.00	0.05
7.25	0.74	0.01	0.11
7.50	0.78	0.01	0.17
7.75	0.83	0.02	0.25
8.00	0.88	0.02	0.33
8.25	0.93	0.03	0.42
8.50	0.99	0.05	0.54
8.75	1.05	0.06	0.69
9.00	1.12	0.08	0.86
9.25	1.20	0.10	1.05
9.50	1.28	0.13	1.27
9.75	1.36	0.16	1.51
10.00	1.46	0.19	1.77
10.25	1.56	0.23	2.06
10.50	1.67	0.28	2.42
10.75	1.79	0.34	2.88
11.00	1.93	0.41	3.41
11.25	2.09	0.50	4.02
11.50	2.29	0.61	5.09
11.75	2.74	0.89	7.24
12.00	3.85	1.70	15.59
12.25	4.96	2.59	**40.79**
12.50	5.41	2.97	**47.67**
12.75	5.61	3.14	29.87
13.00	5.77	3.28	16.80
13.25	5.91	3.40	10.98
13.50	6.03	3.51	8.29
13.75	6.14	3.61	7.01
14.00	6.24	3.69	6.25
14.25	6.34	3.77	5.63
14.50	6.42	3.85	5.14
14.75	6.50	3.92	4.79
15.00	6.58	3.99	4.49
15.25	6.65	4.05	4.19
15.50	6.71	4.11	3.89
15.75	6.77	4.16	3.60
16.00	6.82	4.21	3.30
16.25	6.87	4.25	3.01
16.50	6.92	4.29	2.78
16.75	6.96	4.33	2.61
17.00	7.00	4.37	2.47
17.25	7.04	4.40	2.34
17.50	7.08	4.44	2.21
17.75	7.11	4.47	2.08
18.00	7.15	4.50	1.95
18.25	7.18	4.52	1.82
18.50	7.21	4.55	1.73
18.75	7.23	4.58	1.67
19.00	7.26	4.60	1.62
19.25	7.29	4.63	1.58
19.50	7.32	4.65	1.54
19.75	7.34	4.68	1.50
20.00	7.37	4.70	1.46
20.25	7.39	4.72	1.43
20.50	7.42	4.74	1.39
20.75	7.44	4.76	1.36
21.00	7.46	4.79	1.33
21.25	7.49	4.81	1.30
21.50	7.51	4.83	1.27
21.75	7.53	4.85	1.24
22.00	7.55	4.86	1.21
22.25	7.57	4.88	1.18
22.50	7.59	4.90	1.15
22.75	7.61	4.92	1.12
23.00	7.63	4.94	1.09
23.25	7.65	4.95	1.06
23.50	7.67	4.97	1.03
23.75	7.68	4.98	1.00
24.00	**7.70**	**5.00**	0.97

Summary for Pond 1A - Pond: 1A - Pond

Inflow Area = 4.690 ac, 0.00% Impervious, Inflow Depth > 4.51" for 100-YEAR STORM event
Inflow = 11.89 cfs @ 12.58 hrs, Volume= 1.761 af
Outflow = 7.84 cfs @ 12.96 hrs, Volume= 1.252 af, Atten= 34%, Lag= 22.5 min
Primary = 7.22 cfs @ 12.96 hrs, Volume= 1.241 af
Secondary = 0.63 cfs @ 12.96 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 130.05' @ 12.96 hrs Surf.Area= 0.287 ac Storage= 0.691 af

Plug-Flow detention time= 163.0 min calculated for 1.252 af (71% of inflow)
Center-of-Mass det. time= 73.3 min (922.2 - 848.8)

Volume	Invert	Avail.Storage	Storage Description
#1	127.25'	0.975 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

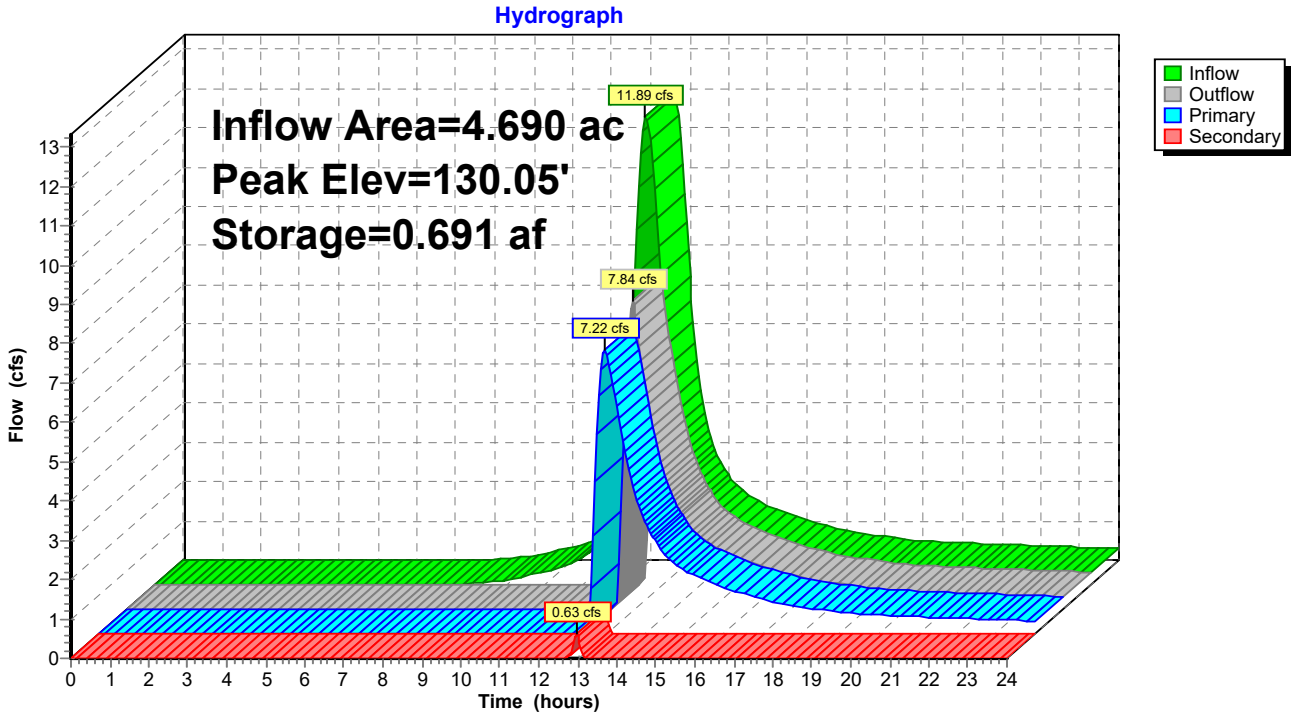
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
127.25	0.200	0.000	0.000
128.00	0.230	0.161	0.161
129.00	0.257	0.244	0.405
130.00	0.285	0.271	0.676
131.00	0.314	0.300	0.975

Device	Routing	Invert	Outlet Devices
#1	Secondary	130.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	127.25'	**18.0" Round Culvert** L= 55.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 127.25' / 127.00' S= 0.0045 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#3	Device 2	129.30'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 2	127.25'	**0.5" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=7.20 cfs @ 12.96 hrs HW=130.05' (Free Discharge)
└**2=Culvert** (Passes 7.20 cfs of 11.51 cfs potential flow)
  ├**3=Sharp-Crested Rectangular Weir** (Weir Controls 7.19 cfs @ 3.36 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.01 cfs @ 8.03 fps)

Secondary OutFlow Max=0.59 cfs @ 12.96 hrs HW=130.05' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.59 cfs @ 0.57 fps)

Pond 1A - Pond: 1A - Pond



Hydrograph for Pond 1A - Pond: 1A - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	127.25	0.00	0.00	0.00
0.50	0.00	0.000	127.25	0.00	0.00	0.00
1.00	0.00	0.000	127.25	0.00	0.00	0.00
1.50	0.00	0.000	127.25	0.00	0.00	0.00
2.00	0.00	0.000	127.25	0.00	0.00	0.00
2.50	0.00	0.000	127.25	0.00	0.00	0.00
3.00	0.00	0.000	127.25	0.00	0.00	0.00
3.50	0.00	0.000	127.25	0.00	0.00	0.00
4.00	0.00	0.000	127.25	0.00	0.00	0.00
4.50	0.00	0.000	127.25	0.00	0.00	0.00
5.00	0.00	0.000	127.25	0.00	0.00	0.00
5.50	0.00	0.000	127.25	0.00	0.00	0.00
6.00	0.00	0.000	127.25	0.00	0.00	0.00
6.50	0.00	0.000	127.25	0.00	0.00	0.00
7.00	0.00	0.000	127.25	0.00	0.00	0.00
7.50	0.00	0.000	127.25	0.00	0.00	0.00
8.00	0.01	0.000	127.25	0.00	0.00	0.00
8.50	0.05	0.002	127.26	0.00	0.00	0.00
9.00	0.12	0.005	127.28	0.00	0.00	0.00
9.50	0.21	0.012	127.31	0.00	0.00	0.00
10.00	0.34	0.023	127.36	0.00	0.00	0.00
10.50	0.49	0.040	127.45	0.00	0.00	0.00
11.00	0.72	0.065	127.56	0.00	0.00	0.00
11.50	1.09	0.101	127.73	0.00	0.00	0.00
12.00	2.67	0.167	128.03	0.01	0.01	0.00
12.50	**11.52**	**0.452**	**129.18**	**0.01**	**0.01**	**0.00**
13.00	**7.21**	**0.690**	**130.05**	**7.73**	**7.16**	**0.57**
13.50	3.30	0.639	129.87	4.65	4.65	0.00
14.00	2.13	0.597	129.72	2.86	2.86	0.00
14.50	1.64	0.574	129.64	2.05	2.05	0.00
15.00	1.40	0.562	129.59	1.63	1.63	0.00
15.50	1.22	0.553	129.56	1.38	1.38	0.00
16.00	1.04	0.547	129.54	1.19	1.19	0.00
16.50	0.88	0.541	129.51	1.02	1.02	0.00
17.00	0.77	0.535	129.49	0.88	0.88	0.00
17.50	0.68	0.531	129.48	0.78	0.78	0.00
18.00	0.61	0.527	129.47	0.69	0.69	0.00
18.50	0.53	0.524	129.45	0.61	0.61	0.00
19.00	0.49	0.521	129.44	0.55	0.55	0.00
19.50	0.47	0.519	129.43	0.51	0.51	0.00
20.00	0.44	0.518	129.43	0.48	0.48	0.00
20.50	0.42	0.516	129.42	0.45	0.45	0.00
21.00	0.40	0.515	129.42	0.43	0.43	0.00
21.50	0.38	0.514	129.42	0.41	0.41	0.00
22.00	0.37	0.513	129.41	0.39	0.39	0.00
22.50	0.35	0.512	129.41	0.37	0.37	0.00
23.00	0.33	0.511	129.41	0.35	0.35	0.00
23.50	0.31	0.510	129.40	0.34	0.34	0.00
24.00	0.30	0.509	129.40	0.32	0.32	0.00

Summary for Pond 1B - Pond: 1B - Pond

Inflow Area = 10.540 ac, 0.00% Impervious, Inflow Depth > 4.28" for 100-YEAR STORM event
Inflow = 25.49 cfs @ 12.58 hrs, Volume= 3.761 af
Outflow = 17.52 cfs @ 12.93 hrs, Volume= 2.938 af, Atten= 31%, Lag= 20.7 min
Primary = 17.52 cfs @ 12.93 hrs, Volume= 2.938 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 127.99' @ 12.93 hrs Surf.Area= 0.320 ac Storage= 1.222 af

Plug-Flow detention time= 133.3 min calculated for 2.938 af (78% of inflow)
Center-of-Mass det. time= 55.3 min (908.1 - 852.8)

Volume	Invert	Avail.Storage	Storage Description
#1	123.00'	1.560 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

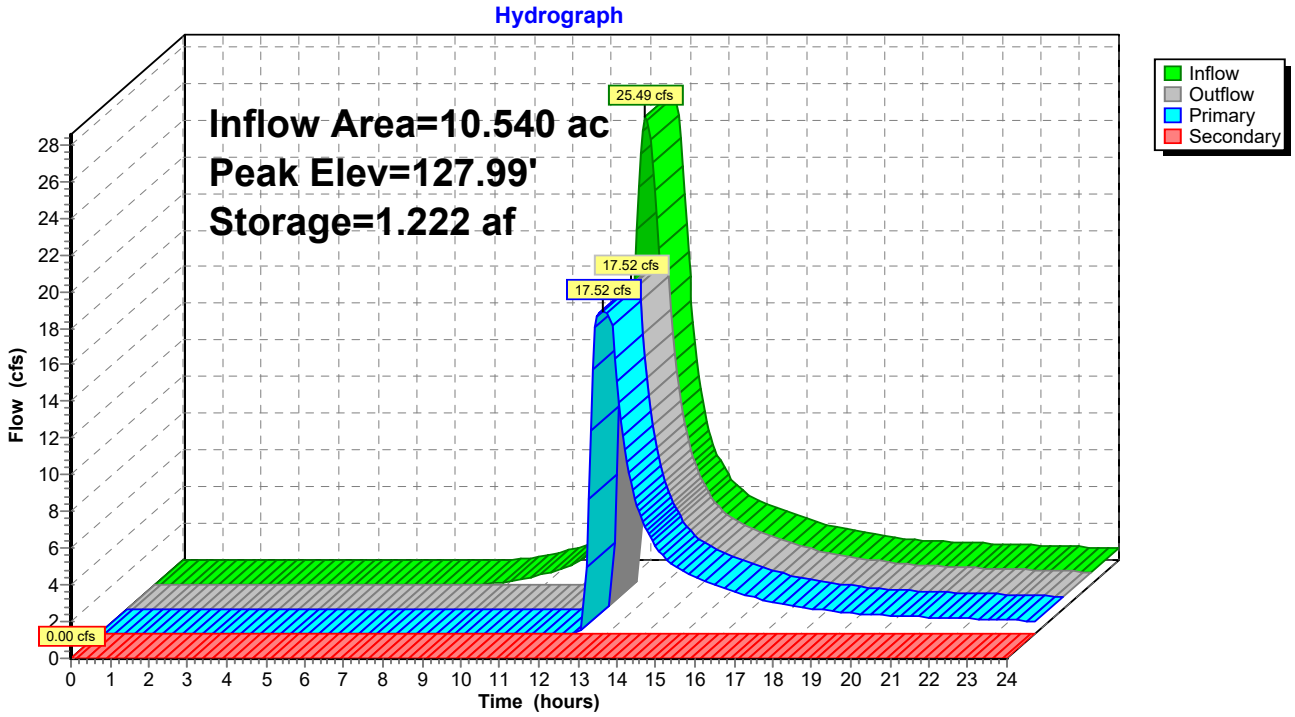
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
123.00	0.170	0.000	0.000
124.00	0.200	0.185	0.185
125.00	0.230	0.215	0.400
126.00	0.260	0.245	0.645
127.00	0.290	0.275	0.920
128.00	0.320	0.305	1.225
129.00	0.350	0.335	1.560

Device	Routing	Invert	Outlet Devices
#1	Primary	123.00'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 123.00' / 122.00' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	128.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	126.50'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	123.00'	**0.7" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=17.52 cfs @ 12.93 hrs HW=127.99' (Free Discharge)
└**1=Culvert** (Inlet Controls 17.52 cfs @ 9.91 fps)
  └**3=Sharp-Crested Rectangular Weir** (Passes < 21.92 cfs potential flow)
  └**4=Orifice/Grate** (Passes < 0.03 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=123.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1B - Pond: 1B - Pond



Hydrograph for Pond 1B - Pond: 1B - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	123.00	0.00	0.00	**0.00**
0.50	0.00	0.000	123.00	0.00	0.00	0.00
1.00	0.00	0.000	123.00	0.00	0.00	0.00
1.50	0.00	0.000	123.00	0.00	0.00	0.00
2.00	0.00	0.000	123.00	0.00	0.00	0.00
2.50	0.00	0.000	123.00	0.00	0.00	0.00
3.00	0.00	0.000	123.00	0.00	0.00	0.00
3.50	0.00	0.000	123.00	0.00	0.00	0.00
4.00	0.00	0.000	123.00	0.00	0.00	0.00
4.50	0.00	0.000	123.00	0.00	0.00	0.00
5.00	0.00	0.000	123.00	0.00	0.00	0.00
5.50	0.00	0.000	123.00	0.00	0.00	0.00
6.00	0.00	0.000	123.00	0.00	0.00	0.00
6.50	0.00	0.000	123.00	0.00	0.00	0.00
7.00	0.00	0.000	123.00	0.00	0.00	0.00
7.50	0.00	0.000	123.00	0.00	0.00	0.00
8.00	0.00	0.000	123.00	0.00	0.00	0.00
8.50	0.05	0.001	123.00	0.00	0.00	0.00
9.00	0.17	0.005	123.03	0.00	0.00	0.00
9.50	0.35	0.015	123.09	0.00	0.00	0.00
10.00	0.60	0.035	123.20	0.01	0.01	0.00
10.50	0.93	0.066	123.37	0.01	0.01	0.00
11.00	1.42	0.113	123.63	0.01	0.01	0.00
11.50	2.18	0.185	124.00	0.01	0.01	0.00
12.00	5.56	0.321	124.65	0.02	0.02	0.00
12.50	**24.69**	**0.916**	**126.98**	**3.61**	**3.61**	0.00
13.00	**15.44**	**1.216**	**127.97**	**17.48**	**17.48**	0.00
13.50	7.10	1.046	127.42	10.06	10.06	0.00
14.00	4.63	0.966	127.16	5.83	5.83	0.00
14.50	3.58	0.930	127.03	4.21	4.21	0.00
15.00	3.05	0.910	126.97	3.41	3.41	0.00
15.50	2.66	0.898	126.92	2.93	2.93	0.00
16.00	2.28	0.887	126.89	2.54	2.54	0.00
16.50	1.92	0.876	126.85	2.17	2.17	0.00
17.00	1.68	0.867	126.82	1.87	1.87	0.00
17.50	1.50	0.860	126.79	1.65	1.65	0.00
18.00	1.33	0.854	126.77	1.47	1.47	0.00
18.50	1.17	0.848	126.75	1.31	1.31	0.00
19.00	1.08	0.844	126.73	1.17	1.17	0.00
19.50	1.03	0.840	126.72	1.09	1.09	0.00
20.00	0.97	0.838	126.71	1.03	1.03	0.00
20.50	0.92	0.836	126.71	0.98	0.98	0.00
21.00	0.88	0.834	126.70	0.93	0.93	0.00
21.50	0.84	0.832	126.69	0.88	0.88	0.00
22.00	0.80	0.830	126.69	0.84	0.84	0.00
22.50	0.77	0.829	126.68	0.81	0.81	0.00
23.00	0.73	0.827	126.67	0.77	0.77	0.00
23.50	0.69	0.826	126.67	0.73	0.73	0.00
24.00	0.65	0.824	126.66	0.69	0.69	0.00

Summary for Pond 1C-Pond: 1C - Pond

Inflow Area = 8.580 ac, 0.00% Impervious, Inflow Depth > 4.07" for 100-YEAR STORM event
Inflow = 21.57 cfs @ 12.50 hrs, Volume= 2.907 af
Outflow = 12.37 cfs @ 12.89 hrs, Volume= 2.444 af, Atten= 43%, Lag= 23.8 min
Primary = 12.37 cfs @ 12.89 hrs, Volume= 2.444 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 130.93' @ 12.89 hrs Surf.Area= 0.396 ac Storage= 0.930 af

Plug-Flow detention time= 115.2 min calculated for 2.444 af (84% of inflow)
Center-of-Mass det. time= 50.3 min (901.6 - 851.3)

Volume	Invert	Avail.Storage	Storage Description
#1	128.00'	1.875 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

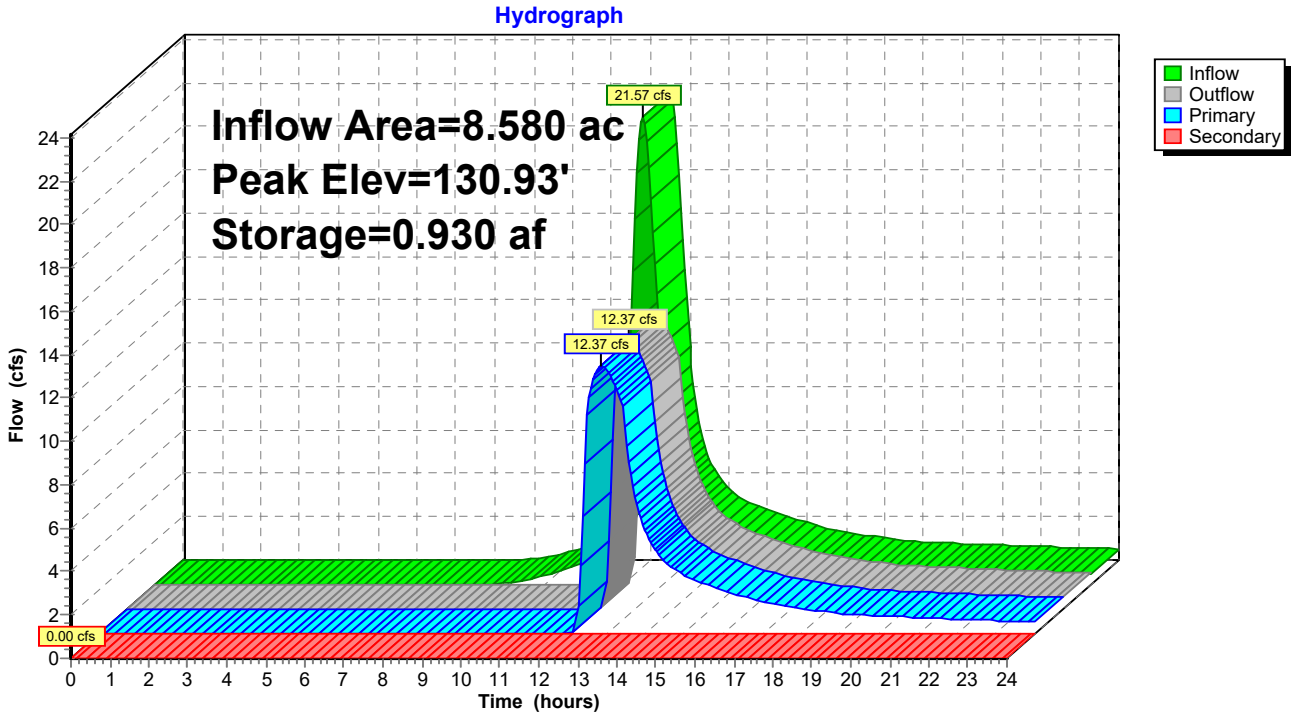
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
128.00	0.240	0.000	0.000
129.00	0.290	0.265	0.265
130.00	0.350	0.320	0.585
131.00	0.400	0.375	0.960
132.00	0.460	0.430	1.390
133.00	0.510	0.485	1.875

Device	Routing	Invert	Outlet Devices
#1	Primary	128.00'	**18.0" Round Culvert** L= 45.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 128.00' / 127.75' S= 0.0056 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	131.75'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	129.50'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	128.00'	**0.7" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=12.37 cfs @ 12.89 hrs HW=130.92' (Free Discharge)
└**1=Culvert** (Barrel Controls 12.37 cfs @ 7.00 fps)
  ├**3=Sharp-Crested Rectangular Weir** (Passes < 20.36 cfs potential flow)
  └**4=Orifice/Grate** (Passes < 0.02 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-Pond: 1C - Pond



Hydrograph for Pond 1C-Pond: 1C - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	128.00	0.00	0.00	**0.00**
0.50	0.00	0.000	128.00	0.00	0.00	0.00
1.00	0.00	0.000	128.00	0.00	0.00	0.00
1.50	0.00	0.000	128.00	0.00	0.00	0.00
2.00	0.00	0.000	128.00	0.00	0.00	0.00
2.50	0.00	0.000	128.00	0.00	0.00	0.00
3.00	0.00	0.000	128.00	0.00	0.00	0.00
3.50	0.00	0.000	128.00	0.00	0.00	0.00
4.00	0.00	0.000	128.00	0.00	0.00	0.00
4.50	0.00	0.000	128.00	0.00	0.00	0.00
5.00	0.00	0.000	128.00	0.00	0.00	0.00
5.50	0.00	0.000	128.00	0.00	0.00	0.00
6.00	0.00	0.000	128.00	0.00	0.00	0.00
6.50	0.00	0.000	128.00	0.00	0.00	0.00
7.00	0.00	0.000	128.00	0.00	0.00	0.00
7.50	0.00	0.000	128.00	0.00	0.00	0.00
8.00	0.00	0.000	128.00	0.00	0.00	0.00
8.50	0.01	0.000	128.00	0.00	0.00	0.00
9.00	0.08	0.002	128.01	0.00	0.00	0.00
9.50	0.22	0.008	128.03	0.00	0.00	0.00
10.00	0.42	0.021	128.09	0.00	0.00	0.00
10.50	0.68	0.043	128.17	0.00	0.00	0.00
11.00	1.08	0.078	128.32	0.01	0.01	0.00
11.50	1.73	0.134	128.53	0.01	0.01	0.00
12.00	5.25	0.250	128.95	0.01	0.01	0.00
12.50	**21.57**	**0.740**	**130.43**	**10.13**	**10.13**	0.00
13.00	9.90	**0.919**	**130.90**	**12.27**	**12.27**	0.00
13.50	4.67	0.727	130.39	9.52	9.52	0.00
14.00	3.31	0.614	130.08	4.79	4.79	0.00
14.50	2.69	0.572	129.96	3.36	3.36	0.00
15.00	2.33	0.552	129.90	2.71	2.71	0.00
15.50	2.04	0.538	129.87	2.32	2.32	0.00
16.00	1.74	0.527	129.83	2.01	2.01	0.00
16.50	1.46	0.516	129.80	1.71	1.71	0.00
17.00	1.30	0.507	129.77	1.49	1.49	0.00
17.50	1.16	0.500	129.75	1.31	1.31	0.00
18.00	1.03	0.494	129.73	1.17	1.17	0.00
18.50	0.91	0.488	129.72	1.04	1.04	0.00
19.00	0.85	0.483	129.70	0.94	0.94	0.00
19.50	0.80	0.480	129.69	0.87	0.87	0.00
20.00	0.76	0.477	129.68	0.82	0.82	0.00
20.50	0.73	0.475	129.68	0.78	0.78	0.00
21.00	0.69	0.473	129.67	0.74	0.74	0.00
21.50	0.66	0.471	129.67	0.70	0.70	0.00
22.00	0.63	0.470	129.66	0.67	0.67	0.00
22.50	0.60	0.468	129.66	0.64	0.64	0.00
23.00	0.57	0.467	129.65	0.61	0.61	0.00
23.50	0.54	0.465	129.65	0.58	0.58	0.00
24.00	0.51	0.463	129.64	0.55	0.55	0.00

Summary for Pond 2 - Pond: 2 - Pond

Inflow Area = 9.600 ac, 0.00% Impervious, Inflow Depth > 4.62" for 100-YEAR STORM event
Inflow = 25.67 cfs @ 12.55 hrs, Volume= 3.697 af
Outflow = 19.94 cfs @ 12.82 hrs, Volume= 3.077 af, Atten= 22%, Lag= 15.8 min
Primary = 17.79 cfs @ 12.82 hrs, Volume= 3.042 af
Secondary = 2.15 cfs @ 12.82 hrs, Volume= 0.035 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 138.12' @ 12.82 hrs Surf.Area= 0.302 ac Storage= 1.045 af

Plug-Flow detention time= 111.3 min calculated for 3.071 af (83% of inflow)
Center-of-Mass det. time= 45.8 min (890.6 - 844.9)

Volume	Invert	Avail.Storage	Storage Description
#1	133.00'	1.326 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

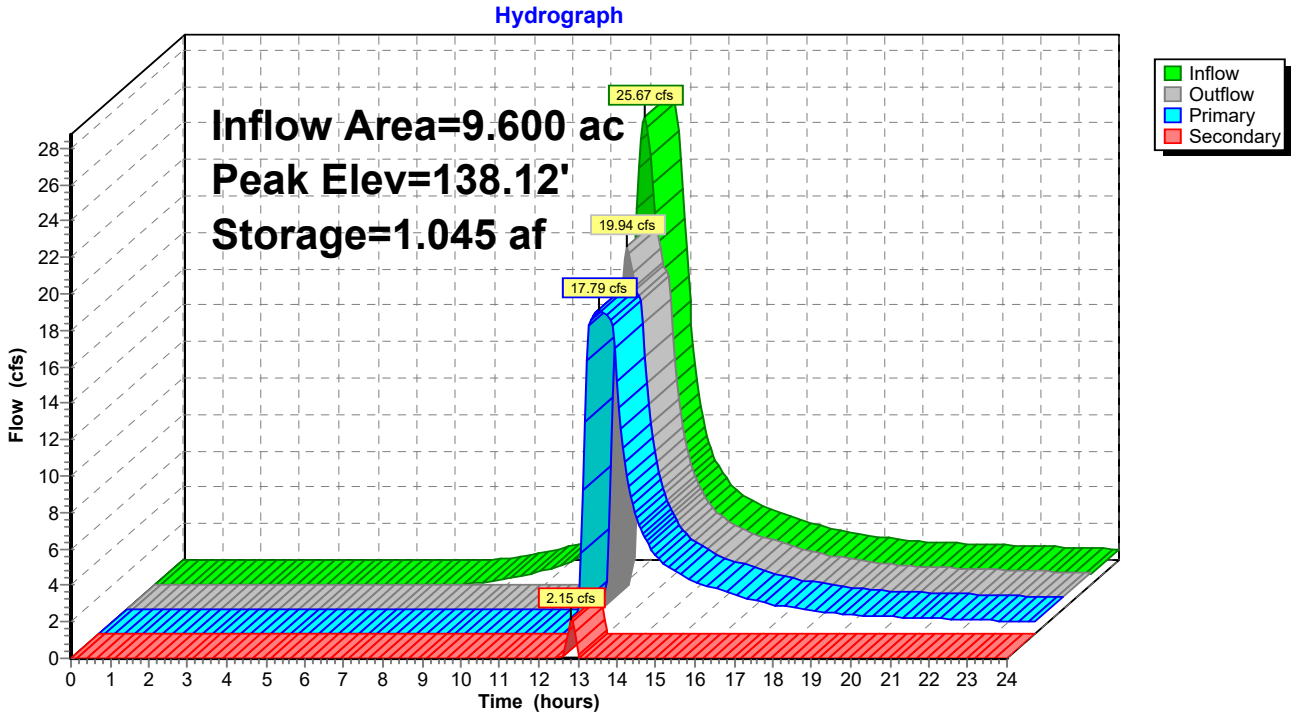
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
133.00	0.113	0.000	0.000
134.00	0.147	0.130	0.130
135.00	0.182	0.164	0.294
136.00	0.218	0.200	0.494
137.00	0.257	0.237	0.732
138.00	0.297	0.277	1.009
139.00	0.338	0.317	1.326

Device	Routing	Invert	Outlet Devices
#1	Device 2	136.40'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#2	Primary	133.00'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.00' / 132.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#3	Secondary	138.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#4	Device 2	133.00'	**1.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=17.78 cfs @ 12.82 hrs HW=138.12' (Free Discharge)
└**2=Culvert** (Inlet Controls 17.78 cfs @ 10.06 fps)
  └**1=Sharp-Crested Rectangular Weir** (Passes < 27.79 cfs potential flow)
  └**4=Orifice/Grate** (Passes < 0.06 cfs potential flow)

Secondary OutFlow Max=2.03 cfs @ 12.82 hrs HW=138.12' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 2.03 cfs @ 0.86 fps)

Pond 2 - Pond: 2 - Pond



Hydrograph for Pond 2 - Pond: 2 - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	133.00	0.00	0.00	0.00
0.50	0.00	0.000	133.00	0.00	0.00	0.00
1.00	0.00	0.000	133.00	0.00	0.00	0.00
1.50	0.00	0.000	133.00	0.00	0.00	0.00
2.00	0.00	0.000	133.00	0.00	0.00	0.00
2.50	0.00	0.000	133.00	0.00	0.00	0.00
3.00	0.00	0.000	133.00	0.00	0.00	0.00
3.50	0.00	0.000	133.00	0.00	0.00	0.00
4.00	0.00	0.000	133.00	0.00	0.00	0.00
4.50	0.00	0.000	133.00	0.00	0.00	0.00
5.00	0.00	0.000	133.00	0.00	0.00	0.00
5.50	0.00	0.000	133.00	0.00	0.00	0.00
6.00	0.00	0.000	133.00	0.00	0.00	0.00
6.50	0.00	0.000	133.00	0.00	0.00	0.00
7.00	0.00	0.000	133.00	0.00	0.00	0.00
7.50	0.01	0.000	133.00	0.00	0.00	0.00
8.00	0.06	0.001	133.01	0.00	0.00	0.00
8.50	0.16	0.006	133.05	0.00	0.00	0.00
9.00	0.31	0.015	133.13	0.01	0.01	0.00
9.50	0.51	0.031	133.27	0.01	0.01	0.00
10.00	0.78	0.057	133.47	0.02	0.02	0.00
10.50	1.12	0.095	133.76	0.02	0.02	0.00
11.00	1.62	0.150	134.13	0.03	0.03	0.00
11.50	2.42	0.230	134.63	0.03	0.03	0.00
12.00	6.11	0.378	135.44	0.04	0.04	0.00
12.50	**25.37**	**0.888**	**137.58**	**15.01**	**15.01**	**0.00**
13.00	**14.23**	**1.014**	**138.02**	**17.74**	**17.57**	**0.16**
13.50	6.46	0.807	137.28	9.39	9.39	0.00
14.00	4.29	0.736	137.01	5.26	5.26	0.00
14.50	3.34	0.707	136.90	3.83	3.83	0.00
15.00	2.86	0.692	136.84	3.14	3.14	0.00
15.50	2.49	0.682	136.80	2.71	2.71	0.00
16.00	2.13	0.673	136.76	2.35	2.35	0.00
16.50	1.79	0.664	136.73	2.00	2.00	0.00
17.00	1.57	0.656	136.70	1.73	1.73	0.00
17.50	1.41	0.650	136.67	1.53	1.53	0.00
18.00	1.24	0.645	136.65	1.36	1.36	0.00
18.50	1.10	0.640	136.63	1.21	1.21	0.00
19.00	1.01	0.637	136.62	1.09	1.09	0.00
19.50	0.96	0.634	136.61	1.01	1.01	0.00
20.00	0.91	0.632	136.60	0.95	0.95	0.00
20.50	0.87	0.630	136.59	0.91	0.91	0.00
21.00	0.83	0.629	136.59	0.86	0.86	0.00
21.50	0.79	0.627	136.58	0.83	0.83	0.00
22.00	0.75	0.626	136.57	0.79	0.79	0.00
22.50	0.72	0.625	136.57	0.75	0.75	0.00
23.00	0.68	0.623	136.56	0.71	0.71	0.00
23.50	0.65	0.622	136.56	0.68	0.68	0.00
24.00	0.61	0.620	136.55	0.64	0.64	0.00

Summary for Pond 3 - Pond: 3 - Pond

Inflow Area = 4.120 ac, 0.00% Impervious, Inflow Depth > 4.52" for 100-YEAR STORM event
Inflow = 13.58 cfs @ 12.34 hrs, Volume= 1.553 af
Outflow = 9.38 cfs @ 12.59 hrs, Volume= 1.161 af, Atten= 31%, Lag= 15.0 min
Primary = 9.38 cfs @ 12.59 hrs, Volume= 1.161 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 172.09' @ 12.59 hrs Surf.Area= 0.215 ac Storage= 0.552 af

Plug-Flow detention time= 145.0 min calculated for 1.158 af (75% of inflow)
Center-of-Mass det. time= 60.4 min (894.7 - 834.3)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	1.043 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

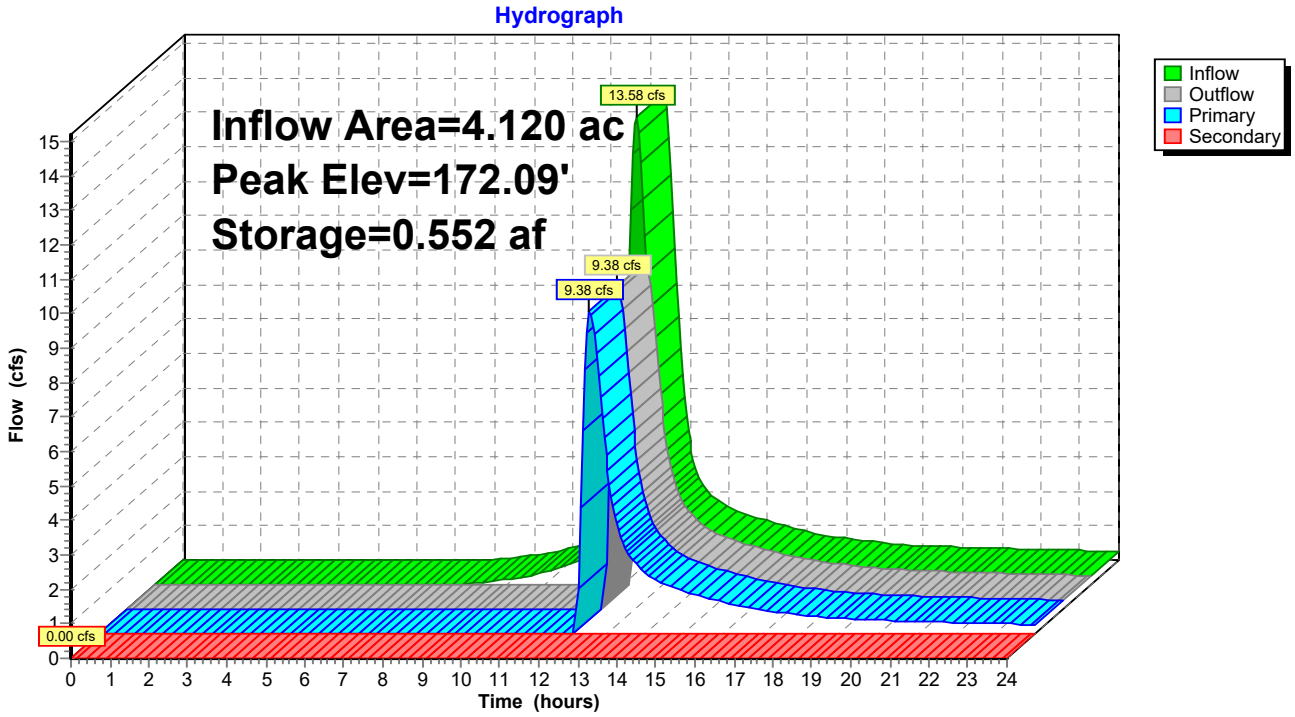
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.058	0.000	0.000
169.00	0.094	0.076	0.076
170.00	0.133	0.113	0.189
171.00	0.172	0.152	0.342
172.00	0.211	0.191	0.533
173.00	0.254	0.233	0.766
174.00	0.299	0.276	1.043

Device	Routing	Invert	Outlet Devices
#1	Primary	168.00'	**18.0" Round Culvert** L= 55.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 168.00' / 164.50' S= 0.0636 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	173.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Device 1	171.20'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	168.00'	**0.4" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=9.35 cfs @ 12.59 hrs HW=172.08' (Free Discharge)
└─**1=Culvert** (Passes 9.35 cfs of 15.54 cfs potential flow)
  ├─**3=Sharp-Crested Rectangular Weir** (Weir Controls 9.34 cfs @ 3.74 fps)
  └─**4=Orifice/Grate** (Orifice Controls 0.01 cfs @ 9.71 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=168.00' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3 - Pond: 3 - Pond



Hydrograph for Pond 3 - Pond: 3 - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	168.00	0.00	0.00	**0.00**
0.50	0.00	0.000	168.00	0.00	0.00	0.00
1.00	0.00	0.000	168.00	0.00	0.00	0.00
1.50	0.00	0.000	168.00	0.00	0.00	0.00
2.00	0.00	0.000	168.00	0.00	0.00	0.00
2.50	0.00	0.000	168.00	0.00	0.00	0.00
3.00	0.00	0.000	168.00	0.00	0.00	0.00
3.50	0.00	0.000	168.00	0.00	0.00	0.00
4.00	0.00	0.000	168.00	0.00	0.00	0.00
4.50	0.00	0.000	168.00	0.00	0.00	0.00
5.00	0.00	0.000	168.00	0.00	0.00	0.00
5.50	0.00	0.000	168.00	0.00	0.00	0.00
6.00	0.00	0.000	168.00	0.00	0.00	0.00
6.50	0.00	0.000	168.00	0.00	0.00	0.00
7.00	0.00	0.000	168.00	0.00	0.00	0.00
7.50	0.00	0.000	168.00	0.00	0.00	0.00
8.00	0.03	0.000	168.01	0.00	0.00	0.00
8.50	0.07	0.003	168.04	0.00	0.00	0.00
9.00	0.15	0.007	168.12	0.00	0.00	0.00
9.50	0.24	0.015	168.24	0.00	0.00	0.00
10.00	0.36	0.027	168.41	0.00	0.00	0.00
10.50	0.53	0.045	168.65	0.00	0.00	0.00
11.00	0.77	0.072	168.95	0.00	0.00	0.00
11.50	1.24	0.111	169.35	0.00	0.00	0.00
12.00	**4.60**	0.204	170.11	0.01	0.01	0.00
12.50	**11.18**	**0.544**	**172.05**	**8.77**	**8.77**	0.00
13.00	3.43	**0.494**	**171.81**	**5.17**	**5.17**	0.00
13.50	1.92	0.449	171.59	2.51	2.51	0.00
14.00	1.55	0.434	171.51	1.78	1.78	0.00
14.50	1.29	0.427	171.47	1.44	1.44	0.00
15.00	1.13	0.422	171.44	1.23	1.23	0.00
15.50	0.98	0.418	171.42	1.07	1.07	0.00
16.00	0.83	0.414	171.40	0.93	0.93	0.00
16.50	0.70	0.410	171.38	0.79	0.79	0.00
17.00	0.63	0.407	171.36	0.69	0.69	0.00
17.50	0.56	0.405	171.35	0.62	0.62	0.00
18.00	0.49	0.403	171.34	0.55	0.55	0.00
18.50	0.44	0.401	171.33	0.49	0.49	0.00
19.00	0.42	0.399	171.32	0.44	0.44	0.00
19.50	0.40	0.399	171.32	0.42	0.42	0.00
20.00	0.38	0.398	171.31	0.40	0.40	0.00
20.50	0.36	0.397	171.31	0.37	0.37	0.00
21.00	0.34	0.396	171.31	0.36	0.36	0.00
21.50	0.33	0.396	171.30	0.34	0.34	0.00
22.00	0.31	0.395	171.30	0.33	0.33	0.00
22.50	0.30	0.395	171.30	0.31	0.31	0.00
23.00	0.28	0.394	171.29	0.30	0.30	0.00
23.50	0.27	0.394	171.29	0.28	0.28	0.00
24.00	0.25	0.393	171.29	0.27	0.27	0.00

Summary for Pond 4 - Pond: 4 - Pond

Inflow Area = 9.020 ac, 0.00% Impervious, Inflow Depth > 4.52" for 100-YEAR STORM event
Inflow = 29.91 cfs @ 12.33 hrs, Volume= 3.401 af
Outflow = 18.91 cfs @ 12.62 hrs, Volume= 2.671 af, Atten= 37%, Lag= 17.0 min
Primary = 18.91 cfs @ 12.62 hrs, Volume= 2.671 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 127.69' @ 12.62 hrs Surf.Area= 12,313 sf Storage= 49,206 cf

Plug-Flow detention time= 130.5 min calculated for 2.666 af (78% of inflow)
Center-of-Mass det. time= 53.1 min (887.0 - 834.0)

Volume	Invert	Avail.Storage	Storage Description
#1	122.00'	66,544 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

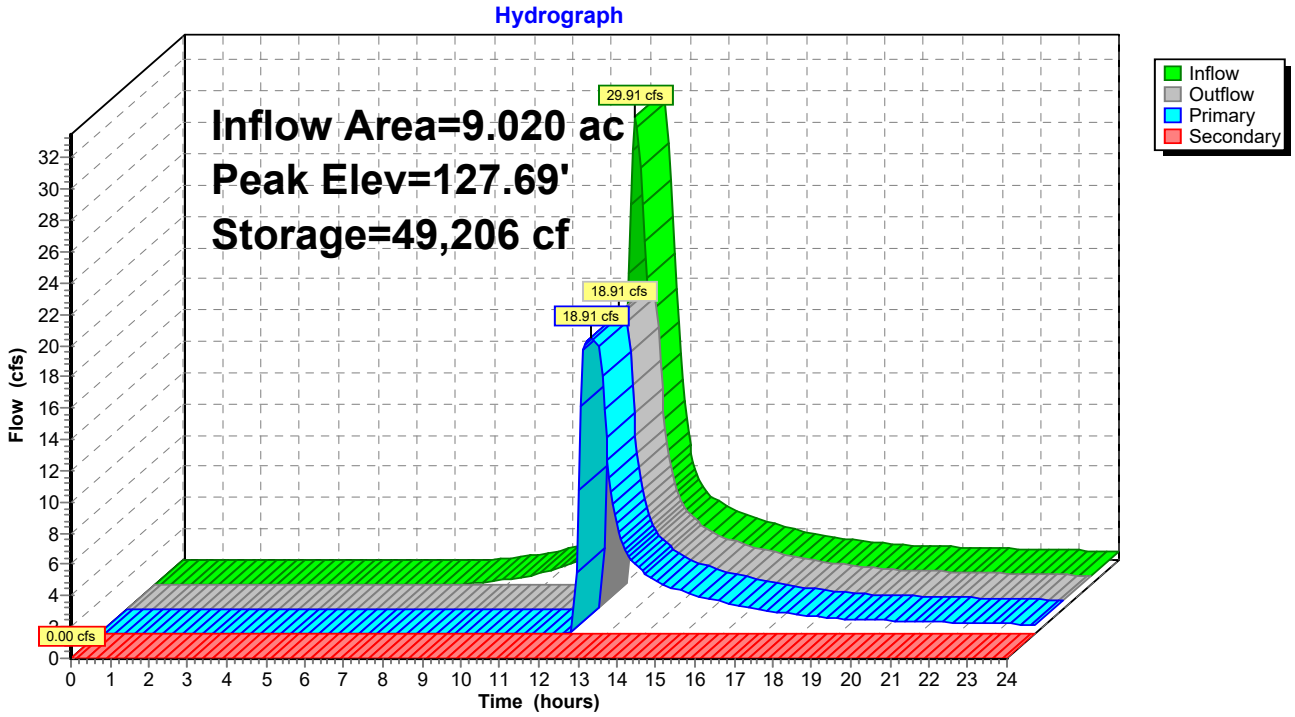
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
122.00	5,526	0	0
123.00	6,338	5,932	5,932
124.00	7,507	6,923	12,855
125.00	8,732	8,120	20,974
126.00	10,013	9,373	30,347
127.00	11,350	10,682	41,028
128.00	12,744	12,047	53,075
129.00	14,194	13,469	66,544

Device	Routing	Invert	Outlet Devices
#1	Primary	122.00'	**18.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 122.00' / 121.50' S= 0.0083 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	128.25'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Device 1	126.00'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#4	Device 1	122.00'	**0.8" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=18.91 cfs @ 12.62 hrs HW=127.69' (Free Discharge)
└**1=Culvert** (Inlet Controls 18.91 cfs @ 10.70 fps)
  └**3=Sharp-Crested Rectangular Weir** (Passes < 26.97 cfs potential flow)
  └**4=Orifice/Grate** (Passes < 0.04 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4 - Pond: 4 - Pond



Hydrograph for Pond 4 - Pond: 4 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	122.00	0.00	0.00	**0.00**
0.50	0.00	0	122.00	0.00	0.00	0.00
1.00	0.00	0	122.00	0.00	0.00	0.00
1.50	0.00	0	122.00	0.00	0.00	0.00
2.00	0.00	0	122.00	0.00	0.00	0.00
2.50	0.00	0	122.00	0.00	0.00	0.00
3.00	0.00	0	122.00	0.00	0.00	0.00
3.50	0.00	0	122.00	0.00	0.00	0.00
4.00	0.00	0	122.00	0.00	0.00	0.00
4.50	0.00	0	122.00	0.00	0.00	0.00
5.00	0.00	0	122.00	0.00	0.00	0.00
5.50	0.00	0	122.00	0.00	0.00	0.00
6.00	0.00	0	122.00	0.00	0.00	0.00
6.50	0.00	0	122.00	0.00	0.00	0.00
7.00	0.00	0	122.00	0.00	0.00	0.00
7.50	0.00	0	122.00	0.00	0.00	0.00
8.00	0.06	48	122.01	0.00	0.00	0.00
8.50	0.16	242	122.04	0.00	0.00	0.00
9.00	0.32	664	122.12	0.00	0.00	0.00
9.50	0.53	1,413	122.25	0.01	0.01	0.00
10.00	0.80	2,585	122.45	0.01	0.01	0.00
10.50	1.16	4,293	122.74	0.01	0.01	0.00
11.00	1.70	6,819	123.14	0.02	0.02	0.00
11.50	2.73	10,592	123.69	0.02	0.02	0.00
12.00	**10.26**	19,563	124.84	0.03	0.03	0.00
12.50	**24.29**	**48,073**	**127.60**	**18.74**	**18.74**	0.00
13.00	7.40	**41,695**	**127.06**	**12.54**	**12.54**	0.00
13.50	4.18	36,894	126.63	5.43	5.43	0.00
14.00	3.38	35,556	126.50	3.84	3.84	0.00
14.50	2.82	34,874	126.44	3.11	3.11	0.00
15.00	2.47	34,447	126.40	2.68	2.68	0.00
15.50	2.15	34,089	126.36	2.34	2.34	0.00
16.00	1.81	33,735	126.33	2.01	2.01	0.00
16.50	1.53	33,374	126.30	1.71	1.71	0.00
17.00	1.38	33,121	126.27	1.49	1.49	0.00
17.50	1.23	32,918	126.25	1.34	1.34	0.00
18.00	1.08	32,716	126.23	1.19	1.19	0.00
18.50	0.97	32,526	126.21	1.05	1.05	0.00
19.00	0.92	32,407	126.20	0.97	0.97	0.00
19.50	0.87	32,328	126.20	0.91	0.91	0.00
20.00	0.83	32,253	126.19	0.87	0.87	0.00
20.50	0.79	32,182	126.18	0.82	0.82	0.00
21.00	0.75	32,118	126.17	0.78	0.78	0.00
21.50	0.72	32,061	126.17	0.75	0.75	0.00
22.00	0.68	32,005	126.16	0.72	0.72	0.00
22.50	0.65	31,949	126.16	0.68	0.68	0.00
23.00	0.62	31,894	126.15	0.65	0.65	0.00
23.50	0.58	31,839	126.15	0.61	0.61	0.00
24.00	0.55	31,783	126.14	0.58	0.58	0.00

Summary for Pond 5 - Pond: 5 - Pond

Inflow Area = 15.220 ac, 0.00% Impervious, Inflow Depth > 4.97" for 100-YEAR STORM event
Inflow = 50.28 cfs @ 12.41 hrs, Volume= 6.307 af
Outflow = 41.06 cfs @ 12.60 hrs, Volume= 5.237 af, Atten= 18%, Lag= 11.5 min
Primary = 41.06 cfs @ 12.60 hrs, Volume= 5.237 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 125.72' @ 12.60 hrs Surf.Area= 18,949 sf Storage= 80,266 cf

Plug-Flow detention time= 116.2 min calculated for 5.237 af (83% of inflow)
Center-of-Mass det. time= 49.1 min (879.1 - 830.0)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	85,683 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

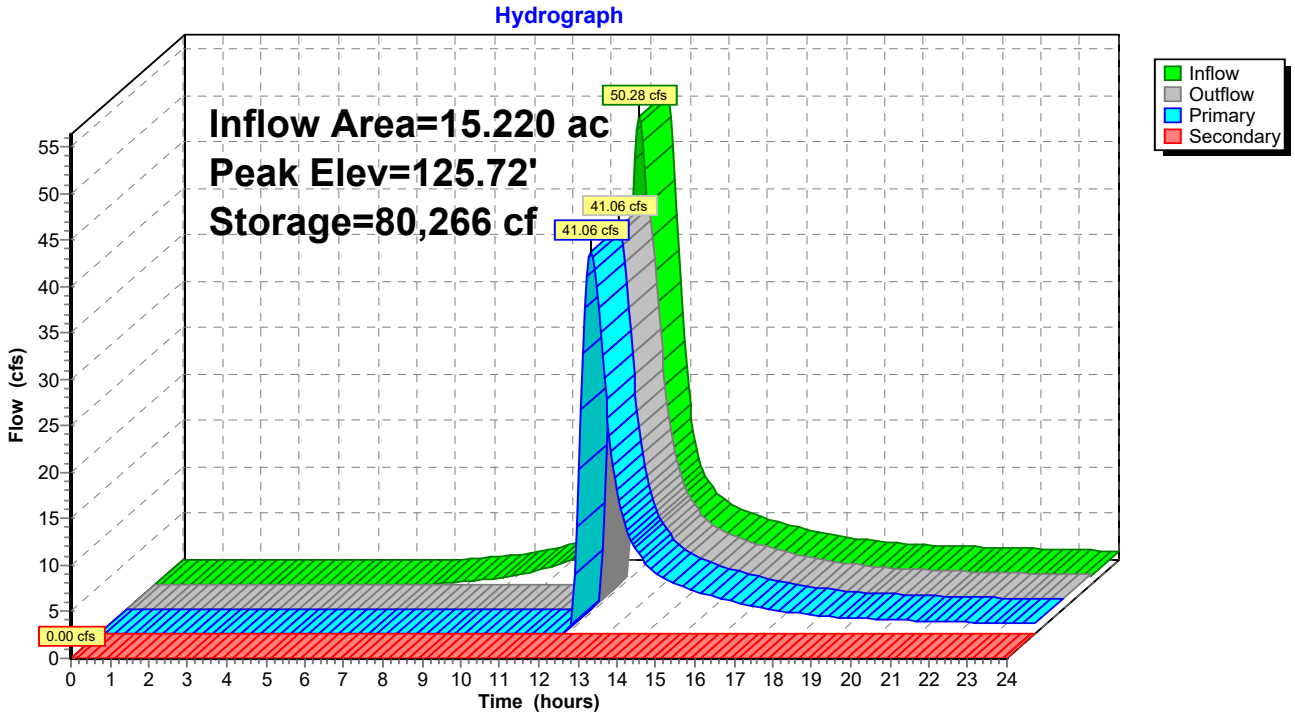
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	9,426	0	0
121.00	10,959	10,193	10,193
122.00	12,547	11,753	21,946
123.00	14,192	13,370	35,315
124.00	15,892	15,042	50,357
125.00	17,650	16,771	67,128
126.00	19,460	18,555	85,683

Device	Routing	Invert	Outlet Devices
#1	Device 2	123.55'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height
#2	Primary	120.00'	**30.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 120.00' / 117.00' S= 0.0500 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#3	Secondary	125.72'	**20.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#4	Device 2	120.00'	**1.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=41.04 cfs @ 12.60 hrs HW=125.72' (Free Discharge)
└**2=Culvert** (Passes 41.04 cfs of 49.96 cfs potential flow)
  ├**1=Sharp-Crested Rectangular Weir** (Weir Controls 40.98 cfs @ 7.37 fps)
  └**4=Orifice/Grate** (Orifice Controls 0.06 cfs @ 11.47 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=120.00' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5 - Pond: 5 - Pond



Hydrograph for Pond 5 - Pond: 5 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	120.00	0.00	0.00	**0.00**
0.50	0.00	0	120.00	0.00	0.00	0.00
1.00	0.00	0	120.00	0.00	0.00	0.00
1.50	0.00	0	120.00	0.00	0.00	0.00
2.00	0.00	0	120.00	0.00	0.00	0.00
2.50	0.00	0	120.00	0.00	0.00	0.00
3.00	0.00	0	120.00	0.00	0.00	0.00
3.50	0.00	0	120.00	0.00	0.00	0.00
4.00	0.00	0	120.00	0.00	0.00	0.00
4.50	0.00	0	120.00	0.00	0.00	0.00
5.00	0.00	0	120.00	0.00	0.00	0.00
5.50	0.00	0	120.00	0.00	0.00	0.00
6.00	0.00	0	120.00	0.00	0.00	0.00
6.50	0.00	0	120.00	0.00	0.00	0.00
7.00	0.05	30	120.00	0.00	0.00	0.00
7.50	0.17	222	120.02	0.00	0.00	0.00
8.00	0.33	665	120.07	0.00	0.00	0.00
8.50	0.54	1,425	120.15	0.01	0.01	0.00
9.00	0.86	2,647	120.27	0.01	0.01	0.00
9.50	1.27	4,519	120.46	0.02	0.02	0.00
10.00	1.77	7,206	120.72	0.02	0.02	0.00
10.50	2.42	10,886	121.06	0.03	0.03	0.00
11.00	3.41	16,036	121.51	0.03	0.03	0.00
11.50	5.09	23,353	122.11	0.04	0.04	0.00
12.00	**15.59**	38,230	123.20	0.05	0.05	0.00
12.50	**47.67**	**78,713**	**125.64**	**38.48**	**38.48**	0.00
13.00	16.80	**70,170**	**125.17**	**25.28**	**25.28**	0.00
13.50	8.29	59,698	124.57	11.82	11.82	0.00
14.00	6.25	55,644	124.33	7.63	7.63	0.00
14.50	5.14	53,769	124.21	5.93	5.93	0.00
15.00	4.49	52,654	124.14	4.99	4.99	0.00
15.50	3.89	51,826	124.09	4.33	4.33	0.00
16.00	3.30	51,045	124.04	3.74	3.74	0.00
16.50	2.78	50,267	123.99	3.18	3.18	0.00
17.00	2.47	49,653	123.96	2.76	2.76	0.00
17.50	2.21	49,175	123.93	2.46	2.46	0.00
18.00	1.95	48,742	123.90	2.19	2.19	0.00
18.50	1.73	48,319	123.87	1.94	1.94	0.00
19.00	1.62	48,007	123.85	1.76	1.76	0.00
19.50	1.54	47,802	123.84	1.64	1.64	0.00
20.00	1.46	47,633	123.83	1.56	1.56	0.00
20.50	1.39	47,476	123.82	1.47	1.47	0.00
21.00	1.33	47,337	123.81	1.40	1.40	0.00
21.50	1.27	47,212	123.80	1.34	1.34	0.00
22.00	1.21	47,094	123.79	1.28	1.28	0.00
22.50	1.15	46,977	123.78	1.22	1.22	0.00
23.00	1.09	46,861	123.78	1.16	1.16	0.00
23.50	1.03	46,738	123.77	1.10	1.10	0.00
24.00	0.97	46,609	123.76	1.04	1.04	0.00

Appendix E

Curve Number

Composite SCS Curve Number

PROJECT: Stonington
SCENARIO: Pre-development
DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 1A							Total Drainage Area: 4.69 Ac	
	Hydrologic Soil Group							
	A		B		C		D	
Cover Description	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN
Open space (lawns, parks, golf courses, cemeteries, etc.):								
Poor condition (grass cover < 50%)		68		79		86		89
Fair condition (grass cover 50% to 75%)		49		69		79		84
Good condition (grass cover > 75%)		39		61		74		80
Impervious areas:								
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98
Paved streets and roads; curbs and storm sewers (excluding		98		98		98		98
Paved streets and roads; open ditches (including R/W)		83		89		92		93
Gravel streets and roads (including R/W)		76		85		89		91
Dirt streets and roads (including R/W)		72		82		87		89
Woods-grass combonation (orchard or tree farm)								
Fair hydrologic condition		43		65		76		82
Good hydrologic condition		32		58		72		79
Urban districts:								
Commercial and business		89		92		94		95
Industrial		81		88		91		93
Residential districts by average lot size:								
1/8 acre or less (town houses)		77		85		90		92
1/4 acre		61		75		83		87
1/3 acre		57		72		81		86
1/2 acre		54		70		80		85
1 acre		51		68		79		84
2 acres		46		65		77		82
Pasture, grassland or range:								
Poor hydrologic condition		68		79		86		89
Fair hydrologic condition		49		69		79		84
Good hydrologic condition		39		61		74		80
Woods:								
Poor hydrologic condition		45		66		77		83
Fair hydrologic condition		36	4.69	60		73		79
Good hydrologic condition		30		55		70		77
Developing urban areas:								
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94
Substation Pad with 6" of Loose Washed Stone		49		69		79		84
Cultivated Agricultural Areas:								
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90
Total HSG Areas:			**4.69**					

Calculated Total Drainage Area: 4.69 Ac
Calculated Composite Curve Number: 60

Composite SCS Curve Number

PROJECT: Stonington
SCENARIO: Pre-development
DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 1B									Total Drainage Area: 10.54 Ac	
	Hydrologic Soil Group									
	A		B		C		D			
Cover Description	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN		
Open space (lawns, parks, golf courses, cemeteries, etc.):										
Poor condition (grass cover < 50%)		68		79		86		89		
Fair condition (grass cover 50% to 75%)		49		69		79		84		
Good condition (grass cover > 75%)		39		61		74		80		
Impervious areas:										
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98		
Paved streets and roads; curbs and storm sewers (excluding right-of-way)		98		98		98		98		
Paved streets and roads; open ditches (including R/W)		83		89		92		93		
Gravel streets and roads (including R/W)		76		85		89		91		
Dirt streets and roads (including R/W)		72		82		87		89		
Woods-grass combonation (orchard or tree farm)										
Fair hydrologic condition		43		65		76		82		
Good hydrologic condition		32		58		72		79		
Urban districts:										
Commercial and business		89		92		94		95		
Industrial		81		88		91		93		
Residential districts by average lot size:										
1/8 acre or less (town houses)		77		85		90		92		
1/4 acre		61		75		83		87		
1/3 acre		57		72		81		86		
1/2 acre		54		70		80		85		
1 acre		51		68		79		84		
2 acres		46		65		77		82		
Pasture, grassland or range:										
Poor hydrologic condition		68		79		86		89		
Fair hydrologic condition		49		69		79		84		
Good hydrologic condition		39		61		74		80		
Woods:										
Poor hydrologic condition		45		66		77		83		
Fair hydrologic condition		36	10.40	60		73	0.14	79		
Good hydrologic condition		30		55		70		77		
Developing urban areas:										
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94		
Substation Pad with 6" of Loose Washed Stone		49		69		79		84		
Cultivated Agricultural Areas:										
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90		
Total HSG Areas:			**10.40**				**0.14**			

Calculated Total Drainage Area: **10.54 Ac**
Calculated Composite Curve Number: **61**

Composite SCS Curve Number

PROJECT: Stonington
SCENARIO: Pre-development
DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 1C									Total Drainage Area: 8.58 Ac
	Hydrologic Soil Group								
	A		B		C		D		
Cover Description	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	
Open space (lawns, parks, golf courses, cemeteries, etc.):									
Poor condition (grass cover < 50%)		68		79		86		89	
Fair condition (grass cover 50% to 75%)		49		69		79		84	
Good condition (grass cover > 75%)		39		61		74		80	
Impervious areas:									
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98	
Paved streets and roads; curbs and storm sewers (excluding right-of-way)		98		98		98		98	
Paved streets and roads; open ditches (including R/W)		83		89		92		93	
Gravel streets and roads (including R/W)		76		85		89		91	
Dirt streets and roads (including R/W)		72		82		87		89	
Woods-grass combonation (orchard or tree farm)									
Fair hydrologic condition		43		65		76		82	
Good hydrologic condition		32		58		72		79	
Urban districts:									
Commercial and business		89		92		94		95	
Industrial		81		88		91		93	
Residential districts by average lot size:									
1/8 acre or less (town houses)		77		85		90		92	
1/4 acre		61		75		83		87	
1/3 acre		57		72		81		86	
1/2 acre		54		70		80		85	
1 acre		51		68		79		84	
2 acres		46		65		77		82	
Pasture, grassland or range:									
Poor hydrologic condition		68		79		86		89	
Fair hydrologic condition		49		69		79		84	
Good hydrologic condition		39		61		74		80	
Woods:									
Poor hydrologic condition		45		66		77		83	
Fair hydrologic condition		36	8.58	60		73		79	
Good hydrologic condition		30		55		70		77	
Developing urban areas:									
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94	
Substation Pad with 6" of Loose Washed Stone		49		69		79		84	
Cultivated Agricultural Areas:									
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90	
Total HSG Areas:			8.58						

Calculated Total Drainage Area: 8.58 Ac
Calculated Composite Curve Number: 60

Composite SCS Curve Number

PROJECT: Stonington
SCENARIO: Pre-development
DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 2									Total Drainage Area: 9.60 Ac	
	Hydrologic Soil Group									
	A		B		C		D			
Cover Description	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN		
Open space (lawns, parks, golf courses, cemeteries, etc.):										
Poor condition (grass cover < 50%)		68		79		86		89		
Fair condition (grass cover 50% to 75%)		49		69		79		84		
Good condition (grass cover > 75%)		39		61		74		80		
Impervious areas:										
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98		
Paved streets and roads; curbs and storm sewers (excluding		98		98		98		98		
Paved streets and roads; open ditches (including R/W)		83		89		92		93		
Gravel streets and roads (including R/W)		76		85		89		91		
Dirt streets and roads (including R/W)		72		82		87		89		
Woods-grass combonation (orchard or tree farm)										
Fair hydrologic condition		43		65		76		82		
Good hydrologic condition		32		58		72		79		
Urban districts:										
Commercial and business		89		92		94		95		
Industrial		81		88		91		93		
Residential districts by average lot size:										
1/8 acre or less (town houses)		77		85		90		92		
1/4 acre		61		75		83		87		
1/3 acre		57		72		81		86		
1/2 acre		54		70		80		85		
1 acre		51		68		79		84		
2 acres		46		65		77		82		
Pasture, grassland or range:										
Poor hydrologic condition		68		79		86		89		
Fair hydrologic condition		49		69		79		84		
Good hydrologic condition		39		61		74		80		
Woods:										
Poor hydrologic condition		45		66		77		83		
Fair hydrologic condition		36	4.87	60	4.28	73	0.45	79		
Good hydrologic condition		30		55		70		77		
Developing urban areas:										
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94		
Substation Pad with 6" of Loose Washed Stone		49		69		79		84		
Cultivated Agricultural Areas:										
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90		
Total HSG Areas:			**4.87**		**4.28**		**0.45**			

Calculated Total Drainage Area: 9.60 Ac
Calculated Composite Curve Number: 67

Composite SCS Curve Number

PROJECT: Stonington
SCENARIO: Pre-development
DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 3									Total Drainage Area: 4.12 Ac	
	Hydrologic Soil Group									
	A		B		C		D			
Cover Description	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN		
Open space (lawns, parks, golf courses, cemeteries, etc.):										
Poor condition (grass cover < 50%)		68		79		86		89		
Fair condition (grass cover 50% to 75%)		49		69		79		84		
Good condition (grass cover > 75%)		39		61		74		80		
Impervious areas:										
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98		
Paved streets and roads; curbs and storm sewers (excluding		98		98		98		98		
Paved streets and roads; open ditches (including R/W)		83		89		92		93		
Gravel streets and roads (including R/W)		76		85		89		91		
Dirt streets and roads (including R/W)		72		82		87		89		
Woods-grass combonation (orchard or tree farm)										
Fair hydrologic condition		43		65		76		82		
Good hydrologic condition		32		58		72		79		
Urban districts:										
Commercial and business		89		92		94		95		
Industrial		81		88		91		93		
Residential districts by average lot size:										
1/8 acre or less (town houses)		77		85		90		92		
1/4 acre		61		75		83		87		
1/3 acre		57		72		81		86		
1/2 acre		54		70		80		85		
1 acre		51		68		79		84		
2 acres		46		65		77		82		
Pasture, grassland or range:										
Poor hydrologic condition		68		79		86		89		
Fair hydrologic condition		49		69		79		84		
Good hydrologic condition		39		61		74		80		
Woods:										
Poor hydrologic condition		45		66		77		83		
Fair hydrologic condition		36	2.96	60	1.16	73		79		
Good hydrologic condition		30		55		70		77		
Developing urban areas:										
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94		
Substation Pad with 6" of Loose Washed Stone		49		69		79		84		
Cultivated Agricultural Areas:										
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90		
Total HSG Areas:			**2.96**		**1.16**					

Calculated Total Drainage Area: 4.12 Ac
Calculated Composite Curve Number: 64

Composite SCS Curve Number

PROJECT: Stonington
SCENARIO: Pre-development
DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 4							Total Drainage Area: 9.02 Ac	
	Hydrologic Soil Group							
	A		B		C		D	
Cover Description	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN
Open space (lawns, parks, golf courses, cemeteries, etc.):								
Poor condition (grass cover < 50%)		68		79		86		89
Fair condition (grass cover 50% to 75%)		49		69		79		84
Good condition (grass cover > 75%)		39		61		74		80
Impervious areas:								
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98
Paved streets and roads; curbs and storm sewers (excluding right-of-way)		98		98		98		98
Paved streets and roads; open ditches (including R/W)		83		89		92		93
Gravel streets and roads (including R/W)		76		85		89		91
Dirt streets and roads (including R/W)		72		82		87		89
Woods-grass combonation (orchard or tree farm)								
Fair hydrologic condition		43		65		76		82
Good hydrologic condition		32		58		72		79
Urban districts:								
Commercial and business		89		92		94		95
Industrial		81		88		91		93
Residential districts by average lot size:								
1/8 acre or less (town houses)		77		85		90		92
1/4 acre		61		75		83		87
1/3 acre		57		72		81		86
1/2 acre		54		70		80		85
1 acre		51		68		79		84
2 acres		46		65		77		82
Pasture, grassland or range:								
Poor hydrologic condition		68		79		86		89
Fair hydrologic condition		49		69		79		84
Good hydrologic condition		39		61		74		80
Woods:								
Poor hydrologic condition		45		66		77		83
Fair hydrologic condition		36	7.62	60		73	1.40	79
Good hydrologic condition		30		55		70		77
Developing urban areas:								
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94
Substation Pad with 6" of Loose Washed Stone		49		69		79		84
Cultivated Agricultural Areas:								
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90
Total HSG Areas:			**7.62**				**1.40**	

Calculated Total Drainage Area: **9.02 Ac**
Calculated Composite Curve Number: **63**

Composite SCS Curve Number

PROJECT: Stonington
SCENARIO: Pre-development
DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 5									Total Drainage Area: 15.22 Ac	
	Hydrologic Soil Group									
	A		B		C		D			
Cover Description	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN		
Open space (lawns, parks, golf courses, cemeteries, etc.):										
Poor condition (grass cover < 50%)		68		79		86		89		
Fair condition (grass cover 50% to 75%)		49		69		79		84		
Good condition (grass cover > 75%)		39		61		74		80		
Impervious areas:										
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98		
Paved streets and roads; curbs and storm sewers (excluding right-of-way)		98		98		98		98		
Paved streets and roads; open ditches (including R/W)		83		89		92		93		
Gravel streets and roads (including R/W)		76		85		89		91		
Dirt streets and roads (including R/W)		72		82		87		89		
Woods-grass combonation (orchard or tree farm)										
Fair hydrologic condition		43		65		76		82		
Good hydrologic condition		32		58		72		79		
Urban districts:										
Commercial and business		89		92		94		95		
Industrial		81		88		91		93		
Residential districts by average lot size:										
1/8 acre or less (town houses)		77		85		90		92		
1/4 acre		61		75		83		87		
1/3 acre		57		72		81		86		
1/2 acre		54		70		80		85		
1 acre		51		68		79		84		
2 acres		46		65		77		82		
Pasture, grassland or range:										
Poor hydrologic condition		68		79		86		89		
Fair hydrologic condition		49		69		79		84		
Good hydrologic condition		39		61		74		80		
Woods:										
Poor hydrologic condition		45		66		77		83		
Fair hydrologic condition	0.97	36	1.96	60	10.72	73	1.57	79		
Good hydrologic condition		30		55		70		77		
Developing urban areas:										
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94		
Substation Pad with 6" of Loose Washed Stone		49		69		79		84		
Cultivated Agricultural Areas:										
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90		
Total HSG Areas:	**0.97**		**1.96**		**10.72**		**1.57**			

Calculated Total Drainage Area: **15.22 Ac**
Calculated Composite Curve Number: **70**

Composite SCS Curve Number

PROJECT: Stonington
SCENARIO: Post-development
DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 1A									Total Drainage Area: 4.69 Ac	
	Hydrologic Soil Group									
	A		B		C		D			
Cover Description	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN		
Open space (lawns, parks, golf courses, cemeteries, etc.):										
Poor condition (grass cover < 50%)		68		79		86		89		
Fair condition (grass cover 50% to 75%)		49		69		79		84		
Good condition (grass cover > 75%)		39		61	4.25	74		80		
Impervious areas:										
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98		
Paved streets and roads; curbs and storm sewers (excluding		98		98		98		98		
Paved streets and roads; open ditches (including R/W)		83		89		92		93		
Gravel streets and roads (including R/W)		76		85		89		91		
Dirt streets and roads (including R/W)		72		82		87		89		
Woods-grass combonation (orchard or tree farm)										
Fair hydrologic condition		43		65		76		82		
Good hydrologic condition		32		58		72		79		
Urban districts:										
Commercial and business		89		92		94		95		
Industrial		81		88		91		93		
Residential districts by average lot size:										
1/8 acre or less (town houses)		77		85		90		92		
1/4 acre		61		75		83		87		
1/3 acre		57		72		81		86		
1/2 acre		54		70		80		85		
1 acre		51		68		79		84		
2 acres		46		65		77		82		
Pasture, grassland or range:										
Poor hydrologic condition		68		79		86		89		
Fair hydrologic condition		49		69		79		84		
Good hydrologic condition		39		61		74		80		
Woods:										
Poor hydrologic condition		45		66		77		83		
Fair hydrologic condition		36	0.44	60		73		79		
Good hydrologic condition		30		55		70		77		
Developing urban areas:										
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94		
Substation Pad with 6" of Loose Washed Stone		49		69		79		84		
Cultivated Agricultural Areas:										
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90		
Total HSG Areas:			**0.44**		**4.25**					

Calculated Total Drainage Area: **4.69 Ac**
Calculated Composite Curve Number: **73**

Composite SCS Curve Number

PROJECT: Stonington
SCENARIO: Post-development
DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 1B									Total Drainage Area: 10.54 Ac	
	Hydrologic Soil Group									
	A		B		C		D			
Cover Description	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN		
Open space (lawns, parks, golf courses, cemeteries, etc.):										
Poor condition (grass cover < 50%)		68		79		86		89		
Fair condition (grass cover 50% to 75%)		49		69		79		84		
Good condition (grass cover > 75%)		39		61	7.79	74		80		
Impervious areas:										
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98		
Paved streets and roads; curbs and storm sewers (excluding right-of-way)		98		98		98		98		
Paved streets and roads; open ditches (including R/W)		83		89		92		93		
Gravel streets and roads (including R/W)		76		85		89		91		
Dirt streets and roads (including R/W)		72		82		87		89		
Woods-grass combonation (orchard or tree farm)										
Fair hydrologic condition		43		65		76		82		
Good hydrologic condition		32		58		72		79		
Urban districts:										
Commercial and business		89		92		94		95		
Industrial		81		88		91		93		
Residential districts by average lot size:										
1/8 acre or less (town houses)		77		85		90		92		
1/4 acre		61		75		83		87		
1/3 acre		57		72		81		86		
1/2 acre		54		70		80		85		
1 acre		51		68		79		84		
2 acres		46		65		77		82		
Pasture, grassland or range:										
Poor hydrologic condition		68		79		86		89		
Fair hydrologic condition		49		69		79		84		
Good hydrologic condition		39		61		74		80		
Woods:										
Poor hydrologic condition		45		66		77		83		
Fair hydrologic condition		36	2.61	60		73	0.14	79		
Good hydrologic condition		30		55		70		77		
Developing urban areas:										
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94		
Substation Pad with 6" of Loose Washed Stone		49		69		79		84		
Cultivated Agricultural Areas:										
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90		
Total HSG Areas:			**2.61**		**7.79**		**0.14**			

Calculated Total Drainage Area: **10.54 Ac**
Calculated Composite Curve Number: **71**

Composite SCS Curve Number

PROJECT: Stonington
SCENARIO: Post-development
DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 1C							Total Drainage Area: 8.58 Ac	
	Hydrologic Soil Group							
	A		B		C		D	
Cover Description	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN
Open space (lawns, parks, golf courses, cemeteries, etc.):								
Poor condition (grass cover < 50%)		68		79		86		89
Fair condition (grass cover 50% to 75%)		49		69		79		84
Good condition (grass cover > 75%)		39		61	5.38	74		80
Impervious areas:								
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98
Paved streets and roads; curbs and storm sewers (excluding right-of-way)		98		98		98		98
Paved streets and roads; open ditches (including R/W)		83		89		92		93
Gravel streets and roads (including R/W)		76		85		89		91
Dirt streets and roads (including R/W)		72		82		87		89
Woods-grass combonation (orchard or tree farm)								
Fair hydrologic condition		43		65		76		82
Good hydrologic condition		32		58		72		79
Urban districts:								
Commercial and business		89		92		94		95
Industrial		81		88		91		93
Residential districts by average lot size:								
1/8 acre or less (town houses)		77		85		90		92
1/4 acre		61		75		83		87
1/3 acre		57		72		81		86
1/2 acre		54		70		80		85
1 acre		51		68		79		84
2 acres		46		65		77		82
Pasture, grassland or range:								
Poor hydrologic condition		68		79		86		89
Fair hydrologic condition		49		69		79		84
Good hydrologic condition		39		61		74		80
Woods:								
Poor hydrologic condition		45		66		77		83
Fair hydrologic condition		36	3.20	60		73		79
Good hydrologic condition		30		55		70		77
Developing urban areas:								
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94
Substation Pad with 6" of Loose Washed Stone		49		69		79		84
Cultivated Agricultural Areas:								
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90
Total HSG Areas:			**3.20**		**5.38**			

Calculated Total Drainage Area: **8.58 Ac**
Calculated Composite Curve Number: **69**

Composite SCS Curve Number

PROJECT: Stonington
SCENARIO: Post-development
DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 2									Total Drainage Area: 9.60 Ac	
	Hydrologic Soil Group									
	A		B		C		D			
Cover Description	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN		
Open space (lawns, parks, golf courses, cemeteries, etc.):										
Poor condition (grass cover < 50%)		68		79		86		89		
Fair condition (grass cover 50% to 75%)		49		69		79		84		
Good condition (grass cover > 75%)		39		61	3.45	74	2.56	80		
Impervious areas:										
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98		
Paved streets and roads; curbs and storm sewers (excluding		98		98		98		98		
Paved streets and roads; open ditches (including R/W)		83		89		92		93		
Gravel streets and roads (including R/W)		76		85		89		91		
Dirt streets and roads (including R/W)		72		82		87		89		
Woods-grass combonation (orchard or tree farm)										
Fair hydrologic condition		43		65		76		82		
Good hydrologic condition		32		58		72		79		
Urban districts:										
Commercial and business		89		92		94		95		
Industrial		81		88		91		93		
Residential districts by average lot size:										
1/8 acre or less (town houses)		77		85		90		92		
1/4 acre		61		75		83		87		
1/3 acre		57		72		81		86		
1/2 acre		54		70		80		85		
1 acre		51		68		79		84		
2 acres		46		65		77		82		
Pasture, grassland or range:										
Poor hydrologic condition		68		79		86		89		
Fair hydrologic condition		49		69		79		84		
Good hydrologic condition		39		61		74		80		
Woods:										
Poor hydrologic condition		45		66		77		83		
Fair hydrologic condition		36	1.42	60	1.95	73	0.22	79		
Good hydrologic condition		30		55		70		77		
Developing urban areas:										
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94		
Substation Pad with 6" of Loose Washed Stone		49		69		79		84		
Cultivated Agricultural Areas:										
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90		
Total HSG Areas:			**1.42**		**5.40**		**2.78**			

Calculated Total Drainage Area: 9.60 Ac
Calculated Composite Curve Number: 74

Composite SCS Curve Number

PROJECT: Stonington
SCENARIO: Post-development
DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 3									Total Drainage Area: 4.12 Ac	
	Hydrologic Soil Group									
	A		B		C		D			
Cover Description	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN		
Open space (lawns, parks, golf courses, cemeteries, etc.):										
Poor condition (grass cover < 50%)		68		79		86		89		
Fair condition (grass cover 50% to 75%)		49		69		79		84		
Good condition (grass cover > 75%)		39		61	2.15	74	0.68	80		
Impervious areas:										
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98		
Paved streets and roads; curbs and storm sewers (excluding		98		98		98		98		
Paved streets and roads; open ditches (including R/W)		83		89		92		93		
Gravel streets and roads (including R/W)		76		85		89		91		
Dirt streets and roads (including R/W)		72		82		87		89		
Woods-grass combonation (orchard or tree farm)										
Fair hydrologic condition		43		65		76		82		
Good hydrologic condition		32		58		72		79		
Urban districts:										
Commercial and business		89		92		94		95		
Industrial		81		88		91		93		
Residential districts by average lot size:										
1/8 acre or less (town houses)		77		85		90		92		
1/4 acre		61		75		83		87		
1/3 acre		57		72		81		86		
1/2 acre		54		70		80		85		
1 acre		51		68		79		84		
2 acres		46		65		77		82		
Pasture, grassland or range:										
Poor hydrologic condition		68		79		86		89		
Fair hydrologic condition		49		69		79		84		
Good hydrologic condition		39		61		74		80		
Woods:										
Poor hydrologic condition		45		66		77		83		
Fair hydrologic condition		36	0.81	60	0.48	73		79		
Good hydrologic condition		30		55		70		77		
Developing urban areas:										
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94		
Substation Pad with 6" of Loose Washed Stone		49		69		79		84		
Cultivated Agricultural Areas:										
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90		
Total HSG Areas:			**0.81**		**2.63**		**0.68**			

Calculated Total Drainage Area: 4.12 Ac
Calculated Composite Curve Number: 73

Composite SCS Curve Number

PROJECT: Stonington
SCENARIO: Post-development
DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 4							Total Drainage Area: 9.02 Ac	
	Hydrologic Soil Group							
	A		B		C		D	
Cover Description	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN
Open space (lawns, parks, golf courses, cemeteries, etc.):								
Poor condition (grass cover < 50%)		68		79		86		89
Fair condition (grass cover 50% to 75%)		49		69		79		84
Good condition (grass cover > 75%)		39		61	5.84	74	1.11	80
Impervious areas:								
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98
Paved streets and roads; curbs and storm sewers (excluding right-of-way)		98		98		98		98
Paved streets and roads; open ditches (including R/W)		83		89		92		93
Gravel streets and roads (including R/W)		76		85		89		91
Dirt streets and roads (including R/W)		72		82		87		89
Woods-grass combonation (orchard or tree farm)								
Fair hydrologic condition		43		65		76		82
Good hydrologic condition		32		58		72		79
Urban districts:								
Commercial and business		89		92		94		95
Industrial		81		88		91		93
Residential districts by average lot size:								
1/8 acre or less (town houses)		77		85		90		92
1/4 acre		61		75		83		87
1/3 acre		57		72		81		86
1/2 acre		54		70		80		85
1 acre		51		68		79		84
2 acres		46		65		77		82
Pasture, grassland or range:								
Poor hydrologic condition		68		79		86		89
Fair hydrologic condition		49		69		79		84
Good hydrologic condition		39		61		74		80
Woods:								
Poor hydrologic condition		45		66		77		83
Fair hydrologic condition		36	1.78	60		73	0.29	79
Good hydrologic condition		30		55		70		77
Developing urban areas:								
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94
Substation Pad with 6" of Loose Washed Stone		49		69		79		84
Cultivated Agricultural Areas:								
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90
Total HSG Areas:			**1.78**		**5.84**		**1.40**	

Calculated Total Drainage Area: **9.02 Ac**
Calculated Composite Curve Number: **73**

Composite SCS Curve Number

PROJECT: Stonington
SCENARIO: Post-development
DATE: 8/13/2020
PREPARED BY: Rachel Sills

Drainage Area: Basin 5							Total Drainage Area: 15.22 Ac	
	Hydrologic Soil Group							
	A		B		C		D	
Cover Description	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN	Area (Ac)	CN
Open space (lawns, parks, golf courses, cemeteries, etc.):								
Poor condition (grass cover < 50%)		68		79		86		89
Fair condition (grass cover 50% to 75%)		49		69		79		84
Good condition (grass cover > 75%)		39	0.68	61	1.22	74	10.38	80
Impervious areas:								
Paved parking lots, roofs, driveways, etc. (excluding R/W)		98		98		98		98
Paved streets and roads; curbs and storm sewers (excluding right-of-way)		98		98		98		98
Paved streets and roads; open ditches (including R/W)		83		89		92		93
Gravel streets and roads (including R/W)		76		85		89		91
Dirt streets and roads (including R/W)		72		82		87		89
Woods-grass combonation (orchard or tree farm)								
Fair hydrologic condition		43		65		76		82
Good hydrologic condition		32		58		72		79
Urban districts:								
Commercial and business		89		92		94		95
Industrial		81		88		91		93
Residential districts by average lot size:								
1/8 acre or less (town houses)		77		85		90		92
1/4 acre		61		75		83		87
1/3 acre		57		72		81		86
1/2 acre		54		70		80		85
1 acre		51		68		79		84
2 acres		46		65		77		82
Pasture, grassland or range:								
Poor hydrologic condition		68		79		86		89
Fair hydrologic condition		49		69		79		84
Good hydrologic condition		39		61		74		80
Woods:								
Poor hydrologic condition		45		66		77		83
Fair hydrologic condition	0.37	36	0.66	60	0.82	73	1.09	79
Good hydrologic condition		30		55		70		77
Developing urban areas:								
Newly graded areas (pervious areas only, no vegetation)		77		86		91		94
Substation Pad with 6" of Loose Washed Stone		49		69		79		84
Cultivated Agricultural Areas:								
Fallow Bare Soil Crop residue Cover Good Hydrolic Condition		74		83		88		90
Total HSG Areas:	**0.37**		**1.34**		**2.04**		**11.47**	

Calculated Total Drainage Area: **15.22 Ac**
Calculated Composite Curve Number: **77**

Appendix F

Time of Concentration

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information	
DRAINAGE AREA ID:	1A
TOTAL BASIN LENGTH:	645.0 ft
TOTAL ELEVATION UP:	140.10
TOTAL ELEVATION DOWN:	117.00
TOTAL ACRES:	4.63

Drainage Area Tc Summary Data

Flow Type	Length (ft)	Elev. Diff.	Tc
Sheet Flow	295.0	5.10	44.3 mins.
Shallow Concentrated Flow	350.0	18.00	1.6 mins.
Channel Flow - Rectangular	0.0	0.00	0.0 mins.
Channel Flow - Triangular	0.0	0.00	0.0 mins.
Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
Channel Flow - Circular	0.0	0.00	0.0 mins.
Basin Totals	**645.0**	**23.10**	**45.9 mins.**

NOTES:
This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Grass		
Manning's "n"	0.33		
2- Year, 24- Hr. Rain Fall (In)	3.51		
Flow Length (ft)	295		
Elevation Up (ft)	140.10		
Elevation Down (ft)	135.00		
Land Slope (ft/ft)	0.017		
Time Of Concentration (Mins)	44.28		
Total Sheet Flow Tc (Minutes):			**44.3 min.**

2. SHALLOW CONCENTRATED FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Unpaved		
Flow Length (ft)	350.0 ft		
Elevation Up (ft)	135.00		
Elevation Down (ft)	117.00		
Watercourse Slope (ft/ft)	0.051		
Average Velocity (ft/Sec)	3.7		
Time Of Concentration (Mins)	1.59		
Total Shallow Concentrated Tc (Mins):			**1.6 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Rectangular Channel Tc (Mins):		**0.0 mins.**

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Triangular Channel Tc		**0.0 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Trapezoidal Channel Tc		**0.0 min.**

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Circular Channel Tc (Mins):		**0.0 min.**

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins):	**45.9 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information	
DRAINAGE AREA ID:	1B
TOTAL BASIN LENGTH:	895.0 ft
TOTAL ELEVATION UP:	140.60
TOTAL ELEVATION DOWN:	106.00
TOTAL ACRES:	7.97

Drainage Area Tc Summary Data

Flow Type	Length (ft)	Elev. Diff.	Tc
Sheet Flow	295.0	5.60	42.6 mins.
Shallow Concentrated Flow	600.0	29.00	2.8 mins.
Channel Flow - Rectangular	0.0	0.00	0.0 mins.
Channel Flow - Triangular	0.0	0.00	0.0 mins.
Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
Channel Flow - Circular	0.0	0.00	0.0 mins.
Basin Totals	**895.0**	**34.60**	**45.5 mins.**

NOTES:
This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Grass		
Manning's "n"	0.33		
2- Year, 24- Hr. Rain Fall (In)	3.51		
Flow Length (ft)	295		
Elevation Up (ft)	140.60		
Elevation Down (ft)	135.00		
Land Slope (ft/ft)	0.019		
Time Of Concentration (Mins)	42.65		
Total Sheet Flow Tc (Minutes):			**42.6 min.**

2. SHALLOW CONCENTRATED FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Unpaved		
Flow Length (ft)	600.0 ft		
Elevation Up (ft)	135.00		
Elevation Down (ft)	106.00		
Watercourse Slope (ft/ft)	0.048		
Average Velocity (ft/Sec)	3.5		
Time Of Concentration (Mins)	2.82		
Total Shallow Concentrated Tc (Mins):			**2.8 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Rectangular Channel Tc (Mins):		**0.0 mins.**

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Triangular Channel Tc		**0.0 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Trapezoidal Channel Tc		**0.0 min.**

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Circular Channel Tc (Mins):		**0.0 min.**

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins):	**45.5 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information	
DRAINAGE AREA ID:	1C
TOTAL BASIN LENGTH:	547.4 ft
TOTAL ELEVATION UP:	142.20
TOTAL ELEVATION DOWN:	123.60
TOTAL ACRES:	28.08

Drainage Area Tc Summary Data

Flow Type	Length (ft)	Elev. Diff.	Tc
Sheet Flow	259.1	5.60	36.5 mins.
Shallow Concentrated Flow	288.3	13.00	1.4 mins.
Channel Flow - Rectangular	0.0	0.00	0.0 mins.
Channel Flow - Triangular	0.0	0.00	0.0 mins.
Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
Channel Flow - Circular	0.0	0.00	0.0 mins.
Basin Totals	**547.4**	**18.60**	**37.9 mins.**

NOTES:
This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Grass		
Manning's "n"	0.33		
2- Year, 24- Hr. Rain Fall (In)	3.51		
Flow Length (ft)	259.1		
Elevation Up (ft)	142.20		
Elevation Down (ft)	136.60		
Land Slope (ft/ft)	0.022		
Time Of Concentration (Mins)	36.50		
Total Sheet Flow Tc (Minutes):			**36.5 min.**

2. SHALLOW CONCENTRATED FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Unpaved		
Flow Length (ft)	288.3 ft		
Elevation Up (ft)	136.60		
Elevation Down (ft)	123.60		
Watercourse Slope (ft/ft)	0.045		
Average Velocity (ft/Sec)	3.4		
Time Of Concentration (Mins)	1.40		
Total Shallow Concentrated Tc (Mins):			**1.4 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									

Total Rectangular Channel Tc (Mins): **0.0 mins.**

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									

Total Triangular Channel Tc **0.0 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Trapezoidal Channel Tc		**0.0 min.**

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Circular Channel Tc (Mins):		**0.0 min.**

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins):	**37.9 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information	
DRAINAGE AREA ID:	2
TOTAL BASIN LENGTH:	1129.9 ft
TOTAL ELEVATION UP:	215.10
TOTAL ELEVATION DOWN:	132.90
TOTAL ACRES:	28.08

Drainage Area Tc Summary Data

Flow Type	Length (ft)	Elev. Diff.	Tc
Sheet Flow	295.0	6.40	40.4 mins.
Shallow Concentrated Flow	834.9	75.80	2.9 mins.
Channel Flow - Rectangular	0.0	0.00	0.0 mins.
Channel Flow - Triangular	0.0	0.00	0.0 mins.
Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
Channel Flow - Circular	0.0	0.00	0.0 mins.
Basin Totals	**1129.9**	**82.20**	**43.3 mins.**

NOTES:
This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Grass		
Manning's "n"	0.33		
2- Year, 24- Hr. Rain Fall (In)	3.51		
Flow Length (ft)	295		
Elevation Up (ft)	215.10		
Elevation Down (ft)	208.70		
Land Slope (ft/ft)	0.022		
Time Of Concentration (Mins)	40.43		
Total Sheet Flow Tc (Minutes):			**40.4 min.**

2. SHALLOW CONCENTRATED FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Unpaved		
Flow Length (ft)	834.9 ft		
Elevation Up (ft)	208.70		
Elevation Down (ft)	132.90		
Watercourse Slope (ft/ft)	0.091		
Average Velocity (ft/Sec)	4.9		
Time Of Concentration (Mins)	2.86		
Total Shallow Concentrated Tc (Mins):			**2.9 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Rectangular Channel Tc (Mins):		**0.0 mins.**

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Triangular Channel Tc		**0.0 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Trapezoidal Channel Tc		**0.0 min.**

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Circular Channel Tc (Mins):		**0.0 min.**

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins):	**43.3 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information	
DRAINAGE AREA ID:	3
TOTAL BASIN LENGTH:	784.0 ft
TOTAL ELEVATION UP:	213.70
TOTAL ELEVATION DOWN:	145.60
TOTAL ACRES:	28.08

Drainage Area Tc Summary Data

Flow Type	Length (ft)	Elev. Diff.	Tc
Sheet Flow	300.0	23.40	24.6 mins.
Shallow Concentrated Flow	484.0	44.70	1.6 mins.
Channel Flow - Rectangular	0.0	0.00	0.0 mins.
Channel Flow - Triangular	0.0	0.00	0.0 mins.
Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
Channel Flow - Circular	0.0	0.00	0.0 mins.
Basin Totals	**784.0**	**68.10**	**26.2 mins.**

NOTES:
This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Grass		
Manning's "n"	0.33		
2- Year, 24- Hr. Rain Fall (In)	3.51		
Flow Length (ft)	300		
Elevation Up (ft)	213.70		
Elevation Down (ft)	190.30		
Land Slope (ft/ft)	0.078		
Time Of Concentration (Mins)	24.56		
Total Sheet Flow Tc (Minutes):			**24.6 min.**

2. SHALLOW CONCENTRATED FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Unpaved		
Flow Length (ft)	484.0 ft		
Elevation Up (ft)	190.30		
Elevation Down (ft)	145.60		
Watercourse Slope (ft/ft)	0.092		
Average Velocity (ft/Sec)	4.9		
Time Of Concentration (Mins)	1.65		
Total Shallow Concentrated Tc (Mins):			**1.6 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									

Total Rectangular Channel Tc (Mins): **0.0 mins.**

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									

Total Triangular Channel Tc **0.0 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Trapezoidal Channel Tc		**0.0 min.**

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Circular Channel Tc (Mins):		**0.0 min.**

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins):	**26.2 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information	
DRAINAGE AREA ID:	4
TOTAL BASIN LENGTH:	758.2 ft
TOTAL ELEVATION UP:	163.80
TOTAL ELEVATION DOWN:	120.50
TOTAL ACRES:	28.08

Drainage Area Tc Summary Data

Flow Type	Length (ft)	Elev. Diff.	Tc
Sheet Flow	300.0	27.20	23.1 mins.
Shallow Concentrated Flow	458.2	16.10	2.5 mins.
Channel Flow - Rectangular	0.0	0.00	0.0 mins.
Channel Flow - Triangular	0.0	0.00	0.0 mins.
Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
Channel Flow - Circular	0.0	0.00	0.0 mins.
Basin Totals	**758.2**	**43.30**	**25.7 mins.**

NOTES:
This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Grass		
Manning's "n"	0.33		
2- Year, 24- Hr. Rain Fall (In)	3.51		
Flow Length (ft)	300		
Elevation Up (ft)	163.80		
Elevation Down (ft)	136.60		
Land Slope (ft/ft)	0.091		
Time Of Concentration (Mins)	23.13		
Total Sheet Flow Tc (Minutes):			**23.1 min.**

2. SHALLOW CONCENTRATED FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Unpaved		
Flow Length (ft)	458.2 ft		
Elevation Up (ft)	136.60		
Elevation Down (ft)	120.50		
Watercourse Slope (ft/ft)	0.035		
Average Velocity (ft/Sec)	3.0		
Time Of Concentration (Mins)	2.53		
Total Shallow Concentrated Tc (Mins):			**2.5 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									

Total Rectangular Channel Tc (Mins): 0.0 mins.

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									

Total Triangular Channel Tc 0.0 min.

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Trapezoidal Channel Tc		**0.0 min.**

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Circular Channel Tc (Mins):		**0.0 min.**

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins):	**25.7 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information	
DRAINAGE AREA ID:	5
TOTAL BASIN LENGTH:	1101.2 ft
TOTAL ELEVATION UP:	183.70
TOTAL ELEVATION DOWN:	111.80
TOTAL ACRES:	28.08

Drainage Area Tc Summary Data

Flow Type	Length (ft)	Elev. Diff.	Tc
Sheet Flow	300.0	15.60	28.9 mins.
Shallow Concentrated Flow	801.2	56.30	3.1 mins.
Channel Flow - Rectangular	0.0	0.00	0.0 mins.
Channel Flow - Triangular	0.0	0.00	0.0 mins.
Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
Channel Flow - Circular	0.0	0.00	0.0 mins.
Basin Totals	**1101.2**	**71.90**	**32.0 mins.**

NOTES:
This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Grass		
Manning's "n"	0.33		
2- Year, 24- Hr. Rain Fall (In)	3.51		
Flow Length (ft)	300		
Elevation Up (ft)	183.70		
Elevation Down (ft)	168.10		
Land Slope (ft/ft)	0.052		
Time Of Concentration (Mins)	28.89		
Total Sheet Flow Tc (Minutes):			**28.9 min.**

2. SHALLOW CONCENTRATED FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Unpaved		
Flow Length (ft)	801.2 ft		
Elevation Up (ft)	168.10		
Elevation Down (ft)	111.80		
Watercourse Slope (ft/ft)	0.070		
Average Velocity (ft/Sec)	4.3		
Time Of Concentration (Mins)	3.12		
Total Shallow Concentrated Tc (Mins):			**3.1 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									

Total Rectangular Channel Tc (Mins): **0.0 mins.**

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									

Total Triangular Channel Tc **0.0 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Existing
DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Trapezoidal Channel Tc		**0.0 min.**

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Circular Channel Tc (Mins):		**0.0 min.**

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins):	**32.0 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information	
DRAINAGE AREA ID:	1A
TOTAL BASIN LENGTH:	645.0 ft
TOTAL ELEVATION UP:	140.10
TOTAL ELEVATION DOWN:	117.00
TOTAL ACRES:	4.63

Drainage Area Tc Summary Data

Flow Type	Length (ft)	Elev. Diff.	Tc
Sheet Flow	295.0	5.10	41.0 mins.
Shallow Concentrated Flow	350.0	18.00	1.6 mins.
Channel Flow - Rectangular	0.0	0.00	0.0 mins.
Channel Flow - Triangular	0.0	0.00	0.0 mins.
Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
Channel Flow - Circular	0.0	0.00	0.0 mins.
Basin Totals	**645.0**	**23.10**	**42.6 mins.**

NOTES:
This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Grass		
Manning's "n"	0.30		
2- Year, 24- Hr. Rain Fall (In)	3.51		
Flow Length (ft)	295		
Elevation Up (ft)	140.10		
Elevation Down (ft)	135.00		
Land Slope (ft/ft)	0.017		
Time Of Concentration (Mins)	41.03		
Total Sheet Flow Tc (Minutes):			**41.0 min.**

2. SHALLOW CONCENTRATED FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Unpaved		
Flow Length (ft)	350.0 ft		
Elevation Up (ft)	135.00		
Elevation Down (ft)	117.00		
Watercourse Slope (ft/ft)	0.051		
Average Velocity (ft/Sec)	3.7		
Time Of Concentration (Mins)	1.59		
Total Shallow Concentrated Tc (Mins):			**1.6 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Rectangular Channel Tc (Mins):		**0.0 mins.**

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Triangular Channel Tc		**0.0 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Trapezoidal Channel Tc		**0.0 min.**

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Circular Channel Tc (Mins):		**0.0 min.**

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins):	**42.6 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information	
DRAINAGE AREA ID:	1B
TOTAL BASIN LENGTH:	895.0 ft
TOTAL ELEVATION UP:	140.60
TOTAL ELEVATION DOWN:	106.00
TOTAL ACRES:	7.97

Drainage Area Tc Summary Data

Flow Type	Length (ft)	Elev. Diff.	Tc
Sheet Flow	295.0	5.60	39.5 mins.
Shallow Concentrated Flow	600.0	29.00	2.8 mins.
Channel Flow - Rectangular	0.0	0.00	0.0 mins.
Channel Flow - Triangular	0.0	0.00	0.0 mins.
Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
Channel Flow - Circular	0.0	0.00	0.0 mins.
Basin Totals	**895.0**	**34.60**	**42.3 mins.**

NOTES:
This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Grass		
Manning's "n"	0.30		
2- Year, 24- Hr. Rain Fall (In)	3.51		
Flow Length (ft)	295		
Elevation Up (ft)	140.60		
Elevation Down (ft)	135.00		
Land Slope (ft/ft)	0.019		
Time Of Concentration (Mins)	39.52		
Total Sheet Flow Tc (Minutes):			**39.5 min.**

2. SHALLOW CONCENTRATED FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Unpaved		
Flow Length (ft)	600.0 ft		
Elevation Up (ft)	135.00		
Elevation Down (ft)	106.00		
Watercourse Slope (ft/ft)	0.048		
Average Velocity (ft/Sec)	3.5		
Time Of Concentration (Mins)	2.82		
Total Shallow Concentrated Tc (Mins):			**2.8 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Rectangular Channel Tc (Mins):		**0.0 mins.**

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
								Total Triangular Channel Tc	**0.0 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Trapezoidal Channel Tc		**0.0 min.**

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Circular Channel Tc (Mins):		**0.0 min.**

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins):	**42.3 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information	
DRAINAGE AREA ID:	1C
TOTAL BASIN LENGTH:	547.4 ft
TOTAL ELEVATION UP:	142.20
TOTAL ELEVATION DOWN:	123.60
TOTAL ACRES:	28.08

Drainage Area Tc Summary Data

Flow Type	Length (ft)	Elev. Diff.	Tc
Sheet Flow	259.1	5.60	33.8 mins.
Shallow Concentrated Flow	288.3	13.00	1.4 mins.
Channel Flow - Rectangular	0.0	0.00	0.0 mins.
Channel Flow - Triangular	0.0	0.00	0.0 mins.
Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
Channel Flow - Circular	0.0	0.00	0.0 mins.
Basin Totals	**547.4**	**18.60**	**35.2 mins.**

NOTES:
This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Grass		
Manning's "n"	0.30		
2- Year, 24- Hr. Rain Fall (In)	3.51		
Flow Length (ft)	259.1		
Elevation Up (ft)	142.20		
Elevation Down (ft)	136.60		
Land Slope (ft/ft)	0.022		
Time Of Concentration (Mins)	33.82		
Total Sheet Flow Tc (Minutes):			**33.8 min.**

2. SHALLOW CONCENTRATED FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Unpaved		
Flow Length (ft)	288.3 ft		
Elevation Up (ft)	136.60		
Elevation Down (ft)	123.60		
Watercourse Slope (ft/ft)	0.045		
Average Velocity (ft/Sec)	3.4		
Time Of Concentration (Mins)	1.40		
Total Shallow Concentrated Tc (Mins):			**1.4 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									

Total Rectangular Channel Tc (Mins): **0.0 mins.**

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									

Total Triangular Channel Tc **0.0 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Trapezoidal Channel Tc		**0.0 min.**

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Circular Channel Tc (Mins):		**0.0 min.**

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins):	**35.2 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information	
DRAINAGE AREA ID:	2
TOTAL BASIN LENGTH:	1129.9 ft
TOTAL ELEVATION UP:	215.10
TOTAL ELEVATION DOWN:	132.90
TOTAL ACRES:	28.08

Drainage Area Tc Summary Data

Flow Type	Length (ft)	Elev. Diff.	Tc
Sheet Flow	295.0	6.40	37.5 mins.
Shallow Concentrated Flow	834.9	75.80	2.9 mins.
Channel Flow - Rectangular	0.0	0.00	0.0 mins.
Channel Flow - Triangular	0.0	0.00	0.0 mins.
Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
Channel Flow - Circular	0.0	0.00	0.0 mins.
Basin Totals	**1129.9**	**82.20**	**40.3 mins.**

NOTES:
This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Grass		
Manning's "n"	0.30		
2- Year, 24- Hr. Rain Fall (In)	3.51		
Flow Length (ft)	295		
Elevation Up (ft)	215.10		
Elevation Down (ft)	208.70		
Land Slope (ft/ft)	0.022		
Time Of Concentration (Mins)	37.46		
Total Sheet Flow Tc (Minutes):			**37.5 min.**

2. SHALLOW CONCENTRATED FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Unpaved		
Flow Length (ft)	834.9 ft		
Elevation Up (ft)	208.70		
Elevation Down (ft)	132.90		
Watercourse Slope (ft/ft)	0.091		
Average Velocity (ft/Sec)	4.9		
Time Of Concentration (Mins)	2.86		
Total Shallow Concentrated Tc (Mins):			**2.9 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									

Total Rectangular Channel Tc (Mins): **0.0 mins.**

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									

Total Triangular Channel Tc **0.0 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Trapezoidal Channel Tc		**0.0 min.**

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Circular Channel Tc (Mins):		**0.0 min.**

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins):	**40.3 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

Drainage Area Information	
DRAINAGE AREA ID:	3
TOTAL BASIN LENGTH:	784.0 ft
TOTAL ELEVATION UP:	213.70
TOTAL ELEVATION DOWN:	145.60
TOTAL ACRES:	28.08

Drainage Area Tc Summary Data

Flow Type	Length (ft)	Elev. Diff.	Tc
Sheet Flow	300.0	23.40	22.8 mins.
Shallow Concentrated Flow	484.0	44.70	1.6 mins.
Channel Flow - Rectangular	0.0	0.00	0.0 mins.
Channel Flow - Triangular	0.0	0.00	0.0 mins.
Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
Channel Flow - Circular	0.0	0.00	0.0 mins.
Basin Totals	**784.0**	**68.10**	**24.4 mins.**

NOTES:
This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Grass		
Manning's "n"	0.30		
2- Year, 24- Hr. Rain Fall (In)	3.51		
Flow Length (ft)	300		
Elevation Up (ft)	213.70		
Elevation Down (ft)	190.30		
Land Slope (ft/ft)	0.078		
Time Of Concentration (Mins)	22.76		
Total Sheet Flow Tc (Minutes):			**22.8 min.**

2. SHALLOW CONCENTRATED FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Unpaved		
Flow Length (ft)	484.0 ft		
Elevation Up (ft)	190.30		
Elevation Down (ft)	145.60		
Watercourse Slope (ft/ft)	0.092		
Average Velocity (ft/Sec)	4.9		
Time Of Concentration (Mins)	1.65		
Total Shallow Concentrated Tc (Mins):			**1.6 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Rectangular Channel Tc (Mins):		**0.0 mins.**

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Triangular Channel Tc		**0.0 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Trapezoidal Channel Tc		**0.0 min.**

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Circular Channel Tc (Mins):		**0.0 min.**

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins):	**24.4 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
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Drainage Area Information	
DRAINAGE AREA ID:	4
TOTAL BASIN LENGTH:	758.2 ft
TOTAL ELEVATION UP:	163.80
TOTAL ELEVATION DOWN:	120.50
TOTAL ACRES:	28.08

Drainage Area Tc Summary Data

Flow Type	Length (ft)	Elev. Diff.	Tc
Sheet Flow	300.0	27.20	21.4 mins.
Shallow Concentrated Flow	458.2	16.10	2.5 mins.
Channel Flow - Rectangular	0.0	0.00	0.0 mins.
Channel Flow - Triangular	0.0	0.00	0.0 mins.
Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
Channel Flow - Circular	0.0	0.00	0.0 mins.
Basin Totals	**758.2**	**43.30**	**24.0 mins.**

NOTES:
This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Grass		
Manning's "n"	0.30		
2- Year, 24- Hr. Rain Fall (In)	3.51		
Flow Length (ft)	300		
Elevation Up (ft)	163.80		
Elevation Down (ft)	136.60		
Land Slope (ft/ft)	0.091		
Time Of Concentration (Mins)	21.43		
Total Sheet Flow Tc (Minutes):			**21.4 min.**

2. SHALLOW CONCENTRATED FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Unpaved		
Flow Length (ft)	458.2 ft		
Elevation Up (ft)	136.60		
Elevation Down (ft)	120.50		
Watercourse Slope (ft/ft)	0.035		
Average Velocity (ft/Sec)	3.0		
Time Of Concentration (Mins)	2.53		
Total Shallow Concentrated Tc (Mins):			**2.5 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Rectangular Channel Tc (Mins):		**0.0 mins.**

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Triangular Channel Tc		**0.0 min.**

Time of Concentration Worksheet
SCS TR-55 Method

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DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Trapezoidal Channel Tc		**0.0 min.**

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Circular Channel Tc (Mins):		**0.0 min.**

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins):	**24.0 min.**

Time of Concentration Worksheet
SCS TR-55 Method

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Drainage Area Information	
DRAINAGE AREA ID:	5
TOTAL BASIN LENGTH:	1101.2 ft
TOTAL ELEVATION UP:	183.70
TOTAL ELEVATION DOWN:	111.80
TOTAL ACRES:	28.08

Drainage Area Tc Summary Data

Flow Type	Length (ft)	Elev. Diff.	Tc
Sheet Flow	300.0	15.60	26.8 mins.
Shallow Concentrated Flow	801.2	56.30	3.1 mins.
Channel Flow - Rectangular	0.0	0.00	0.0 mins.
Channel Flow - Triangular	0.0	0.00	0.0 mins.
Channel Flow - Trapezoidal	0.0	0.00	0.0 mins.
Channel Flow - Circular	0.0	0.00	0.0 mins.
Basin Totals	**1101.2**	**71.90**	**29.9 mins.**

NOTES:
This time of concentration calculation is based on survey data, aerial photography, and field investigation.

1. SHEET FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Grass		
Manning's "n"	0.30		
2- Year, 24- Hr. Rain Fall (In)	3.51		
Flow Length (ft)	300		
Elevation Up (ft)	183.70		
Elevation Down (ft)	168.10		
Land Slope (ft/ft)	0.052		
Time Of Concentration (Mins)	26.77		
Total Sheet Flow Tc (Minutes):			**26.8 min.**

2. SHALLOW CONCENTRATED FLOW

	Segment #1	Segment #2	Segment #3
Surface Description	Unpaved		
Flow Length (ft)	801.2 ft		
Elevation Up (ft)	168.10		
Elevation Down (ft)	111.80		
Watercourse Slope (ft/ft)	0.070		
Average Velocity (ft/Sec)	4.3		
Time Of Concentration (Mins)	3.12		
Total Shallow Concentrated Tc (Mins):			**3.1 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

3. CHANNEL FLOW - RECTANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Area (Sq. ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wetted Perimeter (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Radius (ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Rectangular Channel Tc (Mins):		**0.0 mins.**

4. CHANNEL FLOW - TRIANGULAR CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Top Width (ft)									
Depth (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
								Total Triangular Channel Tc	**0.0 min.**

Time of Concentration Worksheet
SCS TR-55 Method

PROJECT: Stonington
SCENARIO: Proposed
DATE: 08/13/20
PREPARED BY: Rachel Sills

5. CHANNEL FLOW - TRAPEZOIDAL CHANNEL

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Bottom Width (ft)									
Depth (ft)									
Side Slopes (?H:1V) (ft)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Trapezoidal Channel Tc		**0.0 min.**

6. CHANNEL FLOW - CIRCULAR CHANNEL (Gravity Flow)

	Segment #1	Segment #2	Segment #3	Segment #4	Segment #5	Segment #6	Segment #7	Segment #8	Segment #9
Surface Description									
Pipe Diameter (In)									
Area (Sq. ft)									
Wetted Perimeter (ft)									
Hydraulic Radius (ft)									
Flow Length (ft)									
Elevation Up (ft)									
Elevation Down (ft)									
Channel Slope (ft/ft)									
Manning's "n"									
Average Velocity (ft/Sec)									
Time Of Concentration (Mins)									
							Total Circular Channel Tc (Mins):		**0.0 min.**

7. Total Basin Time of Concentration (Mintues)

Total Basin Tc (Mins):	**29.9 min.**

Appendix G

Map of Wetlands



HDR Engineering Inc.
of the Carolinas

440 Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700

N.C.B.E.L.S. License Number: F-0116

SILICON RANCH

NOT FOR CONSTRUCTION

STONINGTON SOLAR

428, PROVIDENCE-NEW LONDON TURNPIKE
NORTH STONINGTON, CT 06359, USA

LAT: 41.431830°N
LON: 71.821514°W

STONINGTON, CT

REV. NO	DESCRIPTION	DATE
A	ISSUED FOR REVIEW	09/14/20

SHEET TITLE:

WETLAND MAP

PROJ. MGR.	PROJ. ENGR.	DATE:
WK	MB	09/14/20
DRAWN BY:	CHECKED BY:	SCALE:
NC		1:200

DRAWING NO.

EXHIBIT

Appendix H

Erosion and Sediment Control Calculations

RISER SEDIMENT BASIN CALCULATIONS

SRC Stonington

HDR PROJECT NO.: -

DATE: 9/11/2020 BY: NC

REVISED: RVW: DB

Riser Sediment Basin : Sediment Basin 1A **Scenario:** E&SC

Drainage Area Characteristics		
Total drainage area (TDA)[1]	4.69	ac
Disturbed area (DA)	4.69	ac
Time of Concentration (T_c)	45.9	min
10 Yr Storm Rainfall Intensity (I)[4]	0.2	in/hr

Required Storage Volume		
10 Yr Peak Flow (Q_{10})	2.05	cfs
Req'd Sediment Storage Volume[3]	30.85	cf
Req'd Basin Storage Volume (V_s) [5]	11,066	cf
Total Basin Storage Volume[5]	11,097	cf

Design Criteria		
Bottom Elevation	127.00	msl
Depth of Sediment Storage Volume	0.50	ft
Depth of Flow Over Riser	0.19	ft
Depth of Wet Storage Volume (Min 2 ft)	2.00	
Runoff Depth from Hydrographs (V_r)	1.33	inch

Basin Size

Elev. (msl)	Depth (ft)	Area (sf)	Cumulative Volume (cf)
127.00	0.00	8,858	0
128.00	1.00	9,999	9,423
129.00	2.00	11,187	20,010
130.00	3.00	12,415	31,806
131.00	4.00	13,682	44,849

Basin Configuration		
Bottom Elevation	127.00	msl
Sediment Storage Elevation	126.50	msl
Riser Crest	129.00	msl
Emergency Spillway	130.00	msl
Top of Berm	131.00	msl
Highwater elevation (10-yr) from Hydrograph	129.19	msl

OK

Basin Size Check		
Storage Volume Provided Below Riser Crest	20,010	cf

Q10/DA Ratio	0.44		
Qo/Qi Ratio from Figure SB-13	0.12		
Outflow rate (Qo)	0.25	cfs	
Release rate	34	csm	
Storage in watershed (Vs) from Figure DB-6	0.65	inch	
Average annual erosion[7]	1	tons/ac	Figure SB-1
Delivery Ratio[8]	0.37		Figure SB-12
Trap Efficiency[5]	0.80		
Sediment Density[16]	90	lbs/cu.ft	Figure SB-2

Riser Diameter Required 25

Barrel				
Riser Diameter[9]	30	in	Riser Flow as Weir[13]	2.02 cfs
Barrel Diameter (15 in min)[5]	18	in	Riser Flow as Orifice[14]	10.30 cfs
Barrel Invert Elevation	127.00	msl		
Barrel Length	105.00	ft	Barrel Flow as Orifice[14]	12.76 cfs
Barrel Manning's N[10]	0.025		Barrel Flow as Pipe[15]	7.06 cfs
Sharp Crested Weir Coefficient (C)[11]	3.1			
Orifice Coefficient (C)[12]	0.6		Controlling Flow through Riser and Barrel Spillway	2.02 cfs

Emergency Spillway Design		
Spillway Length	20	ft

Notes

1. See attached drainage area map.
2. Entire area is denuded. Rational coefficient for smooth bare packed soil is 0.45.
3. Volume required is calculated using volume equation from section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

$$V = \frac{(DA)(A)(DR)(TE)(2{,}000\text{lbs./ton})}{(\gamma)(43{,}560\text{sq.ft./ac})}$$

4. Rainfall intensity at project location was acquired from the NOAA website, http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html.
5. From Section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
6. Design Elevations from section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
7. Obtained from Figure SB-1 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
8. Obtained from Figure SB-12 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
9. Riser cross-sectional area is required to be more than 2 times the barrel cross-sectional area.
10. Use 0.025 for CMP and 0.012 for RCP.
11. 3.1 for corrugated metal pipe risers
12. 0.6 for corrugated metal pipe risers
13. Weir equation: $Q = CLH^{1.5}$ (see note 11)
14. Orifice equation: $Q = CA\,(2gH)^{0.5}$ (see note 12)
15. Pipe Flow equation: $Q = a\left[\frac{2gh}{1 + K_m + K_p L}\right]^{0.5}$
16. Obtained from Figure SB-2 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

RISER SEDIMENT BASIN CALCULATIONS			
SRC Stonington			
HDR PROJECT NO.:	-		
DATE:	9/11/2020	BY:	NC
REVISED:		RVW:	DB

Riser Sediment Basin : Sediment Basin 1B **Scenario:** E&SC

Drainage Area Characteristics		
Total drainage area (TDA)[1]	10.54	ac
Disturbed area (DA)	10.54	ac
Time of Concentration (T_c)	45.5	min
10 Yr Storm Rainfall Intensity (I)[4]	0.2	in/hr

Required Storage Volume		
10 Yr Peak Flow (Q_{10})	5.07	cfs
Req'd Sediment Storage Volume[3]	65.58	cf
Req'd Basin Storage Volume (V_s)[5]	28,695	cf
Total Basin Storage Volume[5]	28,761	cf

Design Criteria		
Bottom Elevation	123.00	msl
Depth of Sediment Storage Volume	0.50	ft
Depth of Flow Over Riser	0.34	ft
Depth of Wet Storage Volume (Min 2 ft)	3.50	
Runoff Depth from Hydrographs (V_r)	1.40	inch

Basin Size			
Elev. (msl)	Depth (ft)	Area (sf)	Cumulative Volume (cf)
123.00	0.00	7,462	0
124.00	1.00	8,660	8,054
125.00	2.00	9,913	17,333
126.00	3.00	11,219	27,892
127.00	4.00	12,580	39,785
128.00	5.00	13,994	53,066
129.00	6.00	15,463	67,788

Basin Configuration		
Bottom Elevation	123.00	msl
Sediment Storage Elevation	123.50	msl
Riser Crest	126.50	msl
Emergency Spillway	127.90	msl
Top of Berm	129.00	msl
Highwater elevation (10-yr) from Hydrograph	126.84	msl

OK

Basin Size Check		
Storage Volume Provided Below Riser Crest	33,956	cf

Q10/DA Ratio	0.48		
Qo/Qi Ratio from Figure SB-13	0.11		
Outflow rate (Qo)	0.56	cfs	
Release rate	34	csm	
Storage in watershed (Vs) from Figure DB-6	0.75	inch	
Average annual erosion[7]	1	tons/ac	Figure SB-1
Delivery Ratio[8]	0.35		Figure SB-12
Trap Efficiency[5]	0.80		
Sediment Density[16]	90	lbs/cu.ft	Figure SB-2

Riser Diameter Required 25

Barrel			
Riser Diameter[9]	30	in	Riser Flow as Weir[13] 4.83 cfs
Barrel Diameter (15 in min)[5]	18	in	Riser Flow as Orifice[14] 13.78 cfs
Barrel Invert Elevation	123.00	msl	
Barrel Length	40.00	ft	Barrel Flow as Orifice[14] 17.33 cfs
Barrel Manning's N[10]	0.014		Barrel Flow as Pipe[15] 17.13 cfs
Sharp Crested Weir Coefficient (C)[11]	3.1		
Orifice Coefficient (C)[12]	0.6		Controlling Flow through Riser and Barrel Spillway 4.83 cfs

Emergency Spillway Design		
Minimum Allowable Spillway Length	20	ft

Notes

1. See attached drainage area map.
2. Entire area is denuded. Rational coefficient for smooth bare packed soil is 0.45.
3. Volume required is calculated using volume equation from section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

$$V = \frac{(DA)(A)(DR)(TE)(2{,}000\text{lbs./ton})}{(\gamma)(43{,}560\text{sq.ft./ac})}$$

4. Rainfall intensity at project location was acquired from the NOAA website, http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html.
5. From Section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
6. Design Elevations from section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
7. Obtained from Figure SB-1 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
8. Obtained from Figure SB-12 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
9. Riser cross-sectional area is required to be more than 2 times the barrel cross-sectional area.
10. Use 0.025 for CMP and 0.012 for RCP.
11. 3.1 for corrugated metal pipe risers
12. 0.6 for corrugated metal pipe risers
13. Weir equation: $Q = CLH^{1.5}$ (see note 11)
14. Orifice equation: $Q = CA\,(2gH)^{0.5}$ (see note 12)
15. Pipe Flow equation: $Q = a\left[\frac{2gh}{1 + K_m + K_p L}\right]^{0.5}$
16. Obtained from Figure SB-2 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

RISER SEDIMENT BASIN CALCULATIONS			
SRC Stonington			
HDR PROJECT NO.:	-		
DATE:	9/11/2020	BY:	NC
REVISED:		RVW:	DB

Riser Sediment Basin : Sediment Basin 1C **Scenario:** E&SC

Drainage Area Characteristics		
Total drainage area (TDA)[1]	8.58	ac
Disturbed area (DA)	8.58	ac
Time of Concentration (T_c)	37.9	min
10 Yr Storm Rainfall Intensity (I)[4]	0.2	in/hr

Required Storage Volume		
10 Yr Peak Flow (Q_{10})	3.20	cfs
Req'd Sediment Storage Volume[3]	54.91	cf
Req'd Basin Storage Volume (V_s) [5]	21,802	cf
Total Basin Storage Volume[5]	21,857	cf

Design Criteria		
Bottom Elevation	128.00	msl
Depth of Sediment Storage Volume	0.50	ft
Depth of Flow Over Riser	0.25	ft
Depth of Wet Storage Volume (Min 2 ft)	2.00	
Runoff Depth from Hydrographs (V_r)	1.33	inch

Basin Size			
Elev. (msl)	Depth (ft)	Area (sf)	Cumulative Volume (cf)
128.00	0.00	10,462	0
129.00	1.00	12,742	11,583
130.00	2.00	15,074	25,475
131.00	3.00	17,459	41,727
132.00	4.00	19,896	60,391
133.00	5.00	22,385	81,519

Basin Configuration		
Bottom Elevation	128.00	msl
Sediment Storage Elevation	128.50	msl
Riser Crest	130.00	msl
Emergency Spillway	131.75	msl
Top of Berm	133.00	msl
Highwater elevation (10-yr) from Hydrograph	130.25	msl

OK

Basin Size Check		
Storage Volume Provided Below Riser Crest	25,475	cf

Q10/DA Ratio	0.37		
Qo/Qi Ratio from Figure SB-13	0.11		
Outflow rate (Qo)	0.35	cfs	
Release rate	26	csm	
Storage in watershed (Vs) from Figure DB-6	0.70	inch	

Average annual erosion[7]	1	tons/ac	Figure SB-1
Delivery Ratio[8]	0.36		Figure SB-12
Trap Efficiency[5]	0.80		
Sediment Density[16]	90	lbs/cu.ft	Figure SB-2

Riser Diameter Required 25

Barrel			
Riser Diameter[9]	30	in	Riser Flow as Weir[13] 3.04 cfs
Barrel Diameter (15 in min)[5]	18	in	Riser Flow as Orifice[14] 11.82 cfs
Barrel Invert Elevation	128.00	msl	
Barrel Length	35.00	ft	Barrel Flow as Orifice[14] 14.74 cfs
Barrel Manning's N[10]	0.012		Barrel Flow as Pipe[15] 15.40 cfs
Sharp Crested Weir Coefficient (C)[11]	3.1		
Orifice Coefficient (C)[12]	0.6		Controlling Flow through Riser and Barrel Spillway 3.04 cfs

Emergency Spillway Design		
Minimum Allowable Spillway Length	20	ft

Notes

1. See attached drainage area map.
2. Entire area is denuded. Rational coefficient for smooth bare packed soil is 0.45.
3. Volume required is calculated using volume equation from section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

$$V = \frac{(DA)(A)(DR)(TE)(2{,}000\text{lbs./ton})}{(\gamma)(43{,}560\text{sq.ft./ac})}$$

4. Rainfall intensity at project location was acquired from the NOAA website, http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html.
5. From Section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
6. Design Elevations from section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
7. Obtained from Figure SB-1 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
8. Obtained from Figure SB-12 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
9. Riser cross-sectional area is required to be more than 2 times the barrel cross-sectional area.
10. Use 0.025 for CMP and 0.012 for RCP.
11. 3.1 for corrugated metal pipe risers
12. 0.6 for corrugated metal pipe risers
13. Weir equation: $Q = CLH^{1.5}$ (see note 11)
14. Orifice equation: $Q = CA\,(2gH)^{0.5}$ (see note 12)
15. Pipe Flow equation: $Q = a\left[\frac{2gh}{1 + K_m + K_p L}\right]^{0.5}$
16. Obtained from Figure SB-2 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

RISER SEDIMENT BASIN CALCULATIONS			
SRC Stonington			
HDR PROJECT NO.:	-		
DATE:	9/11/2020	BY:	NC
REVISED:		RVW:	DB

Riser Sediment Basin : Sediment Basin 2 **Scenario:** E&SC

Drainage Area Characteristics		
Total drainage area (TDA)[1]	9.60	ac
Disturbed area (DA)	9.60	ac
Time of Concentration (T_c)	43.3	min
10 Yr Storm Rainfall Intensity (I)[4]	0.2	in/hr

Required Storage Volume		
10 Yr Peak Flow (Q_{10})	6.59	cfs
Req'd Sediment Storage Volume[3]	59.73	cf
Req'd Basin Storage Volume (V_s)[5]	31,363	cf
Total Basin Storage Volume[5]	31,423	cf

Design Criteria		
Bottom Elevation	133.00	msl
Depth of Sediment Storage Volume	0.50	ft
Depth of Flow Over Riser	0.41	ft
Depth of Wet Storage Volume (Min 2 ft)	4.00	
Runoff Depth from Hydrographs (V_r)	1.84	inch

Basin Size			
Elev. (msl)	Depth (ft)	Area (sf)	Cumulative Volume (cf)
133.00	0.00	4,931	0
134.00	1.00	6,391	5,645
135.00	2.00	7,920	12,787
136.00	3.00	9,519	21,494
137.00	4.00	11,188	31,837
138.00	5.00	12,928	43,884
139.00	6.00	14,825	57,750

Basin Configuration		
Bottom Elevation	133.00	msl
Sediment Storage Elevation	133.50	msl
Riser Crest	137.00	msl
Emergency Spillway	138.00	msl
Top of Berm	139.00	msl
Highwater elevation (10-yr) from Hydrograph	137.41	msl

OK

Basin Size Check		
Storage Volume Provided Below Riser Crest	31,837	cf

Q10/DA Ratio	0.69		
Qo/Qi Ratio from Figure SB-13	0.13		
Outflow rate (Qo)	0.86	cfs	
Release rate	57	csm	
Storage in watershed (Vs) from Figure DB-6	0.90	inch	
Average annual erosion[7]	1	tons/ac	Figure SB-1
Delivery Ratio[8]	0.35		Figure SB-12
Trap Efficiency[5]	0.80		
Sediment Density[16]	90	lbs/cu.ft	Figure SB-2

Riser Diameter Required 25

Barrel			
Riser Diameter[9]	30	in	Riser Flow as Weir[13] 6.39 cfs
Barrel Diameter (15 in min)[5]	18	in	Riser Flow as Orifice[14] 15.13 cfs
Barrel Invert Elevation	133.00	msl	
Barrel Length	42.00	ft	Barrel Flow as Orifice[14] 17.54 cfs
Barrel Manning's N[10]	0.025		Barrel Flow as Pipe[15] 13.30 cfs
Sharp Crested Weir Coefficient (C)[11]	3.1		
Orifice Coefficient (C)[12]	0.6		Controlling Flow through Riser and Barrel Spillway 6.39 cfs

Emergency Spillway Design		
Minimum Allowable Spillway Length	20	ft

Notes

1. See attached drainage area map.
2. Entire area is denuded. Rational coefficient for smooth bare packed soil is 0.45.
3. Volume required is calculated using volume equation from section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

$$V = \frac{(DA)(A)(DR)(TE)(2{,}000\text{lbs./ton})}{(\gamma)(43{,}560\text{sq.ft./ac})}$$

4. Rainfall intensity at project location was acquired from the NOAA website, http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html.
5. From Section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
6. Design Elevations from section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
7. Obtained from Figure SB-1 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
8. Obtained from Figure SB-12 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
9. Riser cross-sectional area is required to be more than 2 times the barrel cross-sectional area.
10. Use 0.025 for CMP and 0.012 for RCP.
11. 3.1 for corrugated metal pipe risers
12. 0.6 for corrugated metal pipe risers
13. Weir equation: $Q = CLH^{1.5}$ (see note 11)
14. Orifice equation: $Q = CA\,(2gH)^{0.5}$ (see note 12)
15. Pipe Flow equation: $Q = a\left[\frac{2gh}{1 + K_m + K_p L}\right]^{0.5}$
16. Obtained from Figure SB-2 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

RISER SEDIMENT BASIN CALCULATIONS			
SRC Stonington			
HDR PROJECT NO.:	-		
DATE:	9/11/2020	BY:	NC
REVISED:		RVW:	DB

Riser Sediment Basin : Sediment Basin 3 **Scenario:** E&SC

Drainage Area Characteristics		
Total drainage area (TDA)[1]	4.12	ac
Disturbed area (DA)	4.12	ac
Time of Concentration (T_c)	26.2	min
10 Yr Storm Rainfall Intensity (I)[4]	0.2	in/hr

Required Storage Volume		
10 Yr Peak Flow (Q_{10})	1.76	cfs
Req'd Sediment Storage Volume[3]	27.10	cf
Req'd Basin Storage Volume (V_s) [5]	12,712	cf
Total Basin Storage Volume[5]	12,739	cf

Design Criteria		
Bottom Elevation	168.00	msl
Depth of Storage Volume	0.50	ft
Depth of Flow Over Riser	0.17	ft
Depth of Wet Storage Volume (Min 2 ft)	3.20	
Runoff Depth from Hydrographs (V_r)	1.62	inch

Basin Size			
Elev. (msl)	Depth (ft)	Area (sf)	Cumulative Volume (cf)
168.00	0.00	2,515	0
169.00	1.00	4,113	3,281
170.00	2.00	5,754	8,192
171.00	3.00	7,471	14,786
172.00	4.00	9,214	23,113
173.00	5.00	11,055	33,234
174.00	6.00	13,957	45,712

Basin Configuration		
Bottom Elevation	168.00	msl
Depth of Sediment Storage Volume	168.50	msl
Riser Crest	171.20	msl
Emergency Spillway	173.00	msl
Top of Berm	174.00	msl
Highwater elevation (10-yr) from Hydrograph	171.37	msl

OK

Basin Size Check		
Storage Volume Provided Below Riser Crest	16,840	cf

Q10/DA Ratio	0.43		
Qo/Qi Ratio from Figure SB-13	0.10		
Outflow rate (Qo)	0.18	cfs	
Release rate	27	csm	
Storage in watershed (Vs) from Figure DB-6	0.85	inch	
Average annual erosion[7]	1	tons/ac	Figure SB-1
Delivery Ratio[8]	0.37		Figure SB-12
Trap Efficiency[5]	0.80		
Sediment Density[16]	90	lbs/cu.ft	Figure SB-2

Riser Diameter Required 25

Barrel			
Riser Diameter[9]	30	in	Riser Flow as Weir[13] 1.71 cfs
Barrel Diameter (15 in min)[5]	18	in	Riser Flow as Orifice[14] 9.75 cfs
Barrel Invert Elevation	168.00	msl	
Barrel Length	90.00	ft	Barrel Flow as Orifice[14] 17.54 cfs
Barrel Manning's N[10]	0.025		Barrel Flow as Pipe[15] 10.29 cfs
Sharp Crested Weir Coefficient (C)[11]	3.1		
Orifice Coefficient (C)[12]	0.6		Controlling Flow through Riser and Barrel Spillway 1.71 cfs

Emergency Spillway Design		
Minimum Allowable Spillway Length	20	ft

Notes

1. See attached drainage area map.
2. Entire area is denuded. Rational coefficient for smooth bare packed soil is 0.45.
3. Volume required is calculated using volume equation from section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

$$V = \frac{(DA)(A)(DR)(TE)(2{,}000\text{lbs./ton})}{(\gamma)(43{,}560\text{sq.ft./ac})}$$

4. Rainfall intensity at project location was acquired from the NOAA website, http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html.
5. From Section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
6. Design Elevations from section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
7. Obtained from Figure SB-1 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
8. Obtained from Figure SB-12 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
9. Riser cross-sectional area is required to be more than 2 times the barrel cross-sectional area.
10. Use 0.025 for CMP and 0.012 for RCP.
11. 3.1 for corrugated metal pipe risers
12. 0.6 for corrugated metal pipe risers
13. Weir equation: $Q = CLH^{1.5}$ (see note 11)
14. Orifice equation: $Q = CA\,(2gH)^{0.5}$ (see note 12)
15. Pipe Flow equation:

$$Q = a\left[\frac{2gh}{1 + K_m + K_p L}\right]^{0.5}$$

16. Obtained from Figure SB-2 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

RISER SEDIMENT BASIN CALCULATIONS			
SRC Stonington			
HDR PROJECT NO.:	-		
DATE:	9/11/2020	BY:	NC
REVISED:		RVW:	DB

Riser Sediment Basin : Sediment Basin 4 **Scenario:** E&SC

Drainage Area Characteristics		
Total drainage area (TDA)[1]	9.02	ac
Disturbed area (DA)	9.02	ac
Time of Concentration (T_c)	25.7	min
10 Yr Storm Rainfall Intensity (I)[4]	0.2	in/hr

Required Storage Volume		
10 Yr Peak Flow (Q_{10})	6.08	cfs
Req'd Sediment Storage Volume[3]	56.12	cf
Req'd Basin Storage Volume (V_s)[5]	26,194	cf
Total Basin Storage Volume[5]	26,250	cf

Design Criteria		
Bottom Elevation	122.00	msl
Depth of Storage Volume	0.50	ft
Depth of Flow Over Riser	0.38	ft
Depth of Wet Storage Volume (Min 2 ft)	4.00	
Runoff Depth from Hydrographs (V_r)	1.55	inch

Basin Size			
Elev. (msl)	Depth (ft)	Area (sf)	Cumulative Volume (cf)
122.00	0.00	5,212	0
123.00	1.00	6,320	5,757
124.00	2.00	7,483	12,650
125.00	3.00	8,699	20,734
126.00	4.00	9,970	30,061
127.00	5.00	11,294	40,686
128.00	6.00	12,673	52,663
129.00	7.00	14,106	66,046

Basin Configuration		
Bottom Elevation	122.00	msl
Depth of Sediment Storage Volume	122.50	msl
Riser Crest	126.00	msl
Emergency Spillway	128.25	msl
Top of Berm	129.00	msl
Highwater elevation (10-yr) from Hydrograph	126.38	msl

OK

Basin Size Check		
Storage Volume Provided Below Riser Crest	30,061	cf

Q10/DA Ratio	0.67		
Qo/Qi Ratio from Figure SB-13	0.10		
Outflow rate (Qo)	0.61	cfs	
Release rate	43	csm	
Storage in watershed (Vs) from Figure DB-6	0.80	inch	
Average annual erosion[7]	1	tons/ac	Figure SB-1
Delivery Ratio[8]	0.35		Figure SB-12
Trap Efficiency[5]	0.80		
Sediment Density[16]	90	lbs/cu.ft	Figure SB-2

Riser Diameter Required 25

Barrel			
Riser Diameter[9]	30	in	Riser Flow as Weir[13] 5.70 cfs
Barrel Diameter (15 in min)[5]	18	in	Riser Flow as Orifice[14] 14.57 cfs
Barrel Invert Elevation	122.00	msl	
Barrel Length	60.00	ft	Barrel Flow as Orifice[14] 19.95 cfs
Barrel Manning's N[10]	0.025		Barrel Flow as Pipe[15] 13.53 cfs
Sharp Crested Weir Coefficient (C)[11]	3.1		
Orifice Coefficient (C)[12]	0.6		Controlling Flow through Riser and Barrel Spillway 5.70 cfs

Emergency Spillway Design		
Minimum Allowable Spillway Length	20	ft

Notes

1. See attached drainage area map.
2. Entire area is denuded. Rational coefficient for smooth bare packed soil is 0.45.
3. Volume required is calculated using volume equation from section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

$$V = \frac{(DA)(A)(DR)(TE)(2{,}000\text{lbs./ton})}{(\gamma)(43{,}560\text{sq.ft./ac})}$$

4. Rainfall intensity at project location was acquired from the NOAA website, http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html.
5. From Section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
6. Design Elevations from section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
7. Obtained from Figure SB-1 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
8. Obtained from Figure SB-12 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.
9. Riser cross-sectional area is required to be more than 2 times the barrel cross-sectional area.
10. Use 0.025 for CMP and 0.012 for RCP.
11. 3.1 for corrugated metal pipe risers
12. 0.6 for corrugated metal pipe risers
13. Weir equation: $Q = CLH^{1.5}$ (see note 11)
14. Orifice equation: $Q = CA\,(2gH)^{0.5}$ (see note 12)
15. Pipe Flow equation: $Q = a\left[\frac{2gh}{1 + K_m + K_p L}\right]^{0.5}$
16. Obtained from Figure SB-2 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

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Riser Sediment Basin : Sediment Basin 5 **Scenario:** E&SC

Drainage Area Characteristics		
Total drainage area (TDA)[1]	15.22	ac
Disturbed area (DA)	15.22	ac
Time of Concentration (T_c)	32.0	min
10 Yr Storm Rainfall Intensity (I)[4]	0.2	in/hr

Required Storage Volume		
10 Yr Peak Flow (Q_{10})	20.93	cfs
Req'd Sediment Storage Volume[3]	89.29	cf
Req'd Basin Storage Volume (V_s) [5]	66,298	cf
Total Basin Storage Volume[5]	66,388	cf

Design Criteria		
Bottom Elevation	120.00	msl
Depth of Sediment Storage Volume	0.50	ft
Depth of Flow Over Riser	0.40	ft
Depth of Wet Storage Volume (Min 2 ft)	5.00	
Runoff Depth from Hydrographs (V_r)	2.08	inch

Basin Size			
Elev. (msl)	Depth (ft)	Area (sf)	Cumulative Volume (cf)
120.00	0.00	9,427	0
121.00	1.00	10,959	10,183
122.00	2.00	12,547	21,927
123.00	3.00	14,191	35,288
124.00	4.00	15,892	50,321
125.00	5.00	17,649	67,084
126.00	6.00	12,539	82,106

Basin Configuration		
Bottom Elevation	120.00	msl
Sediment Storage Elevation	120.50	msl
Riser Crest	125.00	msl
Emergency Spillway	125.72	msl
Top of Berm	126.00	msl
Highwater elevation (10-yr) from Hydrograph	125.40	msl

Raise berm

Basin Size Check		
Storage Volume Provided Below Riser Crest	67,084	cf

Q10/DA Ratio	1.38		
Qo/Qi Ratio from Figure SB-13	0.09		
Outflow rate (Qo)	1.88	cfs	
Release rate	79	csm	
Storage in watershed (Vs) from Figure DB-6	1.20	inch	
Average annual erosion[7]	1	tons/ac	Figure SB-1
Delivery Ratio[8]	0.33		Figure SB-12
Trap Efficiency[5]	0.80		
Sediment Density[16]	90	lbs/cu.ft	Figure SB-2

Riser Diameter Required 42

Barrel				
Riser Diameter[9]	42	in	Riser Flow as Weir[13]	8.62 cfs
Barrel Diameter (15 in min)[5]	30	in	Riser Flow as Orifice[14]	29.30 cfs
Barrel Invert Elevation	120.00	msl		
Barrel Length	55.00	ft	Barrel Flow as Orifice[14]	49.97 cfs
Barrel Manning's N[10]	0.025		Barrel Flow as Pipe[15]	42.30 cfs
Sharp Crested Weir Coefficient (C)[11]	3.1			
Orifice Coefficient (C)[12]	0.6		Controlling Flow through Riser and Barrel Spillway	8.62 cfs

Emergency Spillway Design		
Minimum Allowable Spillway Length	20	ft

Notes

1. See attached drainage area map.
2. Entire area is denuded. Rational coefficient for smooth bare packed soil is 0.45.
3. Volume required is calculated using volume equation from section 5-11 - 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

$$V = \frac{(DA)(A)(DR)(TE)(2{,}000\text{lbs./ton})}{(\gamma)(43{,}560\text{sq.ft./ac})}$$

4. Rainfall intensity at project location was acquired from the NOAA website, http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html.
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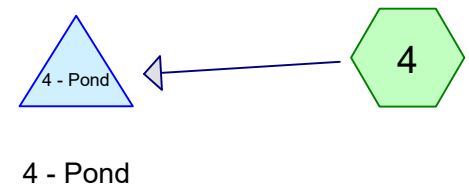
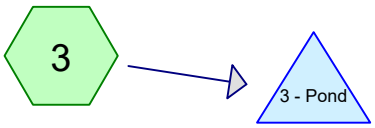
14. Orifice equation: $Q = CA\,(2gH)^{0.5}$ (see note 12)
15. Pipe Flow equation: $Q = a\left[\frac{2gh}{1 + K_m + K_p L}\right]^{0.5}$
16. Obtained from Figure SB-2 from 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.



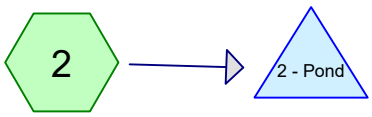
4 - Pond



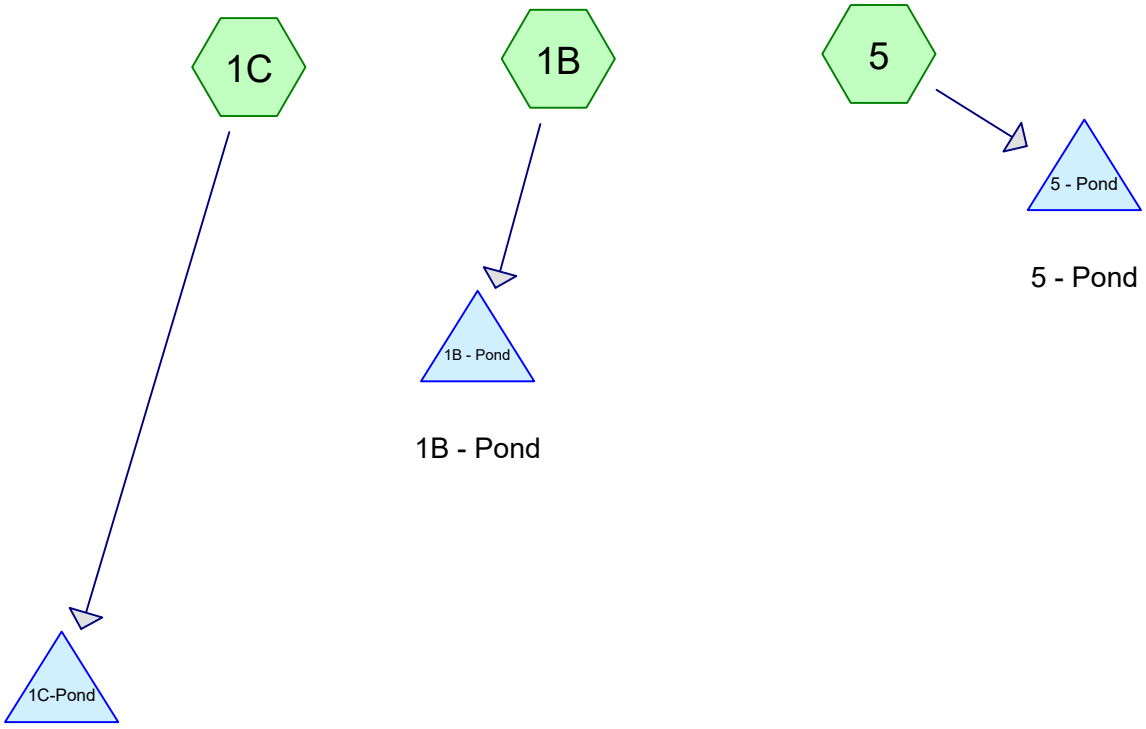
3 - Pond



1A - Pond



2 - Pond



1B - Pond

5 - Pond

1C - Pond

Subcat Reach Pond Link

Routing Diagram for HydroCAD North Stonington Sediment Basins
Prepared by HDR, Inc, Printed 9/28/2020
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
17.830	73	(1A, 3, 4)
10.540	71	(1B)
8.580	69	(1C)
9.600	74	(2)
15.220	77	(5)
61.770	**73**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
61.770	Other	1A, 1B, 1C, 2, 3, 4, 5
61.770		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	61.770	61.770		1A, 1B, 1C, 2, 3, 4, 5
0.000	**0.000**	**0.000**	**0.000**	**61.770**	**61.770**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1A - Pond	127.25	127.00	55.0	0.0045	0.012	18.0	0.0	0.0
2	1B - Pond	123.00	122.00	50.0	0.0200	0.012	18.0	0.0	0.0
3	1C-Pond	128.00	127.75	45.0	0.0056	0.012	18.0	0.0	0.0
4	2 - Pond	133.00	132.50	50.0	0.0100	0.012	18.0	0.0	0.0
5	3 - Pond	168.00	164.50	55.0	0.0636	0.012	18.0	0.0	0.0
6	4 - Pond	122.00	121.50	60.0	0.0083	0.012	18.0	0.0	0.0
7	5 - Pond	120.00	117.00	60.0	0.0500	0.012	30.0	0.0	0.0

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>1.11"
Tc=42.6 min CN=73 Runoff=2.79 cfs 0.435 af

Subcatchment1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>1.00"
Tc=42.3 min CN=71 Runoff=5.54 cfs 0.879 af

Subcatchment1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>0.90"
Tc=35.2 min CN=69 Runoff=4.31 cfs 0.641 af

Subcatchment2: Runoff Area=9.600 ac 0.00% Impervious Runoff Depth>1.17"
Tc=40.3 min CN=74 Runoff=6.25 cfs 0.938 af

Subcatchment3: Runoff Area=4.120 ac 0.00% Impervious Runoff Depth>1.12"
Tc=24.4 min CN=73 Runoff=3.18 cfs 0.384 af

Subcatchment4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>1.12"
Tc=24.0 min CN=73 Runoff=7.02 cfs 0.841 af

Subcatchment5: Runoff Area=15.220 ac 0.00% Impervious Runoff Depth>1.36"
Tc=29.9 min CN=77 Runoff=13.52 cfs 1.727 af

Pond 1A - Pond: 1A - Pond Peak Elev=129.02' Storage=0.410 af Inflow=2.79 cfs 0.435 af
Primary=0.11 cfs 0.025 af Secondary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.025 af

Pond 1B - Pond: 1B - Pond Peak Elev=126.54' Storage=0.791 af Inflow=5.54 cfs 0.879 af
Primary=0.27 cfs 0.090 af Secondary=0.00 cfs 0.000 af Outflow=0.27 cfs 0.090 af

Pond 1C-Pond: 1C - Pond Peak Elev=130.03' Storage=0.595 af Inflow=4.31 cfs 0.641 af
Primary=0.17 cfs 0.047 af Secondary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.047 af

Pond 2 - Pond: 2 - Pond Peak Elev=137.06' Storage=0.746 af Inflow=6.25 cfs 0.938 af
Primary=0.43 cfs 0.198 af Secondary=0.00 cfs 0.000 af Outflow=0.43 cfs 0.198 af

Pond 3 - Pond: 3 - Pond Peak Elev=171.20' Storage=0.377 af Inflow=3.18 cfs 0.384 af
Primary=0.01 cfs 0.007 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.007 af

Pond 4 - Pond: 4 - Pond Peak Elev=126.04' Storage=30,765 cf Inflow=7.02 cfs 0.841 af
Primary=0.29 cfs 0.139 af Secondary=0.00 cfs 0.000 af Outflow=0.29 cfs 0.139 af

Pond 5 - Pond: 5 - Pond Peak Elev=125.05' Storage=67,975 cf Inflow=13.52 cfs 1.727 af
Primary=0.46 cfs 0.169 af Secondary=0.00 cfs 0.000 af Outflow=0.46 cfs 0.169 af

Total Runoff Area = 61.770 ac Runoff Volume = 5.847 af Average Runoff Depth = 1.14"
100.00% Pervious = 61.770 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

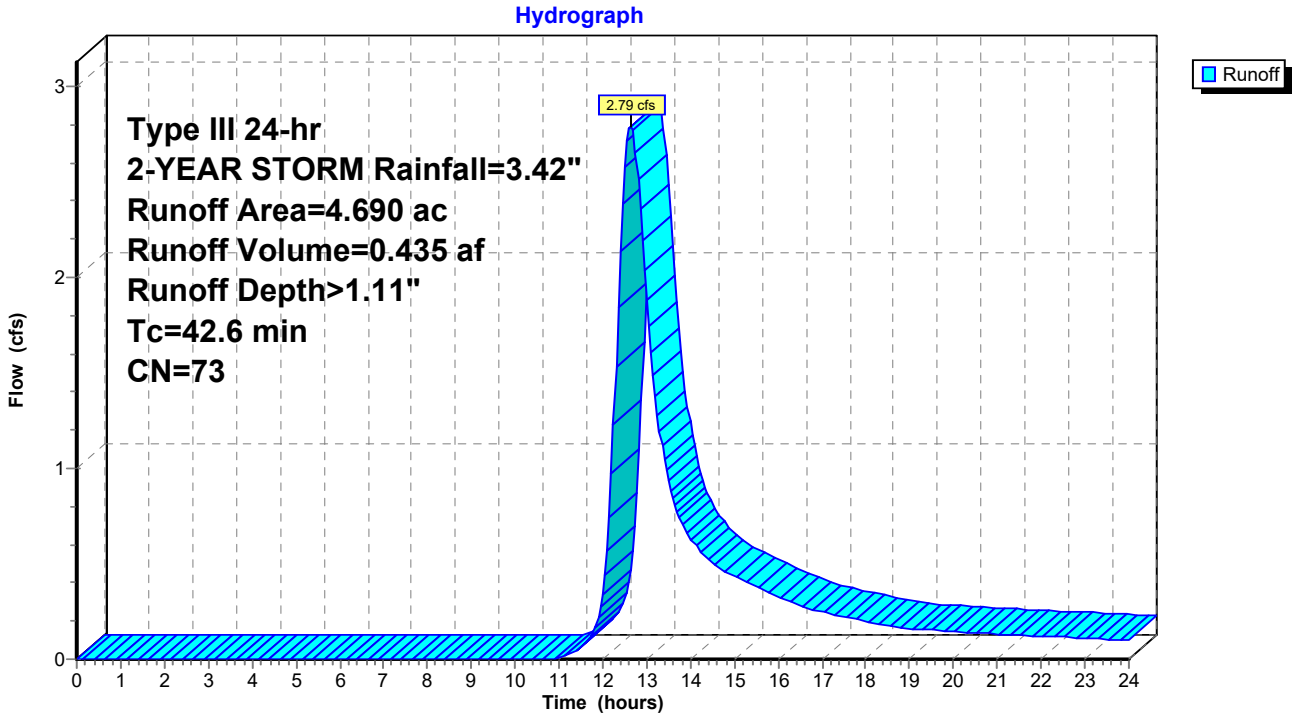
Runoff = 2.79 cfs @ 12.64 hrs, Volume= 0.435 af, Depth> 1.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	4.690	73	
	4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.6					**Direct Entry, SCS TR-55**

Subcatchment 1A:



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.00
11.00	0.85	0.00	0.01
11.25	0.93	0.01	0.02
11.50	1.02	0.02	0.06
11.75	1.21	0.05	0.12
12.00	1.71	0.20	0.34
12.25	2.21	0.42	1.23
12.50	2.40	0.51	**2.58**
12.75	2.49	0.56	**2.65**
13.00	2.56	0.60	1.88
13.25	2.62	0.64	1.28
13.50	2.68	0.67	0.93
13.75	2.73	0.70	0.74
14.00	2.77	0.72	0.64
14.25	2.81	0.75	0.56
14.50	2.85	0.77	0.50
14.75	2.89	0.79	0.46
15.00	2.92	0.81	0.43
15.25	2.95	0.83	0.41
15.50	2.98	0.85	0.38
15.75	3.01	0.86	0.36
16.00	3.03	0.88	0.33
16.25	3.05	0.89	0.30
16.50	3.07	0.90	0.28
16.75	3.09	0.91	0.26
17.00	3.11	0.93	0.25
17.25	3.13	0.94	0.23
17.50	3.14	0.95	0.22
17.75	3.16	0.96	0.21
18.00	3.17	0.97	0.20
18.25	3.19	0.97	0.18
18.50	3.20	0.98	0.17
18.75	3.21	0.99	0.17
19.00	3.23	1.00	0.16
19.25	3.24	1.01	0.16
19.50	3.25	1.01	0.15
19.75	3.26	1.02	0.15
20.00	3.27	1.03	0.15
20.25	3.28	1.04	0.14
20.50	3.29	1.04	0.14
20.75	3.31	1.05	0.14
21.00	3.32	1.06	0.13
21.25	3.33	1.06	0.13
21.50	3.34	1.07	0.13
21.75	3.34	1.08	0.12
22.00	3.35	1.08	0.12
22.25	3.36	1.09	0.12
22.50	3.37	1.09	0.12
22.75	3.38	1.10	0.11
23.00	3.39	1.11	0.11
23.25	3.40	1.11	0.11
23.50	3.40	1.12	0.10
23.75	3.41	1.12	0.10
24.00	**3.42**	**1.13**	0.10

Summary for Subcatchment 1B:

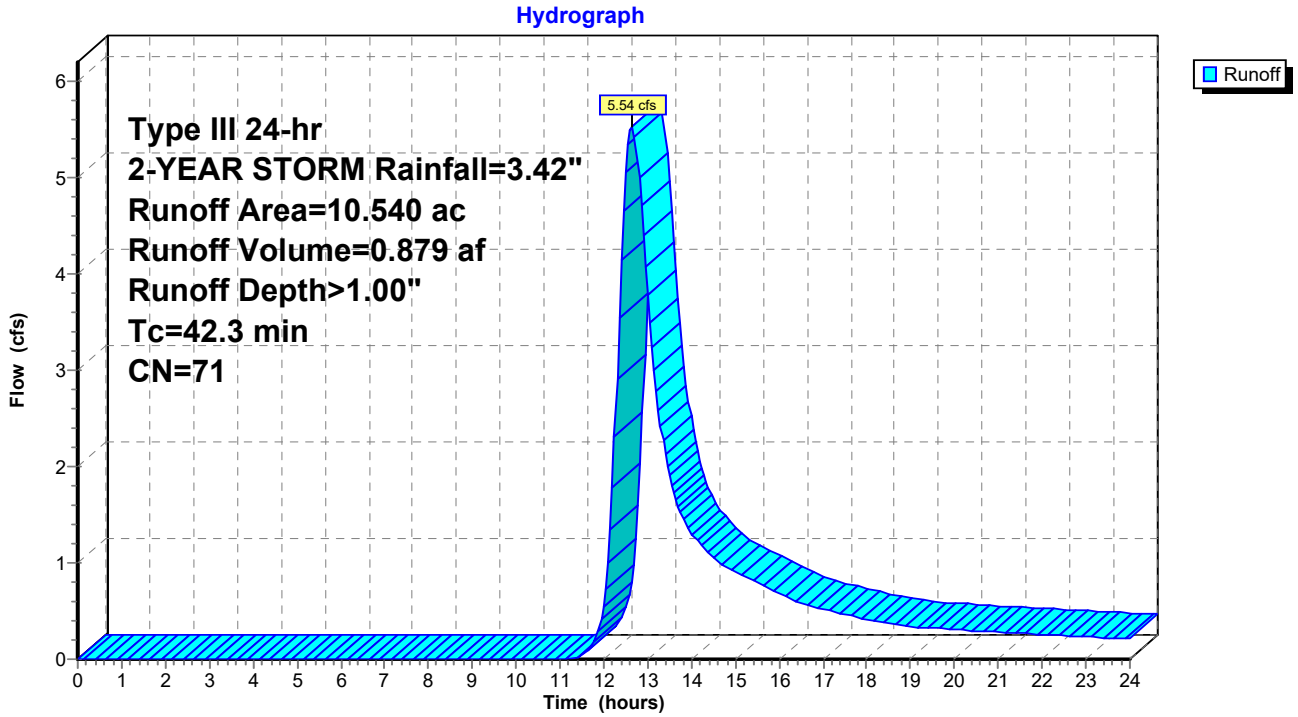
Runoff = 5.54 cfs @ 12.64 hrs, Volume= 0.879 af, Depth> 1.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	10.540	71	
	10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.3					**Direct Entry, SCS TR-55**

Subcatchment 1B:



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.00
11.00	0.85	0.00	0.00
11.25	0.93	0.00	0.01
11.50	1.02	0.01	0.05
11.75	1.21	0.04	0.15
12.00	1.71	0.16	0.55
12.25	2.21	0.35	2.31
12.50	2.40	0.44	**5.06**
12.75	2.49	0.49	**5.28**
13.00	2.56	0.52	3.78
13.25	2.62	0.55	2.59
13.50	2.68	0.58	1.91
13.75	2.73	0.61	1.53
14.00	2.77	0.63	1.32
14.25	2.81	0.66	1.17
14.50	2.85	0.68	1.05
14.75	2.89	0.70	0.97
15.00	2.92	0.72	0.91
15.25	2.95	0.73	0.85
15.50	2.98	0.75	0.80
15.75	3.01	0.76	0.75
16.00	3.03	0.78	0.69
16.25	3.05	0.79	0.64
16.50	3.07	0.80	0.59
16.75	3.09	0.81	0.55
17.00	3.11	0.82	0.52
17.25	3.13	0.84	0.49
17.50	3.14	0.84	0.47
17.75	3.16	0.85	0.44
18.00	3.17	0.86	0.42
18.25	3.19	0.87	0.39
18.50	3.20	0.88	0.37
18.75	3.21	0.89	0.35
19.00	3.23	0.89	0.34
19.25	3.24	0.90	0.33
19.50	3.25	0.91	0.32
19.75	3.26	0.92	0.32
20.00	3.27	0.92	0.31
20.25	3.28	0.93	0.30
20.50	3.29	0.94	0.29
20.75	3.31	0.94	0.29
21.00	3.32	0.95	0.28
21.25	3.33	0.95	0.27
21.50	3.34	0.96	0.27
21.75	3.34	0.97	0.26
22.00	3.35	0.97	0.26
22.25	3.36	0.98	0.25
22.50	3.37	0.98	0.25
22.75	3.38	0.99	0.24
23.00	3.39	0.99	0.23
23.25	3.40	1.00	0.23
23.50	3.40	1.00	0.22
23.75	3.41	1.01	0.22
24.00	**3.42**	**1.01**	0.21

Summary for Subcatchment 1C:

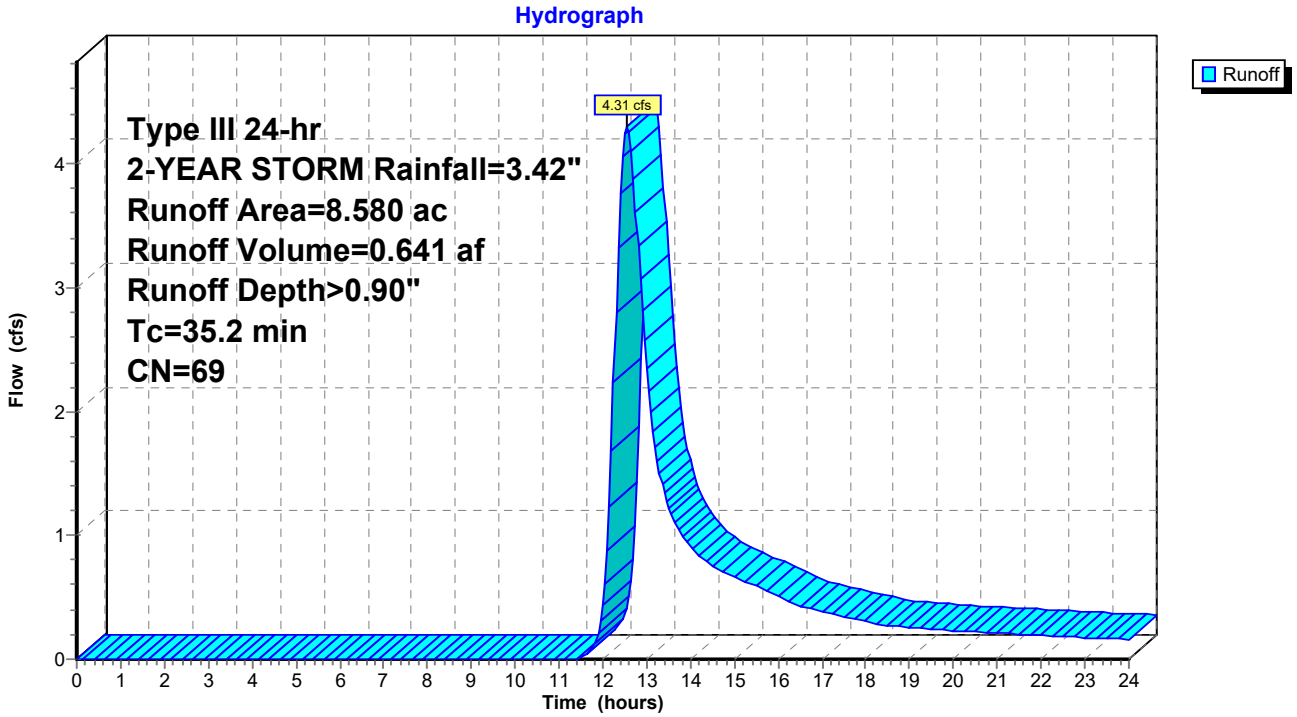
Runoff = 4.31 cfs @ 12.55 hrs, Volume= 0.641 af, Depth> 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	8.580	69	
	8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2					**Direct Entry, SCS TR-55**

Subcatchment 1C:



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.00
11.00	0.85	0.00	0.00
11.25	0.93	0.00	0.00
11.50	1.02	0.00	0.01
11.75	1.21	0.02	0.07
12.00	1.71	0.12	0.43
12.25	2.21	0.29	2.23
12.50	2.40	0.38	**4.25**
12.75	2.49	0.42	**3.61**
13.00	2.56	0.45	2.35
13.25	2.62	0.48	1.61
13.50	2.68	0.51	1.22
13.75	2.73	0.53	1.03
14.00	2.77	0.55	0.91
14.25	2.81	0.57	0.82
14.50	2.85	0.59	0.76
14.75	2.89	0.61	0.71
15.00	2.92	0.63	0.67
15.25	2.95	0.64	0.63
15.50	2.98	0.66	0.59
15.75	3.01	0.67	0.55
16.00	3.03	0.69	0.51
16.25	3.05	0.70	0.47
16.50	3.07	0.71	0.43
16.75	3.09	0.72	0.40
17.00	3.11	0.73	0.38
17.25	3.13	0.74	0.36
17.50	3.14	0.75	0.35
17.75	3.16	0.76	0.33
18.00	3.17	0.76	0.31
18.25	3.19	0.77	0.29
18.50	3.20	0.78	0.27
18.75	3.21	0.79	0.26
19.00	3.23	0.79	0.26
19.25	3.24	0.80	0.25
19.50	3.25	0.81	0.24
19.75	3.26	0.81	0.24
20.00	3.27	0.82	0.23
20.25	3.28	0.83	0.23
20.50	3.29	0.83	0.22
20.75	3.31	0.84	0.22
21.00	3.32	0.85	0.21
21.25	3.33	0.85	0.21
21.50	3.34	0.86	0.20
21.75	3.34	0.86	0.20
22.00	3.35	0.87	0.19
22.25	3.36	0.87	0.19
22.50	3.37	0.88	0.19
22.75	3.38	0.88	0.18
23.00	3.39	0.89	0.18
23.25	3.40	0.89	0.17
23.50	3.40	0.90	0.17
23.75	3.41	0.90	0.16
24.00	**3.42**	**0.91**	0.16

Summary for Subcatchment 2:

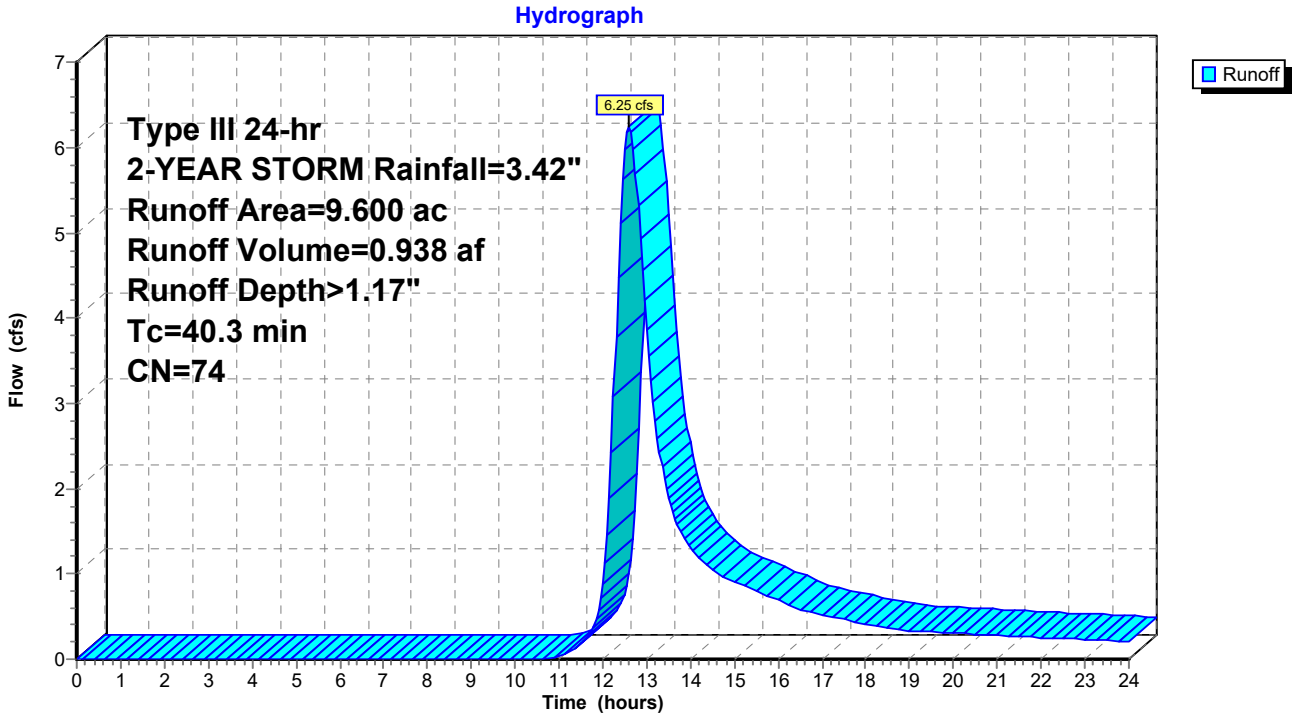
Runoff = 6.25 cfs @ 12.60 hrs, Volume= 0.938 af, Depth> 1.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	9.600	74	
	9.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.3					**Direct Entry, SCS TR-55**

Subcatchment 2:



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.01
11.00	0.85	0.01	0.04
11.25	0.93	0.01	0.09
11.50	1.02	0.03	0.18
11.75	1.21	0.07	0.34
12.00	1.71	0.22	0.88
12.25	2.21	0.45	3.07
12.50	2.40	0.55	**5.98**
12.75	2.49	0.60	**5.68**
13.00	2.56	0.65	3.86
13.25	2.62	0.68	2.59
13.50	2.68	0.71	1.89
13.75	2.73	0.74	1.53
14.00	2.77	0.77	1.32
14.25	2.81	0.79	1.16
14.50	2.85	0.82	1.05
14.75	2.89	0.84	0.97
15.00	2.92	0.86	0.91
15.25	2.95	0.88	0.86
15.50	2.98	0.90	0.80
15.75	3.01	0.91	0.75
16.00	3.03	0.93	0.69
16.25	3.05	0.94	0.64
16.50	3.07	0.95	0.58
16.75	3.09	0.97	0.55
17.00	3.11	0.98	0.52
17.25	3.13	0.99	0.49
17.50	3.14	1.00	0.46
17.75	3.16	1.01	0.44
18.00	3.17	1.02	0.41
18.25	3.19	1.03	0.39
18.50	3.20	1.04	0.36
18.75	3.21	1.05	0.35
19.00	3.23	1.05	0.34
19.25	3.24	1.06	0.33
19.50	3.25	1.07	0.32
19.75	3.26	1.08	0.31
20.00	3.27	1.09	0.31
20.25	3.28	1.09	0.30
20.50	3.29	1.10	0.29
20.75	3.31	1.11	0.28
21.00	3.32	1.11	0.28
21.25	3.33	1.12	0.27
21.50	3.34	1.13	0.27
21.75	3.34	1.13	0.26
22.00	3.35	1.14	0.26
22.25	3.36	1.15	0.25
22.50	3.37	1.15	0.24
22.75	3.38	1.16	0.24
23.00	3.39	1.16	0.23
23.25	3.40	1.17	0.23
23.50	3.40	1.17	0.22
23.75	3.41	1.18	0.21
24.00	**3.42**	**1.19**	0.21

Summary for Subcatchment 3:

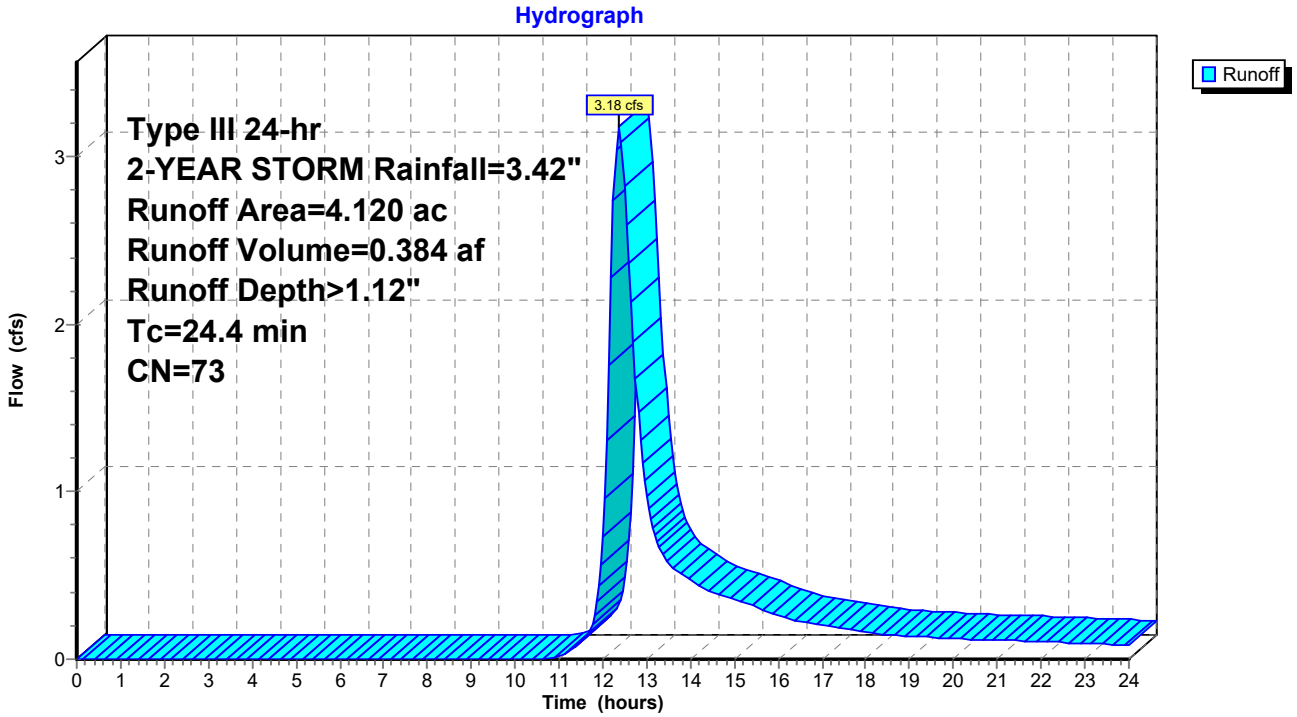
Runoff = 3.18 cfs @ 12.37 hrs, Volume= 0.384 af, Depth> 1.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	4.120	73	
	4.120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.4					**Direct Entry, SCS TR-55**

Subcatchment 3:



Hydrograph for Subcatchment 3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.00
11.00	0.85	0.00	0.02
11.25	0.93	0.01	0.05
11.50	1.02	0.02	0.10
11.75	1.21	0.05	0.21
12.00	1.71	0.20	0.73
12.25	2.21	0.42	**2.74**
12.50	2.40	0.51	**2.82**
12.75	2.49	0.56	1.67
13.00	2.56	0.60	0.98
13.25	2.62	0.64	0.70
13.50	2.68	0.67	0.57
13.75	2.73	0.70	0.52
14.00	2.77	0.72	0.47
14.25	2.81	0.75	0.43
14.50	2.85	0.77	0.40
14.75	2.89	0.79	0.38
15.00	2.92	0.81	0.36
15.25	2.95	0.83	0.33
15.50	2.98	0.85	0.31
15.75	3.01	0.86	0.29
16.00	3.03	0.88	0.26
16.25	3.05	0.89	0.24
16.50	3.07	0.90	0.23
16.75	3.09	0.91	0.21
17.00	3.11	0.93	0.20
17.25	3.13	0.94	0.19
17.50	3.14	0.95	0.18
17.75	3.16	0.96	0.17
18.00	3.17	0.97	0.16
18.25	3.19	0.97	0.15
18.50	3.20	0.98	0.14
18.75	3.21	0.99	0.14
19.00	3.23	1.00	0.14
19.25	3.24	1.01	0.13
19.50	3.25	1.01	0.13
19.75	3.26	1.02	0.13
20.00	3.27	1.03	0.12
20.25	3.28	1.04	0.12
20.50	3.29	1.04	0.12
20.75	3.31	1.05	0.12
21.00	3.32	1.06	0.11
21.25	3.33	1.06	0.11
21.50	3.34	1.07	0.11
21.75	3.34	1.08	0.11
22.00	3.35	1.08	0.10
22.25	3.36	1.09	0.10
22.50	3.37	1.09	0.10
22.75	3.38	1.10	0.10
23.00	3.39	1.11	0.09
23.25	3.40	1.11	0.09
23.50	3.40	1.12	0.09
23.75	3.41	1.12	0.09
24.00	**3.42**	**1.13**	0.08

Summary for Subcatchment 4:

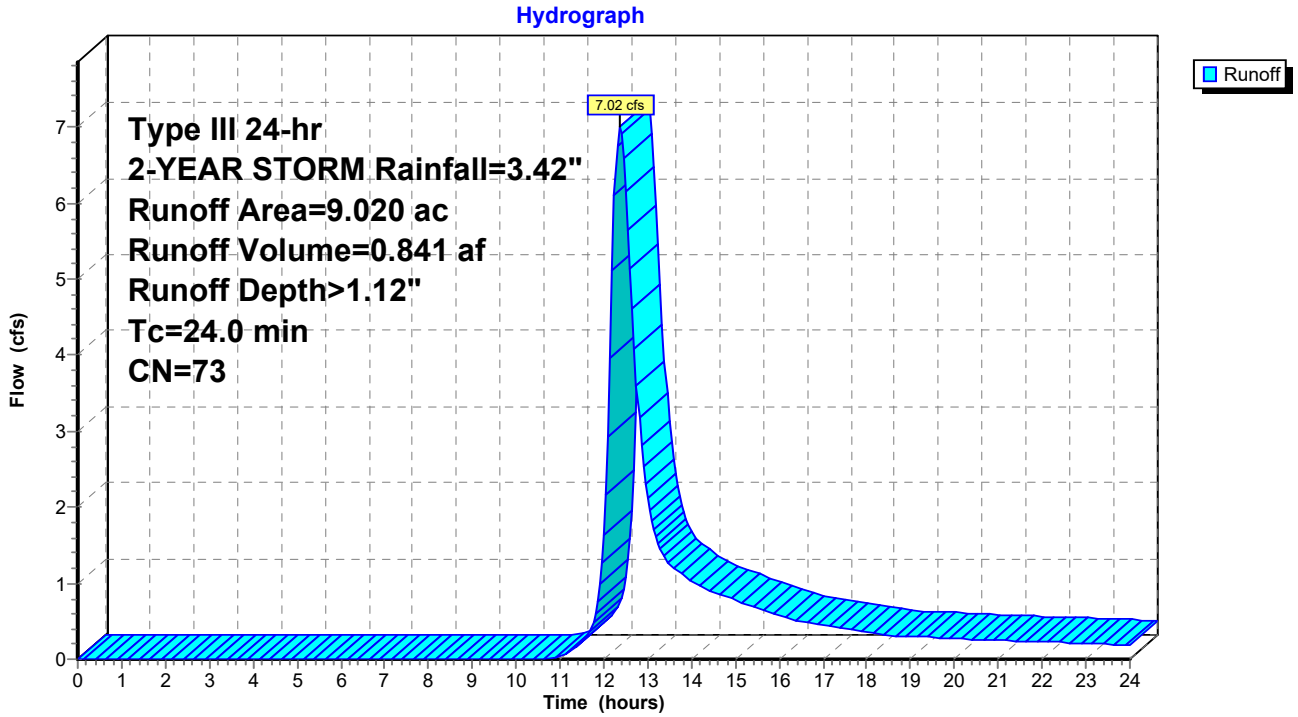
Runoff = 7.02 cfs @ 12.36 hrs, Volume= 0.841 af, Depth> 1.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	9.020	73	
	9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					**Direct Entry, SCS TR-55**

Subcatchment 4:



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.00
10.50	0.74	0.00	0.00
10.75	0.80	0.00	0.00
11.00	0.85	0.00	0.04
11.25	0.93	0.01	0.10
11.50	1.02	0.02	0.22
11.75	1.21	0.05	0.47
12.00	1.71	0.20	1.63
12.25	2.21	0.42	**6.11**
12.50	2.40	0.51	**6.14**
12.75	2.49	0.56	3.60
13.00	2.56	0.60	2.11
13.25	2.62	0.64	1.52
13.50	2.68	0.67	1.25
13.75	2.73	0.70	1.13
14.00	2.77	0.72	1.03
14.25	2.81	0.75	0.94
14.50	2.85	0.77	0.87
14.75	2.89	0.79	0.82
15.00	2.92	0.81	0.78
15.25	2.95	0.83	0.73
15.50	2.98	0.85	0.68
15.75	3.01	0.86	0.63
16.00	3.03	0.88	0.58
16.25	3.05	0.89	0.53
16.50	3.07	0.90	0.49
16.75	3.09	0.91	0.47
17.00	3.11	0.93	0.44
17.25	3.13	0.94	0.42
17.50	3.14	0.95	0.40
17.75	3.16	0.96	0.38
18.00	3.17	0.97	0.35
18.25	3.19	0.97	0.33
18.50	3.20	0.98	0.32
18.75	3.21	0.99	0.31
19.00	3.23	1.00	0.30
19.25	3.24	1.01	0.29
19.50	3.25	1.01	0.29
19.75	3.26	1.02	0.28
20.00	3.27	1.03	0.27
20.25	3.28	1.04	0.27
20.50	3.29	1.04	0.26
20.75	3.31	1.05	0.25
21.00	3.32	1.06	0.25
21.25	3.33	1.06	0.24
21.50	3.34	1.07	0.24
21.75	3.34	1.08	0.23
22.00	3.35	1.08	0.23
22.25	3.36	1.09	0.22
22.50	3.37	1.09	0.22
22.75	3.38	1.10	0.21
23.00	3.39	1.11	0.21
23.25	3.40	1.11	0.20
23.50	3.40	1.12	0.19
23.75	3.41	1.12	0.19
24.00	**3.42**	**1.13**	0.18

Summary for Subcatchment 5:

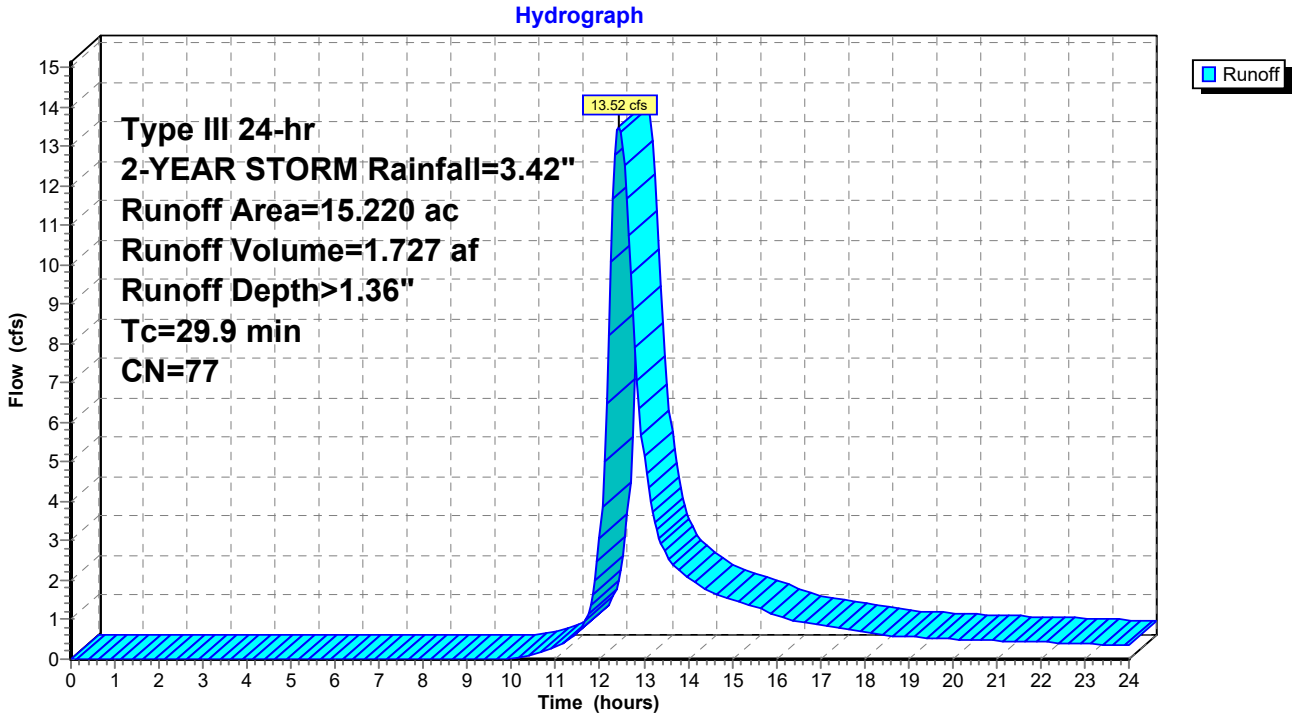
Runoff = 13.52 cfs @ 12.44 hrs, Volume= 1.727 af, Depth> 1.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR STORM Rainfall=3.42"

	Area (ac)	CN	Description
*	15.220	77	
	15.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.9					**Direct Entry, SCS TR-55**

Subcatchment 5:



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.02	0.00	0.00
0.75	0.03	0.00	0.00
1.00	0.03	0.00	0.00
1.25	0.04	0.00	0.00
1.50	0.05	0.00	0.00
1.75	0.06	0.00	0.00
2.00	0.07	0.00	0.00
2.25	0.08	0.00	0.00
2.50	0.09	0.00	0.00
2.75	0.10	0.00	0.00
3.00	0.11	0.00	0.00
3.25	0.12	0.00	0.00
3.50	0.13	0.00	0.00
3.75	0.14	0.00	0.00
4.00	0.15	0.00	0.00
4.25	0.16	0.00	0.00
4.50	0.17	0.00	0.00
4.75	0.18	0.00	0.00
5.00	0.19	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.22	0.00	0.00
5.75	0.23	0.00	0.00
6.00	0.25	0.00	0.00
6.25	0.26	0.00	0.00
6.50	0.28	0.00	0.00
6.75	0.29	0.00	0.00
7.00	0.31	0.00	0.00
7.25	0.33	0.00	0.00
7.50	0.35	0.00	0.00
7.75	0.37	0.00	0.00
8.00	0.39	0.00	0.00
8.25	0.41	0.00	0.00
8.50	0.44	0.00	0.00
8.75	0.47	0.00	0.00
9.00	0.50	0.00	0.00
9.25	0.53	0.00	0.00
9.50	0.57	0.00	0.00
9.75	0.61	0.00	0.00
10.00	0.65	0.00	0.00
10.25	0.69	0.00	0.04
10.50	0.74	0.01	0.11
10.75	0.80	0.01	0.20
11.00	0.85	0.02	0.31
11.25	0.93	0.03	0.46
11.50	1.02	0.05	0.70
11.75	1.21	0.11	1.17
12.00	1.71	0.30	3.07
12.25	2.21	0.56	**10.07**
12.50	2.40	0.68	**13.19**
12.75	2.49	0.74	8.81
13.00	2.56	0.78	5.16
13.25	2.62	0.82	3.48
13.50	2.68	0.86	2.69
13.75	2.73	0.89	2.31
14.00	2.77	0.92	2.07
14.25	2.81	0.94	1.88
14.50	2.85	0.97	1.73
14.75	2.89	0.99	1.62
15.00	2.92	1.02	1.52
15.25	2.95	1.04	1.43
15.50	2.98	1.06	1.33
15.75	3.01	1.08	1.23
16.00	3.03	1.09	1.14
16.25	3.05	1.11	1.04
16.50	3.07	1.12	0.96
16.75	3.09	1.14	0.91
17.00	3.11	1.15	0.86
17.25	3.13	1.16	0.81
17.50	3.14	1.17	0.77
17.75	3.16	1.18	0.73
18.00	3.17	1.19	0.68
18.25	3.19	1.20	0.64
18.50	3.20	1.21	0.60
18.75	3.21	1.22	0.59
19.00	3.23	1.23	0.57
19.25	3.24	1.24	0.56
19.50	3.25	1.25	0.54
19.75	3.26	1.26	0.53
20.00	3.27	1.26	0.52
20.25	3.28	1.27	0.50
20.50	3.29	1.28	0.49
20.75	3.31	1.29	0.48
21.00	3.32	1.29	0.47
21.25	3.33	1.30	0.46
21.50	3.34	1.31	0.45
21.75	3.34	1.32	0.44
22.00	3.35	1.32	0.43
22.25	3.36	1.33	0.42
22.50	3.37	1.34	0.41
22.75	3.38	1.34	0.40
23.00	3.39	1.35	0.39
23.25	3.40	1.35	0.38
23.50	3.40	1.36	0.37
23.75	3.41	1.37	0.36
24.00	**3.42**	**1.37**	0.35

Summary for Pond 1A - Pond: 1A - Pond

Inflow Area = 4.690 ac, 0.00% Impervious, Inflow Depth > 1.11" for 2-YEAR STORM event
Inflow = 2.79 cfs @ 12.64 hrs, Volume= 0.435 af
Outflow = 0.11 cfs @ 23.10 hrs, Volume= 0.025 af, Atten= 96%, Lag= 627.7 min
Primary = 0.11 cfs @ 23.10 hrs, Volume= 0.025 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 129.02' @ 23.10 hrs Surf.Area= 0.258 ac Storage= 0.410 af

Plug-Flow detention time= 572.3 min calculated for 0.025 af (6% of inflow)
Center-of-Mass det. time= 406.6 min (1,295.1 - 888.5)

Volume	Invert	Avail.Storage	Storage Description
#1	127.25'	0.975 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

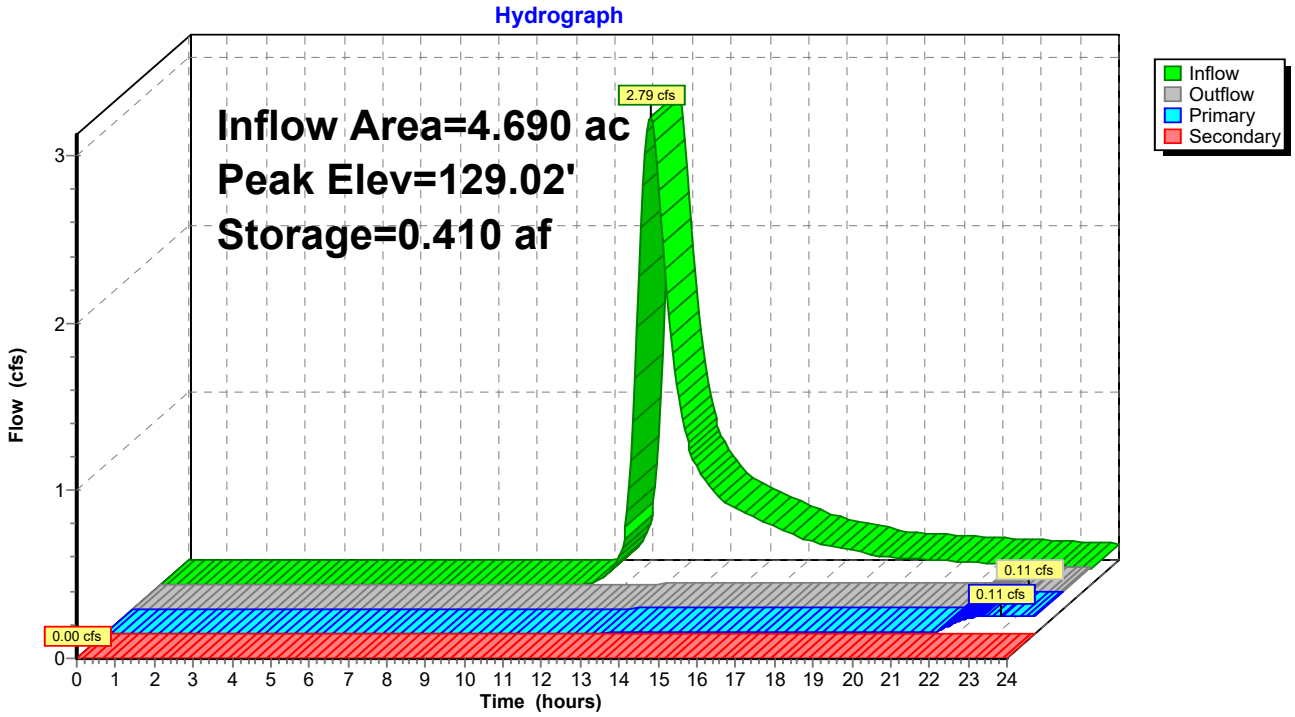
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
127.25	0.200	0.000	0.000
128.00	0.230	0.161	0.161
129.00	0.257	0.244	0.405
130.00	0.285	0.271	0.676
131.00	0.314	0.300	0.975

Device	Routing	Invert	Outlet Devices
#1	Secondary	130.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	127.25'	**18.0" Round Culvert** L= 55.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 127.25' / 127.00' S= 0.0045 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#3	Device 2	127.25'	**0.5" Vert. Orifice/Grate** C= 0.600
#4	Device 2	129.00'	**7.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.09 cfs @ 23.10 hrs HW=129.02' (Free Discharge)
└─**2=Culvert** (Passes 0.09 cfs of 7.51 cfs potential flow)
  ├─**3=Orifice/Grate** (Orifice Controls 0.01 cfs @ 6.37 fps)
  └─**4=Sharp-Crested Rectangular Weir** (Weir Controls 0.08 cfs @ 0.49 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=127.25' (Free Discharge)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A - Pond: 1A - Pond



Hydrograph for Pond 1A - Pond: 1A - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	127.25	0.00	0.00	**0.00**
0.50	0.00	0.000	127.25	0.00	0.00	0.00
1.00	0.00	0.000	127.25	0.00	0.00	0.00
1.50	0.00	0.000	127.25	0.00	0.00	0.00
2.00	0.00	0.000	127.25	0.00	0.00	0.00
2.50	0.00	0.000	127.25	0.00	0.00	0.00
3.00	0.00	0.000	127.25	0.00	0.00	0.00
3.50	0.00	0.000	127.25	0.00	0.00	0.00
4.00	0.00	0.000	127.25	0.00	0.00	0.00
4.50	0.00	0.000	127.25	0.00	0.00	0.00
5.00	0.00	0.000	127.25	0.00	0.00	0.00
5.50	0.00	0.000	127.25	0.00	0.00	0.00
6.00	0.00	0.000	127.25	0.00	0.00	0.00
6.50	0.00	0.000	127.25	0.00	0.00	0.00
7.00	0.00	0.000	127.25	0.00	0.00	0.00
7.50	0.00	0.000	127.25	0.00	0.00	0.00
8.00	0.00	0.000	127.25	0.00	0.00	0.00
8.50	0.00	0.000	127.25	0.00	0.00	0.00
9.00	0.00	0.000	127.25	0.00	0.00	0.00
9.50	0.00	0.000	127.25	0.00	0.00	0.00
10.00	0.00	0.000	127.25	0.00	0.00	0.00
10.50	0.00	0.000	127.25	0.00	0.00	0.00
11.00	0.01	0.000	127.25	0.00	0.00	0.00
11.50	0.06	0.001	127.26	0.00	0.00	0.00
12.00	0.34	0.007	127.29	0.00	0.00	0.00
12.50	**2.58**	0.062	127.55	0.00	0.00	0.00
13.00	**1.88**	0.165	128.02	0.01	0.01	0.00
13.50	0.93	0.220	128.25	0.01	0.01	0.00
14.00	0.64	0.251	128.38	0.01	0.01	0.00
14.50	0.50	0.274	128.48	0.01	0.01	0.00
15.00	0.43	0.293	128.55	0.01	0.01	0.00
15.50	0.38	0.309	128.62	0.01	0.01	0.00
16.00	0.33	0.324	128.68	0.01	0.01	0.00
16.50	0.28	0.336	128.73	0.01	0.01	0.00
17.00	0.25	0.347	128.77	0.01	0.01	0.00
17.50	0.22	0.356	128.81	0.01	0.01	0.00
18.00	0.20	0.364	128.84	0.01	0.01	0.00
18.50	0.17	0.371	128.87	0.01	0.01	0.00
19.00	0.16	0.378	128.90	0.01	0.01	0.00
19.50	0.15	0.384	128.92	0.01	0.01	0.00
20.00	0.15	0.390	128.94	0.01	0.01	0.00
20.50	0.14	0.395	128.96	0.01	0.01	0.00
21.00	0.13	0.401	128.98	0.01	0.01	0.00
21.50	0.13	0.406	129.00	0.02	0.02	0.00
22.00	0.12	0.409	129.02	0.07	0.07	0.00
22.50	0.12	0.410	129.02	0.10	0.10	0.00
23.00	0.11	**0.410**	**129.02**	**0.11**	**0.11**	0.00
23.50	0.10	**0.410**	**129.02**	**0.11**	**0.11**	0.00
24.00	0.10	0.410	129.02	0.10	0.10	0.00

Summary for Pond 1B - Pond: 1B - Pond

Inflow Area = 10.540 ac, 0.00% Impervious, Inflow Depth > 1.00" for 2-YEAR STORM event
Inflow = 5.54 cfs @ 12.64 hrs, Volume= 0.879 af
Outflow = 0.27 cfs @ 21.56 hrs, Volume= 0.090 af, Atten= 95%, Lag= 535.2 min
Primary = 0.27 cfs @ 21.56 hrs, Volume= 0.090 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 126.54' @ 21.56 hrs Surf.Area= 0.276 ac Storage= 0.791 af

Plug-Flow detention time= 540.3 min calculated for 0.090 af (10% of inflow)
Center-of-Mass det. time= 381.0 min (1,275.4 - 894.5)

Volume	Invert	Avail.Storage	Storage Description
#1	123.00'	1.560 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

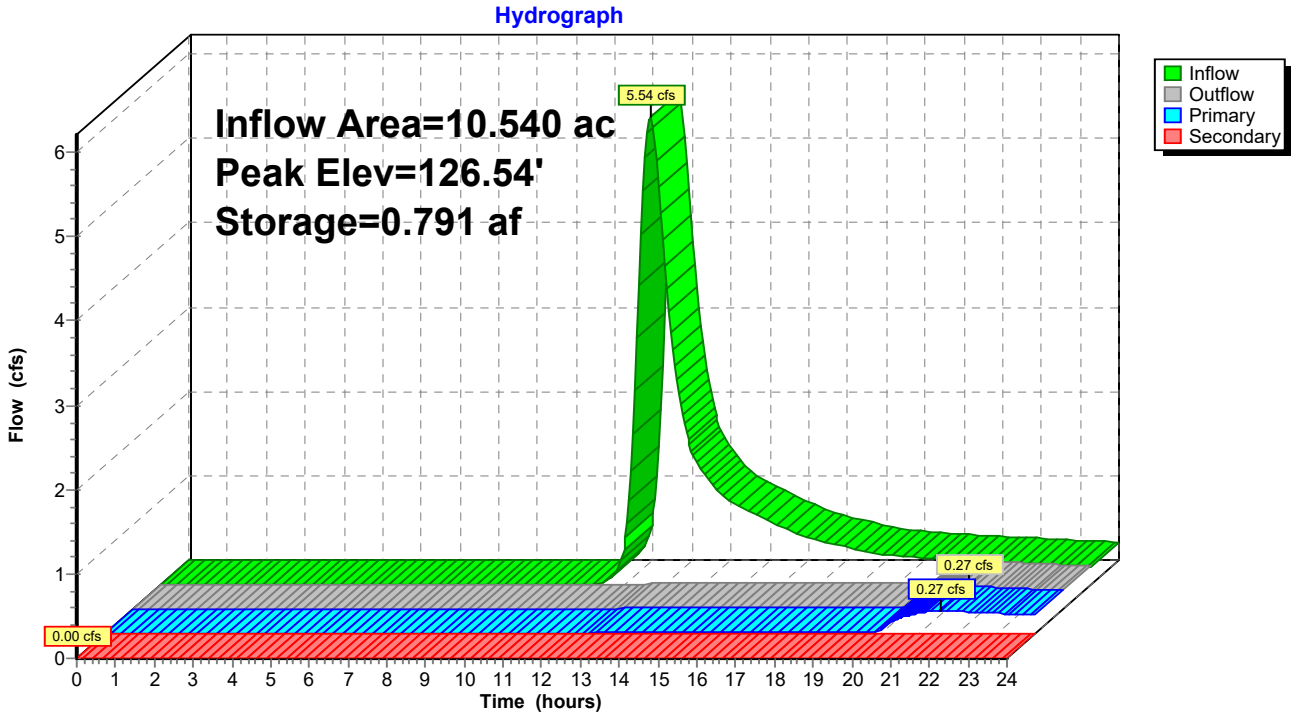
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
123.00	0.170	0.000	0.000
124.00	0.200	0.185	0.185
125.00	0.230	0.215	0.400
126.00	0.260	0.245	0.645
127.00	0.290	0.275	0.920
128.00	0.320	0.305	1.225
129.00	0.350	0.335	1.560

Device	Routing	Invert	Outlet Devices
#1	Primary	123.00'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 123.00' / 122.00' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	128.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	123.00'	**0.7" Vert. Orifice/Grate** C= 0.600
#4	Device 1	126.50'	**7.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.26 cfs @ 21.56 hrs HW=126.54' (Free Discharge)
└**1=Culvert** (Passes 0.26 cfs of 14.22 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.02 cfs @ 9.03 fps)
  └**4=Sharp-Crested Rectangular Weir** (Weir Controls 0.23 cfs @ 0.69 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=123.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1B - Pond: 1B - Pond



Hydrograph for Pond 1B - Pond: 1B - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	123.00	0.00	0.00	**0.00**
0.50	0.00	0.000	123.00	0.00	0.00	0.00
1.00	0.00	0.000	123.00	0.00	0.00	0.00
1.50	0.00	0.000	123.00	0.00	0.00	0.00
2.00	0.00	0.000	123.00	0.00	0.00	0.00
2.50	0.00	0.000	123.00	0.00	0.00	0.00
3.00	0.00	0.000	123.00	0.00	0.00	0.00
3.50	0.00	0.000	123.00	0.00	0.00	0.00
4.00	0.00	0.000	123.00	0.00	0.00	0.00
4.50	0.00	0.000	123.00	0.00	0.00	0.00
5.00	0.00	0.000	123.00	0.00	0.00	0.00
5.50	0.00	0.000	123.00	0.00	0.00	0.00
6.00	0.00	0.000	123.00	0.00	0.00	0.00
6.50	0.00	0.000	123.00	0.00	0.00	0.00
7.00	0.00	0.000	123.00	0.00	0.00	0.00
7.50	0.00	0.000	123.00	0.00	0.00	0.00
8.00	0.00	0.000	123.00	0.00	0.00	0.00
8.50	0.00	0.000	123.00	0.00	0.00	0.00
9.00	0.00	0.000	123.00	0.00	0.00	0.00
9.50	0.00	0.000	123.00	0.00	0.00	0.00
10.00	0.00	0.000	123.00	0.00	0.00	0.00
10.50	0.00	0.000	123.00	0.00	0.00	0.00
11.00	0.00	0.000	123.00	0.00	0.00	0.00
11.50	0.05	0.001	123.00	0.00	0.00	0.00
12.00	0.55	0.009	123.05	0.00	0.00	0.00
12.50	**5.06**	0.113	123.63	0.01	0.01	0.00
13.00	**3.78**	0.318	124.63	0.02	0.02	0.00
13.50	1.91	0.428	125.12	0.02	0.02	0.00
14.00	1.32	0.491	125.39	0.02	0.02	0.00
14.50	1.05	0.539	125.58	0.02	0.02	0.00
15.00	0.91	0.578	125.74	0.02	0.02	0.00
15.50	0.80	0.613	125.88	0.02	0.02	0.00
16.00	0.69	0.643	125.99	0.02	0.02	0.00
16.50	0.59	0.668	126.09	0.02	0.02	0.00
17.00	0.52	0.690	126.17	0.02	0.02	0.00
17.50	0.47	0.710	126.24	0.02	0.02	0.00
18.00	0.42	0.727	126.31	0.02	0.02	0.00
18.50	0.37	0.742	126.37	0.02	0.02	0.00
19.00	0.34	0.756	126.42	0.02	0.02	0.00
19.50	0.32	0.768	126.46	0.02	0.02	0.00
20.00	0.31	0.780	126.51	0.05	0.05	0.00
20.50	0.29	0.787	126.53	0.18	0.18	0.00
21.00	0.28	0.790	126.54	0.25	0.25	0.00
21.50	0.27	**0.791**	**126.54**	**0.27**	**0.27**	0.00
22.00	0.26	**0.791**	**126.54**	**0.26**	**0.26**	0.00
22.50	0.25	0.790	126.54	0.25	0.25	0.00
23.00	0.23	0.790	126.54	0.24	0.24	0.00
23.50	0.22	0.790	126.54	0.23	0.23	0.00
24.00	0.21	0.789	126.54	0.22	0.22	0.00

Summary for Pond 1C-Pond: 1C - Pond

Inflow Area = 8.580 ac, 0.00% Impervious, Inflow Depth > 0.90" for 2-YEAR STORM event
Inflow = 4.31 cfs @ 12.55 hrs, Volume= 0.641 af
Outflow = 0.17 cfs @ 23.12 hrs, Volume= 0.047 af, Atten= 96%, Lag= 634.4 min
Primary = 0.17 cfs @ 23.12 hrs, Volume= 0.047 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 130.03' @ 23.12 hrs Surf.Area= 0.351 ac Storage= 0.595 af

Plug-Flow detention time= 548.9 min calculated for 0.047 af (7% of inflow)
Center-of-Mass det. time= 384.2 min (1,279.8 - 895.6)

Volume	Invert	Avail.Storage	Storage Description
#1	128.00'	1.875 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

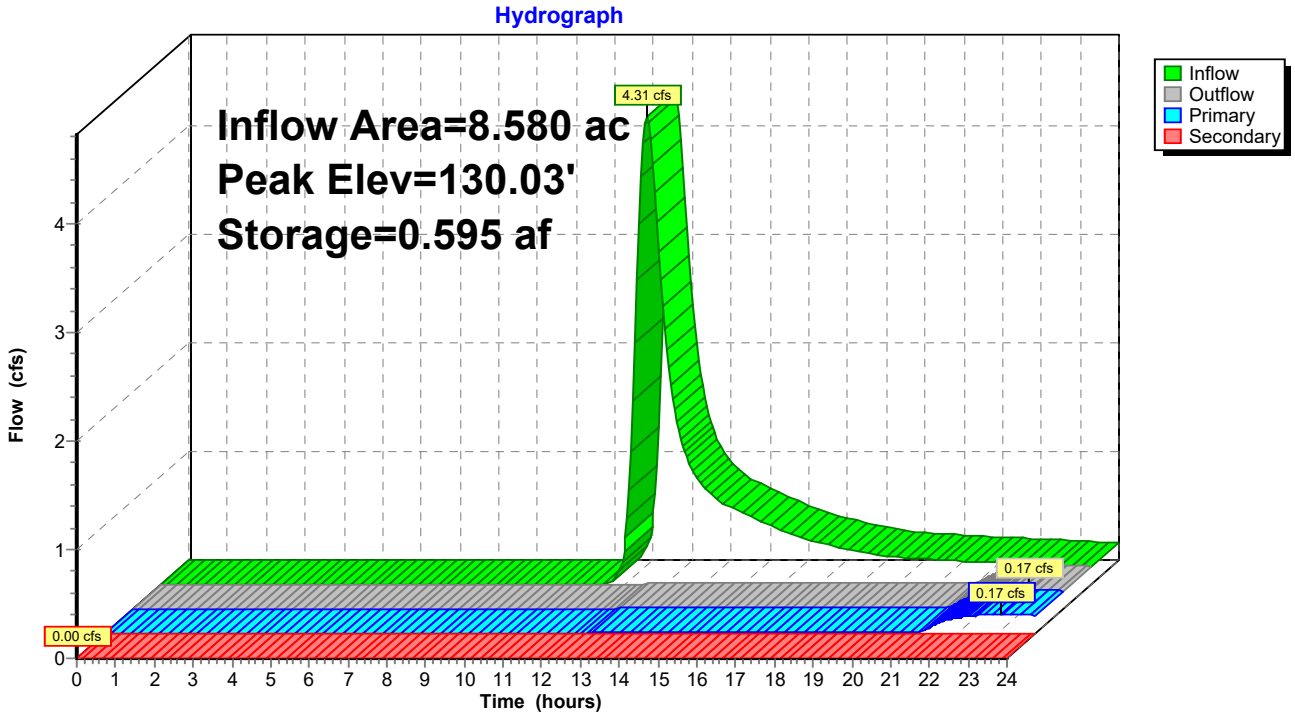
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
128.00	0.240	0.000	0.000
129.00	0.290	0.265	0.265
130.00	0.350	0.320	0.585
131.00	0.400	0.375	0.960
132.00	0.460	0.430	1.390
133.00	0.510	0.485	1.875

Device	Routing	Invert	Outlet Devices
#1	Primary	128.00'	**18.0" Round Culvert** L= 45.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 128.00' / 127.75' S= 0.0056 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	131.75'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	128.00'	**0.7" Vert. Orifice/Grate** C= 0.600
#4	Device 1	130.00'	**7.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.13 cfs @ 23.12 hrs HW=130.03' (Free Discharge)
└**1=Culvert** (Passes 0.13 cfs of 8.43 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.02 cfs @ 6.81 fps)
  └**4=Sharp-Crested Rectangular Weir** (Weir Controls 0.12 cfs @ 0.54 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-Pond: 1C - Pond



Hydrograph for Pond 1C-Pond: 1C - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	128.00	0.00	0.00	**0.00**
0.50	0.00	0.000	128.00	0.00	0.00	0.00
1.00	0.00	0.000	128.00	0.00	0.00	0.00
1.50	0.00	0.000	128.00	0.00	0.00	0.00
2.00	0.00	0.000	128.00	0.00	0.00	0.00
2.50	0.00	0.000	128.00	0.00	0.00	0.00
3.00	0.00	0.000	128.00	0.00	0.00	0.00
3.50	0.00	0.000	128.00	0.00	0.00	0.00
4.00	0.00	0.000	128.00	0.00	0.00	0.00
4.50	0.00	0.000	128.00	0.00	0.00	0.00
5.00	0.00	0.000	128.00	0.00	0.00	0.00
5.50	0.00	0.000	128.00	0.00	0.00	0.00
6.00	0.00	0.000	128.00	0.00	0.00	0.00
6.50	0.00	0.000	128.00	0.00	0.00	0.00
7.00	0.00	0.000	128.00	0.00	0.00	0.00
7.50	0.00	0.000	128.00	0.00	0.00	0.00
8.00	0.00	0.000	128.00	0.00	0.00	0.00
8.50	0.00	0.000	128.00	0.00	0.00	0.00
9.00	0.00	0.000	128.00	0.00	0.00	0.00
9.50	0.00	0.000	128.00	0.00	0.00	0.00
10.00	0.00	0.000	128.00	0.00	0.00	0.00
10.50	0.00	0.000	128.00	0.00	0.00	0.00
11.00	0.00	0.000	128.00	0.00	0.00	0.00
11.50	0.01	0.000	128.00	0.00	0.00	0.00
12.00	0.43	0.005	128.02	0.00	0.00	0.00
12.50	**4.25**	0.100	128.40	0.01	0.01	0.00
13.00	**2.35**	0.245	128.93	0.01	0.01	0.00
13.50	1.22	0.313	129.16	0.01	0.01	0.00
14.00	0.91	0.355	129.30	0.01	0.01	0.00
14.50	0.76	0.389	129.41	0.02	0.02	0.00
15.00	0.67	0.418	129.50	0.02	0.02	0.00
15.50	0.59	0.443	129.58	0.02	0.02	0.00
16.00	0.51	0.465	129.65	0.02	0.02	0.00
16.50	0.43	0.483	129.70	0.02	0.02	0.00
17.00	0.38	0.500	129.75	0.02	0.02	0.00
17.50	0.35	0.514	129.79	0.02	0.02	0.00
18.00	0.31	0.527	129.83	0.02	0.02	0.00
18.50	0.27	0.538	129.86	0.02	0.02	0.00
19.00	0.26	0.548	129.89	0.02	0.02	0.00
19.50	0.24	0.558	129.92	0.02	0.02	0.00
20.00	0.23	0.567	129.95	0.02	0.02	0.00
20.50	0.22	0.575	129.97	0.02	0.02	0.00
21.00	0.21	0.584	130.00	0.02	0.02	0.00
21.50	0.20	0.590	130.01	0.10	0.10	0.00
22.00	0.19	0.593	130.02	0.15	0.15	0.00
22.50	0.19	0.594	130.03	0.17	0.17	0.00
23.00	0.18	**0.595**	**130.03**	**0.17**	**0.17**	0.00
23.50	0.17	**0.595**	**130.03**	**0.17**	**0.17**	0.00
24.00	0.16	0.594	130.03	0.17	0.17	0.00

Summary for Pond 2 - Pond: 2 - Pond

Inflow Area = 9.600 ac, 0.00% Impervious, Inflow Depth > 1.17" for 2-YEAR STORM event
Inflow = 6.25 cfs @ 12.60 hrs, Volume= 0.938 af
Outflow = 0.43 cfs @ 17.86 hrs, Volume= 0.198 af, Atten= 93%, Lag= 315.5 min
Primary = 0.43 cfs @ 17.86 hrs, Volume= 0.198 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 137.06' @ 17.86 hrs Surf.Area= 0.259 ac Storage= 0.746 af

Plug-Flow detention time= 439.6 min calculated for 0.198 af (21% of inflow)
Center-of-Mass det. time= 294.2 min (1,177.9 - 883.7)

Volume	Invert	Avail.Storage	Storage Description
#1	133.00'	1.326 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

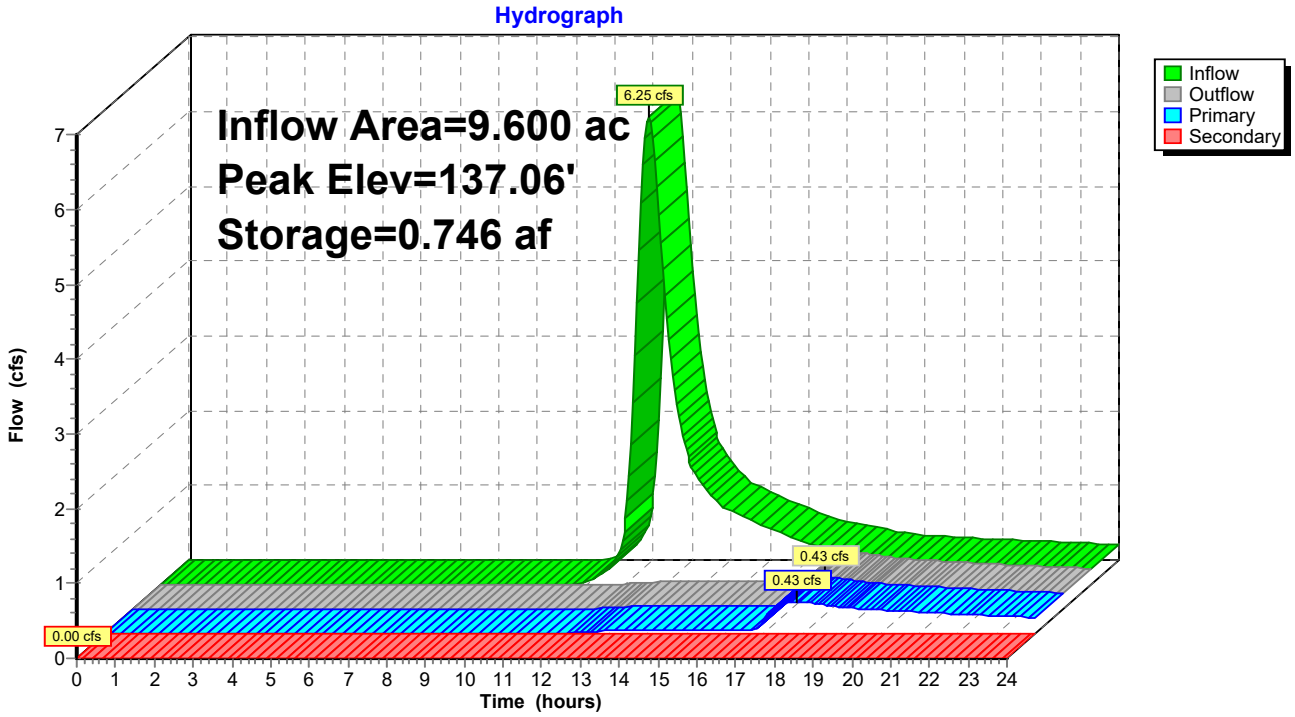
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
133.00	0.113	0.000	0.000
134.00	0.147	0.130	0.130
135.00	0.182	0.164	0.294
136.00	0.218	0.200	0.494
137.00	0.257	0.237	0.732
138.00	0.297	0.277	1.009
139.00	0.338	0.317	1.326

Device	Routing	Invert	Outlet Devices
#1	Primary	133.00'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.00' / 132.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	138.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	133.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	137.00'	**7.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.39 cfs @ 17.86 hrs HW=137.06' (Free Discharge)
└**1=Culvert** (Passes 0.39 cfs of 15.47 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.05 cfs @ 9.65 fps)
  └**4=Sharp-Crested Rectangular Weir** (Weir Controls 0.34 cfs @ 0.77 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2 - Pond: 2 - Pond



Hydrograph for Pond 2 - Pond: 2 - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	133.00	0.00	0.00	**0.00**
0.50	0.00	0.000	133.00	0.00	0.00	0.00
1.00	0.00	0.000	133.00	0.00	0.00	0.00
1.50	0.00	0.000	133.00	0.00	0.00	0.00
2.00	0.00	0.000	133.00	0.00	0.00	0.00
2.50	0.00	0.000	133.00	0.00	0.00	0.00
3.00	0.00	0.000	133.00	0.00	0.00	0.00
3.50	0.00	0.000	133.00	0.00	0.00	0.00
4.00	0.00	0.000	133.00	0.00	0.00	0.00
4.50	0.00	0.000	133.00	0.00	0.00	0.00
5.00	0.00	0.000	133.00	0.00	0.00	0.00
5.50	0.00	0.000	133.00	0.00	0.00	0.00
6.00	0.00	0.000	133.00	0.00	0.00	0.00
6.50	0.00	0.000	133.00	0.00	0.00	0.00
7.00	0.00	0.000	133.00	0.00	0.00	0.00
7.50	0.00	0.000	133.00	0.00	0.00	0.00
8.00	0.00	0.000	133.00	0.00	0.00	0.00
8.50	0.00	0.000	133.00	0.00	0.00	0.00
9.00	0.00	0.000	133.00	0.00	0.00	0.00
9.50	0.00	0.000	133.00	0.00	0.00	0.00
10.00	0.00	0.000	133.00	0.00	0.00	0.00
10.50	0.00	0.000	133.00	0.00	0.00	0.00
11.00	0.04	0.000	133.00	0.00	0.00	0.00
11.50	0.18	0.004	133.04	0.00	0.00	0.00
12.00	0.88	0.021	133.18	0.01	0.01	0.00
12.50	**5.98**	0.154	134.16	0.03	0.03	0.00
13.00	**3.86**	0.377	135.43	0.04	0.04	0.00
13.50	1.89	0.486	135.96	0.04	0.04	0.00
14.00	1.32	0.548	136.24	0.05	0.05	0.00
14.50	1.05	0.595	136.44	0.05	0.05	0.00
15.00	0.91	0.633	136.60	0.05	0.05	0.00
15.50	0.80	0.666	136.74	0.05	0.05	0.00
16.00	0.69	0.695	136.85	0.05	0.05	0.00
16.50	0.58	0.719	136.95	0.05	0.05	0.00
17.00	0.52	0.739	137.03	0.17	0.17	0.00
17.50	0.46	**0.746**	**137.05**	**0.40**	**0.40**	0.00
18.00	0.41	**0.746**	**137.06**	**0.42**	**0.42**	0.00
18.50	0.36	0.745	137.05	0.39	0.39	0.00
19.00	0.34	0.744	137.05	0.36	0.36	0.00
19.50	0.32	0.744	137.05	0.34	0.34	0.00
20.00	0.31	0.743	137.04	0.32	0.32	0.00
20.50	0.29	0.743	137.04	0.30	0.30	0.00
21.00	0.28	0.742	137.04	0.29	0.29	0.00
21.50	0.27	0.742	137.04	0.28	0.28	0.00
22.00	0.26	0.741	137.04	0.26	0.26	0.00
22.50	0.24	0.741	137.04	0.25	0.25	0.00
23.00	0.23	0.741	137.03	0.24	0.24	0.00
23.50	0.22	0.740	137.03	0.23	0.23	0.00
24.00	0.21	0.740	137.03	0.22	0.22	0.00

Summary for Pond 3 - Pond: 3 - Pond

Inflow Area = 4.120 ac, 0.00% Impervious, Inflow Depth > 1.12" for 2-YEAR STORM event
Inflow = 3.18 cfs @ 12.37 hrs, Volume= 0.384 af
Outflow = 0.01 cfs @ 24.00 hrs, Volume= 0.007 af, Atten= 100%, Lag= 697.9 min
Primary = 0.01 cfs @ 24.00 hrs, Volume= 0.007 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 171.20' @ 24.00 hrs Surf.Area= 0.180 ac Storage= 0.377 af

Plug-Flow detention time= 404.9 min calculated for 0.007 af (2% of inflow)
Center-of-Mass det. time= 223.8 min (1,098.4 - 874.6)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	1.043 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

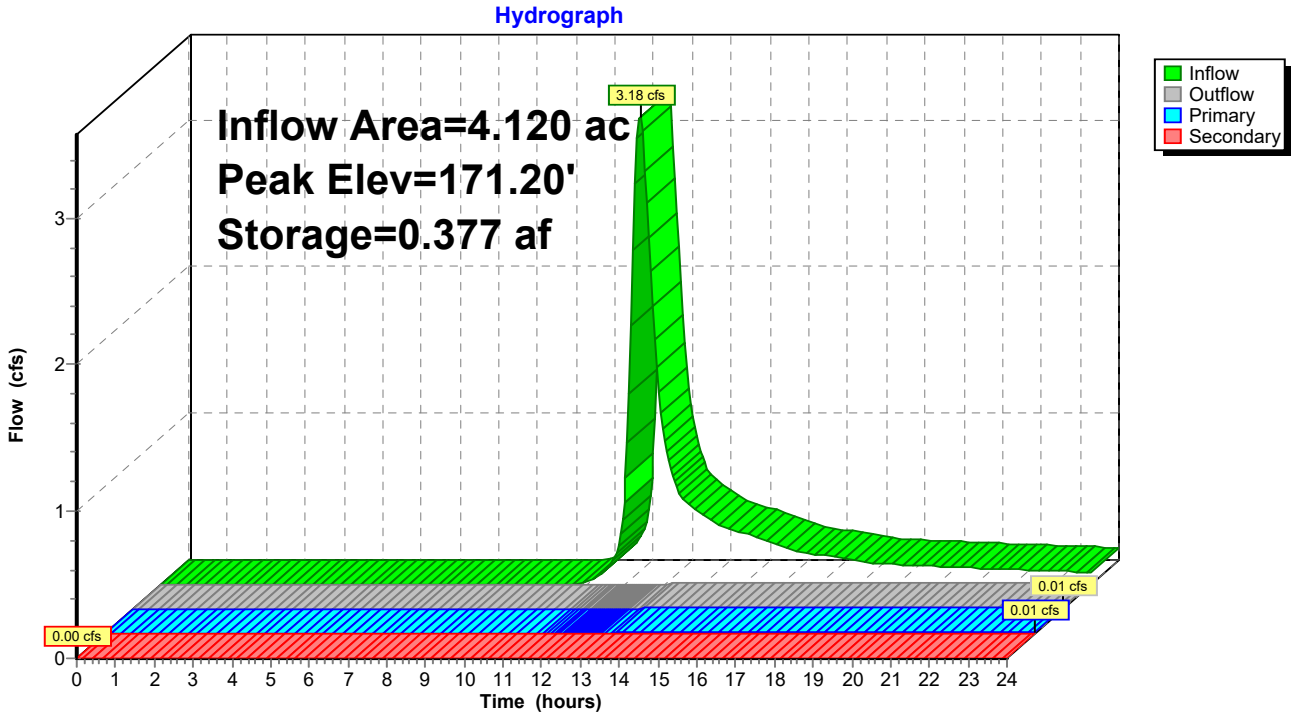
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.058	0.000	0.000
169.00	0.094	0.076	0.076
170.00	0.133	0.113	0.189
171.00	0.172	0.152	0.342
172.00	0.211	0.191	0.533
173.00	0.254	0.233	0.766
174.00	0.299	0.276	1.043

Device	Routing	Invert	Outlet Devices
#1	Primary	168.00'	**18.0" Round Culvert** L= 55.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 168.00' / 164.50' S= 0.0636 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	173.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Device 1	168.00'	**0.4" Vert. Orifice/Grate** C= 0.600
#4	Device 1	171.20'	**7.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.01 cfs @ 24.00 hrs HW=171.20' (Free Discharge)
└**1=Culvert** (Passes 0.01 cfs of 13.32 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.01 cfs @ 8.59 fps)
  └**4=Sharp-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.07 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=168.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3 - Pond: 3 - Pond



Hydrograph for Pond 3 - Pond: 3 - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	168.00	0.00	0.00	**0.00**
0.50	0.00	0.000	168.00	0.00	0.00	0.00
1.00	0.00	0.000	168.00	0.00	0.00	0.00
1.50	0.00	0.000	168.00	0.00	0.00	0.00
2.00	0.00	0.000	168.00	0.00	0.00	0.00
2.50	0.00	0.000	168.00	0.00	0.00	0.00
3.00	0.00	0.000	168.00	0.00	0.00	0.00
3.50	0.00	0.000	168.00	0.00	0.00	0.00
4.00	0.00	0.000	168.00	0.00	0.00	0.00
4.50	0.00	0.000	168.00	0.00	0.00	0.00
5.00	0.00	0.000	168.00	0.00	0.00	0.00
5.50	0.00	0.000	168.00	0.00	0.00	0.00
6.00	0.00	0.000	168.00	0.00	0.00	0.00
6.50	0.00	0.000	168.00	0.00	0.00	0.00
7.00	0.00	0.000	168.00	0.00	0.00	0.00
7.50	0.00	0.000	168.00	0.00	0.00	0.00
8.00	0.00	0.000	168.00	0.00	0.00	0.00
8.50	0.00	0.000	168.00	0.00	0.00	0.00
9.00	0.00	0.000	168.00	0.00	0.00	0.00
9.50	0.00	0.000	168.00	0.00	0.00	0.00
10.00	0.00	0.000	168.00	0.00	0.00	0.00
10.50	0.00	0.000	168.00	0.00	0.00	0.00
11.00	0.02	0.000	168.00	0.00	0.00	0.00
11.50	0.10	0.002	168.04	0.00	0.00	0.00
12.00	**0.73**	0.014	168.22	0.00	0.00	0.00
12.50	**2.82**	0.110	169.33	0.00	0.00	0.00
13.00	0.98	0.182	169.94	0.01	0.01	0.00
13.50	0.57	0.212	170.16	0.01	0.01	0.00
14.00	0.47	0.233	170.31	0.01	0.01	0.00
14.50	0.40	0.250	170.43	0.01	0.01	0.00
15.00	0.36	0.266	170.53	0.01	0.01	0.00
15.50	0.31	0.279	170.62	0.01	0.01	0.00
16.00	0.26	0.291	170.69	0.01	0.01	0.00
16.50	0.23	0.301	170.75	0.01	0.01	0.00
17.00	0.20	0.309	170.80	0.01	0.01	0.00
17.50	0.18	0.317	170.85	0.01	0.01	0.00
18.00	0.16	0.324	170.89	0.01	0.01	0.00
18.50	0.14	0.330	170.93	0.01	0.01	0.00
19.00	0.14	0.335	170.96	0.01	0.01	0.00
19.50	0.13	0.340	170.99	0.01	0.01	0.00
20.00	0.12	0.345	171.02	0.01	0.01	0.00
20.50	0.12	0.350	171.05	0.01	0.01	0.00
21.00	0.11	0.355	171.07	0.01	0.01	0.00
21.50	0.11	0.359	171.10	0.01	0.01	0.00
22.00	0.10	0.363	171.12	0.01	0.01	0.00
22.50	0.10	0.367	171.14	0.01	0.01	0.00
23.00	0.09	0.371	171.16	0.01	0.01	0.00
23.50	0.09	0.374	171.18	0.01	0.01	0.00
24.00	0.08	**0.377**	**171.20**	**0.01**	**0.01**	0.00

Summary for Pond 4 - Pond: 4 - Pond

Inflow Area = 9.020 ac, 0.00% Impervious, Inflow Depth > 1.12" for 2-YEAR STORM event
Inflow = 7.02 cfs @ 12.36 hrs, Volume= 0.841 af
Outflow = 0.29 cfs @ 19.22 hrs, Volume= 0.139 af, Atten= 96%, Lag= 411.5 min
Primary = 0.29 cfs @ 19.22 hrs, Volume= 0.139 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 126.04' @ 19.22 hrs Surf.Area= 10,069 sf Storage= 30,765 cf

Plug-Flow detention time= 489.0 min calculated for 0.139 af (16% of inflow)
Center-of-Mass det. time= 340.7 min (1,215.0 - 874.3)

Volume	Invert	Avail.Storage	Storage Description
#1	122.00'	66,544 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

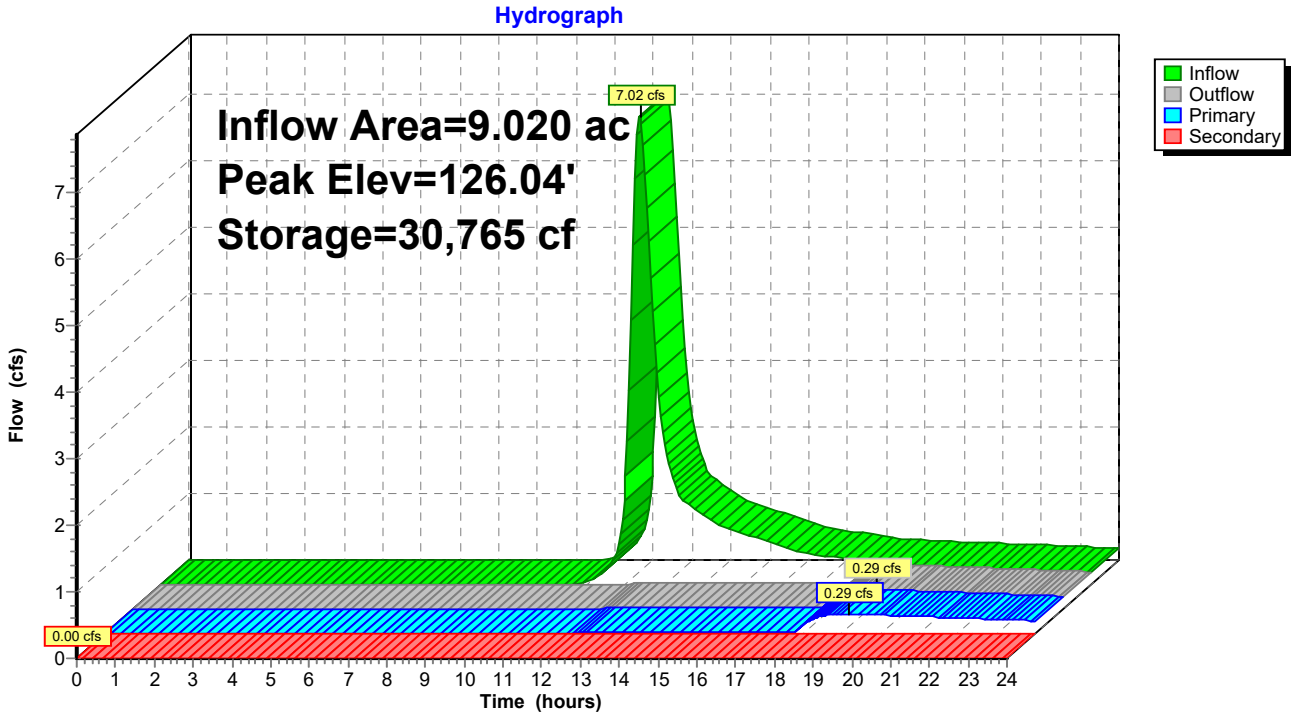
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
122.00	5,526	0	0
123.00	6,338	5,932	5,932
124.00	7,507	6,923	12,855
125.00	8,732	8,120	20,974
126.00	10,013	9,373	30,347
127.00	11,350	10,682	41,028
128.00	12,744	12,047	53,075
129.00	14,194	13,469	66,544

Device	Routing	Invert	Outlet Devices
#1	Primary	122.00'	**18.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 122.00' / 121.50' S= 0.0083 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	128.25'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Device 1	122.00'	**0.8" Vert. Orifice/Grate** C= 0.600
#4	Device 1	126.00'	**7.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.25 cfs @ 19.22 hrs HW=126.04' (Free Discharge)
└**1=Culvert** (Passes 0.25 cfs of 15.44 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.03 cfs @ 9.64 fps)
  └**4=Sharp-Crested Rectangular Weir** (Weir Controls 0.22 cfs @ 0.67 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4 - Pond: 4 - Pond



Hydrograph for Pond 4 - Pond: 4 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	122.00	0.00	0.00	**0.00**
0.50	0.00	0	122.00	0.00	0.00	0.00
1.00	0.00	0	122.00	0.00	0.00	0.00
1.50	0.00	0	122.00	0.00	0.00	0.00
2.00	0.00	0	122.00	0.00	0.00	0.00
2.50	0.00	0	122.00	0.00	0.00	0.00
3.00	0.00	0	122.00	0.00	0.00	0.00
3.50	0.00	0	122.00	0.00	0.00	0.00
4.00	0.00	0	122.00	0.00	0.00	0.00
4.50	0.00	0	122.00	0.00	0.00	0.00
5.00	0.00	0	122.00	0.00	0.00	0.00
5.50	0.00	0	122.00	0.00	0.00	0.00
6.00	0.00	0	122.00	0.00	0.00	0.00
6.50	0.00	0	122.00	0.00	0.00	0.00
7.00	0.00	0	122.00	0.00	0.00	0.00
7.50	0.00	0	122.00	0.00	0.00	0.00
8.00	0.00	0	122.00	0.00	0.00	0.00
8.50	0.00	0	122.00	0.00	0.00	0.00
9.00	0.00	0	122.00	0.00	0.00	0.00
9.50	0.00	0	122.00	0.00	0.00	0.00
10.00	0.00	0	122.00	0.00	0.00	0.00
10.50	0.00	0	122.00	0.00	0.00	0.00
11.00	0.04	17	122.00	0.00	0.00	0.00
11.50	0.22	220	122.04	0.00	0.00	0.00
12.00	**1.63**	1,338	122.24	0.01	0.01	0.00
12.50	**6.14**	10,569	123.69	0.02	0.02	0.00
13.00	2.11	17,371	124.57	0.03	0.03	0.00
13.50	1.25	20,150	124.90	0.03	0.03	0.00
14.00	1.03	22,139	125.13	0.03	0.03	0.00
14.50	0.87	23,786	125.31	0.03	0.03	0.00
15.00	0.78	25,214	125.47	0.03	0.03	0.00
15.50	0.68	26,468	125.60	0.03	0.03	0.00
16.00	0.58	27,542	125.71	0.03	0.03	0.00
16.50	0.49	28,438	125.81	0.03	0.03	0.00
17.00	0.44	29,221	125.89	0.03	0.03	0.00
17.50	0.40	29,921	125.96	0.03	0.03	0.00
18.00	0.35	30,505	126.02	0.13	0.13	0.00
18.50	0.32	30,717	126.04	0.26	0.26	0.00
19.00	0.30	**30,763**	**126.04**	**0.29**	**0.29**	0.00
19.50	0.29	**30,763**	**126.04**	**0.29**	**0.29**	0.00
20.00	0.27	30,748	126.04	0.28	0.28	0.00
20.50	0.26	30,728	126.04	0.27	0.27	0.00
21.00	0.25	30,709	126.04	0.26	0.26	0.00
21.50	0.24	30,692	126.03	0.25	0.25	0.00
22.00	0.23	30,675	126.03	0.24	0.24	0.00
22.50	0.22	30,657	126.03	0.23	0.23	0.00
23.00	0.21	30,640	126.03	0.22	0.22	0.00
23.50	0.19	30,622	126.03	0.20	0.20	0.00
24.00	0.18	30,605	126.03	0.19	0.19	0.00

Summary for Pond 5 - Pond: 5 - Pond

Inflow Area = 15.220 ac, 0.00% Impervious, Inflow Depth > 1.36" for 2-YEAR STORM event
Inflow = 13.52 cfs @ 12.44 hrs, Volume= 1.727 af
Outflow = 0.46 cfs @ 21.35 hrs, Volume= 0.169 af, Atten= 97%, Lag= 534.6 min
Primary = 0.46 cfs @ 21.35 hrs, Volume= 0.169 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 125.05' @ 21.35 hrs Surf.Area= 17,737 sf Storage= 67,975 cf

Plug-Flow detention time= 539.3 min calculated for 0.169 af (10% of inflow)
Center-of-Mass det. time= 382.4 min (1,249.1 - 866.7)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	85,683 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

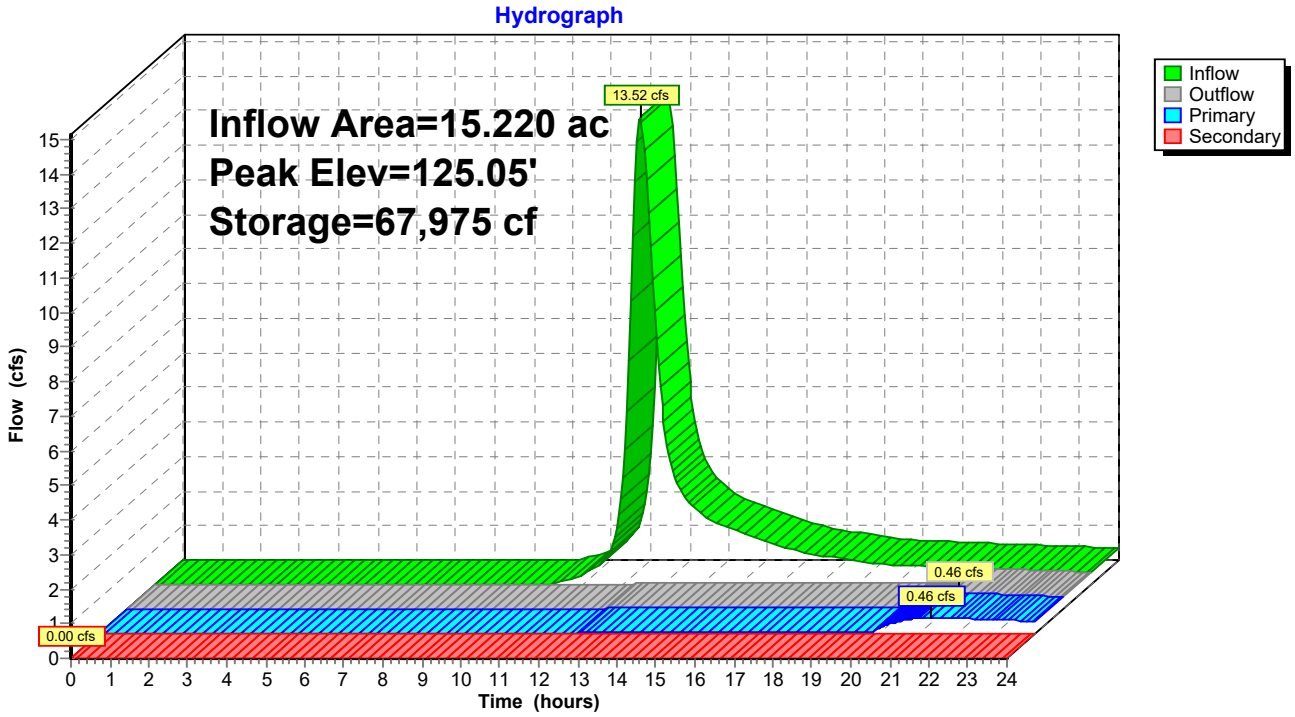
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	9,426	0	0
121.00	10,959	10,193	10,193
122.00	12,547	11,753	21,946
123.00	14,192	13,370	35,315
124.00	15,892	15,042	50,357
125.00	17,650	16,771	67,128
126.00	19,460	18,555	85,683

Device	Routing	Invert	Outlet Devices
#1	Primary	120.00'	**30.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 120.00' / 117.00' S= 0.0500 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#2	Secondary	125.72'	**20.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	120.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	125.00'	**11.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.43 cfs @ 21.35 hrs HW=125.05' (Free Discharge)
└**1=Culvert** (Passes 0.43 cfs of 46.06 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.06 cfs @ 10.77 fps)
  └**4=Sharp-Crested Rectangular Weir** (Weir Controls 0.38 cfs @ 0.72 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=120.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5 - Pond: 5 - Pond



Hydrograph for Pond 5 - Pond: 5 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	120.00	0.00	0.00	**0.00**
0.50	0.00	0	120.00	0.00	0.00	0.00
1.00	0.00	0	120.00	0.00	0.00	0.00
1.50	0.00	0	120.00	0.00	0.00	0.00
2.00	0.00	0	120.00	0.00	0.00	0.00
2.50	0.00	0	120.00	0.00	0.00	0.00
3.00	0.00	0	120.00	0.00	0.00	0.00
3.50	0.00	0	120.00	0.00	0.00	0.00
4.00	0.00	0	120.00	0.00	0.00	0.00
4.50	0.00	0	120.00	0.00	0.00	0.00
5.00	0.00	0	120.00	0.00	0.00	0.00
5.50	0.00	0	120.00	0.00	0.00	0.00
6.00	0.00	0	120.00	0.00	0.00	0.00
6.50	0.00	0	120.00	0.00	0.00	0.00
7.00	0.00	0	120.00	0.00	0.00	0.00
7.50	0.00	0	120.00	0.00	0.00	0.00
8.00	0.00	0	120.00	0.00	0.00	0.00
8.50	0.00	0	120.00	0.00	0.00	0.00
9.00	0.00	0	120.00	0.00	0.00	0.00
9.50	0.00	0	120.00	0.00	0.00	0.00
10.00	0.00	1	120.00	0.00	0.00	0.00
10.50	0.11	81	120.01	0.00	0.00	0.00
11.00	0.31	442	120.05	0.00	0.00	0.00
11.50	0.70	1,289	120.14	0.01	0.01	0.00
12.00	**3.07**	3,801	120.39	0.02	0.02	0.00
12.50	**13.19**	20,519	121.89	0.04	0.04	0.00
13.00	5.16	36,588	123.09	0.05	0.05	0.00
13.50	2.69	43,030	123.53	0.05	0.05	0.00
14.00	2.07	47,135	123.79	0.05	0.05	0.00
14.50	1.73	50,436	124.00	0.05	0.05	0.00
15.00	1.52	53,255	124.18	0.05	0.05	0.00
15.50	1.33	55,725	124.33	0.05	0.05	0.00
16.00	1.14	57,846	124.46	0.06	0.06	0.00
16.50	0.96	59,620	124.57	0.06	0.06	0.00
17.00	0.86	61,151	124.66	0.06	0.06	0.00
17.50	0.77	62,515	124.74	0.06	0.06	0.00
18.00	0.68	63,719	124.80	0.06	0.06	0.00
18.50	0.60	64,766	124.87	0.06	0.06	0.00
19.00	0.57	65,717	124.92	0.06	0.06	0.00
19.50	0.54	66,615	124.97	0.06	0.06	0.00
20.00	0.52	67,419	125.02	0.18	0.18	0.00
20.50	0.49	67,835	125.04	0.35	0.35	0.00
21.00	0.47	**67,962**	**125.05**	**0.45**	**0.45**	0.00
21.50	0.45	**67,973**	**125.05**	**0.46**	**0.46**	0.00
22.00	0.43	67,957	125.05	0.44	0.44	0.00
22.50	0.41	67,933	125.05	0.42	0.42	0.00
23.00	0.39	67,908	125.04	0.40	0.40	0.00
23.50	0.37	67,882	125.04	0.38	0.38	0.00
24.00	0.35	67,856	125.04	0.36	0.36	0.00

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Runoff Area=4.690 ac 0.00% Impervious Runoff Depth>2.32"
Tc=42.6 min CN=73 Runoff=6.07 cfs 0.907 af

Subcatchment1B: Runoff Area=10.540 ac 0.00% Impervious Runoff Depth>2.16"
Tc=42.3 min CN=71 Runoff=12.64 cfs 1.893 af

Subcatchment1C: Runoff Area=8.580 ac 0.00% Impervious Runoff Depth>2.00"
Tc=35.2 min CN=69 Runoff=10.37 cfs 1.429 af

Subcatchment2: Runoff Area=9.600 ac 0.00% Impervious Runoff Depth>2.41"
Tc=40.3 min CN=74 Runoff=13.31 cfs 1.925 af

Subcatchment3: Runoff Area=4.120 ac 0.00% Impervious Runoff Depth>2.33"
Tc=24.4 min CN=73 Runoff=6.94 cfs 0.800 af

Subcatchment4: Runoff Area=9.020 ac 0.00% Impervious Runoff Depth>2.33"
Tc=24.0 min CN=73 Runoff=15.29 cfs 1.752 af

Subcatchment5: Runoff Area=15.220 ac 0.00% Impervious Runoff Depth>2.67"
Tc=29.9 min CN=77 Runoff=27.13 cfs 3.391 af

Pond 1A - Pond: 1A - Pond Peak Elev=129.19' Storage=0.453 af Inflow=6.07 cfs 0.907 af
Primary=2.05 cfs 0.494 af Secondary=0.00 cfs 0.000 af Outflow=2.05 cfs 0.494 af

Pond 1B - Pond: 1B - Pond Peak Elev=126.84' Storage=0.874 af Inflow=12.64 cfs 1.893 af
Primary=5.07 cfs 1.099 af Secondary=0.00 cfs 0.000 af Outflow=5.07 cfs 1.099 af

Pond 1C-Pond: 1C - Pond Peak Elev=130.25' Storage=0.674 af Inflow=10.37 cfs 1.429 af
Primary=3.20 cfs 0.826 af Secondary=0.00 cfs 0.000 af Outflow=3.20 cfs 0.826 af

Pond 2 - Pond: 2 - Pond Peak Elev=137.41' Storage=0.840 af Inflow=13.31 cfs 1.925 af
Primary=6.59 cfs 1.180 af Secondary=0.00 cfs 0.000 af Outflow=6.59 cfs 1.180 af

Pond 3 - Pond: 3 - Pond Peak Elev=171.37' Storage=0.408 af Inflow=6.94 cfs 0.800 af
Primary=1.76 cfs 0.418 af Secondary=0.00 cfs 0.000 af Outflow=1.76 cfs 0.418 af

Pond 4 - Pond: 4 - Pond Peak Elev=126.38' Storage=34,300 cf Inflow=15.29 cfs 1.752 af
Primary=6.08 cfs 1.044 af Secondary=0.00 cfs 0.000 af Outflow=6.08 cfs 1.044 af

Pond 5 - Pond: 5 - Pond Peak Elev=125.40' Storage=74,347 cf Inflow=27.13 cfs 3.391 af
Primary=9.12 cfs 1.826 af Secondary=0.00 cfs 0.000 af Outflow=9.12 cfs 1.826 af

Total Runoff Area = 61.770 ac Runoff Volume = 12.098 af Average Runoff Depth = 2.35"
100.00% Pervious = 61.770 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1A:

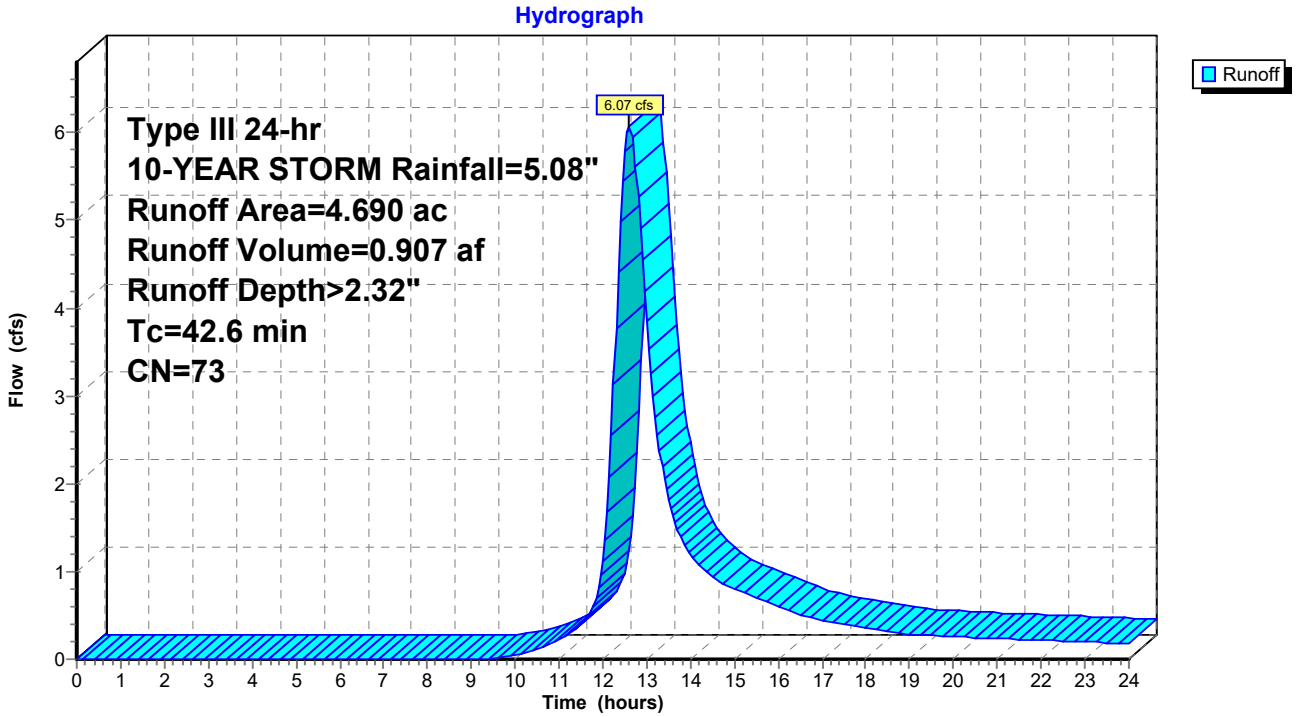
Runoff = 6.07 cfs @ 12.61 hrs, Volume= 0.907 af, Depth> 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	4.690	73	
	4.690		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.6					**Direct Entry, SCS TR-55**

Subcatchment 1A:



Hydrograph for Subcatchment 1A:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.00
9.50	0.84	0.00	0.00
9.75	0.90	0.01	0.02
10.00	0.96	0.01	0.04
10.25	1.03	0.02	0.07
10.50	1.10	0.03	0.11
10.75	1.18	0.05	0.16
11.00	1.27	0.07	0.21
11.25	1.38	0.09	0.29
11.50	1.51	0.13	0.39
11.75	1.80	0.24	0.56
12.00	2.54	0.59	1.12
12.25	3.28	1.03	3.14
12.50	3.57	1.22	**5.79**
12.75	3.70	1.32	**5.61**
13.00	3.81	1.39	3.85
13.25	3.90	1.46	2.55
13.50	3.98	1.51	1.82
13.75	4.05	1.57	1.42
14.00	4.12	1.61	1.20
14.25	4.18	1.66	1.05
14.50	4.24	1.70	0.94
14.75	4.29	1.74	0.86
15.00	4.34	1.78	0.80
15.25	4.39	1.81	0.75
15.50	4.43	1.84	0.70
15.75	4.47	1.87	0.65
16.00	4.50	1.90	0.60
16.25	4.53	1.92	0.55
16.50	4.56	1.94	0.51
16.75	4.59	1.97	0.47
17.00	4.62	1.99	0.45
17.25	4.65	2.01	0.42
17.50	4.67	2.03	0.40
17.75	4.69	2.04	0.38
18.00	4.71	2.06	0.35
18.25	4.73	2.07	0.33
18.50	4.75	2.09	0.31
18.75	4.77	2.10	0.30
19.00	4.79	2.12	0.29
19.25	4.81	2.13	0.28
19.50	4.83	2.15	0.27
19.75	4.84	2.16	0.27
20.00	4.86	2.17	0.26
20.25	4.88	2.19	0.25
20.50	4.89	2.20	0.25
20.75	4.91	2.21	0.24
21.00	4.92	2.22	0.24
21.25	4.94	2.23	0.23
21.50	4.95	2.24	0.23
21.75	4.97	2.26	0.22
22.00	4.98	2.27	0.22
22.25	5.00	2.28	0.21
22.50	5.01	2.29	0.21
22.75	5.02	2.30	0.20
23.00	5.03	2.31	0.20
23.25	5.05	2.32	0.19
23.50	5.06	2.33	0.18
23.75	5.07	2.33	0.18
24.00	**5.08**	**2.34**	0.17

Summary for Subcatchment 1B:

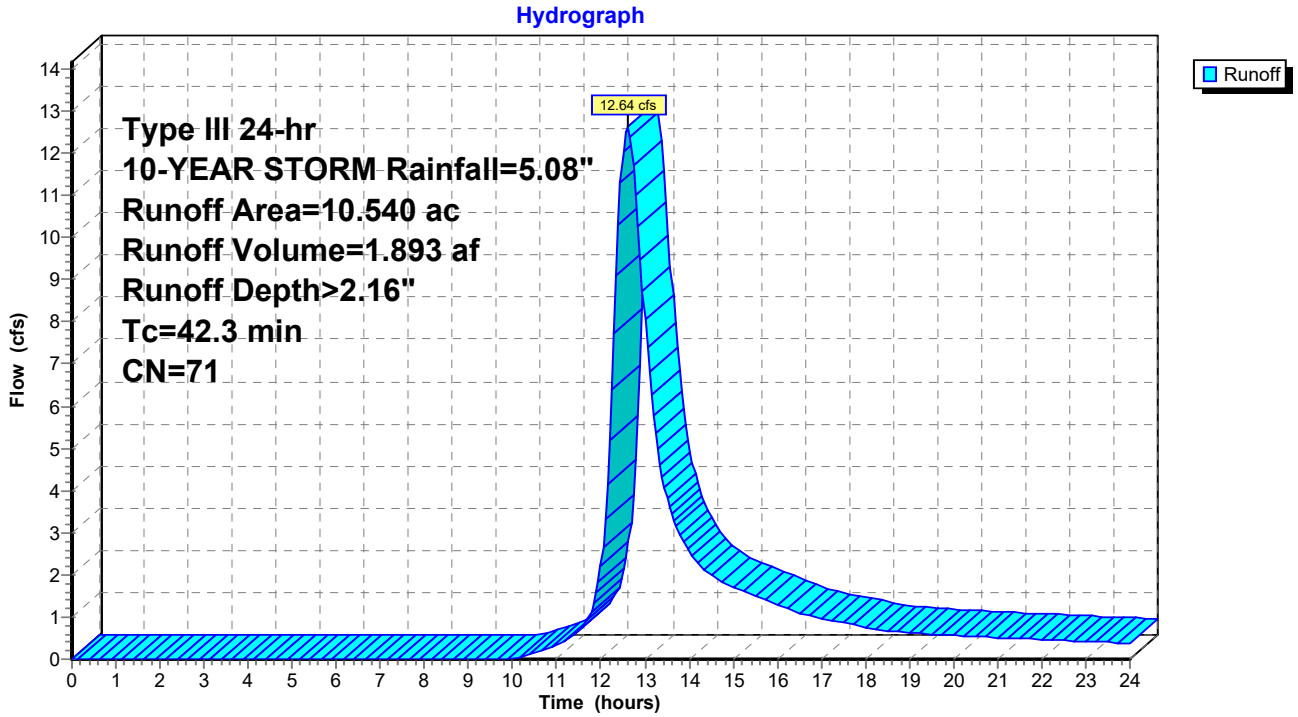
Runoff = 12.64 cfs @ 12.61 hrs, Volume= 1.893 af, Depth> 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	10.540	71	
	10.540		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
42.3					**Direct Entry, SCS TR-55**

Subcatchment 1B:



Hydrograph for Subcatchment 1B:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.00
9.50	0.84	0.00	0.00
9.75	0.90	0.00	0.00
10.00	0.96	0.00	0.03
10.25	1.03	0.01	0.07
10.50	1.10	0.02	0.14
10.75	1.18	0.03	0.23
11.00	1.27	0.05	0.35
11.25	1.38	0.07	0.49
11.50	1.51	0.10	0.69
11.75	1.80	0.19	1.05
12.00	2.54	0.51	2.20
12.25	3.28	0.92	6.40
12.50	3.57	1.11	**12.03**
12.75	3.70	1.19	**11.69**
13.00	3.81	1.27	8.04
13.25	3.90	1.33	5.34
13.50	3.98	1.38	3.83
13.75	4.05	1.43	3.02
14.00	4.12	1.48	2.56
14.25	4.18	1.52	2.24
14.50	4.24	1.56	2.00
14.75	4.29	1.60	1.84
15.00	4.34	1.63	1.72
15.25	4.39	1.66	1.61
15.50	4.43	1.69	1.50
15.75	4.47	1.72	1.40
16.00	4.50	1.75	1.30
16.25	4.53	1.77	1.19
16.50	4.56	1.79	1.09
16.75	4.59	1.81	1.02
17.00	4.62	1.83	0.96
17.25	4.65	1.85	0.91
17.50	4.67	1.87	0.86
17.75	4.69	1.89	0.81
18.00	4.71	1.90	0.76
18.25	4.73	1.92	0.72
18.50	4.75	1.93	0.67
18.75	4.77	1.95	0.64
19.00	4.79	1.96	0.62
19.25	4.81	1.97	0.61
19.50	4.83	1.99	0.59
19.75	4.84	2.00	0.58
20.00	4.86	2.01	0.56
20.25	4.88	2.02	0.55
20.50	4.89	2.04	0.53
20.75	4.91	2.05	0.52
21.00	4.92	2.06	0.51
21.25	4.94	2.07	0.50
21.50	4.95	2.08	0.49
21.75	4.97	2.09	0.48
22.00	4.98	2.10	0.47
22.25	5.00	2.11	0.46
22.50	5.01	2.12	0.44
22.75	5.02	2.13	0.43
23.00	5.03	2.14	0.42
23.25	5.05	2.15	0.41
23.50	5.06	2.16	0.40
23.75	5.07	2.17	0.39
24.00	**5.08**	**2.18**	0.38

Summary for Subcatchment 1C:

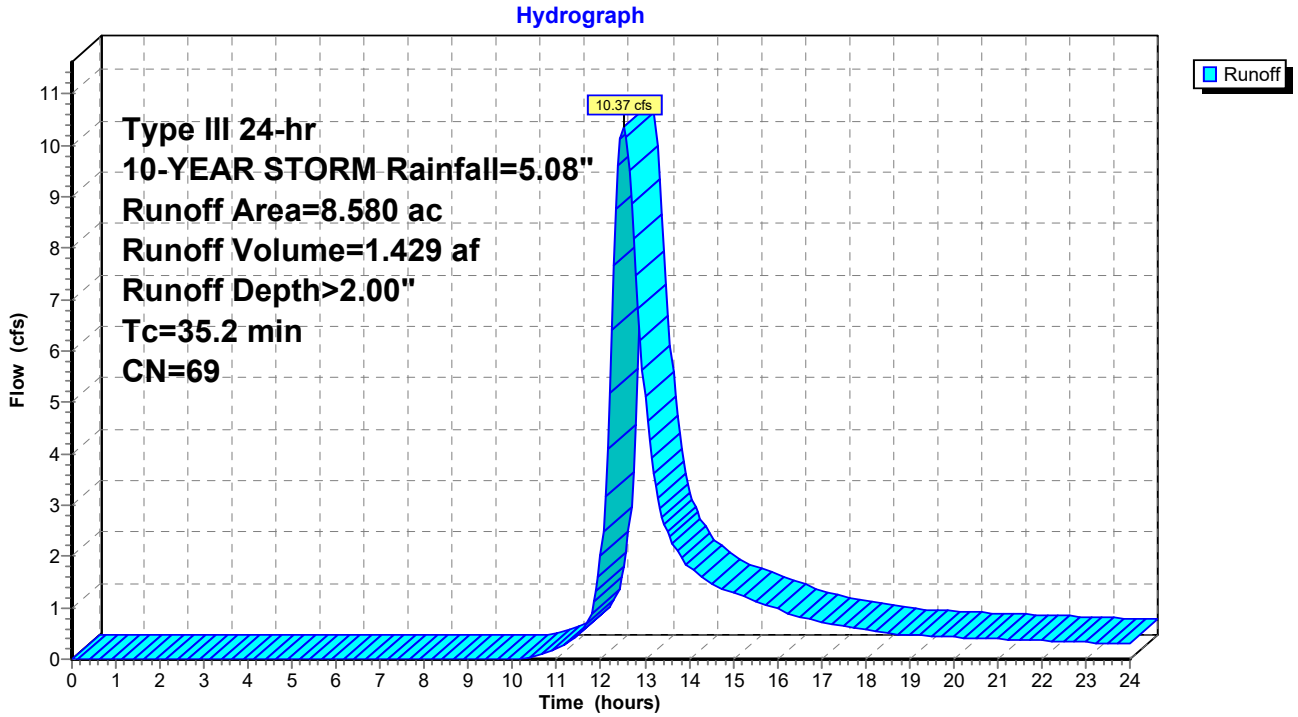
Runoff = 10.37 cfs @ 12.52 hrs, Volume= 1.429 af, Depth> 2.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	8.580	69	
	8.580		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.2					**Direct Entry, SCS TR-55**

Subcatchment 1C:



Hydrograph for Subcatchment 1C:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.00
9.50	0.84	0.00	0.00
9.75	0.90	0.00	0.00
10.00	0.96	0.00	0.00
10.25	1.03	0.00	0.02
10.50	1.10	0.01	0.06
10.75	1.18	0.02	0.13
11.00	1.27	0.03	0.22
11.25	1.38	0.05	0.33
11.50	1.51	0.07	0.50
11.75	1.80	0.15	0.82
12.00	2.54	0.44	2.00
12.25	3.28	0.82	6.41
12.50	3.57	0.99	**10.36**
12.75	3.70	1.08	8.16
13.00	3.81	1.14	5.10
13.25	3.90	1.20	3.36
13.50	3.98	1.25	2.49
13.75	4.05	1.30	2.06
14.00	4.12	1.35	1.81
14.25	4.18	1.39	1.62
14.50	4.24	1.42	1.48
14.75	4.29	1.46	1.38
15.00	4.34	1.49	1.29
15.25	4.39	1.52	1.21
15.50	4.43	1.55	1.13
15.75	4.47	1.58	1.05
16.00	4.50	1.60	0.97
16.25	4.53	1.63	0.89
16.50	4.56	1.65	0.82
16.75	4.59	1.67	0.77
17.00	4.62	1.69	0.73
17.25	4.65	1.70	0.69
17.50	4.67	1.72	0.65
17.75	4.69	1.74	0.62
18.00	4.71	1.75	0.58
18.25	4.73	1.77	0.54
18.50	4.75	1.78	0.51
18.75	4.77	1.79	0.49
19.00	4.79	1.81	0.48
19.25	4.81	1.82	0.47
19.50	4.83	1.83	0.46
19.75	4.84	1.85	0.45
20.00	4.86	1.86	0.43
20.25	4.88	1.87	0.42
20.50	4.89	1.88	0.41
20.75	4.91	1.89	0.40
21.00	4.92	1.90	0.40
21.25	4.94	1.91	0.39
21.50	4.95	1.92	0.38
21.75	4.97	1.93	0.37
22.00	4.98	1.94	0.36
22.25	5.00	1.95	0.35
22.50	5.01	1.96	0.34
22.75	5.02	1.97	0.34
23.00	5.03	1.98	0.33
23.25	5.05	1.99	0.32
23.50	5.06	2.00	0.31
23.75	5.07	2.01	0.30
24.00	**5.08**	**2.02**	0.29

Summary for Subcatchment 2:

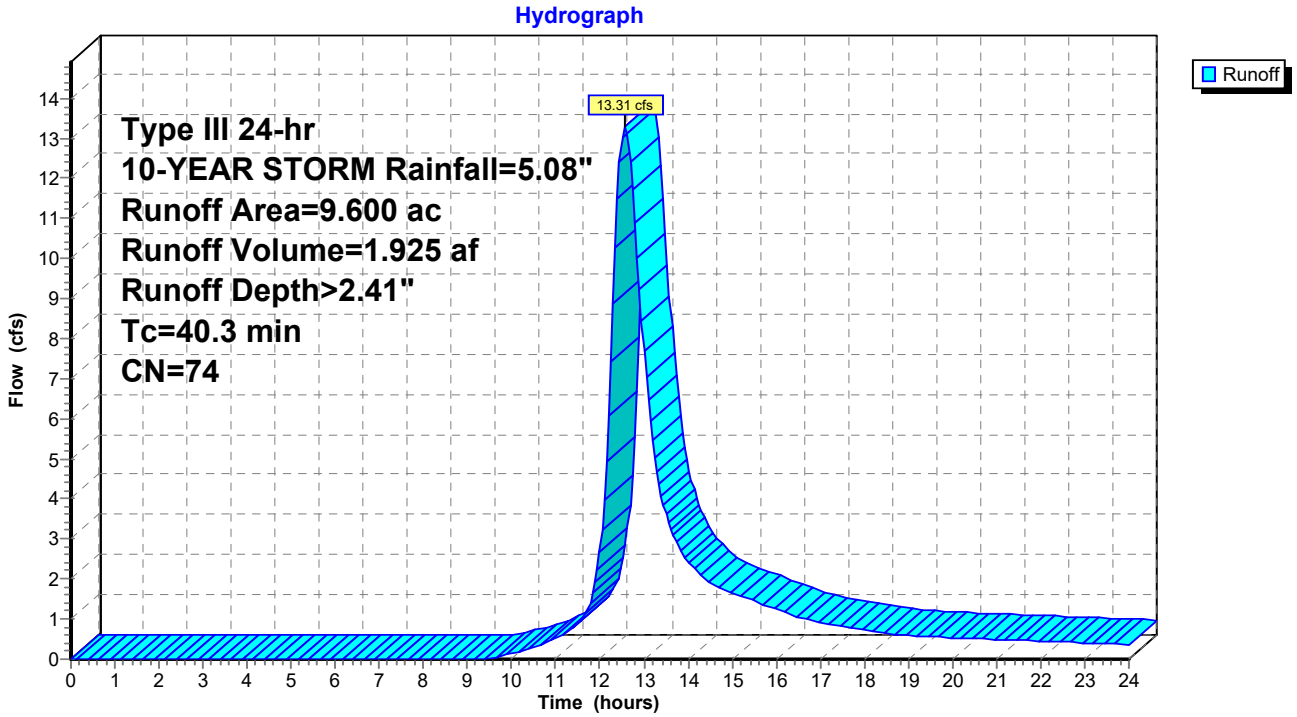
Runoff = 13.31 cfs @ 12.57 hrs, Volume= 1.925 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	9.600	74	
	9.600		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.3					**Direct Entry, SCS TR-55**

Subcatchment 2:



Hydrograph for Subcatchment 2:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.01
9.50	0.84	0.01	0.03
9.75	0.90	0.01	0.08
10.00	0.96	0.02	0.14
10.25	1.03	0.03	0.20
10.50	1.10	0.04	0.29
10.75	1.18	0.06	0.39
11.00	1.27	0.08	0.52
11.25	1.38	0.11	0.68
11.50	1.51	0.15	0.90
11.75	1.80	0.26	1.32
12.00	2.54	0.63	2.66
12.25	3.28	1.09	7.43
12.50	3.57	1.29	**13.02**
12.75	3.70	1.38	**11.71**
13.00	3.81	1.46	7.71
13.25	3.90	1.52	5.04
13.50	3.98	1.58	3.61
13.75	4.05	1.64	2.87
14.00	4.12	1.68	2.44
14.25	4.18	1.73	2.14
14.50	4.24	1.77	1.92
14.75	4.29	1.81	1.77
15.00	4.34	1.85	1.66
15.25	4.39	1.88	1.55
15.50	4.43	1.92	1.45
15.75	4.47	1.95	1.35
16.00	4.50	1.97	1.24
16.25	4.53	2.00	1.14
16.50	4.56	2.02	1.05
16.75	4.59	2.04	0.98
17.00	4.62	2.07	0.92
17.25	4.65	2.09	0.87
17.50	4.67	2.10	0.83
17.75	4.69	2.12	0.78
18.00	4.71	2.14	0.73
18.25	4.73	2.15	0.69
18.50	4.75	2.17	0.65
18.75	4.77	2.18	0.62
19.00	4.79	2.20	0.60
19.25	4.81	2.21	0.58
19.50	4.83	2.23	0.57
19.75	4.84	2.24	0.55
20.00	4.86	2.25	0.54
20.25	4.88	2.27	0.53
20.50	4.89	2.28	0.51
20.75	4.91	2.29	0.50
21.00	4.92	2.30	0.49
21.25	4.94	2.32	0.48
21.50	4.95	2.33	0.47
21.75	4.97	2.34	0.46
22.00	4.98	2.35	0.45
22.25	5.00	2.36	0.44
22.50	5.01	2.37	0.43
22.75	5.02	2.38	0.42
23.00	5.03	2.39	0.40
23.25	5.05	2.40	0.39
23.50	5.06	2.41	0.38
23.75	5.07	2.42	0.37
24.00	**5.08**	**2.43**	0.36

Summary for Subcatchment 3:

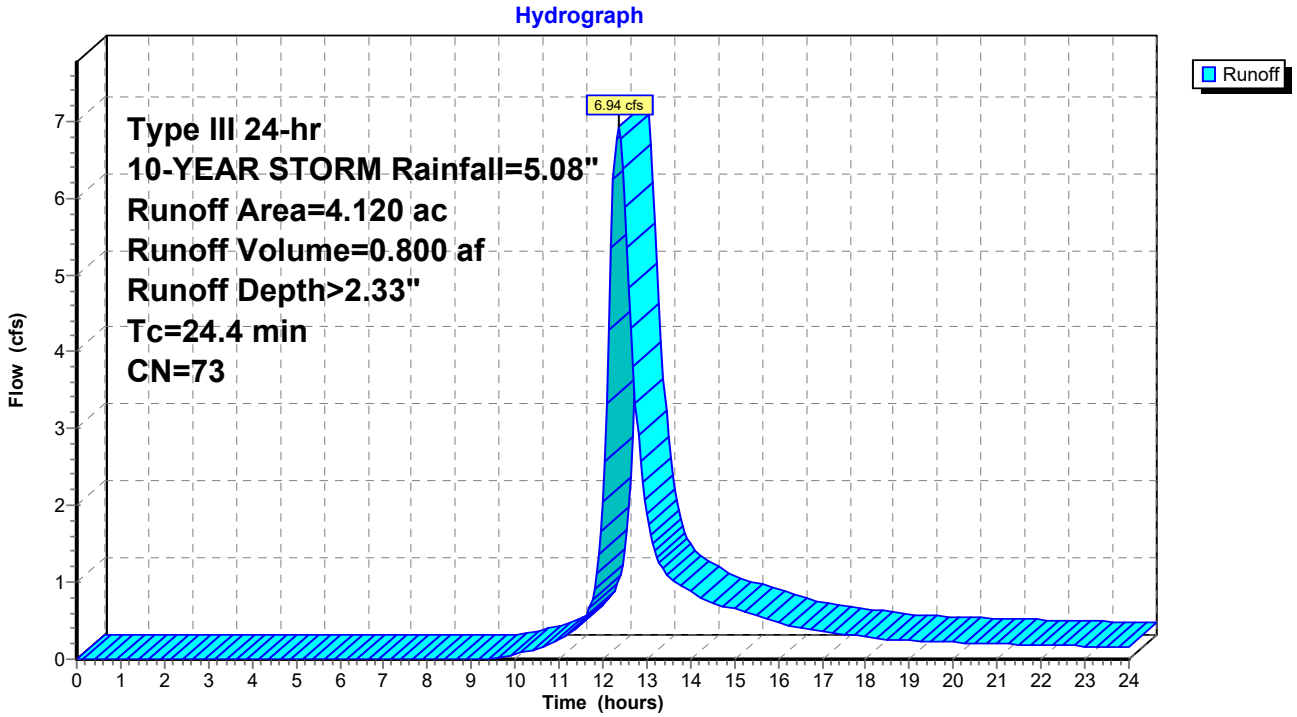
Runoff = 6.94 cfs @ 12.35 hrs, Volume= 0.800 af, Depth> 2.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	4.120	73	
	4.120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.4					**Direct Entry, SCS TR-55**

Subcatchment 3:



Hydrograph for Subcatchment 3:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.00
8.75	0.69	0.00	0.00
9.00	0.74	0.00	0.00
9.25	0.79	0.00	0.00
9.50	0.84	0.00	0.01
9.75	0.90	0.01	0.04
10.00	0.96	0.01	0.06
10.25	1.03	0.02	0.10
10.50	1.10	0.03	0.14
10.75	1.18	0.05	0.19
11.00	1.27	0.07	0.25
11.25	1.38	0.09	0.33
11.50	1.51	0.13	0.47
11.75	1.80	0.24	0.77
12.00	2.54	0.59	2.06
12.25	3.28	1.03	**6.24**
12.50	3.57	1.22	**5.89**
12.75	3.70	1.32	3.34
13.00	3.81	1.39	1.90
13.25	3.90	1.46	1.33
13.50	3.98	1.51	1.08
13.75	4.05	1.57	0.97
14.00	4.12	1.61	0.88
14.25	4.18	1.66	0.80
14.50	4.24	1.70	0.74
14.75	4.29	1.74	0.69
15.00	4.34	1.78	0.65
15.25	4.39	1.81	0.61
15.50	4.43	1.84	0.57
15.75	4.47	1.87	0.52
16.00	4.50	1.90	0.48
16.25	4.53	1.92	0.44
16.50	4.56	1.94	0.41
16.75	4.59	1.97	0.39
17.00	4.62	1.99	0.37
17.25	4.65	2.01	0.35
17.50	4.67	2.03	0.33
17.75	4.69	2.04	0.31
18.00	4.71	2.06	0.29
18.25	4.73	2.07	0.27
18.50	4.75	2.09	0.26
18.75	4.77	2.10	0.25
19.00	4.79	2.12	0.25
19.25	4.81	2.13	0.24
19.50	4.83	2.15	0.23
19.75	4.84	2.16	0.23
20.00	4.86	2.17	0.22
20.25	4.88	2.19	0.22
20.50	4.89	2.20	0.21
20.75	4.91	2.21	0.21
21.00	4.92	2.22	0.20
21.25	4.94	2.23	0.20
21.50	4.95	2.24	0.19
21.75	4.97	2.26	0.19
22.00	4.98	2.27	0.18
22.25	5.00	2.28	0.18
22.50	5.01	2.29	0.18
22.75	5.02	2.30	0.17
23.00	5.03	2.31	0.17
23.25	5.05	2.32	0.16
23.50	5.06	2.33	0.16
23.75	5.07	2.33	0.15
24.00	**5.08**	**2.34**	0.15

Summary for Subcatchment 4:

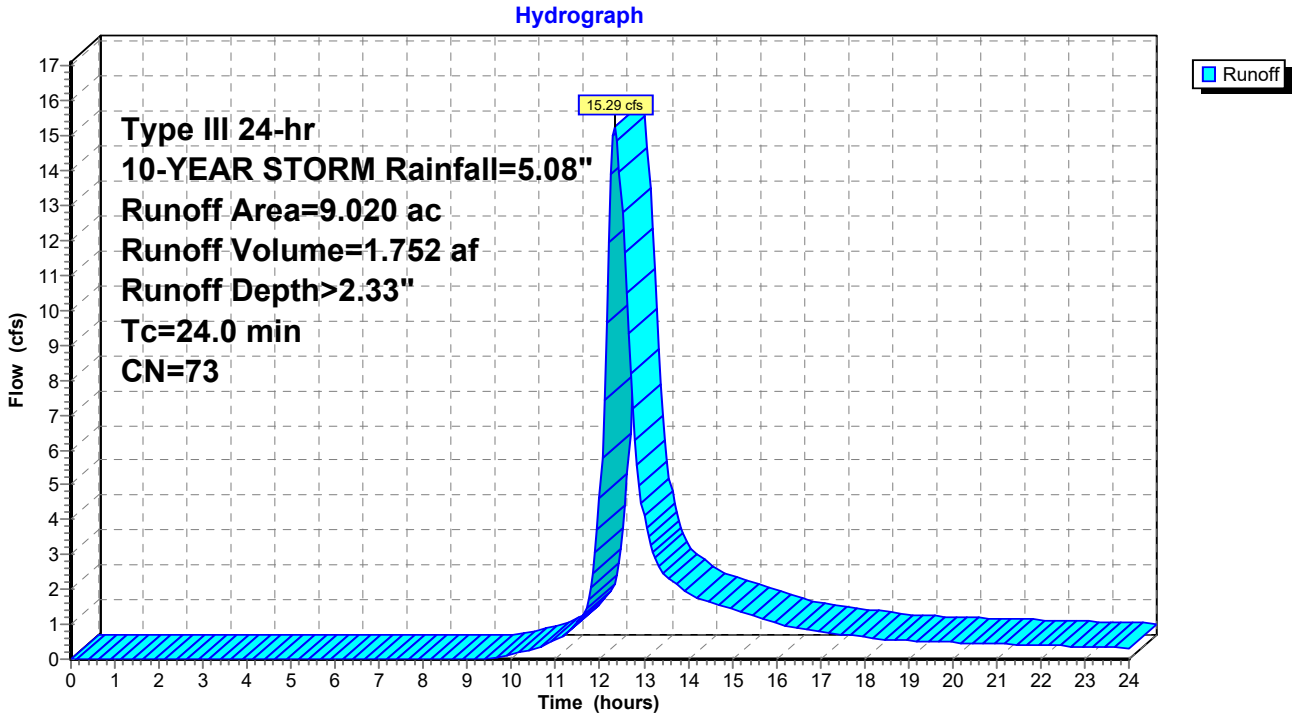
Runoff = 15.29 cfs @ 12.34 hrs, Volume= 1.752 af, Depth> 2.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	9.020	73	
	9.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0					**Direct Entry, SCS TR-55**

Subcatchment 4:



Hydrograph for Subcatchment 4:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	13.00	3.81	1.39	4.10
0.25	0.01	0.00	0.00	13.25	3.90	1.46	2.89
0.50	0.03	0.00	0.00	13.50	3.98	1.51	2.36
0.75	0.04	0.00	0.00	13.75	4.05	1.57	2.12
1.00	0.05	0.00	0.00	14.00	4.12	1.61	1.92
1.25	0.06	0.00	0.00	14.25	4.18	1.66	1.74
1.50	0.08	0.00	0.00	14.50	4.24	1.70	1.61
1.75	0.09	0.00	0.00	14.75	4.29	1.74	1.52
2.00	0.10	0.00	0.00	15.00	4.34	1.78	1.42
2.25	0.11	0.00	0.00	15.25	4.39	1.81	1.33
2.50	0.13	0.00	0.00	15.50	4.43	1.84	1.24
2.75	0.14	0.00	0.00	15.75	4.47	1.87	1.14
3.00	0.16	0.00	0.00	16.00	4.50	1.90	1.05
3.25	0.17	0.00	0.00	16.25	4.53	1.92	0.96
3.50	0.19	0.00	0.00	16.50	4.56	1.94	0.89
3.75	0.20	0.00	0.00	16.75	4.59	1.97	0.84
4.00	0.22	0.00	0.00	17.00	4.62	1.99	0.80
4.25	0.24	0.00	0.00	17.25	4.65	2.01	0.76
4.50	0.25	0.00	0.00	17.50	4.67	2.03	0.72
4.75	0.27	0.00	0.00	17.75	4.69	2.04	0.67
5.00	0.29	0.00	0.00	18.00	4.71	2.06	0.63
5.25	0.31	0.00	0.00	18.25	4.73	2.07	0.59
5.50	0.33	0.00	0.00	18.50	4.75	2.09	0.56
5.75	0.35	0.00	0.00	18.75	4.77	2.10	0.55
6.00	0.37	0.00	0.00	19.00	4.79	2.12	0.54
6.25	0.39	0.00	0.00	19.25	4.81	2.13	0.52
6.50	0.41	0.00	0.00	19.50	4.83	2.15	0.51
6.75	0.43	0.00	0.00	19.75	4.84	2.16	0.50
7.00	0.46	0.00	0.00	20.00	4.86	2.17	0.49
7.25	0.49	0.00	0.00	20.25	4.88	2.19	0.47
7.50	0.52	0.00	0.00	20.50	4.89	2.20	0.46
7.75	0.55	0.00	0.00	20.75	4.91	2.21	0.45
8.00	0.58	0.00	0.00	21.00	4.92	2.22	0.44
8.25	0.61	0.00	0.00	21.25	4.94	2.23	0.43
8.50	0.65	0.00	0.00	21.50	4.95	2.24	0.42
8.75	0.69	0.00	0.00	21.75	4.97	2.26	0.41
9.00	0.74	0.00	0.00	22.00	4.98	2.27	0.40
9.25	0.79	0.00	0.00	22.25	5.00	2.28	0.39
9.50	0.84	0.00	0.03	22.50	5.01	2.29	0.38
9.75	0.90	0.01	0.08	22.75	5.02	2.30	0.37
10.00	0.96	0.01	0.14	23.00	5.03	2.31	0.36
10.25	1.03	0.02	0.21	23.25	5.05	2.32	0.35
10.50	1.10	0.03	0.31	23.50	5.06	2.33	0.34
10.75	1.18	0.05	0.42	23.75	5.07	2.33	0.33
11.00	1.27	0.07	0.56	24.00	**5.08**	**2.34**	0.32
11.25	1.38	0.09	0.73				
11.50	1.51	0.13	1.04				
11.75	1.80	0.24	1.71				
12.00	2.54	0.59	4.60				
12.25	3.28	1.03	**13.89**				
12.50	3.57	1.22	**12.81**				
12.75	3.70	1.32	7.18				

Summary for Subcatchment 5:

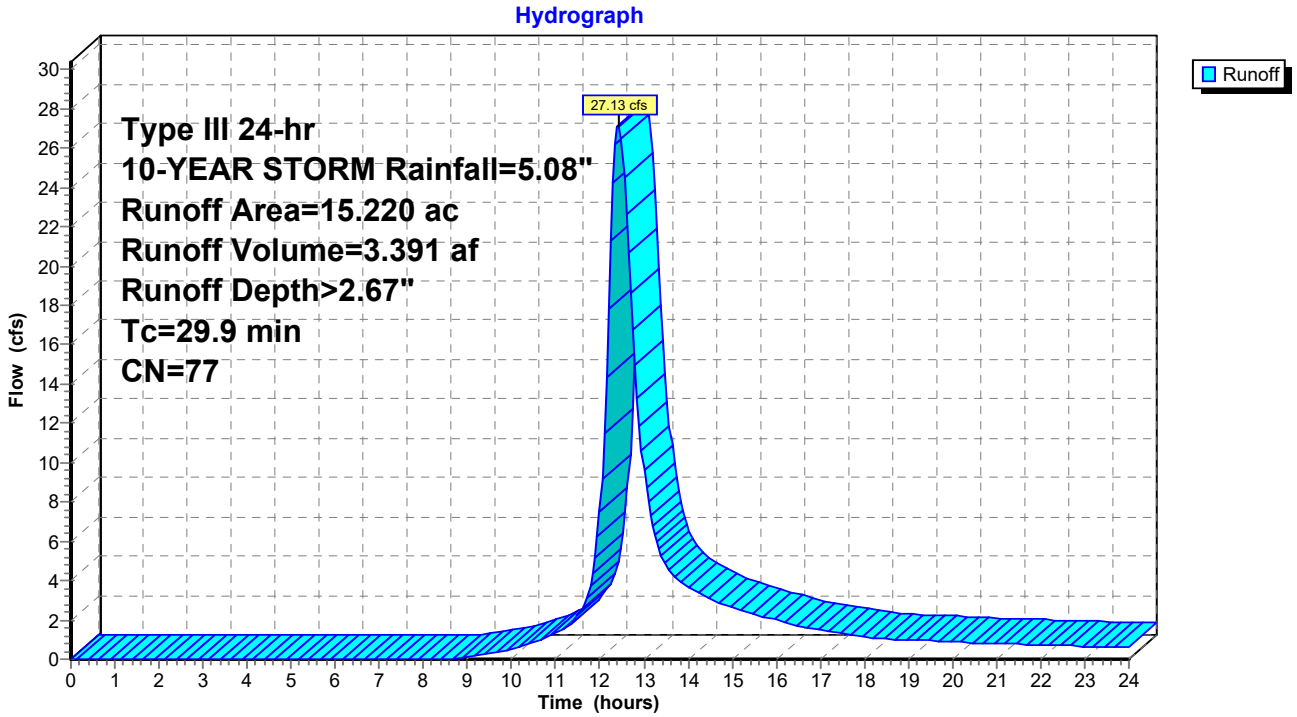
Runoff = 27.13 cfs @ 12.42 hrs, Volume= 3.391 af, Depth> 2.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR STORM Rainfall=5.08"

	Area (ac)	CN	Description
*	15.220	77	
	15.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.9					**Direct Entry, SCS TR-55**

Subcatchment 5:



Hydrograph for Subcatchment 5:

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.25	0.01	0.00	0.00
0.50	0.03	0.00	0.00
0.75	0.04	0.00	0.00
1.00	0.05	0.00	0.00
1.25	0.06	0.00	0.00
1.50	0.08	0.00	0.00
1.75	0.09	0.00	0.00
2.00	0.10	0.00	0.00
2.25	0.11	0.00	0.00
2.50	0.13	0.00	0.00
2.75	0.14	0.00	0.00
3.00	0.16	0.00	0.00
3.25	0.17	0.00	0.00
3.50	0.19	0.00	0.00
3.75	0.20	0.00	0.00
4.00	0.22	0.00	0.00
4.25	0.24	0.00	0.00
4.50	0.25	0.00	0.00
4.75	0.27	0.00	0.00
5.00	0.29	0.00	0.00
5.25	0.31	0.00	0.00
5.50	0.33	0.00	0.00
5.75	0.35	0.00	0.00
6.00	0.37	0.00	0.00
6.25	0.39	0.00	0.00
6.50	0.41	0.00	0.00
6.75	0.43	0.00	0.00
7.00	0.46	0.00	0.00
7.25	0.49	0.00	0.00
7.50	0.52	0.00	0.00
7.75	0.55	0.00	0.00
8.00	0.58	0.00	0.00
8.25	0.61	0.00	0.00
8.50	0.65	0.00	0.01
8.75	0.69	0.00	0.05
9.00	0.74	0.01	0.11
9.25	0.79	0.01	0.19
9.50	0.84	0.02	0.28
9.75	0.90	0.03	0.39
10.00	0.96	0.04	0.52
10.25	1.03	0.05	0.66
10.50	1.10	0.07	0.84
10.75	1.18	0.10	1.06
11.00	1.27	0.12	1.33
11.25	1.38	0.16	1.65
11.50	1.51	0.22	2.18
11.75	1.80	0.35	3.26
12.00	2.54	0.77	7.49
12.25	3.28	1.27	**21.30**
12.50	3.57	1.48	**26.05**
12.75	3.70	1.58	16.75
13.00	3.81	1.66	9.58
13.25	3.90	1.73	6.34
13.50	3.98	1.80	4.84
13.75	4.05	1.85	4.11
14.00	4.12	1.91	3.68
14.25	4.18	1.95	3.32
14.50	4.24	2.00	3.04
14.75	4.29	2.04	2.84
15.00	4.34	2.08	2.66
15.25	4.39	2.12	2.49
15.50	4.43	2.15	2.32
15.75	4.47	2.18	2.15
16.00	4.50	2.21	1.97
16.25	4.53	2.24	1.80
16.50	4.56	2.26	1.66
16.75	4.59	2.29	1.57
17.00	4.62	2.31	1.48
17.25	4.65	2.33	1.41
17.50	4.67	2.35	1.33
17.75	4.69	2.37	1.25
18.00	4.71	2.39	1.17
18.25	4.73	2.40	1.10
18.50	4.75	2.42	1.04
18.75	4.77	2.43	1.00
19.00	4.79	2.45	0.98
19.25	4.81	2.46	0.95
19.50	4.83	2.48	0.93
19.75	4.84	2.49	0.91
20.00	4.86	2.51	0.88
20.25	4.88	2.52	0.86
20.50	4.89	2.53	0.84
20.75	4.91	2.55	0.82
21.00	4.92	2.56	0.80
21.25	4.94	2.57	0.79
21.50	4.95	2.58	0.77
21.75	4.97	2.60	0.75
22.00	4.98	2.61	0.73
22.25	5.00	2.62	0.72
22.50	5.01	2.63	0.70
22.75	5.02	2.64	0.68
23.00	5.03	2.65	0.66
23.25	5.05	2.66	0.64
23.50	5.06	2.67	0.63
23.75	5.07	2.68	0.61
24.00	**5.08**	**2.69**	0.59

Summary for Pond 1A - Pond: 1A - Pond

Inflow Area = 4.690 ac, 0.00% Impervious, Inflow Depth > 2.32" for 10-YEAR STORM event
Inflow = 6.07 cfs @ 12.61 hrs, Volume= 0.907 af
Outflow = 2.05 cfs @ 13.41 hrs, Volume= 0.494 af, Atten= 66%, Lag= 48.2 min
Primary = 2.05 cfs @ 13.41 hrs, Volume= 0.494 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 129.19' @ 13.41 hrs Surf.Area= 0.262 ac Storage= 0.453 af

Plug-Flow detention time= 227.0 min calculated for 0.494 af (54% of inflow)
Center-of-Mass det. time= 113.7 min (981.1 - 867.3)

Volume	Invert	Avail.Storage	Storage Description
#1	127.25'	0.975 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

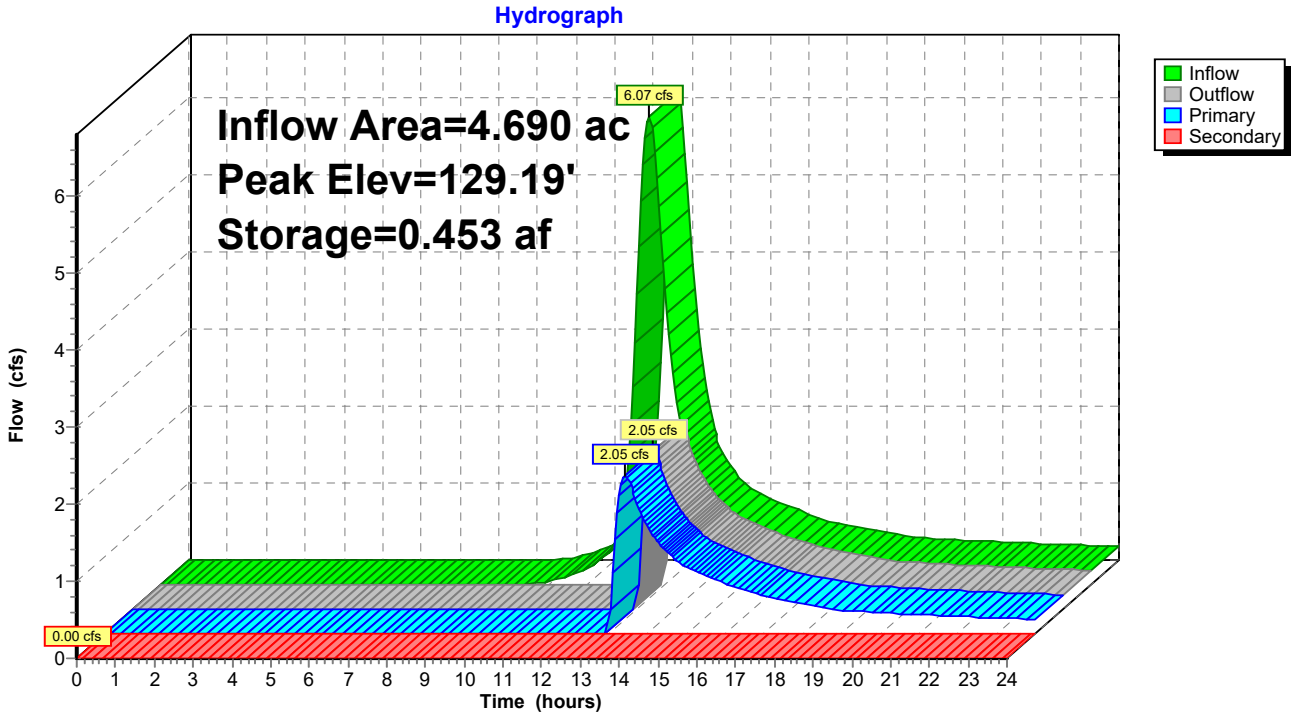
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
127.25	0.200	0.000	0.000
128.00	0.230	0.161	0.161
129.00	0.257	0.244	0.405
130.00	0.285	0.271	0.676
131.00	0.314	0.300	0.975

Device	Routing	Invert	Outlet Devices
#1	Secondary	130.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	127.25'	**18.0" Round Culvert** L= 55.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 127.25' / 127.00' S= 0.0045 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#3	Device 2	127.25'	**0.5" Vert. Orifice/Grate** C= 0.600
#4	Device 2	129.00'	**7.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.04 cfs @ 13.41 hrs HW=129.19' (Free Discharge)
└**2=Culvert** (Passes 2.04 cfs of 8.04 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.01 cfs @ 6.66 fps)
  └**4=Sharp-Crested Rectangular Weir** (Weir Controls 2.03 cfs @ 1.41 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=127.25' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1A - Pond: 1A - Pond



Hydrograph for Pond 1A - Pond: 1A - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	127.25	0.00	0.00	**0.00**
0.50	0.00	0.000	127.25	0.00	0.00	0.00
1.00	0.00	0.000	127.25	0.00	0.00	0.00
1.50	0.00	0.000	127.25	0.00	0.00	0.00
2.00	0.00	0.000	127.25	0.00	0.00	0.00
2.50	0.00	0.000	127.25	0.00	0.00	0.00
3.00	0.00	0.000	127.25	0.00	0.00	0.00
3.50	0.00	0.000	127.25	0.00	0.00	0.00
4.00	0.00	0.000	127.25	0.00	0.00	0.00
4.50	0.00	0.000	127.25	0.00	0.00	0.00
5.00	0.00	0.000	127.25	0.00	0.00	0.00
5.50	0.00	0.000	127.25	0.00	0.00	0.00
6.00	0.00	0.000	127.25	0.00	0.00	0.00
6.50	0.00	0.000	127.25	0.00	0.00	0.00
7.00	0.00	0.000	127.25	0.00	0.00	0.00
7.50	0.00	0.000	127.25	0.00	0.00	0.00
8.00	0.00	0.000	127.25	0.00	0.00	0.00
8.50	0.00	0.000	127.25	0.00	0.00	0.00
9.00	0.00	0.000	127.25	0.00	0.00	0.00
9.50	0.00	0.000	127.25	0.00	0.00	0.00
10.00	0.04	0.001	127.25	0.00	0.00	0.00
10.50	0.11	0.004	127.27	0.00	0.00	0.00
11.00	0.21	0.010	127.30	0.00	0.00	0.00
11.50	0.39	0.022	127.36	0.00	0.00	0.00
12.00	1.12	0.048	127.48	0.00	0.00	0.00
12.50	**5.79**	0.184	128.10	0.01	0.01	0.00
13.00	**3.85**	**0.404**	**129.00**	**0.01**	**0.01**	0.00
13.50	1.82	**0.452**	**129.18**	**2.00**	**2.00**	0.00
14.00	1.20	0.442	129.14	1.41	1.41	0.00
14.50	0.94	0.436	129.12	1.06	1.06	0.00
15.00	0.80	0.432	129.10	0.87	0.87	0.00
15.50	0.70	0.429	129.09	0.75	0.75	0.00
16.00	0.60	0.427	129.09	0.66	0.66	0.00
16.50	0.51	0.425	129.08	0.56	0.56	0.00
17.00	0.45	0.423	129.07	0.49	0.49	0.00
17.50	0.40	0.421	129.06	0.43	0.43	0.00
18.00	0.35	0.420	129.06	0.38	0.38	0.00
18.50	0.31	0.419	129.05	0.34	0.34	0.00
19.00	0.29	0.418	129.05	0.30	0.30	0.00
19.50	0.27	0.417	129.05	0.29	0.29	0.00
20.00	0.26	0.417	129.05	0.27	0.27	0.00
20.50	0.25	0.416	129.04	0.26	0.26	0.00
21.00	0.24	0.416	129.04	0.25	0.25	0.00
21.50	0.23	0.415	129.04	0.24	0.24	0.00
22.00	0.22	0.415	129.04	0.23	0.23	0.00
22.50	0.21	0.415	129.04	0.22	0.22	0.00
23.00	0.20	0.414	129.04	0.20	0.20	0.00
23.50	0.18	0.414	129.04	0.19	0.19	0.00
24.00	0.17	0.413	129.03	0.18	0.18	0.00

Summary for Pond 1B - Pond: 1B - Pond

Inflow Area = 10.540 ac, 0.00% Impervious, Inflow Depth > 2.16" for 10-YEAR STORM event
Inflow = 12.64 cfs @ 12.61 hrs, Volume= 1.893 af
Outflow = 5.07 cfs @ 13.29 hrs, Volume= 1.099 af, Atten= 60%, Lag= 41.0 min
Primary = 5.07 cfs @ 13.29 hrs, Volume= 1.099 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 126.84' @ 13.29 hrs Surf.Area= 0.285 ac Storage= 0.874 af

Plug-Flow detention time= 211.4 min calculated for 1.097 af (58% of inflow)
Center-of-Mass det. time= 100.8 min (972.8 - 872.0)

Volume	Invert	Avail.Storage	Storage Description
#1	123.00'	1.560 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

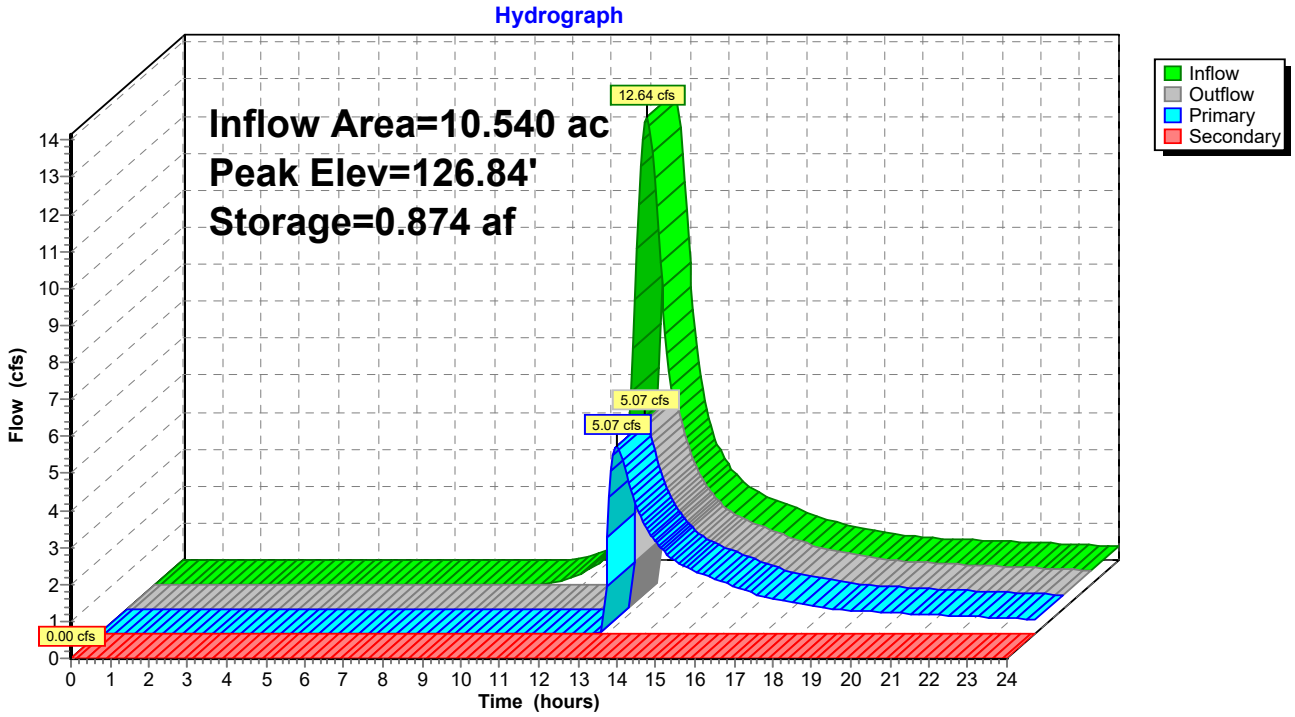
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
123.00	0.170	0.000	0.000
124.00	0.200	0.185	0.185
125.00	0.230	0.215	0.400
126.00	0.260	0.245	0.645
127.00	0.290	0.275	0.920
128.00	0.320	0.305	1.225
129.00	0.350	0.335	1.560

Device	Routing	Invert	Outlet Devices
#1	Primary	123.00'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 123.00' / 122.00' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	128.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	123.00'	**0.7" Vert. Orifice/Grate** C= 0.600
#4	Device 1	126.50'	**7.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=5.06 cfs @ 13.29 hrs HW=126.84' (Free Discharge)
└**1=Culvert** (Passes 5.06 cfs of 14.96 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.03 cfs @ 9.40 fps)
  └**4=Sharp-Crested Rectangular Weir** (Weir Controls 5.03 cfs @ 1.91 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=123.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1B - Pond: 1B - Pond



Hydrograph for Pond 1B - Pond: 1B - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	123.00	0.00	0.00	**0.00**
0.50	0.00	0.000	123.00	0.00	0.00	0.00
1.00	0.00	0.000	123.00	0.00	0.00	0.00
1.50	0.00	0.000	123.00	0.00	0.00	0.00
2.00	0.00	0.000	123.00	0.00	0.00	0.00
2.50	0.00	0.000	123.00	0.00	0.00	0.00
3.00	0.00	0.000	123.00	0.00	0.00	0.00
3.50	0.00	0.000	123.00	0.00	0.00	0.00
4.00	0.00	0.000	123.00	0.00	0.00	0.00
4.50	0.00	0.000	123.00	0.00	0.00	0.00
5.00	0.00	0.000	123.00	0.00	0.00	0.00
5.50	0.00	0.000	123.00	0.00	0.00	0.00
6.00	0.00	0.000	123.00	0.00	0.00	0.00
6.50	0.00	0.000	123.00	0.00	0.00	0.00
7.00	0.00	0.000	123.00	0.00	0.00	0.00
7.50	0.00	0.000	123.00	0.00	0.00	0.00
8.00	0.00	0.000	123.00	0.00	0.00	0.00
8.50	0.00	0.000	123.00	0.00	0.00	0.00
9.00	0.00	0.000	123.00	0.00	0.00	0.00
9.50	0.00	0.000	123.00	0.00	0.00	0.00
10.00	0.03	0.000	123.00	0.00	0.00	0.00
10.50	0.14	0.003	123.02	0.00	0.00	0.00
11.00	0.35	0.013	123.08	0.00	0.00	0.00
11.50	0.69	0.034	123.19	0.01	0.01	0.00
12.00	2.20	0.082	123.46	0.01	0.01	0.00
12.50	**12.03**	0.360	124.82	0.02	0.02	0.00
13.00	**8.04**	**0.815**	**126.63**	**1.26**	**1.26**	0.00
13.50	3.83	**0.867**	**126.81**	**4.49**	**4.49**	0.00
14.00	2.56	0.844	126.74	2.93	2.93	0.00
14.50	2.00	0.833	126.69	2.22	2.22	0.00
15.00	1.72	0.826	126.67	1.83	1.83	0.00
15.50	1.50	0.822	126.66	1.60	1.60	0.00
16.00	1.30	0.818	126.64	1.40	1.40	0.00
16.50	1.09	0.814	126.63	1.19	1.19	0.00
17.00	0.96	0.810	126.61	1.03	1.03	0.00
17.50	0.86	0.808	126.61	0.91	0.91	0.00
18.00	0.76	0.806	126.60	0.82	0.82	0.00
18.50	0.67	0.804	126.59	0.73	0.73	0.00
19.00	0.62	0.802	126.58	0.66	0.66	0.00
19.50	0.59	0.801	126.58	0.62	0.62	0.00
20.00	0.56	0.800	126.58	0.58	0.58	0.00
20.50	0.53	0.799	126.57	0.55	0.55	0.00
21.00	0.51	0.798	126.57	0.53	0.53	0.00
21.50	0.49	0.797	126.57	0.50	0.50	0.00
22.00	0.47	0.797	126.57	0.48	0.48	0.00
22.50	0.44	0.796	126.56	0.46	0.46	0.00
23.00	0.42	0.796	126.56	0.44	0.44	0.00
23.50	0.40	0.795	126.56	0.42	0.42	0.00
24.00	0.38	0.794	126.56	0.39	0.39	0.00

Summary for Pond 1C-Pond: 1C - Pond

Inflow Area = 8.580 ac, 0.00% Impervious, Inflow Depth > 2.00" for 10-YEAR STORM event
Inflow = 10.37 cfs @ 12.52 hrs, Volume= 1.429 af
Outflow = 3.20 cfs @ 13.29 hrs, Volume= 0.826 af, Atten= 69%, Lag= 46.5 min
Primary = 3.20 cfs @ 13.29 hrs, Volume= 0.826 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 130.25' @ 13.29 hrs Surf.Area= 0.363 ac Storage= 0.674 af

Plug-Flow detention time= 220.6 min calculated for 0.826 af (58% of inflow)
Center-of-Mass det. time= 106.5 min (977.9 - 871.4)

Volume	Invert	Avail.Storage	Storage Description
#1	128.00'	1.875 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

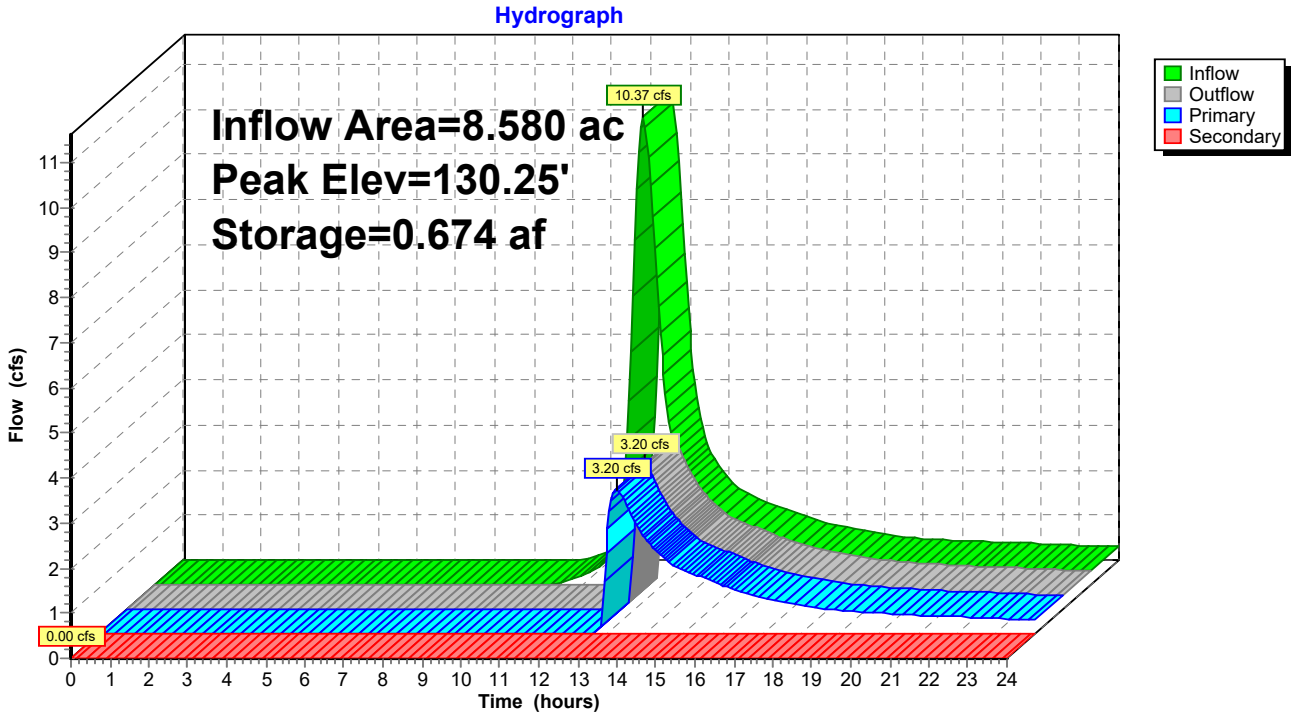
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
128.00	0.240	0.000	0.000
129.00	0.290	0.265	0.265
130.00	0.350	0.320	0.585
131.00	0.400	0.375	0.960
132.00	0.460	0.430	1.390
133.00	0.510	0.485	1.875

Device	Routing	Invert	Outlet Devices
#1	Primary	128.00'	**18.0" Round Culvert** L= 45.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 128.00' / 127.75' S= 0.0056 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	131.75'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	128.00'	**0.7" Vert. Orifice/Grate** C= 0.600
#4	Device 1	130.00'	**7.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.20 cfs @ 13.29 hrs HW=130.25' (Free Discharge)
└**1=Culvert** (Passes 3.20 cfs of 9.56 cfs potential flow)
  └**3=Orifice/Grate** (Orifice Controls 0.02 cfs @ 7.18 fps)
  └**4=Sharp-Crested Rectangular Weir** (Weir Controls 3.18 cfs @ 1.64 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1C-Pond: 1C - Pond



Hydrograph for Pond 1C-Pond: 1C - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	128.00	0.00	0.00	**0.00**
0.50	0.00	0.000	128.00	0.00	0.00	0.00
1.00	0.00	0.000	128.00	0.00	0.00	0.00
1.50	0.00	0.000	128.00	0.00	0.00	0.00
2.00	0.00	0.000	128.00	0.00	0.00	0.00
2.50	0.00	0.000	128.00	0.00	0.00	0.00
3.00	0.00	0.000	128.00	0.00	0.00	0.00
3.50	0.00	0.000	128.00	0.00	0.00	0.00
4.00	0.00	0.000	128.00	0.00	0.00	0.00
4.50	0.00	0.000	128.00	0.00	0.00	0.00
5.00	0.00	0.000	128.00	0.00	0.00	0.00
5.50	0.00	0.000	128.00	0.00	0.00	0.00
6.00	0.00	0.000	128.00	0.00	0.00	0.00
6.50	0.00	0.000	128.00	0.00	0.00	0.00
7.00	0.00	0.000	128.00	0.00	0.00	0.00
7.50	0.00	0.000	128.00	0.00	0.00	0.00
8.00	0.00	0.000	128.00	0.00	0.00	0.00
8.50	0.00	0.000	128.00	0.00	0.00	0.00
9.00	0.00	0.000	128.00	0.00	0.00	0.00
9.50	0.00	0.000	128.00	0.00	0.00	0.00
10.00	0.00	0.000	128.00	0.00	0.00	0.00
10.50	0.06	0.001	128.00	0.00	0.00	0.00
11.00	0.22	0.006	128.03	0.00	0.00	0.00
11.50	0.50	0.020	128.08	0.00	0.00	0.00
12.00	2.00	0.060	128.24	0.01	0.01	0.00
12.50	**10.36**	0.323	129.19	0.01	0.01	0.00
13.00	5.10	**0.645**	**130.17**	**1.80**	**1.80**	0.00
13.50	2.49	**0.669**	**130.24**	**2.94**	**2.94**	0.00
14.00	1.81	0.652	130.19	2.13	2.13	0.00
14.50	1.48	0.642	130.16	1.67	1.67	0.00
15.00	1.29	0.636	130.14	1.41	1.41	0.00
15.50	1.13	0.631	130.13	1.24	1.24	0.00
16.00	0.97	0.627	130.12	1.08	1.08	0.00
16.50	0.82	0.623	130.11	0.92	0.92	0.00
17.00	0.73	0.619	130.10	0.80	0.80	0.00
17.50	0.65	0.617	130.09	0.72	0.72	0.00
18.00	0.58	0.614	130.08	0.64	0.64	0.00
18.50	0.51	0.612	130.08	0.57	0.57	0.00
19.00	0.48	0.610	130.07	0.51	0.51	0.00
19.50	0.46	0.609	130.07	0.48	0.48	0.00
20.00	0.43	0.608	130.06	0.45	0.45	0.00
20.50	0.41	0.607	130.06	0.43	0.43	0.00
21.00	0.40	0.606	130.06	0.41	0.41	0.00
21.50	0.38	0.606	130.06	0.39	0.39	0.00
22.00	0.36	0.605	130.06	0.38	0.38	0.00
22.50	0.34	0.604	130.06	0.36	0.36	0.00
23.00	0.33	0.604	130.05	0.34	0.34	0.00
23.50	0.31	0.603	130.05	0.32	0.32	0.00
24.00	0.29	0.603	130.05	0.31	0.31	0.00

Summary for Pond 2 - Pond: 2 - Pond

Inflow Area = 9.600 ac, 0.00% Impervious, Inflow Depth > 2.41" for 10-YEAR STORM event
Inflow = 13.31 cfs @ 12.57 hrs, Volume= 1.925 af
Outflow = 6.59 cfs @ 13.09 hrs, Volume= 1.180 af, Atten= 50%, Lag= 31.3 min
Primary = 6.59 cfs @ 13.09 hrs, Volume= 1.180 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 137.41' @ 13.09 hrs Surf.Area= 0.273 ac Storage= 0.840 af

Plug-Flow detention time= 195.0 min calculated for 1.180 af (61% of inflow)
Center-of-Mass det. time= 89.0 min (952.1 - 863.1)

Volume	Invert	Avail.Storage	Storage Description
#1	133.00'	1.326 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

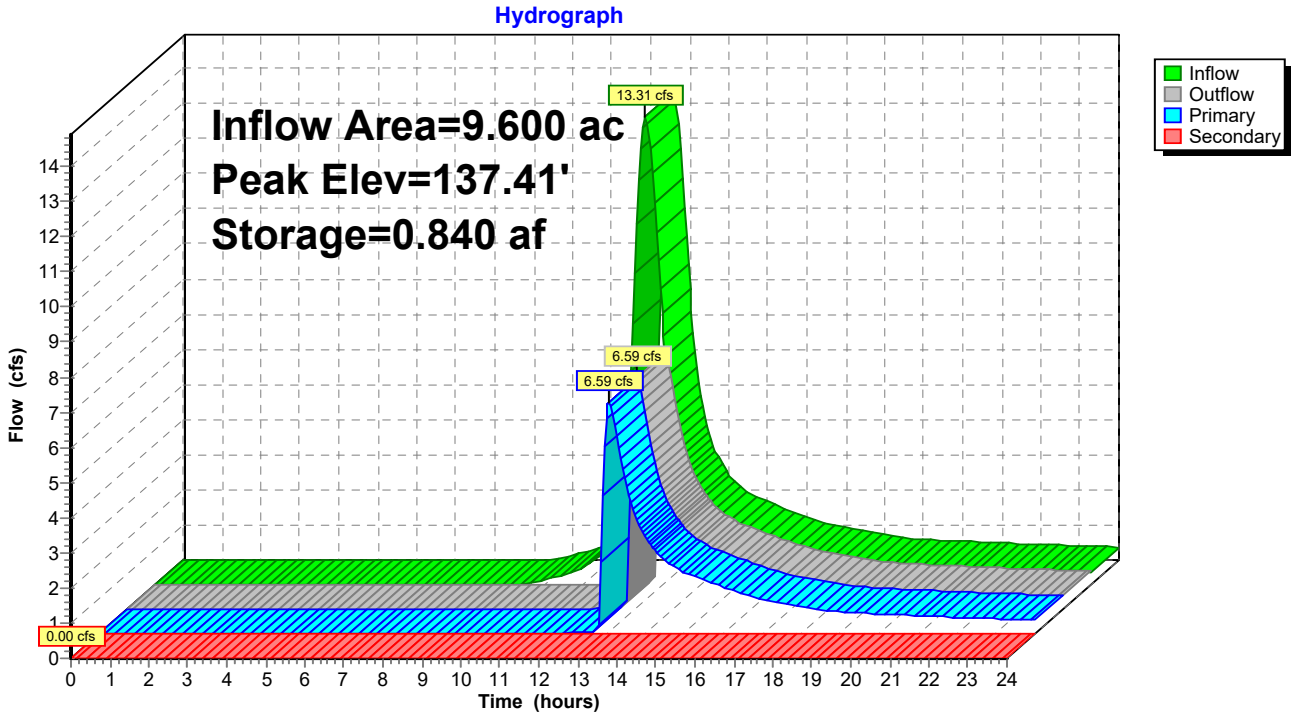
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
133.00	0.113	0.000	0.000
134.00	0.147	0.130	0.130
135.00	0.182	0.164	0.294
136.00	0.218	0.200	0.494
137.00	0.257	0.237	0.732
138.00	0.297	0.277	1.009
139.00	0.338	0.317	1.326

Device	Routing	Invert	Outlet Devices
#1	Primary	133.00'	**18.0" Round Culvert** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 133.00' / 132.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	138.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#3	Device 1	133.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	137.00'	**7.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=6.57 cfs @ 13.09 hrs HW=137.41' (Free Discharge)
└**1=Culvert** (Passes 6.57 cfs of 16.27 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.05 cfs @ 10.06 fps)
  └**4=Sharp-Crested Rectangular Weir** (Weir Controls 6.51 cfs @ 2.08 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=133.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 2 - Pond: 2 - Pond



Hydrograph for Pond 2 - Pond: 2 - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	133.00	0.00	0.00	**0.00**
0.50	0.00	0.000	133.00	0.00	0.00	0.00
1.00	0.00	0.000	133.00	0.00	0.00	0.00
1.50	0.00	0.000	133.00	0.00	0.00	0.00
2.00	0.00	0.000	133.00	0.00	0.00	0.00
2.50	0.00	0.000	133.00	0.00	0.00	0.00
3.00	0.00	0.000	133.00	0.00	0.00	0.00
3.50	0.00	0.000	133.00	0.00	0.00	0.00
4.00	0.00	0.000	133.00	0.00	0.00	0.00
4.50	0.00	0.000	133.00	0.00	0.00	0.00
5.00	0.00	0.000	133.00	0.00	0.00	0.00
5.50	0.00	0.000	133.00	0.00	0.00	0.00
6.00	0.00	0.000	133.00	0.00	0.00	0.00
6.50	0.00	0.000	133.00	0.00	0.00	0.00
7.00	0.00	0.000	133.00	0.00	0.00	0.00
7.50	0.00	0.000	133.00	0.00	0.00	0.00
8.00	0.00	0.000	133.00	0.00	0.00	0.00
8.50	0.00	0.000	133.00	0.00	0.00	0.00
9.00	0.00	0.000	133.00	0.00	0.00	0.00
9.50	0.03	0.000	133.00	0.00	0.00	0.00
10.00	0.14	0.004	133.03	0.00	0.00	0.00
10.50	0.29	0.012	133.10	0.01	0.01	0.00
11.00	0.52	0.028	133.24	0.01	0.01	0.00
11.50	0.90	0.056	133.46	0.02	0.02	0.00
12.00	2.66	0.116	133.90	0.02	0.02	0.00
12.50	**13.02**	0.431	135.70	0.04	0.04	0.00
13.00	**7.71**	**0.834**	**137.39**	**6.12**	**6.12**	0.00
13.50	3.61	**0.814**	**137.31**	**4.42**	**4.42**	0.00
14.00	2.44	0.791	137.23	2.78	2.78	0.00
14.50	1.92	0.781	137.19	2.11	2.11	0.00
15.00	1.66	0.775	137.16	1.76	1.76	0.00
15.50	1.45	0.771	137.15	1.53	1.53	0.00
16.00	1.24	0.767	137.14	1.34	1.34	0.00
16.50	1.05	0.763	137.12	1.14	1.14	0.00
17.00	0.92	0.760	137.11	0.99	0.99	0.00
17.50	0.83	0.758	137.10	0.88	0.88	0.00
18.00	0.73	0.756	137.09	0.78	0.78	0.00
18.50	0.65	0.754	137.08	0.69	0.69	0.00
19.00	0.60	0.753	137.08	0.62	0.62	0.00
19.50	0.57	0.752	137.08	0.59	0.59	0.00
20.00	0.54	0.751	137.07	0.56	0.56	0.00
20.50	0.51	0.750	137.07	0.53	0.53	0.00
21.00	0.49	0.749	137.07	0.51	0.51	0.00
21.50	0.47	0.748	137.06	0.48	0.48	0.00
22.00	0.45	0.748	137.06	0.46	0.46	0.00
22.50	0.43	0.747	137.06	0.44	0.44	0.00
23.00	0.40	0.746	137.06	0.42	0.42	0.00
23.50	0.38	0.746	137.05	0.40	0.40	0.00
24.00	0.36	0.745	137.05	0.38	0.38	0.00

Summary for Pond 3 - Pond: 3 - Pond

Inflow Area = 4.120 ac, 0.00% Impervious, Inflow Depth > 2.33" for 10-YEAR STORM event
Inflow = 6.94 cfs @ 12.35 hrs, Volume= 0.800 af
Outflow = 1.76 cfs @ 13.05 hrs, Volume= 0.418 af, Atten= 75%, Lag= 42.2 min
Primary = 1.76 cfs @ 13.05 hrs, Volume= 0.418 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 171.37' @ 13.05 hrs Surf.Area= 0.186 ac Storage= 0.408 af

Plug-Flow detention time= 235.3 min calculated for 0.418 af (52% of inflow)
Center-of-Mass det. time= 118.9 min (972.0 - 853.1)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	1.043 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

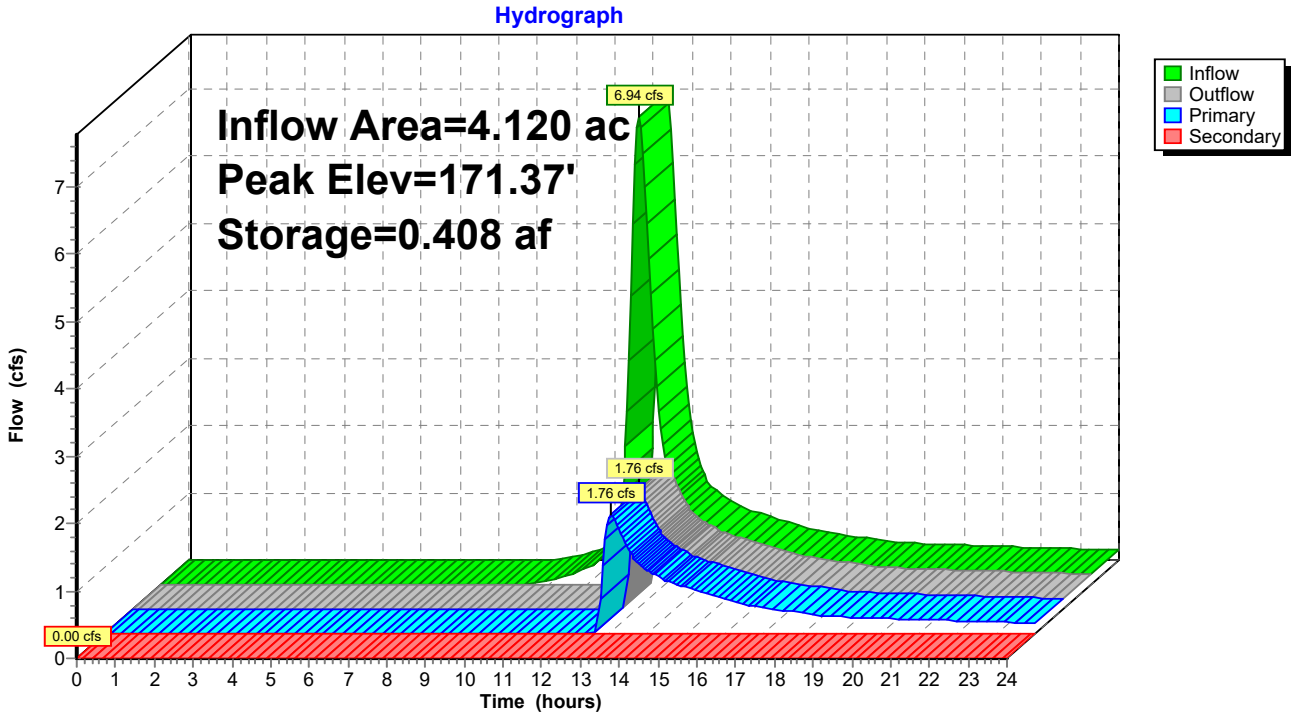
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.058	0.000	0.000
169.00	0.094	0.076	0.076
170.00	0.133	0.113	0.189
171.00	0.172	0.152	0.342
172.00	0.211	0.191	0.533
173.00	0.254	0.233	0.766
174.00	0.299	0.276	1.043

Device	Routing	Invert	Outlet Devices
#1	Primary	168.00'	**18.0" Round Culvert** L= 55.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 168.00' / 164.50' S= 0.0636 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	173.00'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Device 1	168.00'	**0.4" Vert. Orifice/Grate** C= 0.600
#4	Device 1	171.20'	**7.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.74 cfs @ 13.05 hrs HW=171.37' (Free Discharge)
└**1=Culvert** (Passes 1.74 cfs of 13.77 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.01 cfs @ 8.81 fps)
  └**4=Sharp-Crested Rectangular Weir** (Weir Controls 1.74 cfs @ 1.34 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=168.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3 - Pond: 3 - Pond



Hydrograph for Pond 3 - Pond: 3 - Pond

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0.000	168.00	0.00	0.00	**0.00**
0.50	0.00	0.000	168.00	0.00	0.00	0.00
1.00	0.00	0.000	168.00	0.00	0.00	0.00
1.50	0.00	0.000	168.00	0.00	0.00	0.00
2.00	0.00	0.000	168.00	0.00	0.00	0.00
2.50	0.00	0.000	168.00	0.00	0.00	0.00
3.00	0.00	0.000	168.00	0.00	0.00	0.00
3.50	0.00	0.000	168.00	0.00	0.00	0.00
4.00	0.00	0.000	168.00	0.00	0.00	0.00
4.50	0.00	0.000	168.00	0.00	0.00	0.00
5.00	0.00	0.000	168.00	0.00	0.00	0.00
5.50	0.00	0.000	168.00	0.00	0.00	0.00
6.00	0.00	0.000	168.00	0.00	0.00	0.00
6.50	0.00	0.000	168.00	0.00	0.00	0.00
7.00	0.00	0.000	168.00	0.00	0.00	0.00
7.50	0.00	0.000	168.00	0.00	0.00	0.00
8.00	0.00	0.000	168.00	0.00	0.00	0.00
8.50	0.00	0.000	168.00	0.00	0.00	0.00
9.00	0.00	0.000	168.00	0.00	0.00	0.00
9.50	0.01	0.000	168.00	0.00	0.00	0.00
10.00	0.06	0.002	168.03	0.00	0.00	0.00
10.50	0.14	0.006	168.10	0.00	0.00	0.00
11.00	0.25	0.014	168.22	0.00	0.00	0.00
11.50	0.47	0.028	168.42	0.00	0.00	0.00
12.00	**2.06**	0.066	168.90	0.00	0.00	0.00
12.50	**5.89**	0.284	170.65	0.01	0.01	0.00
13.00	1.90	**0.407**	**171.37**	**1.72**	**1.72**	0.00
13.50	1.08	**0.401**	**171.33**	**1.24**	**1.24**	0.00
14.00	0.88	0.397	171.31	0.95	0.95	0.00
14.50	0.74	0.395	171.30	0.79	0.79	0.00
15.00	0.65	0.393	171.29	0.69	0.69	0.00
15.50	0.57	0.392	171.28	0.60	0.60	0.00
16.00	0.48	0.390	171.27	0.52	0.52	0.00
16.50	0.41	0.389	171.26	0.44	0.44	0.00
17.00	0.37	0.388	171.26	0.39	0.39	0.00
17.50	0.33	0.387	171.25	0.35	0.35	0.00
18.00	0.29	0.386	171.25	0.31	0.31	0.00
18.50	0.26	0.385	171.25	0.27	0.27	0.00
19.00	0.25	0.385	171.24	0.25	0.25	0.00
19.50	0.23	0.385	171.24	0.24	0.24	0.00
20.00	0.22	0.385	171.24	0.23	0.23	0.00
20.50	0.21	0.384	171.24	0.22	0.22	0.00
21.00	0.20	0.384	171.24	0.21	0.21	0.00
21.50	0.19	0.384	171.24	0.20	0.20	0.00
22.00	0.18	0.384	171.24	0.19	0.19	0.00
22.50	0.18	0.383	171.23	0.18	0.18	0.00
23.00	0.17	0.383	171.23	0.17	0.17	0.00
23.50	0.16	0.383	171.23	0.17	0.17	0.00
24.00	0.15	0.382	171.23	0.16	0.16	0.00

Summary for Pond 4 - Pond: 4 - Pond

Inflow Area = 9.020 ac, 0.00% Impervious, Inflow Depth > 2.33" for 10-YEAR STORM event
Inflow = 15.29 cfs @ 12.34 hrs, Volume= 1.752 af
Outflow = 6.08 cfs @ 12.82 hrs, Volume= 1.044 af, Atten= 60%, Lag= 28.5 min
Primary = 6.08 cfs @ 12.82 hrs, Volume= 1.044 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 126.38' @ 12.82 hrs Surf.Area= 10,528 sf Storage= 34,300 cf

Plug-Flow detention time= 202.8 min calculated for 1.042 af (59% of inflow)
Center-of-Mass det. time= 93.6 min (946.4 - 852.8)

Volume	Invert	Avail.Storage	Storage Description
#1	122.00'	66,544 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

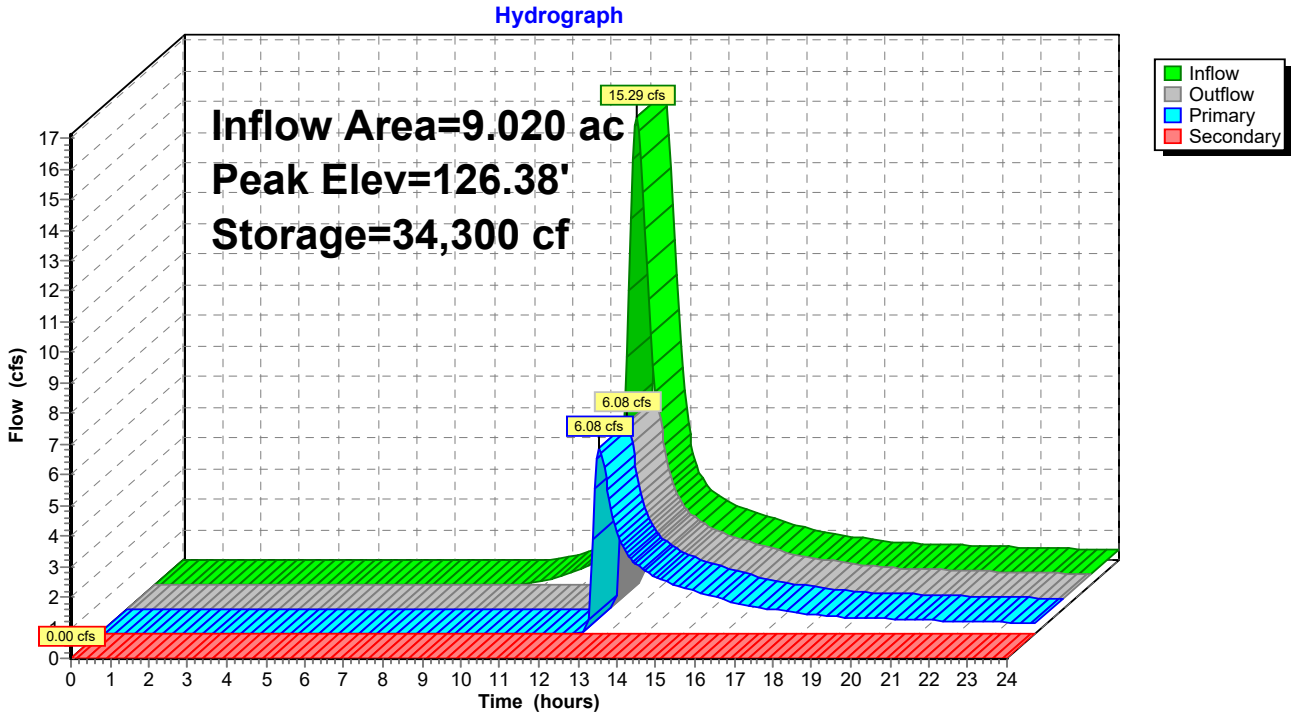
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
122.00	5,526	0	0
123.00	6,338	5,932	5,932
124.00	7,507	6,923	12,855
125.00	8,732	8,120	20,974
126.00	10,013	9,373	30,347
127.00	11,350	10,682	41,028
128.00	12,744	12,047	53,075
129.00	14,194	13,469	66,544

Device	Routing	Invert	Outlet Devices
#1	Primary	122.00'	**18.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 122.00' / 121.50' S= 0.0083 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	128.25'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Device 1	122.00'	**0.8" Vert. Orifice/Grate** C= 0.600
#4	Device 1	126.00'	**7.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=6.02 cfs @ 12.82 hrs HW=126.38' (Free Discharge)
└**1=Culvert** (Passes 6.02 cfs of 16.22 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.04 cfs @ 10.04 fps)
  └**4=Sharp-Crested Rectangular Weir** (Weir Controls 5.99 cfs @ 2.02 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=122.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4 - Pond: 4 - Pond



Hydrograph for Pond 4 - Pond: 4 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	122.00	0.00	0.00	**0.00**
0.50	0.00	0	122.00	0.00	0.00	0.00
1.00	0.00	0	122.00	0.00	0.00	0.00
1.50	0.00	0	122.00	0.00	0.00	0.00
2.00	0.00	0	122.00	0.00	0.00	0.00
2.50	0.00	0	122.00	0.00	0.00	0.00
3.00	0.00	0	122.00	0.00	0.00	0.00
3.50	0.00	0	122.00	0.00	0.00	0.00
4.00	0.00	0	122.00	0.00	0.00	0.00
4.50	0.00	0	122.00	0.00	0.00	0.00
5.00	0.00	0	122.00	0.00	0.00	0.00
5.50	0.00	0	122.00	0.00	0.00	0.00
6.00	0.00	0	122.00	0.00	0.00	0.00
6.50	0.00	0	122.00	0.00	0.00	0.00
7.00	0.00	0	122.00	0.00	0.00	0.00
7.50	0.00	0	122.00	0.00	0.00	0.00
8.00	0.00	0	122.00	0.00	0.00	0.00
8.50	0.00	0	122.00	0.00	0.00	0.00
9.00	0.00	0	122.00	0.00	0.00	0.00
9.50	0.03	14	122.00	0.00	0.00	0.00
10.00	0.14	163	122.03	0.00	0.00	0.00
10.50	0.31	549	122.10	0.00	0.00	0.00
11.00	0.56	1,301	122.23	0.01	0.01	0.00
11.50	1.04	2,639	122.46	0.01	0.01	0.00
12.00	**4.60**	6,386	123.07	0.02	0.02	0.00
12.50	**12.81**	**27,307**	**125.69**	**0.03**	**0.03**	0.00
13.00	4.10	**33,828**	**126.34**	**5.05**	**5.05**	0.00
13.50	2.36	32,613	126.22	2.73	2.73	0.00
14.00	1.92	32,225	126.19	2.08	2.08	0.00
14.50	1.61	31,986	126.16	1.72	1.72	0.00
15.00	1.42	31,838	126.15	1.49	1.49	0.00
15.50	1.24	31,714	126.14	1.31	1.31	0.00
16.00	1.05	31,580	126.12	1.13	1.13	0.00
16.50	0.89	31,430	126.11	0.96	0.96	0.00
17.00	0.80	31,331	126.10	0.85	0.85	0.00
17.50	0.72	31,254	126.09	0.76	0.76	0.00
18.00	0.63	31,180	126.08	0.67	0.67	0.00
18.50	0.56	31,111	126.08	0.59	0.59	0.00
19.00	0.54	31,074	126.07	0.55	0.55	0.00
19.50	0.51	31,050	126.07	0.52	0.52	0.00
20.00	0.49	31,028	126.07	0.50	0.50	0.00
20.50	0.46	31,006	126.07	0.47	0.47	0.00
21.00	0.44	30,988	126.06	0.45	0.45	0.00
21.50	0.42	30,971	126.06	0.43	0.43	0.00
22.00	0.40	30,954	126.06	0.41	0.41	0.00
22.50	0.38	30,933	126.06	0.40	0.40	0.00
23.00	0.36	30,906	126.06	0.38	0.38	0.00
23.50	0.34	30,875	126.05	0.36	0.36	0.00
24.00	0.32	30,844	126.05	0.34	0.34	0.00

Summary for Pond 5 - Pond: 5 - Pond

Inflow Area = 15.220 ac, 0.00% Impervious, Inflow Depth > 2.67" for 10-YEAR STORM event
Inflow = 27.13 cfs @ 12.42 hrs, Volume= 3.391 af
Outflow = 9.12 cfs @ 13.03 hrs, Volume= 1.826 af, Atten= 66%, Lag= 36.5 min
Primary = 9.12 cfs @ 13.03 hrs, Volume= 1.826 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 125.40' @ 13.03 hrs Surf.Area= 18,375 sf Storage= 74,347 cf

Plug-Flow detention time= 222.7 min calculated for 1.826 af (54% of inflow)
Center-of-Mass det. time= 111.2 min (958.6 - 847.4)

Volume	Invert	Avail.Storage	Storage Description
#1	120.00'	85,683 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

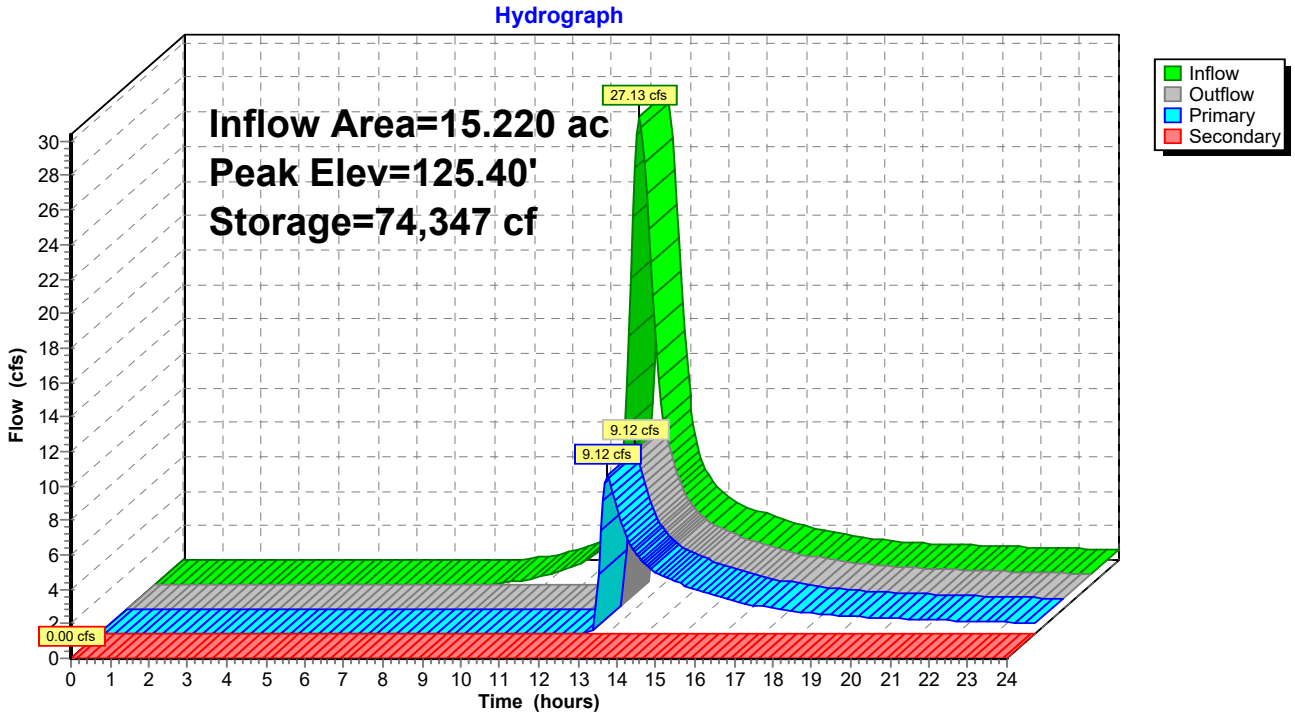
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
120.00	9,426	0	0
121.00	10,959	10,193	10,193
122.00	12,547	11,753	21,946
123.00	14,192	13,370	35,315
124.00	15,892	15,042	50,357
125.00	17,650	16,771	67,128
126.00	19,460	18,555	85,683

Device	Routing	Invert	Outlet Devices
#1	Primary	120.00'	**30.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 120.00' / 117.00' S= 0.0500 '/' Cc= 0.900 n= 0.012, Flow Area= 4.91 sf
#2	Secondary	125.72'	**20.0' long x 12.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.57 2.62 2.70 2.67 2.66 2.67 2.66 2.64
#3	Device 1	120.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	125.00'	**11.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=9.09 cfs @ 13.03 hrs HW=125.40' (Free Discharge)
└**1=Culvert** (Passes 9.09 cfs of 48.15 cfs potential flow)
  ├**3=Orifice/Grate** (Orifice Controls 0.06 cfs @ 11.15 fps)
  └**4=Sharp-Crested Rectangular Weir** (Weir Controls 9.03 cfs @ 2.07 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=120.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5 - Pond: 5 - Pond

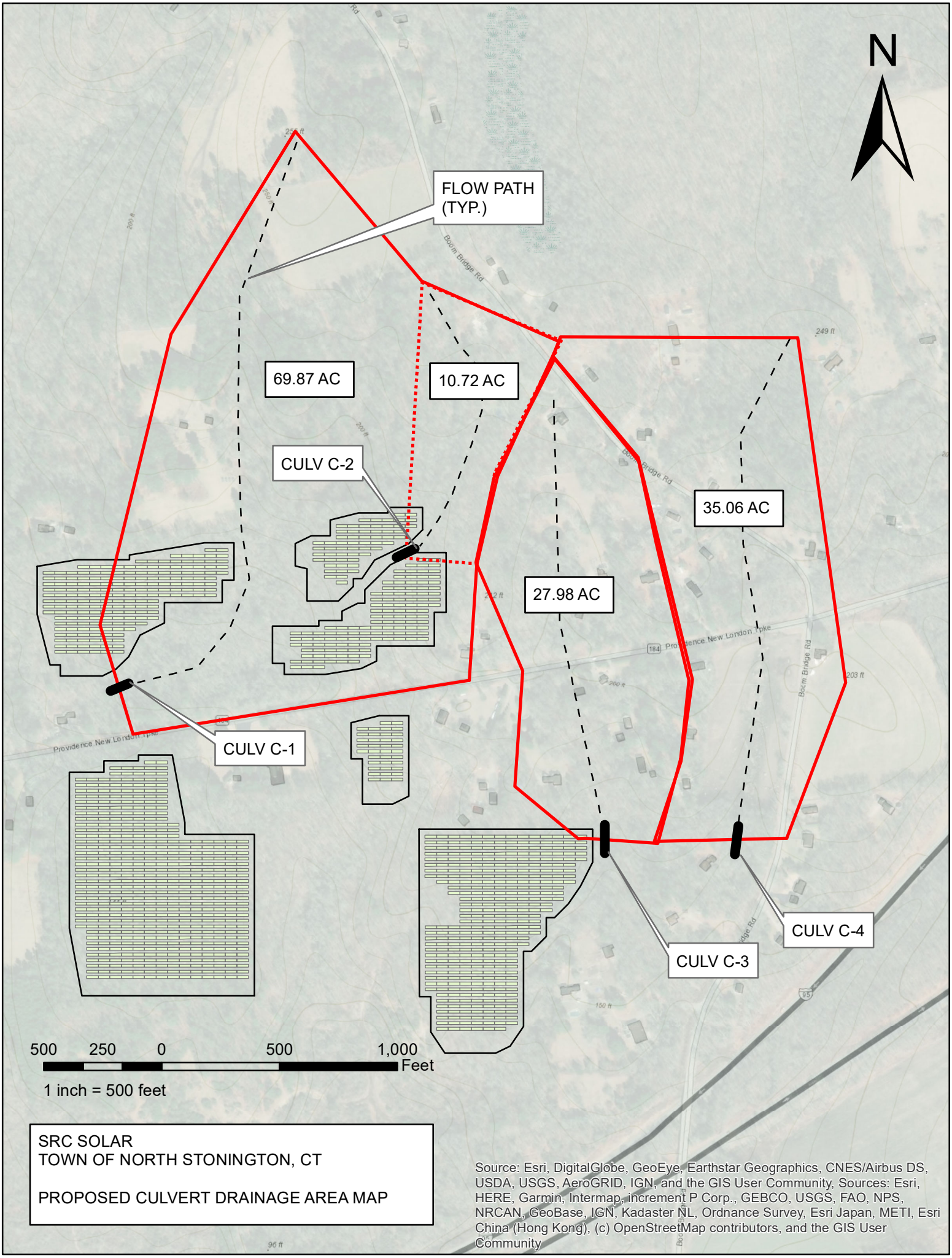


Hydrograph for Pond 5 - Pond: 5 - Pond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
0.00	0.00	0	120.00	0.00	0.00	**0.00**
0.50	0.00	0	120.00	0.00	0.00	0.00
1.00	0.00	0	120.00	0.00	0.00	0.00
1.50	0.00	0	120.00	0.00	0.00	0.00
2.00	0.00	0	120.00	0.00	0.00	0.00
2.50	0.00	0	120.00	0.00	0.00	0.00
3.00	0.00	0	120.00	0.00	0.00	0.00
3.50	0.00	0	120.00	0.00	0.00	0.00
4.00	0.00	0	120.00	0.00	0.00	0.00
4.50	0.00	0	120.00	0.00	0.00	0.00
5.00	0.00	0	120.00	0.00	0.00	0.00
5.50	0.00	0	120.00	0.00	0.00	0.00
6.00	0.00	0	120.00	0.00	0.00	0.00
6.50	0.00	0	120.00	0.00	0.00	0.00
7.00	0.00	0	120.00	0.00	0.00	0.00
7.50	0.00	0	120.00	0.00	0.00	0.00
8.00	0.00	0	120.00	0.00	0.00	0.00
8.50	0.01	2	120.00	0.00	0.00	0.00
9.00	0.11	91	120.01	0.00	0.00	0.00
9.50	0.28	430	120.05	0.00	0.00	0.00
10.00	0.52	1,133	120.12	0.01	0.01	0.00
10.50	0.84	2,316	120.24	0.01	0.01	0.00
11.00	1.33	4,216	120.43	0.02	0.02	0.00
11.50	2.18	7,213	120.72	0.02	0.02	0.00
12.00	**7.49**	13,999	121.34	0.03	0.03	0.00
12.50	**26.05**	49,083	123.92	0.05	0.05	0.00
13.00	9.58	**74,326**	**125.40**	**9.08**	**9.08**	0.00
13.50	4.84	**72,443**	**125.30**	**5.86**	**5.86**	0.00
14.00	3.68	71,272	125.23	4.08	4.08	0.00
14.50	3.04	70,702	125.20	3.30	3.30	0.00
15.00	2.66	70,340	125.18	2.83	2.83	0.00
15.50	2.32	70,063	125.16	2.47	2.47	0.00
16.00	1.97	69,780	125.15	2.14	2.14	0.00
16.50	1.66	69,475	125.13	1.81	1.81	0.00
17.00	1.48	69,259	125.12	1.58	1.58	0.00
17.50	1.33	69,102	125.11	1.41	1.41	0.00
18.00	1.17	68,956	125.10	1.25	1.25	0.00
18.50	1.04	68,807	125.09	1.12	1.12	0.00
19.00	0.98	68,693	125.09	1.03	1.03	0.00
19.50	0.93	68,617	125.08	0.97	0.97	0.00
20.00	0.88	68,555	125.08	0.92	0.92	0.00
20.50	0.84	68,496	125.08	0.87	0.87	0.00
21.00	0.80	68,445	125.07	0.83	0.83	0.00
21.50	0.77	68,398	125.07	0.79	0.79	0.00
22.00	0.73	68,353	125.07	0.76	0.76	0.00
22.50	0.70	68,309	125.07	0.72	0.72	0.00
23.00	0.66	68,264	125.06	0.69	0.69	0.00
23.50	0.63	68,219	125.06	0.65	0.65	0.00
24.00	0.59	68,174	125.06	0.62	0.62	0.00

Appendix I

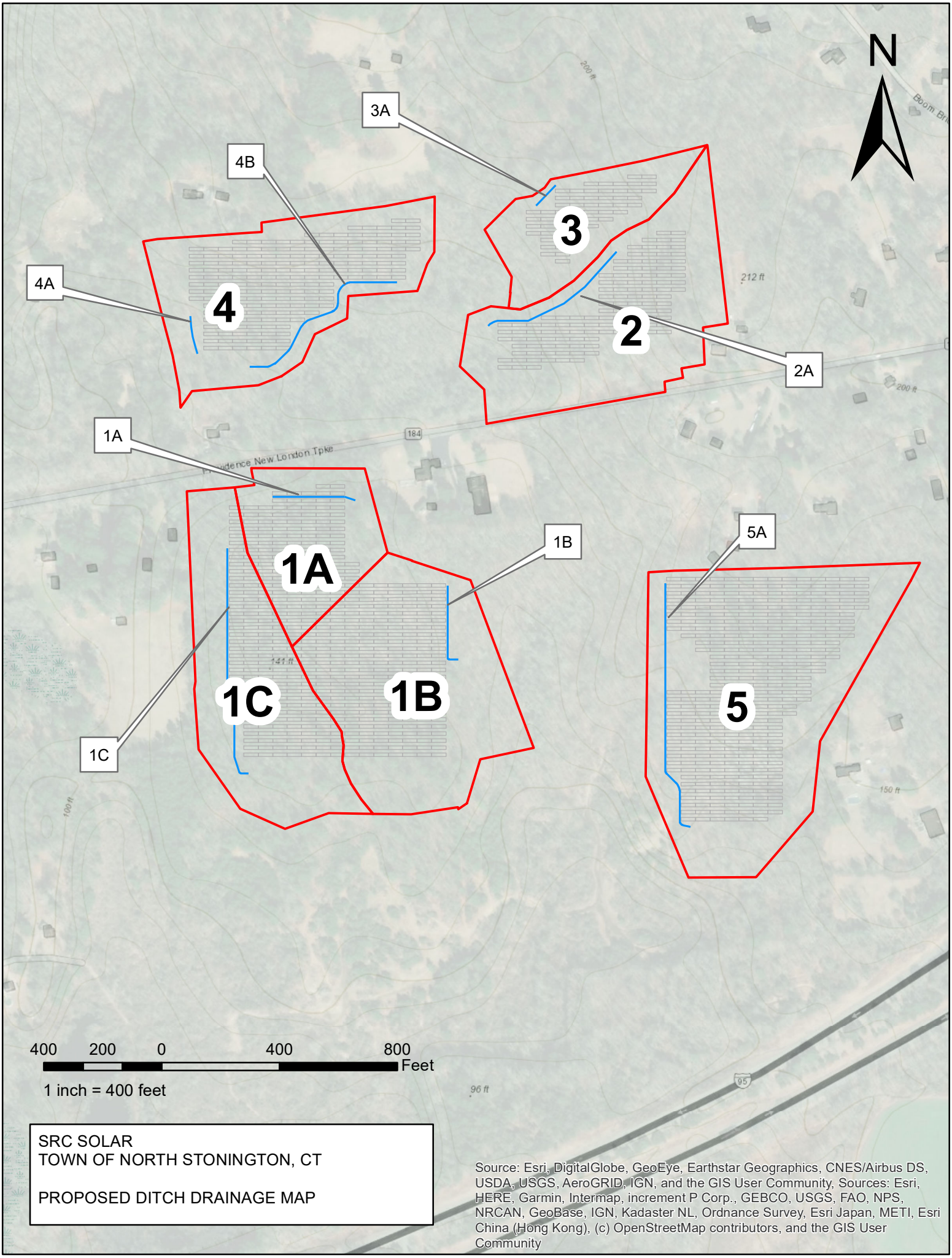
Culvert and Ditch Calculations



SRC SOLAR
TOWN OF NORTH STONINGTON, CT

PROPOSED CULVERT DRAINAGE AREA MAP

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



SRC SOLAR
TOWN OF NORTH STONINGTON, CT

PROPOSED DITCH DRAINAGE MAP

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Stonington Solar Array Facility
North Stonington, CT
SRC

9/23/2020

Culvert Calculations

Storm Event: 50-yr

Culvert	Type	Est. Peak Flow Q 25 (cfs)	Est. Peak Flow Q 50-yr (cfs)	Length (ft)	Shape	Span (ft)	Rise (ft)	Area (sf)	Open Area (sf)	OR (Open Area) / Length	Ex Stream Slope (%)	Arch Req'd
C-1	New	126.13	163.36	20	Box	9	3.00	27	18	0.90	0.40	No
C-2	New	21.52	28.04	20	Arch (Bottomless)	6	1.79	10.75	10.75	0.54	4.3	Yes
C-3	New	69.43	87.23	20	Arch (Bottomless)	9	2.92	26.25	26.25	1.31	5.4	Yes
C-4	Existing	83.36	104.78	20	Arch (Bottomless)	10	3.46	34.58	34.58	1.73	3.5	Yes

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v2018.3

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	126.13	2	748	758,965	------	------	------	CULVERT C-1
2	SCS Runoff	21.52	2	740	112,804	------	------	------	CULVERT C-2
3	SCS Runoff	69.43	2	740	363,040	------	------	------	CULVERT C-3
4	SCS Runoff	83.36	2	742	460,589	------	------	------	CULVERT C-4

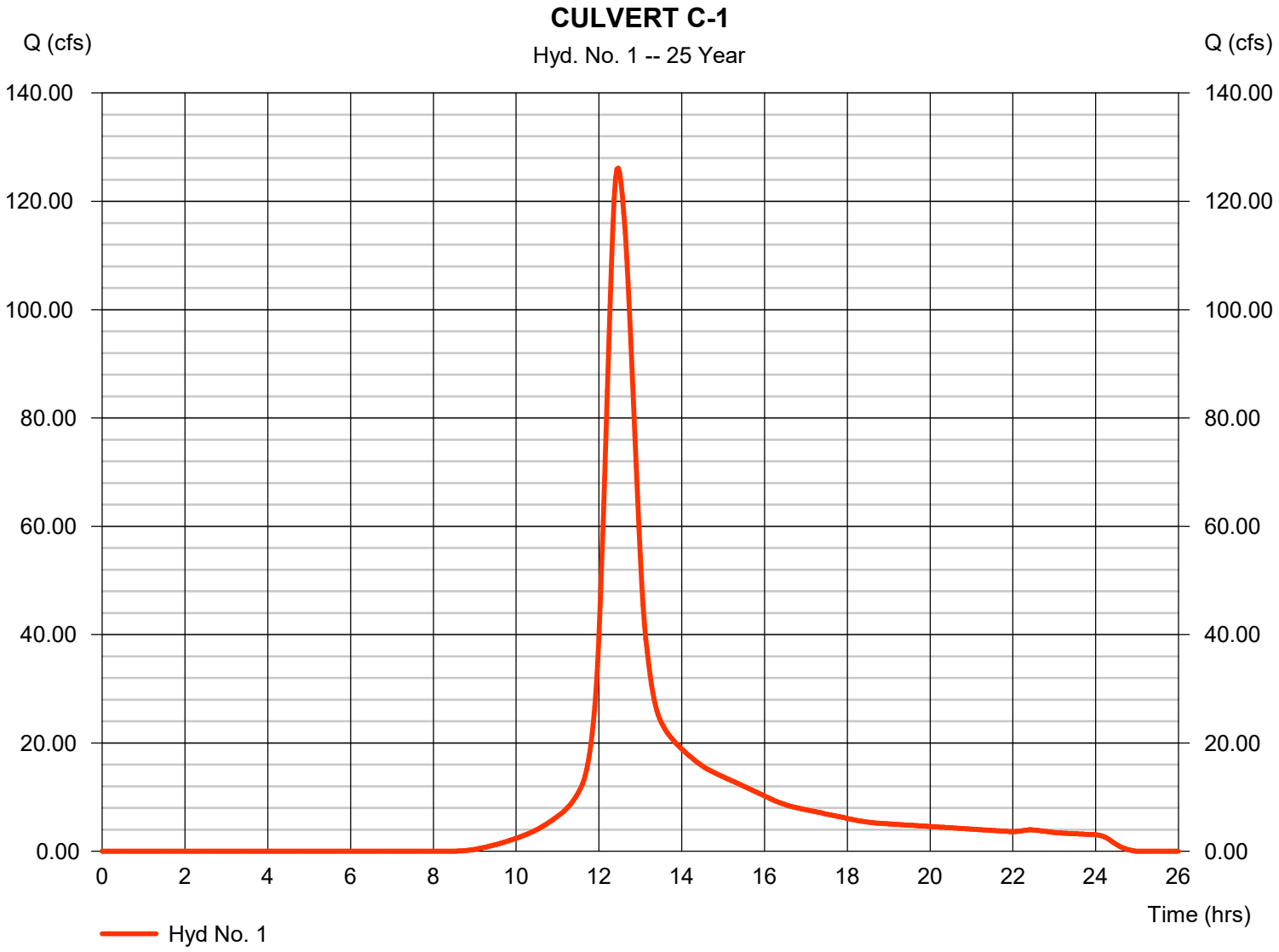
Hydrograph Report

Hyd. No. 1

CULVERT C-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	126.13 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.47 hrs
Time interval	=	2 min	Hyd. volume	=	758,965 cuft
Drainage area	=	69.870 ac	Curve number	=	74*
Basin Slope	=	4.5 %	Hydraulic length	=	2679 ft
Tc method	=	LAG	Time of conc. (Tc)	=	39.45 min
Total precip.	=	5.77 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(35.000 x 79) + (34.870 x 68)] / 69.870

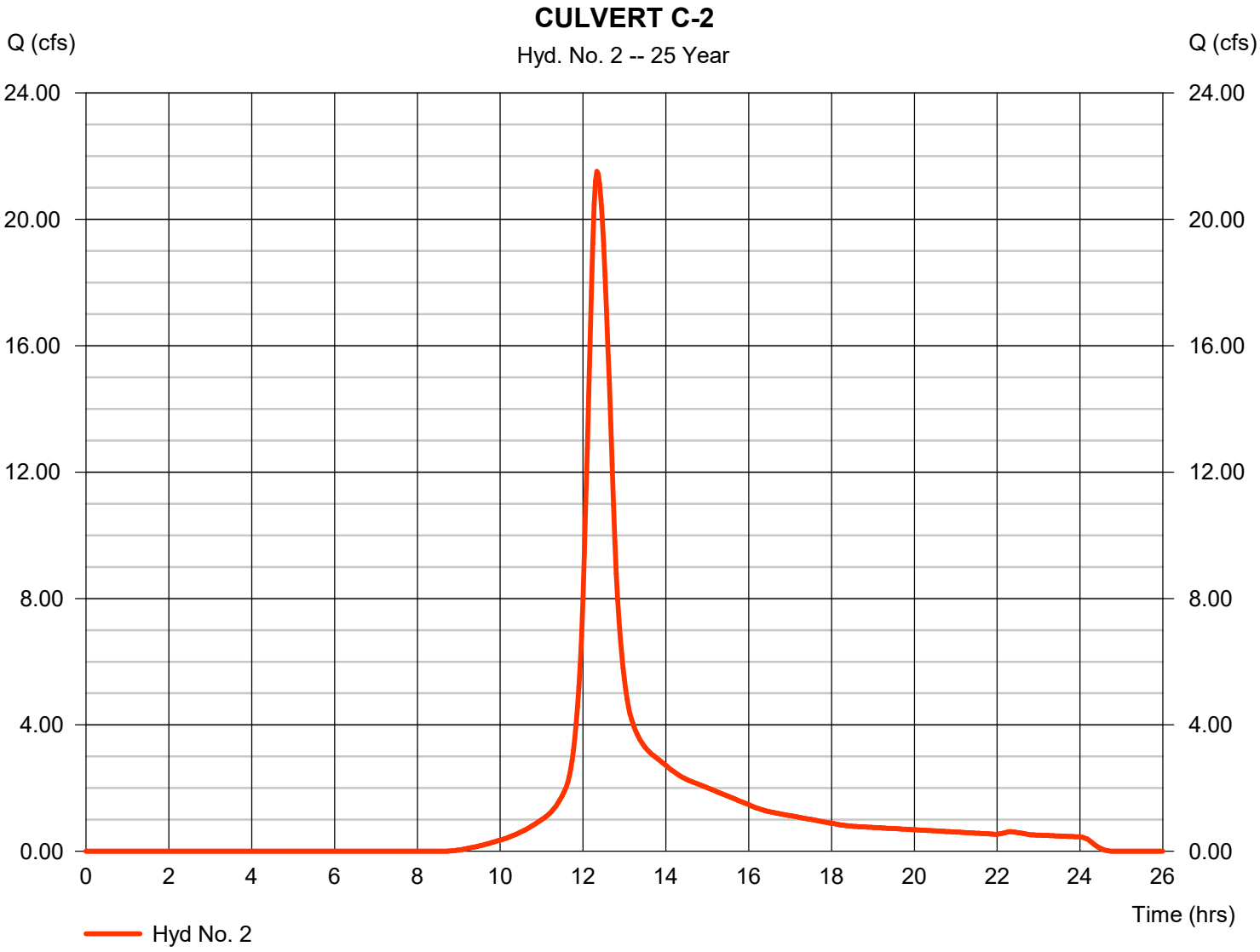


Hydrograph Report

Hyd. No. 2

CULVERT C-2

Hydrograph type	= SCS Runoff	Peak discharge	= 21.52 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.33 hrs
Time interval	= 2 min	Hyd. volume	= 112,804 cuft
Drainage area	= 10.720 ac	Curve number	= 73
Basin Slope	= 2.7 %	Hydraulic length	= 1277 ft
Tc method	= LAG	Time of conc. (Tc)	= 28.96 min
Total precip.	= 5.77 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

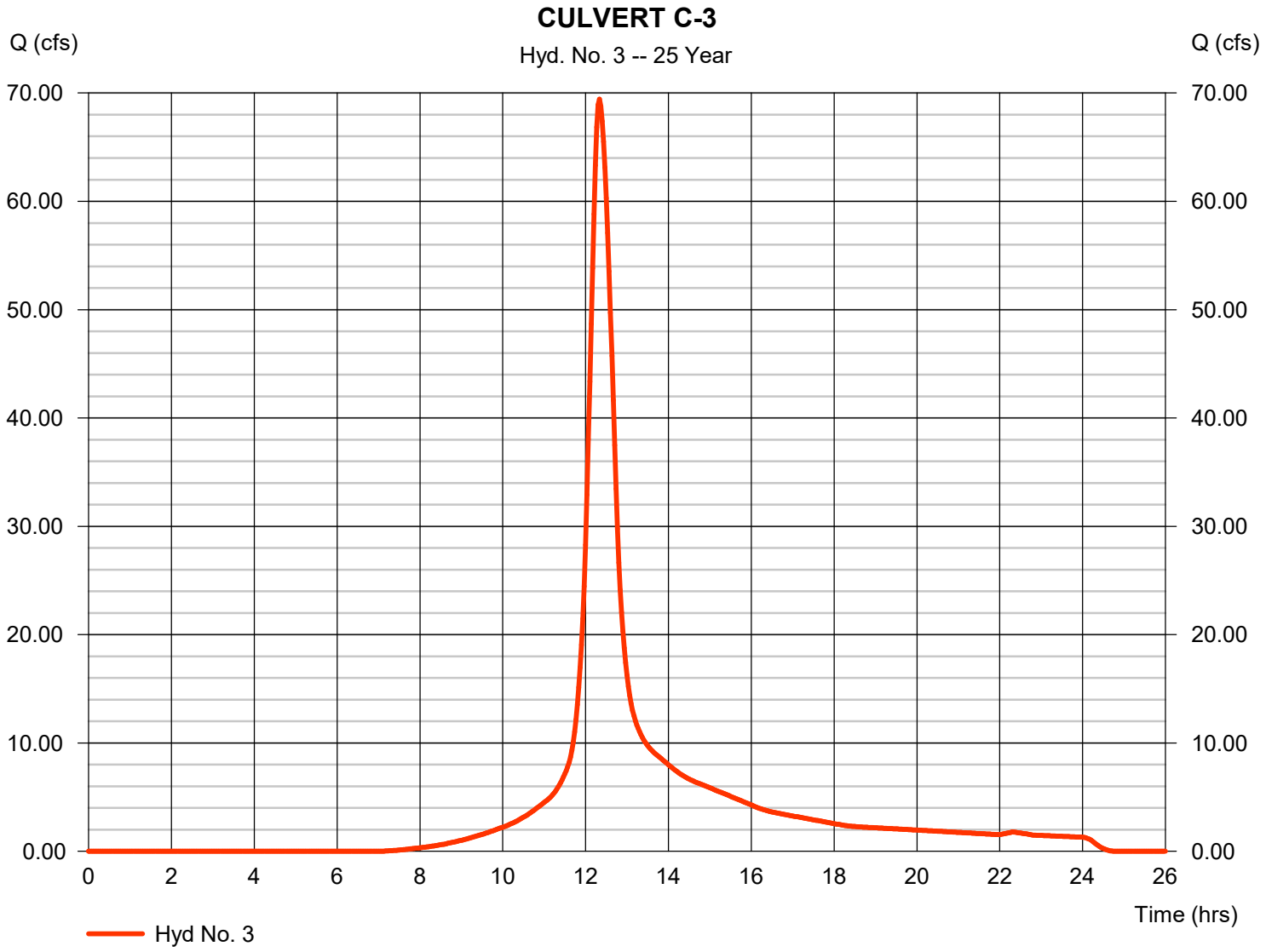


Hydrograph Report

Hyd. No. 3

CULVERT C-3

Hydrograph type	=	SCS Runoff	Peak discharge	=	69.43 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.33 hrs
Time interval	=	2 min	Hyd. volume	=	363,040 cuft
Drainage area	=	27.980 ac	Curve number	=	80
Basin Slope	=	3.2 %	Hydraulic length	=	1874 ft
Tc method	=	LAG	Time of conc. (Tc)	=	29.42 min
Total precip.	=	5.77 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

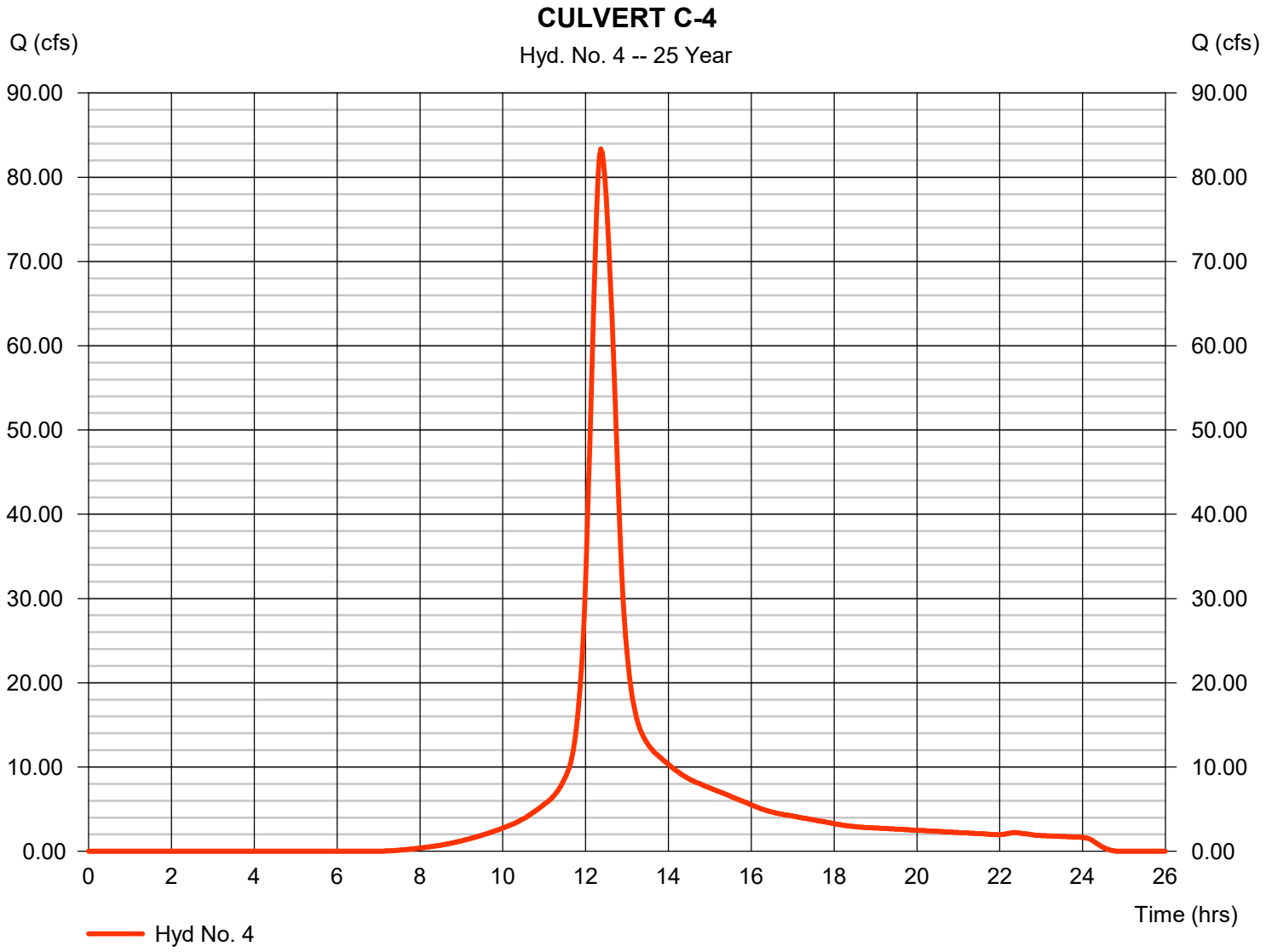


Hydrograph Report

Hyd. No. 4

CULVERT C-4

Hydrograph type	=	SCS Runoff	Peak discharge	=	83.36 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.37 hrs
Time interval	=	2 min	Hyd. volume	=	460,589 cuft
Drainage area	=	35.060 ac	Curve number	=	80
Basin Slope	=	3.6 %	Hydraulic length	=	2196 ft
Tc method	=	LAG	Time of conc. (Tc)	=	31.49 min
Total precip.	=	5.77 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2018 by Autodesk, Inc. v2018.3

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	163.36	2	746	981,098	------	------	------	CULVERT C-1
2	SCS Runoff	28.04	2	740	146,448	------	------	------	CULVERT C-2
3	SCS Runoff	87.23	2	740	458,092	------	------	------	CULVERT C-3
4	SCS Runoff	104.78	2	742	581,182	------	------	------	CULVERT C-4

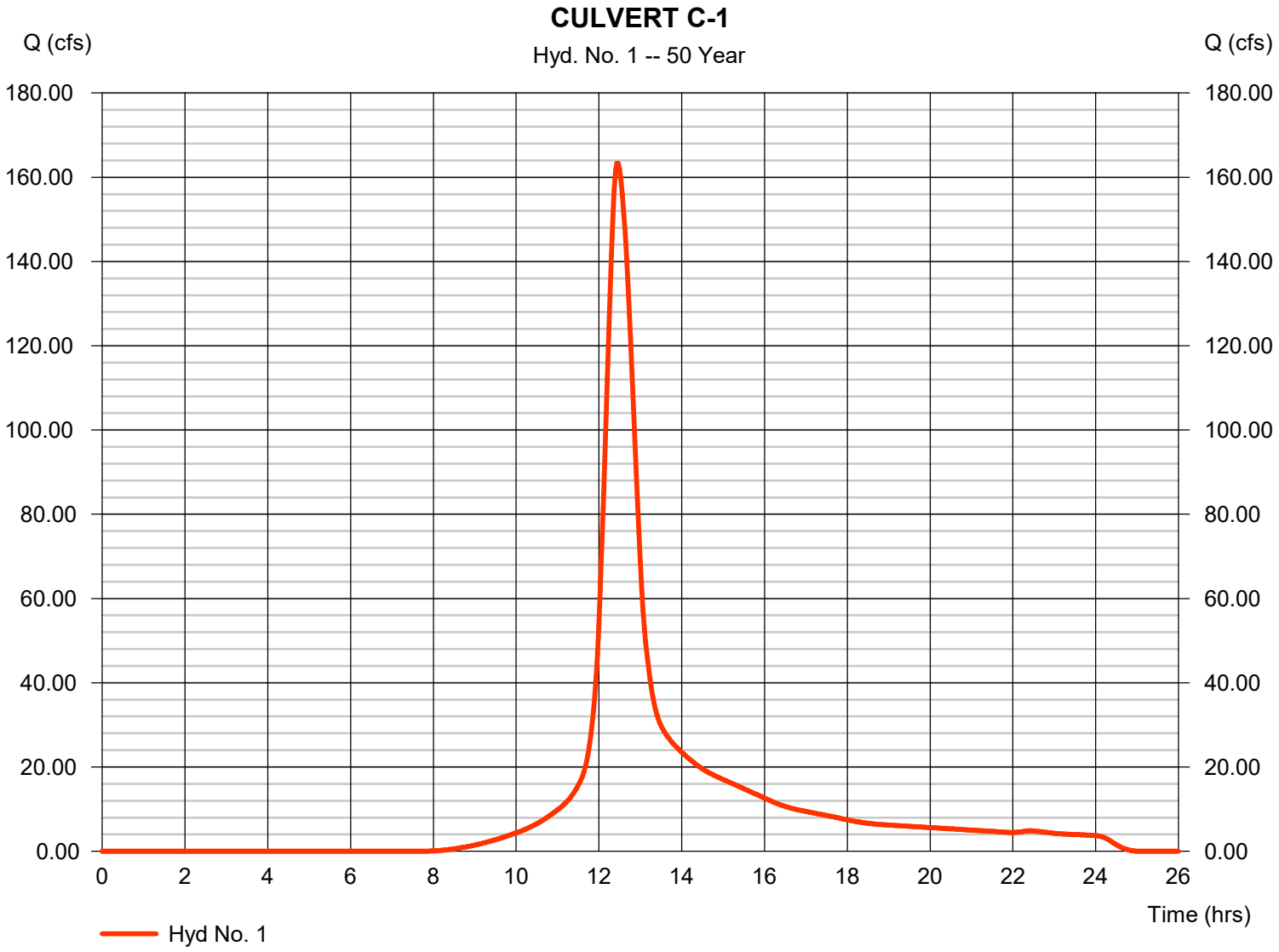
Hydrograph Report

Hyd. No. 1

CULVERT C-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	163.36 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.43 hrs
Time interval	=	2 min	Hyd. volume	=	981,098 cuft
Drainage area	=	69.870 ac	Curve number	=	74*
Basin Slope	=	4.5 %	Hydraulic length	=	2679 ft
Tc method	=	LAG	Time of conc. (Tc)	=	39.45 min
Total precip.	=	6.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(35.000 x 79) + (34.870 x 68)] / 69.870

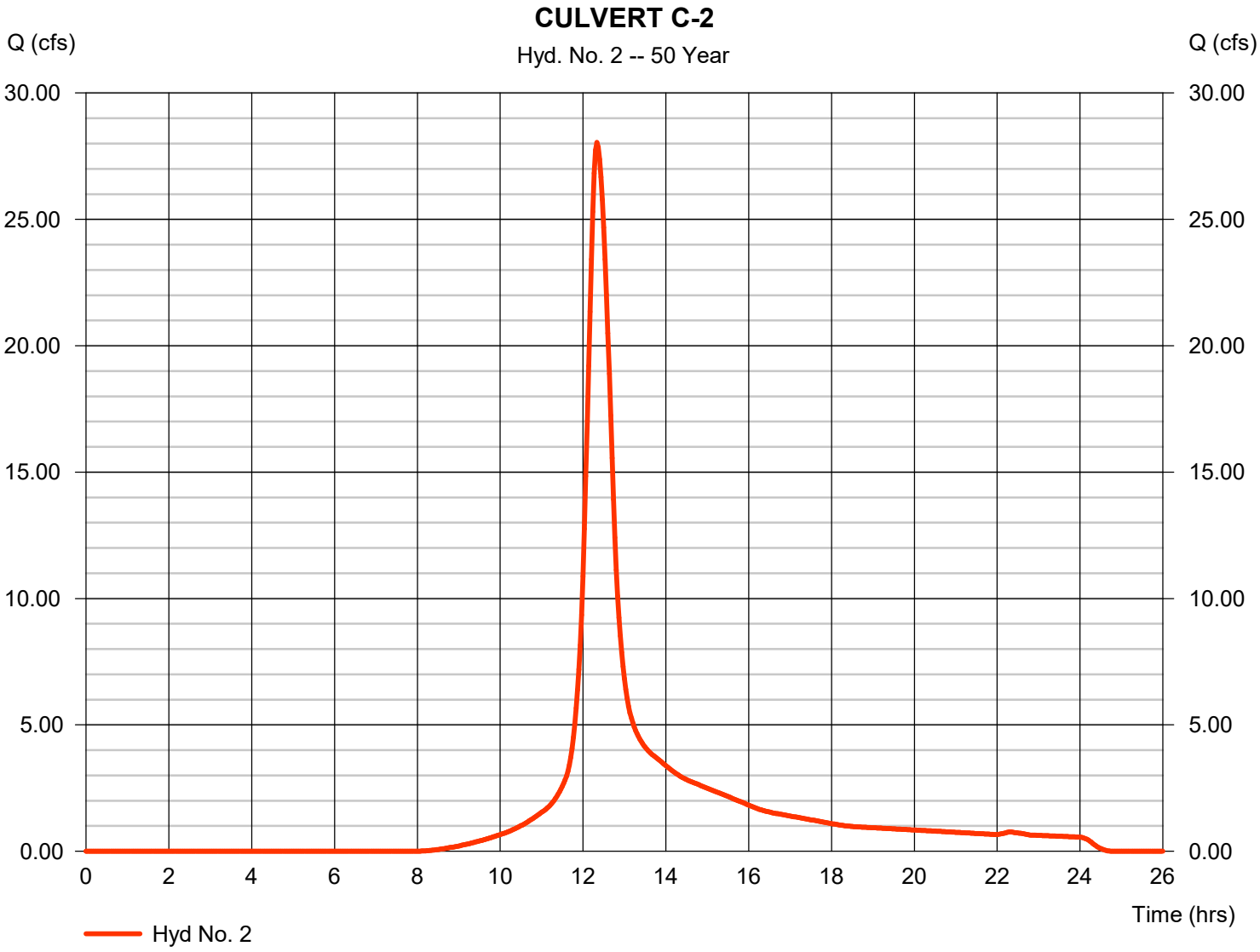


Hydrograph Report

Hyd. No. 2

CULVERT C-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	28.04 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.33 hrs
Time interval	=	2 min	Hyd. volume	=	146,448 cuft
Drainage area	=	10.720 ac	Curve number	=	73
Basin Slope	=	2.7 %	Hydraulic length	=	1277 ft
Tc method	=	LAG	Time of conc. (Tc)	=	28.96 min
Total precip.	=	6.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

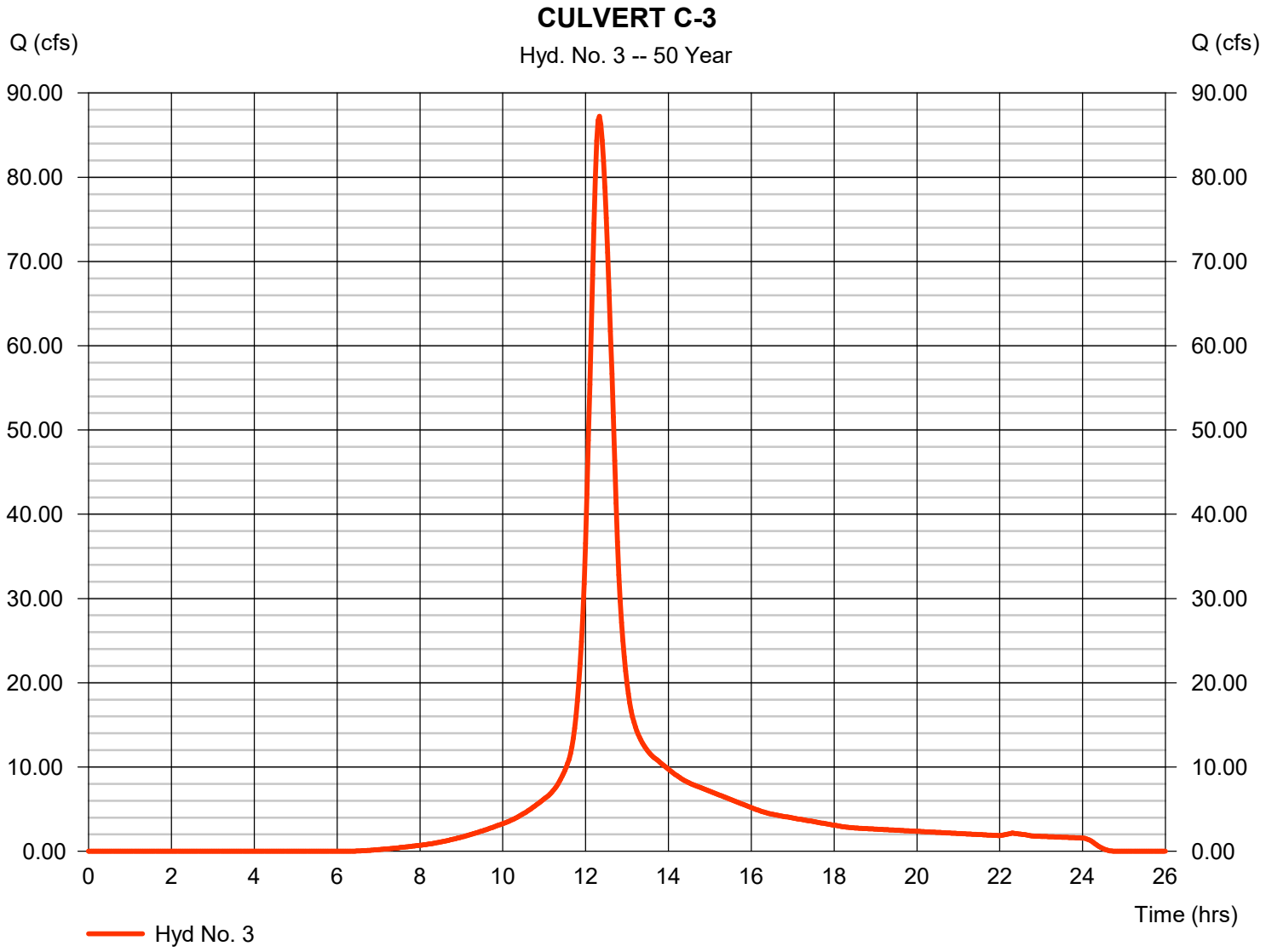


Hydrograph Report

Hyd. No. 3

CULVERT C-3

Hydrograph type	=	SCS Runoff	Peak discharge	=	87.23 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.33 hrs
Time interval	=	2 min	Hyd. volume	=	458,092 cuft
Drainage area	=	27.980 ac	Curve number	=	80
Basin Slope	=	3.2 %	Hydraulic length	=	1874 ft
Tc method	=	LAG	Time of conc. (Tc)	=	29.42 min
Total precip.	=	6.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

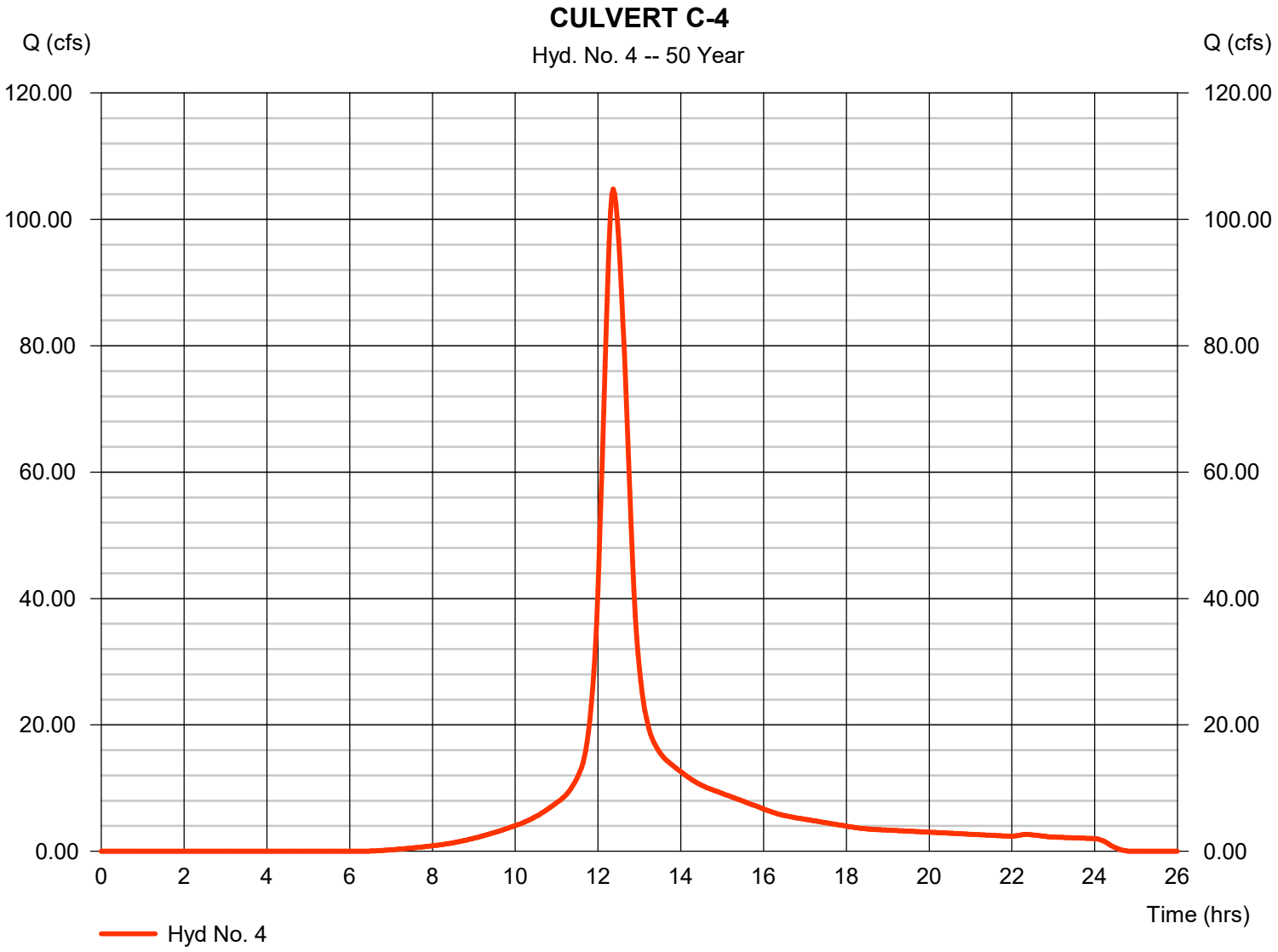


Hydrograph Report

Hyd. No. 4

CULVERT C-4

Hydrograph type	=	SCS Runoff	Peak discharge	=	104.78 cfs
Storm frequency	=	50 yrs	Time to peak	=	12.37 hrs
Time interval	=	2 min	Hyd. volume	=	581,182 cuft
Drainage area	=	35.060 ac	Curve number	=	80
Basin Slope	=	3.6 %	Hydraulic length	=	2196 ft
Tc method	=	LAG	Time of conc. (Tc)	=	31.49 min
Total precip.	=	6.80 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484



HY-8 Culvert Analysis Report

Water Surface Profile Plot for Culvert: CULV C-1

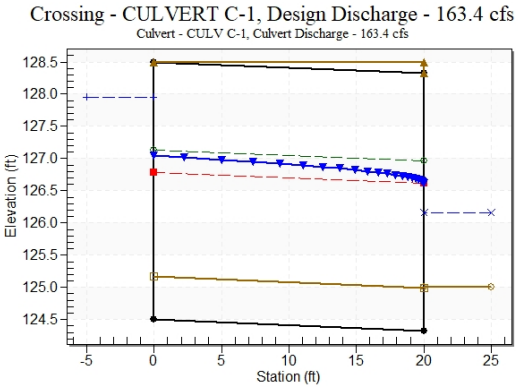


Table 1 - Culvert Summary Table: CULV C-1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
10.00	10.00	125.62	0.418	0.451	3-M 2t	0.360	0.251	0.276	0.272	2.592	2.887
25.34	25.34	125.99	0.795	0.818	2-M 2c	0.632	0.467	0.467	0.453	3.878	3.848
40.67	40.67	126.28	1.090	1.112	2-M 2c	0.843	0.640	0.640	0.582	4.539	4.419
56.01	56.01	126.54	1.349	1.371	2-M 2c	1.024	0.792	0.792	0.686	5.050	4.842
71.34	71.34	126.77	1.585	1.606	2-M 2c	1.186	0.931	0.931	0.776	5.474	5.180
86.68	86.68	126.99	1.801	1.826	2-M 2c	1.335	1.060	1.060	0.855	5.842	5.466
102.02	102.02	127.20	2.001	2.033	2-M 2c	1.474	1.181	1.181	0.927	6.168	5.715
117.35	117.35	127.40	2.192	2.231	2-M 2c	1.606	1.297	1.297	0.992	6.462	5.936
132.69	132.69	127.59	2.375	2.420	2-M 2c	1.731	1.408	1.408	1.053	6.732	6.135
148.02	148.02	127.77	2.551	2.602	2-M 2c	1.851	1.514	1.514	1.110	6.982	6.318
163.36	163.36	127.94	2.723	2.778	2-M 2c	1.966	1.617	1.617	1.164	7.216	6.487

****
****

Straight Culvert

Inlet Elevation (invert): 125.17 ft, Outlet Elevation (invert): 125.00 ft

Culvert Length: 20.00 ft, Culvert Slope: 0.0085

****
****

Site Data - CULV C-1

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 124.50 ft

Outlet Station: 20.00 ft

Outlet Elevation: 124.33 ft

Number of Barrels: 1

Culvert Data Summary - CULV C-1

Barrel Shape: Concrete Box

Barrel Span: 14.00 ft

Barrel Rise: 4.00 ft

Barrel Material: Concrete

Embedment: 8.00 in

Barrel Manning's n: 0.0120 (top and sides)

Manning's n: 0.0350 (bottom)

Culvert Type: Straight

Inlet Configuration: Square Edge (90º) Headwall

Inlet Depression: None

Crossing Discharge Data

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

Minimum Flow: 10 cfs

Design Flow: 163.36 cfs

Maximum Flow: 163.36 cfs

Table 2 - Summary of Culvert Flows at Crossing: CULVERT C-1

Headwater Elevation (ft)	Total Discharge (cfs)	CULV C-1 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
125.62	10.00	10.00	0.00	1
125.99	25.34	25.34	0.00	1
126.28	40.67	40.67	0.00	1
126.54	56.01	56.01	0.00	1
126.77	71.34	71.34	0.00	1
126.99	86.68	86.68	0.00	1
127.20	102.02	102.02	0.00	1
127.40	117.35	117.35	0.00	1
127.59	132.69	132.69	0.00	1
127.77	148.02	148.02	0.00	1
127.94	163.36	163.36	0.00	1
128.50	214.82	214.82	0.00	Overtopping

Table 3 - Downstream Channel Rating Curve (Crossing: CULVERT C-1)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
10.00	125.27	0.27	2.89	0.58	1.07
25.34	125.45	0.45	3.85	0.96	1.15
40.67	125.58	0.58	4.42	1.23	1.19
56.01	125.69	0.69	4.84	1.46	1.22
71.34	125.78	0.78	5.18	1.65	1.24
86.68	125.85	0.85	5.47	1.81	1.26
102.02	125.93	0.93	5.71	1.97	1.27
117.35	125.99	0.99	5.94	2.11	1.29
132.69	126.05	1.05	6.14	2.23	1.30
148.02	126.11	1.11	6.32	2.36	1.31
163.36	126.16	1.16	6.49	2.47	1.31

Tailwater Channel Data - CULVERT C-1

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 10.00 ft

Side Slope (H:V): 10.00 (_:1)

Channel Slope: 0.0340

Channel Manning's n: 0.0350

Channel Invert Elevation: 125.00 ft

Roadway Data for Crossing: CULVERT C-1

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 200.00 ft

Crest Elevation: 128.50 ft

Roadway Surface: Gravel

Roadway Top Width: 20.00 ft

Water Surface Profile Plot for Culvert: CULV C-2

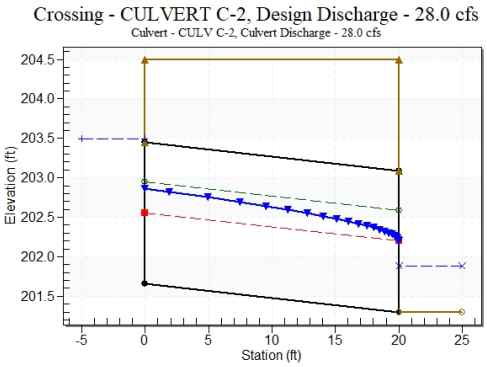


Table 4 - Culvert Summary Table: CULV C-2

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
10.00	10.00	202.52	0.831	0.856	2-M 2c	0.550	0.448	0.448	0.395	3.904	6.416
11.80	11.80	202.62	0.935	0.962	2-M 2c	0.619	0.501	0.501	0.420	4.148	6.687
13.61	13.61	202.72	1.039	1.064	2-M 2c	0.687	0.551	0.551	0.443	4.371	6.930
15.41	15.41	202.82	1.143	1.163	2-M 2c	0.754	0.600	0.600	0.464	4.578	7.149
17.22	17.22	202.92	1.248	1.260	2-M 2c	0.822	0.647	0.647	0.484	4.773	7.349
19.02	19.02	203.01	1.352	1.355	2-M 2c	0.891	0.692	0.692	0.502	4.960	7.535
20.82	20.82	203.11	1.454	1.449	2-M 2c	0.960	0.735	0.735	0.520	5.142	7.707
22.63	22.63	203.21	1.549	1.542	2-M 2c	1.034	0.777	0.777	0.536	5.317	7.869
24.43	24.43	203.30	1.644	1.636	2-M 2c	1.111	0.818	0.818	0.552	5.486	8.021
26.24	26.24	203.40	1.739	1.729	2-M 2c	1.192	0.859	0.859	0.567	5.650	8.165
28.04	28.04	203.49	1.834	1.823	7-M 2c	1.285	0.898	0.898	0.581	5.810	8.302

****
Straight Culvert
Inlet Elevation (invert): 201.66 ft, Outlet Elevation (invert): 201.30 ft
Culvert Length: 20.00 ft, Culvert Slope: 0.0180
****

Site Data - CULV C-2

Site Data Option: Culvert Invert Data
Inlet Station: 0.00 ft
Inlet Elevation: 201.66 ft
Outlet Station: 20.00 ft
Outlet Elevation: 201.30 ft
Number of Barrels: 1

Culvert Data Summary - CULV C-2

Barrel Shape: Arch, Open Bottom
Barrel Span: 6.00 ft
Barrel Rise: 1.79 ft
Barrel Material: Corrugated Steel
Embedment: 0.00 in
Barrel Manning's n: 0.0350 (top and sides)
Manning's n: 0.0350 (bottom)
Culvert Type: Straight
Inlet Configuration: Thin Edge Projecting
Inlet Depression: None

Crossing Discharge Data

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

Minimum Flow: 10 cfs

Design Flow: 28.04 cfs

Maximum Flow: 28.04 cfs

Table 5 - Summary of Culvert Flows at Crossing: CULVERT C-2

Headwater Elevation (ft)	Total Discharge (cfs)	CULV C-2 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
202.52	10.00	10.00	0.00	1
202.62	11.80	11.80	0.00	1
202.72	13.61	13.61	0.00	1
202.82	15.41	15.41	0.00	1
202.92	17.22	17.22	0.00	1
203.01	19.02	19.02	0.00	1
203.11	20.82	20.82	0.00	1
203.21	22.63	22.63	0.00	1
203.30	24.43	24.43	0.00	1
203.40	26.24	26.24	0.00	1
203.49	28.04	28.04	0.00	1
204.50	44.05	44.05	0.00	Overtopping

Table 6 - Downstream Channel Rating Curve (Crossing: CULVERT C-2)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
10.00	201.69	0.39	6.42	4.93	2.54
11.80	201.72	0.42	6.69	5.24	2.57
13.61	201.74	0.44	6.93	5.53	2.59
15.41	201.76	0.46	7.15	5.79	2.61
17.22	201.78	0.48	7.35	6.04	2.63
19.02	201.80	0.50	7.53	6.27	2.65
20.82	201.82	0.52	7.71	6.49	2.66
22.63	201.84	0.54	7.87	6.69	2.68
24.43	201.85	0.55	8.02	6.89	2.69
26.24	201.87	0.57	8.17	7.07	2.70
28.04	201.88	0.58	8.30	7.25	2.71

Tailwater Channel Data - CULVERT C-2

Tailwater Channel Option: Triangular Channel

Side Slope (H:V): 10.00 (_:1)

Channel Slope: 0.2000

Channel Manning's n: 0.0350

Channel Invert Elevation: 201.30 ft

Roadway Data for Crossing: CULVERT C-2

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 100.00 ft

Crest Elevation: 204.50 ft

Roadway Surface: Gravel

Roadway Top Width: 20.00 ft

Water Surface Profile Plot for Culvert: CULV C-3

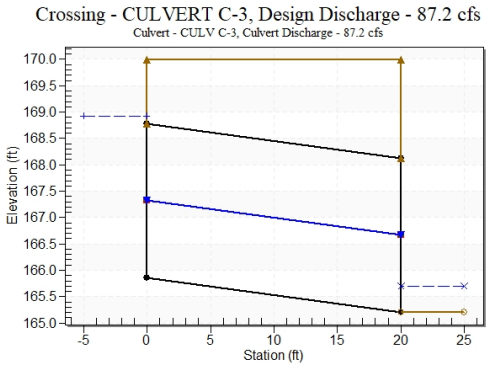


Table 7 - Culvert Summary Table: CULV C-3

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
10.00	10.00	166.47	0.610	0.0*	1-S2n	0.329	0.339	0.329	0.134	3.441	2.628
17.72	17.72	166.76	0.900	0.0*	1-S2n	0.476	0.499	0.476	0.189	4.261	3.288
25.45	25.45	167.01	1.153	0.062	1-S2n	0.603	0.636	0.603	0.234	4.861	3.784
33.17	33.17	167.25	1.386	0.239	1-S2n	0.721	0.760	0.721	0.274	5.348	4.194
40.89	40.89	167.47	1.614	0.422	1-S2n	0.832	0.875	0.832	0.311	5.755	4.545
48.62	48.62	167.71	1.846	0.612	1-S2n	0.940	0.984	0.940	0.345	6.110	4.857
56.34	56.34	167.94	2.077	0.810	1-S2n	1.044	1.087	1.044	0.376	6.421	5.138
64.06	64.06	168.17	2.308	1.017	1-S2n	1.148	1.185	1.151	0.406	6.685	5.396
71.78	71.78	168.38	2.519	1.235	1-S2n	1.252	1.279	1.252	0.435	6.943	5.634
79.51	79.51	168.59	2.729	1.463	1-S2n	1.356	1.370	1.356	0.462	7.166	5.855
87.23	87.23	168.92	2.939	3.064	7-M2c	1.461	1.458	1.458	0.488	7.380	6.064

* Full Flow Headwater elevation is below inlet invert.

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Straight Culvert

Inlet Elevation (invert): 165.86 ft, Outlet Elevation (invert): 165.21 ft

Culvert Length: 20.01 ft, Culvert Slope: 0.0325

****

Site Data - CULV C-3

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 165.86 ft

Outlet Station: 20.00 ft

Outlet Elevation: 165.21 ft

Number of Barrels: 1

Culvert Data Summary - CULV C-3

Barrel Shape: Arch, Open Bottom

Barrel Span: 9.00 ft

Barrel Rise: 2.92 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

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

Manning's n: 0.0350 (bottom)

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Crossing Discharge Data

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

Minimum Flow: 10 cfs

Design Flow: 87.23 cfs

Maximum Flow: 87.23 cfs

Table 8 - Summary of Culvert Flows at Crossing: CULVERT C-3

Headwater Elevation (ft)	Total Discharge (cfs)	CULV C-3 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
166.47	10.00	10.00	0.00	1
166.76	17.72	17.72	0.00	1
167.01	25.45	25.45	0.00	1
167.25	33.17	33.17	0.00	1
167.47	40.89	40.89	0.00	1
167.71	48.62	48.62	0.00	1
167.94	56.34	56.34	0.00	1
168.17	64.06	64.06	0.00	1
168.38	71.78	71.78	0.00	1
168.59	79.51	79.51	0.00	1
168.92	87.23	87.23	0.00	1
170.00	129.81	129.81	0.00	Overtopping

Table 9 - Downstream Channel Rating Curve (Crossing: CULVERT C-3)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
10.00	165.34	0.13	2.63	0.48	1.27
17.72	165.40	0.19	3.29	0.67	1.35
25.45	165.44	0.23	3.78	0.83	1.39
33.17	165.48	0.27	4.19	0.98	1.43
40.89	165.52	0.31	4.55	1.11	1.46
48.62	165.55	0.34	4.86	1.23	1.48
56.34	165.59	0.38	5.14	1.34	1.50
64.06	165.62	0.41	5.40	1.45	1.52
71.78	165.64	0.43	5.63	1.55	1.54
79.51	165.67	0.46	5.86	1.64	1.55
87.23	165.70	0.49	6.06	1.74	1.57

Tailwater Channel Data - CULVERT C-3

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 28.00 ft

Side Slope (H:V): 3.00 (_:1)

Channel Slope: 0.0570

Channel Manning's n: 0.0350

Channel Invert Elevation: 165.21 ft

Roadway Data for Crossing: CULVERT C-3

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 100.00 ft

Crest Elevation: 170.00 ft

Roadway Surface: Gravel

Roadway Top Width: 20.00 ft

Water Surface Profile Plot for Culvert: CULV C-4

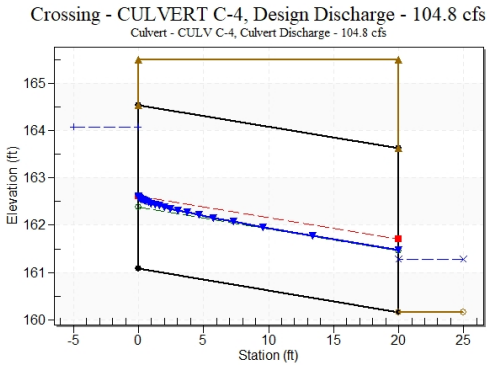

Table 10 - Culvert Summary Table: CULV C-4

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
10.00	10.00	161.64	0.558	0.0*	1-S2n	0.275	0.316	0.275	0.321	3.678	2.481
19.48	19.48	161.96	0.876	0.0*	1-S2n	0.419	0.494	0.419	0.464	4.745	3.060
28.96	28.96	162.23	1.147	0.0*	1-S2n	0.541	0.645	0.541	0.575	5.496	3.449
38.43	38.43	162.47	1.393	0.0*	1-S2n	0.649	0.780	0.649	0.668	6.105	3.749
47.91	47.91	162.70	1.623	0.139	1-S2n	0.751	0.904	0.751	0.750	6.611	3.996
57.39	57.39	162.93	1.850	0.319	1-S2n	0.849	1.021	0.849	0.823	7.050	4.207
66.87	66.87	163.16	2.083	0.504	1-S2n	0.942	1.132	0.942	0.890	7.438	4.392
76.35	76.35	163.40	2.315	0.696	1-S2n	1.033	1.239	1.033	0.951	7.788	4.557
85.82	85.82	163.63	2.548	0.893	1-S2n	1.121	1.340	1.121	1.009	8.106	4.707
95.30	95.30	163.86	2.776	1.099	1-S2n	1.208	1.437	1.215	1.063	8.358	4.845
104.78	104.78	164.07	2.987	1.312	1-S2n	1.295	1.531	1.302	1.114	8.620	4.972

* Full Flow Headwater elevation is below inlet invert.

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Straight Culvert

Inlet Elevation (invert): 161.08 ft, Outlet Elevation (invert): 160.17 ft

Culvert Length: 20.02 ft, Culvert Slope: 0.0455

****

Site Data - CULV C-4

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 161.08 ft

Outlet Station: 20.00 ft

Outlet Elevation: 160.17 ft

Number of Barrels: 1

Culvert Data Summary - CULV C-4

Barrel Shape: Arch, Open Bottom

Barrel Span: 10.00 ft

Barrel Rise: 3.46 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

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

Manning's n: 0.0350 (bottom)

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

Crossing Discharge Data

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

Minimum Flow: 10 cfs

Design Flow: 104.78 cfs

Maximum Flow: 104.78 cfs

Table 11 - Summary of Culvert Flows at Crossing: CULVERT C-4

Headwater Elevation (ft)	Total Discharge (cfs)	CULV C-4 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
161.64	10.00	10.00	0.00	1
161.96	19.48	19.48	0.00	1
162.23	28.96	28.96	0.00	1
162.47	38.43	38.43	0.00	1
162.70	47.91	47.91	0.00	1
162.93	57.39	57.39	0.00	1
163.16	66.87	66.87	0.00	1
163.40	76.35	76.35	0.00	1
163.63	85.82	85.82	0.00	1
163.86	95.30	95.30	0.00	1
164.07	104.78	104.78	0.00	1
165.50	168.02	168.02	0.00	Overtopping

Table 12 - Downstream Channel Rating Curve (Crossing: CULVERT C-4)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
10.00	160.49	0.32	2.48	0.40	0.85
19.48	160.63	0.46	3.06	0.58	0.89
28.96	160.74	0.57	3.45	0.72	0.92
38.43	160.84	0.67	3.75	0.83	0.94
47.91	160.92	0.75	4.00	0.94	0.95
57.39	160.99	0.82	4.21	1.03	0.97
66.87	161.06	0.89	4.39	1.11	0.98
76.35	161.12	0.95	4.56	1.19	0.99
85.82	161.18	1.01	4.71	1.26	0.99
95.30	161.23	1.06	4.85	1.33	1.00
104.78	161.28	1.11	4.97	1.39	1.01

Tailwater Channel Data - CULVERT C-4

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 10.00 ft

Side Slope (H:V): 8.00 (_:1)

Channel Slope: 0.0200

Channel Manning's n: 0.0350

Channel Invert Elevation: 160.17 ft

Roadway Data for Crossing: CULVERT C-4

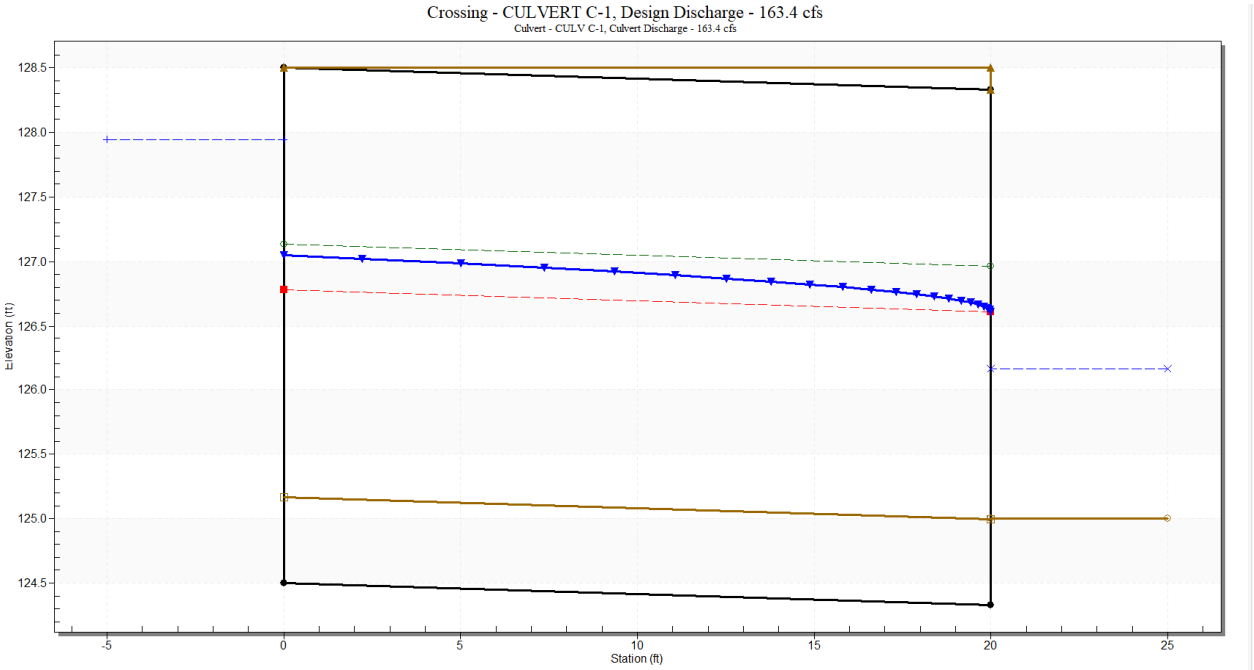
Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 100.00 ft

Crest Elevation: 165.50 ft

Roadway Surface: Gravel

Roadway Top Width: 20.00 ft



Crossing Data - CULVERT C-1

Crossing Properties

Name: CULVERT C-1

Parameter	Value	Units
DISCHARGE DATA		
Discharge Method	Minimum, Design, and Maximum	
Minimum Flow	10.000	cfs
Design Flow	163.360	cfs
Maximum Flow	163.360	cfs
TAILWATER DATA		
Channel Type	Trapezoidal Channel	
Bottom Width	10.000	ft
Side Slope (H:V)	10.000	_:1
Channel Slope	0.0340	ft/ft
Manning's n (channel)	0.035	
Channel Invert Elevation	125.000	ft
Rating Curve	View...	
ROADWAY DATA		
Roadway Profile Shape	Constant Roadway Elevation	
First Roadway Station	0.000	ft
Crest Length	200.000	ft
Crest Elevation	128.500	ft
Roadway Surface	Gravel	
Top Width	20.000	ft

Culvert Properties

CULV C-1

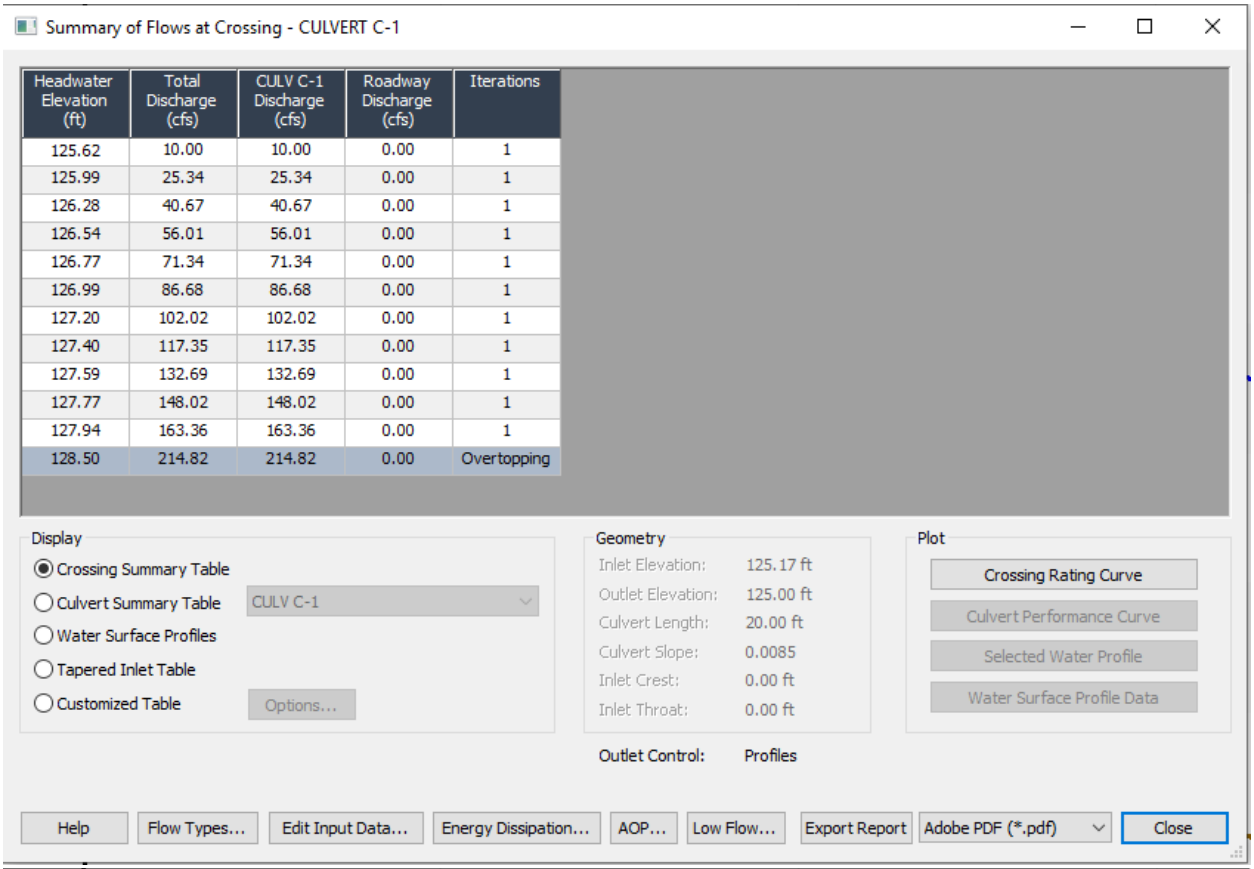
Add Culvert

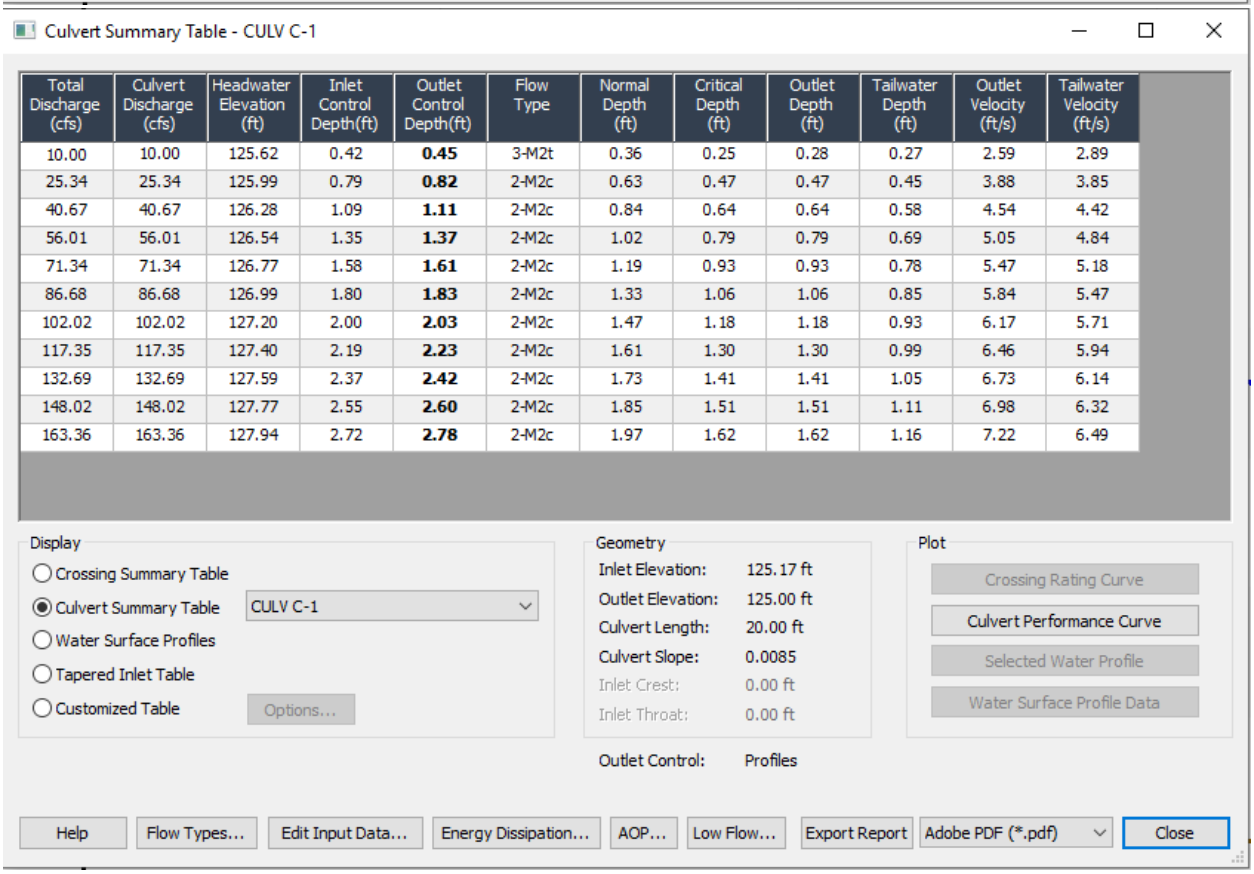
Duplicate Culvert

Delete Culvert

Parameter	Value	Units
CULVERT DATA		
Name	CULV C-1	
Shape	Concrete Box	
Material	Concrete	
Span	14.000	ft
Rise	4.000	ft
Embedment Depth	8.000	in
Manning's n (Top/Sides)	0.012	
Manning's n (Bottom)	0.035	
Culvert Type	Straight	
Inlet Configuration	Square Edge (90°) Headwall	
Inlet Depression?	No	
SITE DATA		
Site Data Input Option	Culvert Invert Data	
Inlet Station	0.000	ft
Inlet Elevation	124.500	ft
Outlet Station	20.000	ft
Outlet Elevation	124.330	ft
Number of Barrels	1	

Help | Click on any icon for help on a specific topic | Low Flow | AOP | Energy Dissipation | Analyze Crossing | OK | Cancel


Summary of Flows at Crossing - CULVERT C-1
Headwater Elevation (ft) | Total Discharge (cfs) | CULV C-1 Discharge (cfs) | Roadway Discharge (cfs) | Iterations
125.62 | 10.00 | 10.00 | 0.00 | 1
125.99 | 25.34 | 25.34 | 0.00 | 1
126.28 | 40.67 | 40.67 | 0.00 | 1
126.54 | 56.01 | 56.01 | 0.00 | 1
126.77 | 71.34 | 71.34 | 0.00 | 1
126.99 | 86.68 | 86.68 | 0.00 | 1
127.20 | 102.02 | 102.02 | 0.00 | 1
127.40 | 117.35 | 117.35 | 0.00 | 1
127.59 | 132.69 | 132.69 | 0.00 | 1
127.77 | 148.02 | 148.02 | 0.00 | 1
127.94 | 163.36 | 163.36 | 0.00 | 1
128.50 | 214.82 | 214.82 | 0.00 | Overtopping
Display
Crossing Summary Table
Culvert Summary Table
CULV C-1
Water Surface Profiles
Tapered Inlet Table
Customized Table
Options...
Geometry
Inlet Elevation: 125.17 ft
Outlet Elevation: 125.00 ft
Culvert Length: 20.00 ft
Culvert Slope: 0.0085
Inlet Crest: 0.00 ft
Inlet Throat: 0.00 ft
Outlet Control: Profiles
Plot
Crossing Rating Curve
Culvert Performance Curve
Selected Water Profile
Water Surface Profile Data
Help
Flow Types...
Edit Input Data...
Energy Dissipation...
AOP...
Low Flow...
Export Report
Adobe PDF (*.pdf)
Close


Culvert Summary Table - CULV C-1
Total Discharge (cfs) | Culvert Discharge (cfs) | Headwater Elevation (ft) | Inlet Control Depth(ft) | Outlet Control Depth(ft) | Flow Type | Normal Depth (ft) | Critical Depth (ft) | Outlet Depth (ft) | Tailwater Depth (ft) | Outlet Velocity (ft/s) | Tailwater Velocity (ft/s)
10.00 | 10.00 | 125.62 | 0.42 | 0.45 | 3-M2t | 0.36 | 0.25 | 0.28 | 0.27 | 2.59 | 2.89
25.34 | 25.34 | 125.99 | 0.79 | 0.82 | 2-M2c | 0.63 | 0.47 | 0.47 | 0.45 | 3.88 | 3.85
40.67 | 40.67 | 126.28 | 1.09 | 1.11 | 2-M2c | 0.84 | 0.64 | 0.64 | 0.58 | 4.54 | 4.42
56.01 | 56.01 | 126.54 | 1.35 | 1.37 | 2-M2c | 1.02 | 0.79 | 0.79 | 0.69 | 5.05 | 4.84
71.34 | 71.34 | 126.77 | 1.58 | 1.61 | 2-M2c | 1.19 | 0.93 | 0.93 | 0.78 | 5.47 | 5.18
86.68 | 86.68 | 126.99 | 1.80 | 1.83 | 2-M2c | 1.33 | 1.06 | 1.06 | 0.85 | 5.84 | 5.47
102.02 | 102.02 | 127.20 | 2.00 | 2.03 | 2-M2c | 1.47 | 1.18 | 1.18 | 0.93 | 6.17 | 5.71
117.35 | 117.35 | 127.40 | 2.19 | 2.23 | 2-M2c | 1.61 | 1.30 | 1.30 | 0.99 | 6.46 | 5.94
132.69 | 132.69 | 127.59 | 2.37 | 2.42 | 2-M2c | 1.73 | 1.41 | 1.41 | 1.05 | 6.73 | 6.14
148.02 | 148.02 | 127.77 | 2.55 | 2.60 | 2-M2c | 1.85 | 1.51 | 1.51 | 1.11 | 6.98 | 6.32
163.36 | 163.36 | 127.94 | 2.72 | 2.78 | 2-M2c | 1.97 | 1.62 | 1.62 | 1.16 | 7.22 | 6.49
Display
Crossing Summary Table
Culvert Summary Table
CULV C-1
Water Surface Profiles
Tapered Inlet Table
Customized Table
Options...
Geometry
Inlet Elevation: 125.17 ft
Outlet Elevation: 125.00 ft
Culvert Length: 20.00 ft
Culvert Slope: 0.0085
Inlet Crest: 0.00 ft
Inlet Throat: 0.00 ft
Outlet Control: Profiles
Plot
Crossing Rating Curve
Culvert Performance Curve
Selected Water Profile
Water Surface Profile Data
Help
Flow Types...
Edit Input Data...
Energy Dissipation...
AOP...
Low Flow...
Export Report
Adobe PDF (*.pdf)
Close

Water Surface Profile Table - CULV C-1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Length Full (ft)	Length Free (ft)
10.00	10.00	125.62	0.42	**0.45**	3-M2t	0.00	20.00
25.34	25.34	125.99	0.79	**0.82**	2-M2c	0.00	20.00
40.67	40.67	126.28	1.09	**1.11**	2-M2c	0.00	20.00
56.01	56.01	126.54	1.35	**1.37**	2-M2c	0.00	20.00
71.34	71.34	126.77	1.58	**1.61**	2-M2c	0.00	20.00
86.68	86.68	126.99	1.80	**1.83**	2-M2c	0.00	20.00
102.02	102.02	127.20	2.00	**2.03**	2-M2c	0.00	20.00
117.35	117.35	127.40	2.19	**2.23**	2-M2c	0.00	20.00
132.69	132.69	127.59	2.37	**2.42**	2-M2c	0.00	20.00
148.02	148.02	127.77	2.55	**2.60**	2-M2c	0.00	20.00
163.36	163.36	127.94	2.72	**2.78**	2-M2c	0.00	20.00

Display

- ○ Crossing Summary Table
- ○ Culvert Summary Table — CULV C-1
- ◉ Water Surface Profiles
- ○ Tapered Inlet Table
- ○ Customized Table — Options...

Geometry

Inlet Elevation:	125.17 ft
Outlet Elevation:	125.00 ft
Culvert Length:	20.00 ft
Culvert Slope:	0.0085
Inlet Crest:	0.00 ft
Inlet Throat:	0.00 ft
Outlet Control:	Profiles

Plot

- Crossing Rating Curve
- Culvert Performance Curve
- Selected Water Profile
- Water Surface Profile Data

Help | Flow Types... | Edit Input Data... | Energy Dissipation... | AOP... | Low Flow... | Export Report | Adobe PDF (*.pdf) | Close

Tapered Inlet Table - CULV C-1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Crest Control Elev(ft)	Face Control Elev(ft)	Throat Control Elev(ft)	Tailwater Elevation (ft)
10.00	10.00	125.62	0.42	**0.45**	3-M2t	0.00	0.00	0.00	125.27
25.34	25.34	125.99	0.79	**0.82**	2-M2c	0.00	0.00	0.00	125.45
40.67	40.67	126.28	1.09	**1.11**	2-M2c	0.00	0.00	0.00	125.58
56.01	56.01	126.54	1.35	**1.37**	2-M2c	0.00	0.00	0.00	125.69
71.34	71.34	126.77	1.58	**1.61**	2-M2c	0.00	0.00	0.00	125.78
86.68	86.68	126.99	1.80	**1.83**	2-M2c	0.00	0.00	0.00	125.85
102.02	102.02	127.20	2.00	**2.03**	2-M2c	0.00	0.00	0.00	125.93
117.35	117.35	127.40	2.19	**2.23**	2-M2c	0.00	0.00	0.00	125.99
132.69	132.69	127.59	2.37	**2.42**	2-M2c	0.00	0.00	0.00	126.05
148.02	148.02	127.77	2.55	**2.60**	2-M2c	0.00	0.00	0.00	126.11
163.36	163.36	127.94	2.72	**2.78**	2-M2c	0.00	0.00	0.00	126.16

Display

- ○ Crossing Summary Table
- ○ Culvert Summary Table — CULV C-1
- ○ Water Surface Profiles
- ◉ Tapered Inlet Table
- ○ Customized Table — Options...

Geometry

Inlet Elevation:	125.17 ft
Outlet Elevation:	125.00 ft
Culvert Length:	20.00 ft
Culvert Slope:	0.0085
Inlet Crest:	0.00 ft
Inlet Throat:	0.00 ft
Outlet Control:	Profiles

Plot

- Crossing Rating Curve
- Culvert Performance Curve
- Selected Water Profile
- Water Surface Profile Data

Help | Flow Types... | Edit Input Data... | Energy Dissipation... | AOP... | Low Flow... | Export Report | Adobe PDF (*.pdf) | Close

Custom Table - CULV C-1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Crest Control Elev(ft)	Face Control Elev(ft)	Throat Control Elev(ft)	Tailwater Elevation (ft)
10.00	10.00	125.62	0.42	0.45	3-M2t	0.00	0.00	0.00	125.27
25.34	25.34	125.99	0.79	0.82	2-M2c	0.00	0.00	0.00	125.45
40.67	40.67	126.28	1.09	1.11	2-M2c	0.00	0.00	0.00	125.58
56.01	56.01	126.54	1.35	1.37	2-M2c	0.00	0.00	0.00	125.69
71.34	71.34	126.77	1.58	1.61	2-M2c	0.00	0.00	0.00	125.78
86.68	86.68	126.99	1.80	1.83	2-M2c	0.00	0.00	0.00	125.85
102.02	102.02	127.20	2.00	2.03	2-M2c	0.00	0.00	0.00	125.93
117.35	117.35	127.40	2.19	2.23	2-M2c	0.00	0.00	0.00	125.99
132.69	132.69	127.59	2.37	2.42	2-M2c	0.00	0.00	0.00	126.05
148.02	148.02	127.77	2.55	2.60	2-M2c	0.00	0.00	0.00	126.11
163.36	163.36	127.94	2.72	2.78	2-M2c	0.00	0.00	0.00	126.16

Display

- ○ Crossing Summary Table
- ○ Culvert Summary Table — CULV C-1
- ○ Water Surface Profiles
- ○ Tapered Inlet Table
- ◉ Customized Table — Options...

Geometry

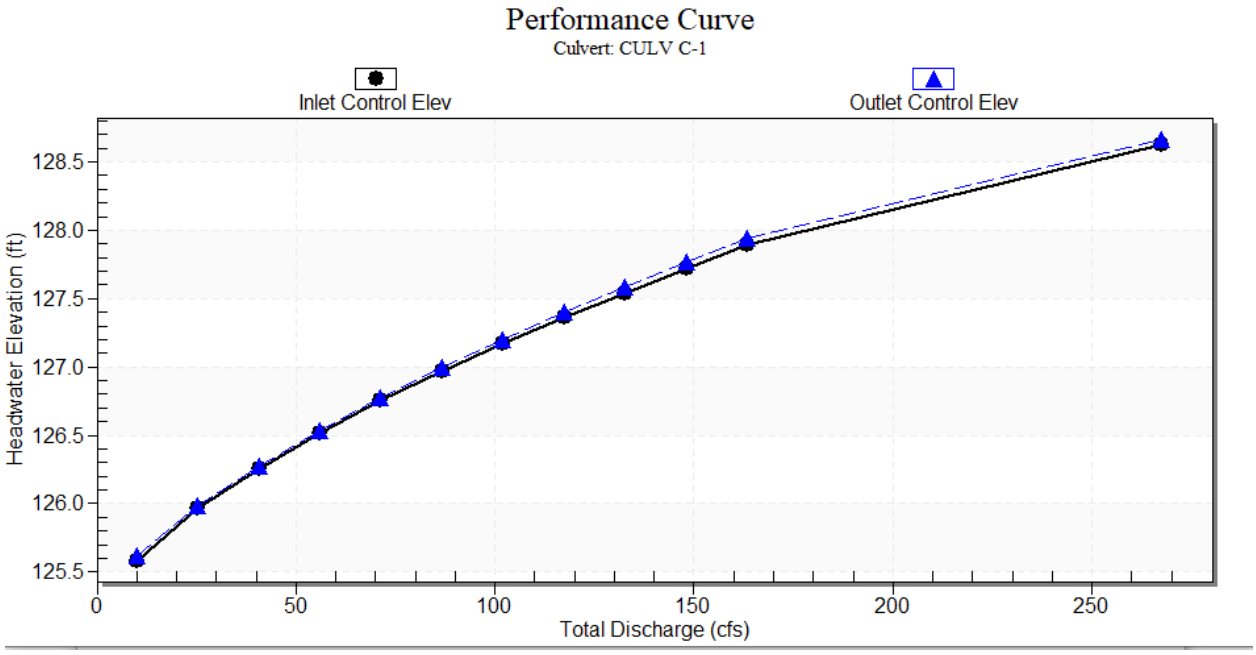
Inlet Elevation:	125.17 ft
Outlet Elevation:	125.00 ft
Culvert Length:	20.00 ft
Culvert Slope:	0.0085
Inlet Crest:	0.00 ft
Inlet Throat:	0.00 ft
Outlet Control:	Profiles

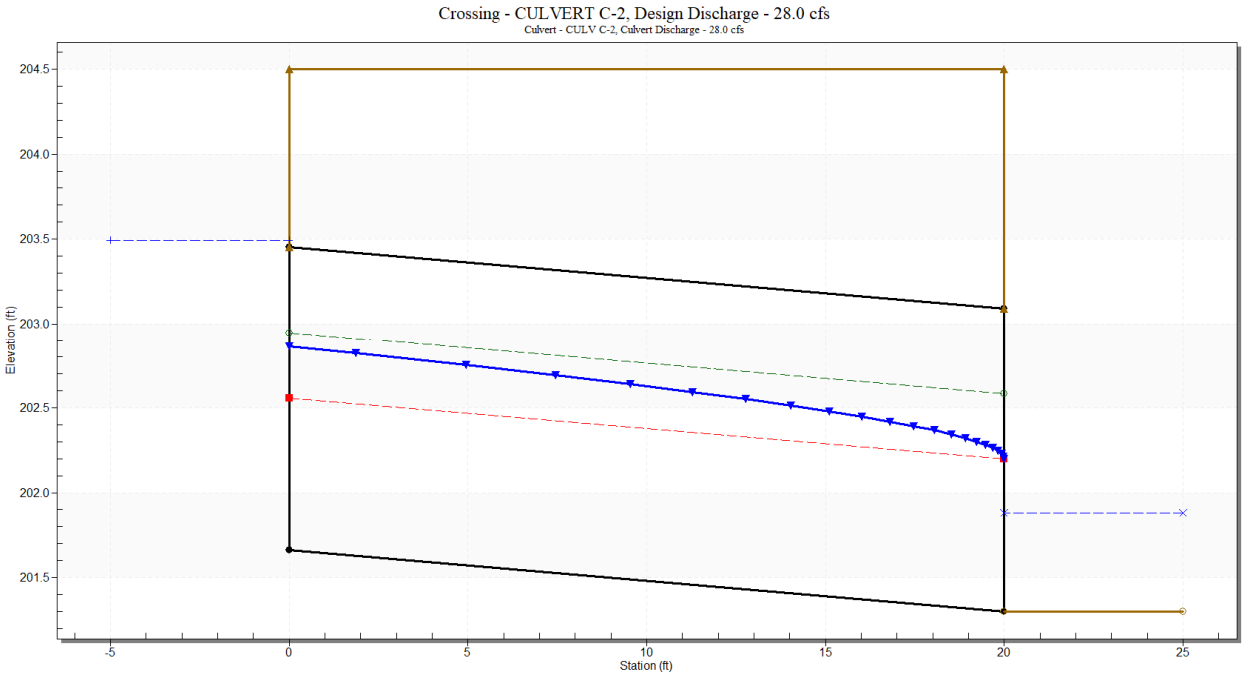
Plot

- Crossing Rating Curve
- Culvert Performance Curve
- Selected Water Profile
- Water Surface Profile Data

Help | Flow Types... | Edit Input Data... | Energy Dissipation... | AOP... | Low Flow... | Export Report | Adobe PDF (*.pdf) | Close

Performance Curve





Crossing Data - CULVERT C-2

Crossing Properties

Name: CULVERT C-2

Parameter	Value	Units
DISCHARGE DATA		
Discharge Method	Minimum, Design, and Maximum	
Minimum Flow	10.000	cfs
Design Flow	28.040	cfs
Maximum Flow	28.040	cfs
TAILWATER DATA		
Channel Type	Triangular Channel	
Side Slope (H:V)	10.000	_:1
Channel Slope	0.2000	ft/ft
Manning's n (channel)	0.035	
Channel Invert Elevation	201.300	ft
Rating Curve	View...	
ROADWAY DATA		
Roadway Profile Shape	Constant Roadway Elevation	
First Roadway Station	0.000	ft
Crest Length	100.000	ft
Crest Elevation	204.500	ft
Roadway Surface	Gravel	
Top Width	20.000	ft

Culvert Properties

CULV C-2

Add Culvert

Duplicate Culvert

Delete Culvert

Parameter	Value	Units
CULVERT DATA		
Name	CULV C-2	
Shape	Arch, Open Bottom	
Material	Corrugated Steel	
Size	Define...	
Span	6.000	ft
Rise	1.792	ft
Embedment Depth	0.000	in
Manning's n (Top/Sides)	0.035	
Manning's n (Bottom)	0.035	
Culvert Type	Straight	
Inlet Configuration	Thin Edge Projecting	
Inlet Depression?	No	
SITE DATA		
Site Data Input Option	Culvert Invert Data	
Inlet Station	0.000	ft
Inlet Elevation	201.660	ft
Outlet Station	20.000	ft
Outlet Elevation	201.300	ft
Number of Barrels	1	

Help | Click on any icon for help on a specific topic | Low Flow | AOP | Energy Dissipation | Analyze Crossing | OK | Cancel

Summary of Flows at Crossing - CULVERT C-2

Headwater Elevation (ft)	Total Discharge (cfs)	CULV C-2 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
202.52	10.00	10.00	0.00	1
202.62	11.80	11.80	0.00	1
202.72	13.61	13.61	0.00	1
202.82	15.41	15.41	0.00	1
202.92	17.22	17.22	0.00	1
203.01	19.02	19.02	0.00	1
203.11	20.82	20.82	0.00	1
203.21	22.63	22.63	0.00	1
203.30	24.43	24.43	0.00	1
203.40	26.24	26.24	0.00	1
203.49	28.04	28.04	0.00	1
204.50	44.05	44.05	0.00	Overtopping

Display
- (•) Crossing Summary Table
- ( ) Culvert Summary Table — CULV C-2
- ( ) Water Surface Profiles
- ( ) Tapered Inlet Table
- ( ) Customized Table — Options...

Geometry
- Inlet Elevation: 201.66 ft
- Outlet Elevation: 201.30 ft
- Culvert Length: 20.00 ft
- Culvert Slope: 0.0180
- Inlet Crest: 0.00 ft
- Inlet Throat: 0.00 ft
- Outlet Control: Profiles

Plot
- Crossing Rating Curve
- Culvert Performance Curve
- Selected Water Profile
- Water Surface Profile Data

Help | Flow Types... | Edit Input Data... | Energy Dissipation... | AOP... | Low Flow... | Export Report | Adobe PDF (*.pdf) | Close

Culvert Summary Table - CULV C-2

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
10.00	10.00	202.52	0.83	**0.86**	2-M2c	0.55	0.45	0.45	0.39	3.90	6.42
11.80	11.80	202.62	0.93	**0.96**	2-M2c	0.62	0.50	0.50	0.42	4.15	6.69
13.61	13.61	202.72	1.04	**1.06**	2-M2c	0.69	0.55	0.55	0.44	4.37	6.93
15.41	15.41	202.82	1.14	**1.16**	2-M2c	0.75	0.60	0.60	0.46	4.58	7.15
17.22	17.22	202.92	1.25	**1.26**	2-M2c	0.82	0.65	0.65	0.48	4.77	7.35
19.02	19.02	203.01	1.35	**1.35**	2-M2c	0.89	0.69	0.69	0.50	4.96	7.53
20.82	20.82	203.11	**1.45~**	1.45	2-M2c	0.96	0.74	0.74	0.52	5.14	7.71
22.63	22.63	203.21	**1.55~**	1.54	2-M2c	1.03	0.78	0.78	0.54	5.32	7.87
24.43	24.43	203.30	**1.64~**	1.64	2-M2c	1.11	0.82	0.82	0.55	5.49	8.02
26.24	26.24	203.40	**1.74~**	1.73	2-M2c	1.19	0.86	0.86	0.57	5.65	8.17
28.04	28.04	203.49	**1.83~**	1.82	7-M2c	1.29	0.90	0.90	0.58	5.81	8.30

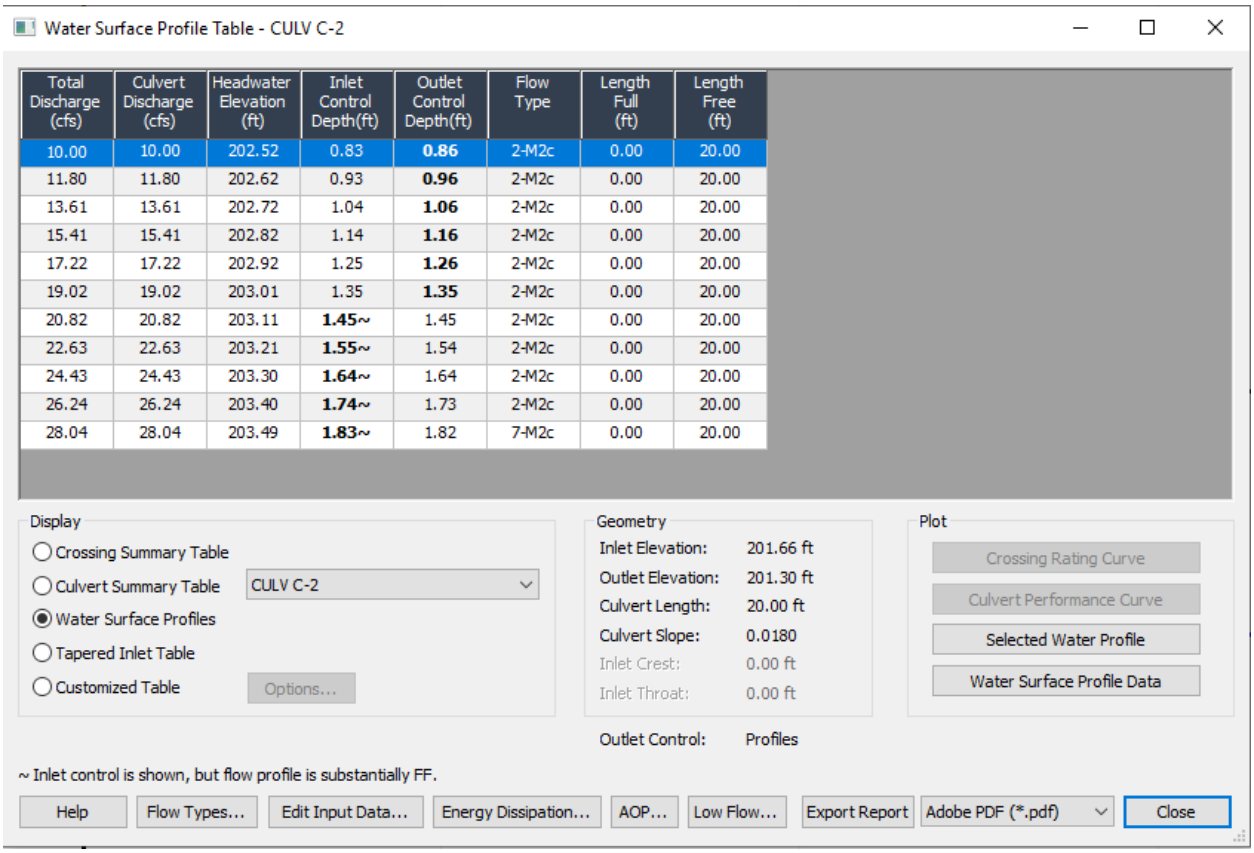
Display
- ( ) Crossing Summary Table
- (•) Culvert Summary Table — CULV C-2
- ( ) Water Surface Profiles
- ( ) Tapered Inlet Table
- ( ) Customized Table — Options...

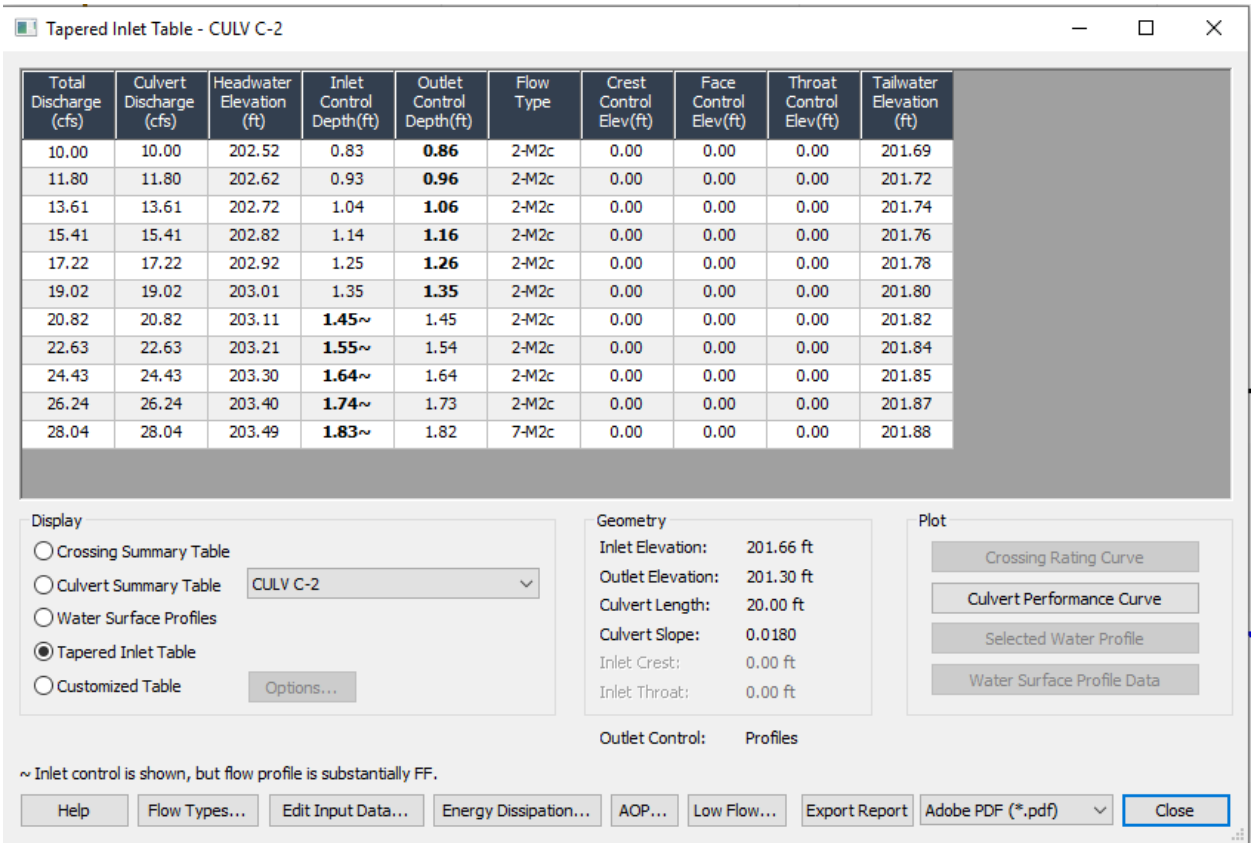
Geometry
- Inlet Elevation: 201.66 ft
- Outlet Elevation: 201.30 ft
- Culvert Length: 20.00 ft
- Culvert Slope: 0.0180
- Inlet Crest: 0.00 ft
- Inlet Throat: 0.00 ft
- Outlet Control: Profiles

Plot
- Crossing Rating Curve
- Culvert Performance Curve
- Selected Water Profile
- Water Surface Profile Data

~ Inlet control is shown, but flow profile is substantially FF.

Help | Flow Types... | Edit Input Data... | Energy Dissipation... | AOP... | Low Flow... | Export Report | Adobe PDF (*.pdf) | Close


Water Surface Profile Table - CULV C-2
Total Discharge (cfs) | Culvert Discharge (cfs) | Headwater Elevation (ft) | Inlet Control Depth(ft) | Outlet Control Depth(ft) | Flow Type | Length Full (ft) | Length Free (ft)
10.00 | 10.00 | 202.52 | 0.83 | 0.86 | 2-M2c | 0.00 | 20.00
11.80 | 11.80 | 202.62 | 0.93 | 0.96 | 2-M2c | 0.00 | 20.00
13.61 | 13.61 | 202.72 | 1.04 | 1.06 | 2-M2c | 0.00 | 20.00
15.41 | 15.41 | 202.82 | 1.14 | 1.16 | 2-M2c | 0.00 | 20.00
17.22 | 17.22 | 202.92 | 1.25 | 1.26 | 2-M2c | 0.00 | 20.00
19.02 | 19.02 | 203.01 | 1.35 | 1.35 | 2-M2c | 0.00 | 20.00
20.82 | 20.82 | 203.11 | 1.45~ | 1.45 | 2-M2c | 0.00 | 20.00
22.63 | 22.63 | 203.21 | 1.55~ | 1.54 | 2-M2c | 0.00 | 20.00
24.43 | 24.43 | 203.30 | 1.64~ | 1.64 | 2-M2c | 0.00 | 20.00
26.24 | 26.24 | 203.40 | 1.74~ | 1.73 | 2-M2c | 0.00 | 20.00
28.04 | 28.04 | 203.49 | 1.83~ | 1.82 | 7-M2c | 0.00 | 20.00
Display
Crossing Summary Table
Culvert Summary Table
CULV C-2
Water Surface Profiles
Tapered Inlet Table
Customized Table
Options...
Geometry
Inlet Elevation: 201.66 ft
Outlet Elevation: 201.30 ft
Culvert Length: 20.00 ft
Culvert Slope: 0.0180
Inlet Crest: 0.00 ft
Inlet Throat: 0.00 ft
Outlet Control: Profiles
Plot
Crossing Rating Curve
Culvert Performance Curve
Selected Water Profile
Water Surface Profile Data
~ Inlet control is shown, but flow profile is substantially FF.
Help
Flow Types...
Edit Input Data...
Energy Dissipation...
AOP...
Low Flow...
Export Report
Adobe PDF (*.pdf)
Close


Tapered Inlet Table - CULV C-2
Total Discharge (cfs) | Culvert Discharge (cfs) | Headwater Elevation (ft) | Inlet Control Depth(ft) | Outlet Control Depth(ft) | Flow Type | Crest Control Elev(ft) | Face Control Elev(ft) | Throat Control Elev(ft) | Tailwater Elevation (ft)
10.00 | 10.00 | 202.52 | 0.83 | 0.86 | 2-M2c | 0.00 | 0.00 | 0.00 | 201.69
11.80 | 11.80 | 202.62 | 0.93 | 0.96 | 2-M2c | 0.00 | 0.00 | 0.00 | 201.72
13.61 | 13.61 | 202.72 | 1.04 | 1.06 | 2-M2c | 0.00 | 0.00 | 0.00 | 201.74
15.41 | 15.41 | 202.82 | 1.14 | 1.16 | 2-M2c | 0.00 | 0.00 | 0.00 | 201.76
17.22 | 17.22 | 202.92 | 1.25 | 1.26 | 2-M2c | 0.00 | 0.00 | 0.00 | 201.78
19.02 | 19.02 | 203.01 | 1.35 | 1.35 | 2-M2c | 0.00 | 0.00 | 0.00 | 201.80
20.82 | 20.82 | 203.11 | 1.45~ | 1.45 | 2-M2c | 0.00 | 0.00 | 0.00 | 201.82
22.63 | 22.63 | 203.21 | 1.55~ | 1.54 | 2-M2c | 0.00 | 0.00 | 0.00 | 201.84
24.43 | 24.43 | 203.30 | 1.64~ | 1.64 | 2-M2c | 0.00 | 0.00 | 0.00 | 201.85
26.24 | 26.24 | 203.40 | 1.74~ | 1.73 | 2-M2c | 0.00 | 0.00 | 0.00 | 201.87
28.04 | 28.04 | 203.49 | 1.83~ | 1.82 | 7-M2c | 0.00 | 0.00 | 0.00 | 201.88
Display
Crossing Summary Table
Culvert Summary Table
CULV C-2
Water Surface Profiles
Tapered Inlet Table
Customized Table
Options...
Geometry
Inlet Elevation: 201.66 ft
Outlet Elevation: 201.30 ft
Culvert Length: 20.00 ft
Culvert Slope: 0.0180
Inlet Crest: 0.00 ft
Inlet Throat: 0.00 ft
Outlet Control: Profiles
Plot
Crossing Rating Curve
Culvert Performance Curve
Selected Water Profile
Water Surface Profile Data
~ Inlet control is shown, but flow profile is substantially FF.
Help
Flow Types...
Edit Input Data...
Energy Dissipation...
AOP...
Low Flow...
Export Report
Adobe PDF (*.pdf)
Close

Custom Table - CULV C-2

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Crest Control Elev(ft)	Face Control Elev(ft)	Throat Control Elev(ft)	Tailwater Elevation (ft)
10.00	10.00	202.52	0.83	0.86	2-M2c	0.00	0.00	0.00	201.69
11.80	11.80	202.62	0.93	0.96	2-M2c	0.00	0.00	0.00	201.72
13.61	13.61	202.72	1.04	1.06	2-M2c	0.00	0.00	0.00	201.74
15.41	15.41	202.82	1.14	1.16	2-M2c	0.00	0.00	0.00	201.76
17.22	17.22	202.92	1.25	1.26	2-M2c	0.00	0.00	0.00	201.78
19.02	19.02	203.01	1.35	1.35	2-M2c	0.00	0.00	0.00	201.80
20.82	20.82	203.11	1.45~	1.45	2-M2c	0.00	0.00	0.00	201.82
22.63	22.63	203.21	1.55~	1.54	2-M2c	0.00	0.00	0.00	201.84
24.43	24.43	203.30	1.64~	1.64	2-M2c	0.00	0.00	0.00	201.85
26.24	26.24	203.40	1.74~	1.73	2-M2c	0.00	0.00	0.00	201.87
28.04	28.04	203.49	1.83~	1.82	7-M2c	0.00	0.00	0.00	201.88

Display

- ○ Crossing Summary Table
- ○ Culvert Summary Table — CULV C-2
- ○ Water Surface Profiles
- ○ Tapered Inlet Table
- ◉ Customized Table — Options...

Geometry

Inlet Elevation:	201.66 ft
Outlet Elevation:	201.30 ft
Culvert Length:	20.00 ft
Culvert Slope:	0.0180
Inlet Crest:	0.00 ft
Inlet Throat:	0.00 ft
Outlet Control:	Profiles

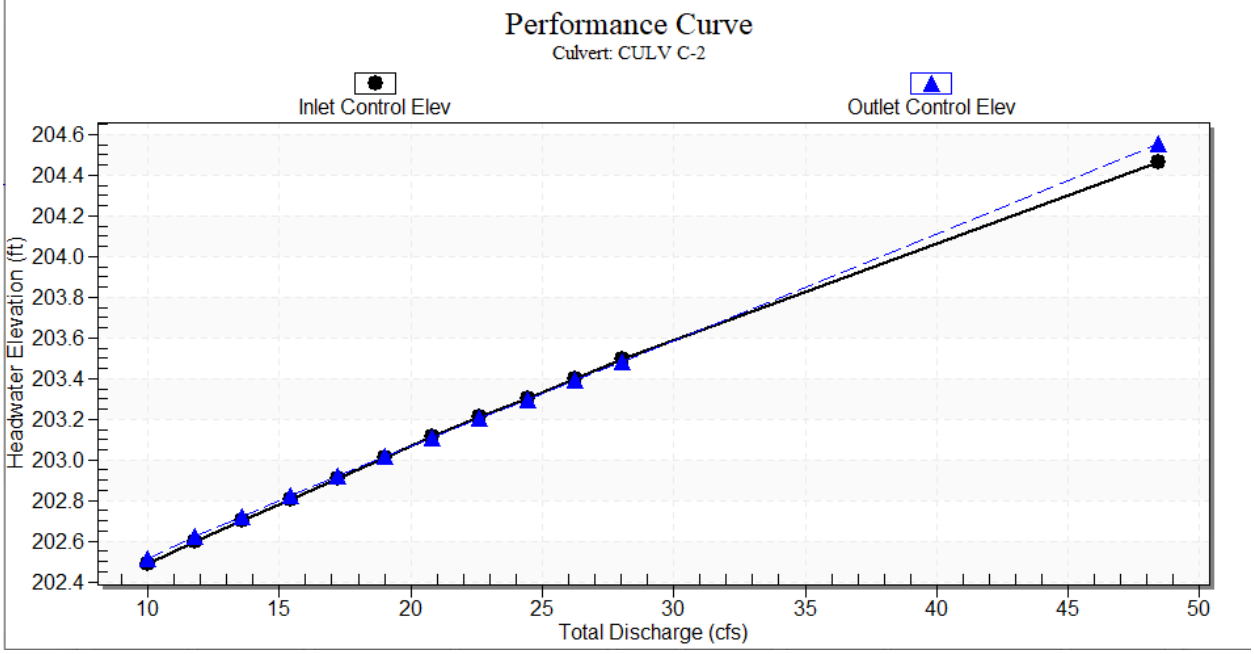
Plot

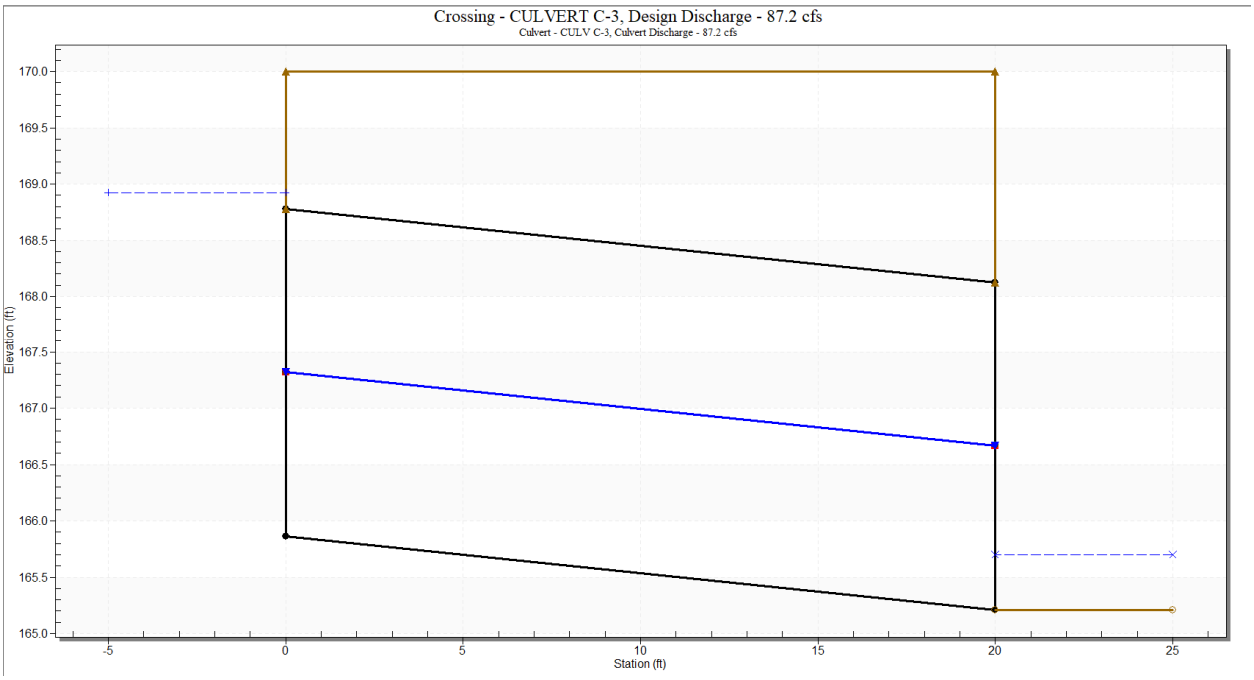
- Crossing Rating Curve
- Culvert Performance Curve
- Selected Water Profile
- Water Surface Profile Data

~ Inlet control is shown, but flow profile is substantially FF.

Help | Flow Types... | Edit Input Data... | Energy Dissipation... | AOP... | Low Flow... | Export Report | Adobe PDF (*.pdf) | Close

Performance Curve





Crossing Data - CULVERT C-3

Crossing Properties

Name: CULVERT C-3

Parameter	Value	Units
DISCHARGE DATA		
Discharge Method	Minimum, Design, and Maximum	
Minimum Flow	10.000	cfs
Design Flow	87.230	cfs
Maximum Flow	87.230	cfs
TAILWATER DATA		
Channel Type	Trapezoidal Channel	
Bottom Width	28.000	ft
Side Slope (H:V)	3.000	_:1
Channel Slope	0.0570	ft/ft
Manning's n (channel)	0.035	
Channel Invert Elevation	165.210	ft
Rating Curve	View...	
ROADWAY DATA		
Roadway Profile Shape	Constant Roadway Elevation	
First Roadway Station	0.000	ft
Crest Length	100.000	ft
Crest Elevation	170.000	ft
Roadway Surface	Gravel	
Top Width	20.000	ft

Culvert Properties

CULV C-3

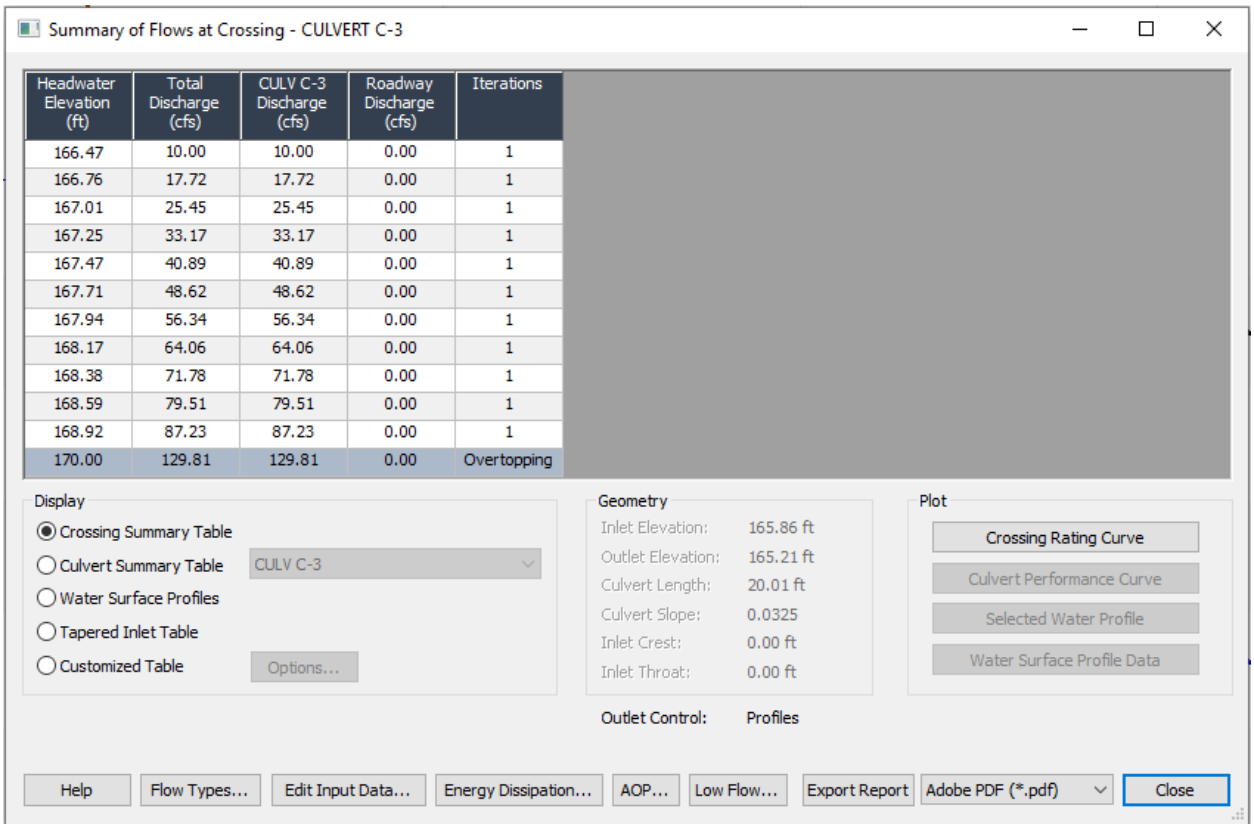
Add Culvert

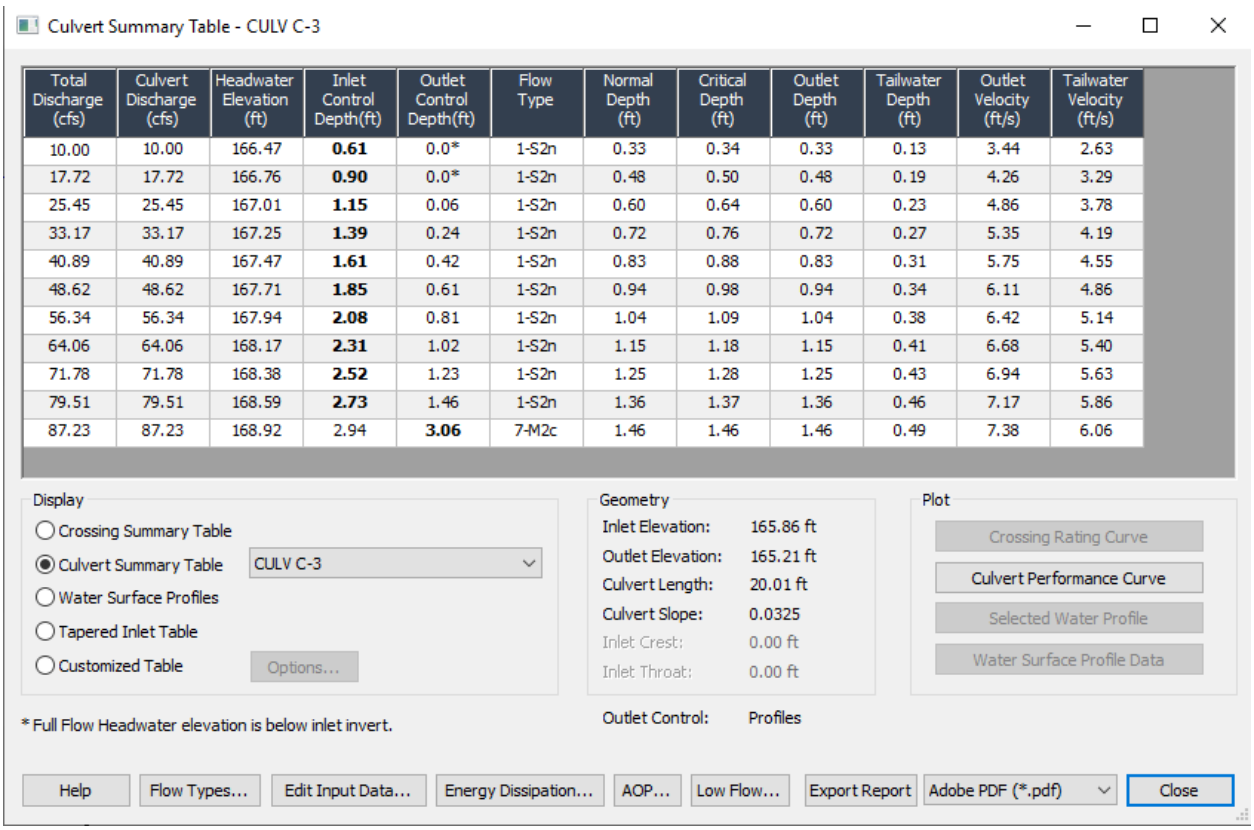
Duplicate Culvert

Delete Culvert

Parameter	Value	Units
CULVERT DATA		
Name	CULV C-3	
Shape	Arch, Open Bottom	
Material	Corrugated Steel	
Size	Define...	
Span	9.000	ft
Rise	2.917	ft
Embedment Depth	0.000	in
Manning's n (Top/Sides)	0.035	
Manning's n (Bottom)	0.035	
Culvert Type	Straight	
Inlet Configuration	Thin Edge Projecting	
Inlet Depression?	No	
SITE DATA		
Site Data Input Option	Culvert Invert Data	
Inlet Station	0.000	ft
Inlet Elevation	165.860	ft
Outlet Station	20.000	ft
Outlet Elevation	165.210	ft
Number of Barrels	1	

Help | Click on any icon for help on a specific topic | Low Flow | AOP | Energy Dissipation | Analyze Crossing | OK | Cancel


Summary of Flows at Crossing - CULVERT C-3
Headwater Elevation (ft) | Total Discharge (cfs) | CULV C-3 Discharge (cfs) | Roadway Discharge (cfs) | Iterations
166.47 | 10.00 | 10.00 | 0.00 | 1
166.76 | 17.72 | 17.72 | 0.00 | 1
167.01 | 25.45 | 25.45 | 0.00 | 1
167.25 | 33.17 | 33.17 | 0.00 | 1
167.47 | 40.89 | 40.89 | 0.00 | 1
167.71 | 48.62 | 48.62 | 0.00 | 1
167.94 | 56.34 | 56.34 | 0.00 | 1
168.17 | 64.06 | 64.06 | 0.00 | 1
168.38 | 71.78 | 71.78 | 0.00 | 1
168.59 | 79.51 | 79.51 | 0.00 | 1
168.92 | 87.23 | 87.23 | 0.00 | 1
170.00 | 129.81 | 129.81 | 0.00 | Overtopping
Display
Crossing Summary Table
Culvert Summary Table
CULV C-3
Water Surface Profiles
Tapered Inlet Table
Customized Table
Options...
Geometry
Inlet Elevation: 165.86 ft
Outlet Elevation: 165.21 ft
Culvert Length: 20.01 ft
Culvert Slope: 0.0325
Inlet Crest: 0.00 ft
Inlet Throat: 0.00 ft
Outlet Control: Profiles
Plot
Crossing Rating Curve
Culvert Performance Curve
Selected Water Profile
Water Surface Profile Data
Help
Flow Types...
Edit Input Data...
Energy Dissipation...
AOP...
Low Flow...
Export Report
Adobe PDF (*.pdf)
Close


Culvert Summary Table - CULV C-3
Total Discharge (cfs) | Culvert Discharge (cfs) | Headwater Elevation (ft) | Inlet Control Depth(ft) | Outlet Control Depth(ft) | Flow Type | Normal Depth (ft) | Critical Depth (ft) | Outlet Depth (ft) | Tailwater Depth (ft) | Outlet Velocity (ft/s) | Tailwater Velocity (ft/s)
10.00 | 10.00 | 166.47 | 0.61 | 0.0* | 1-S2n | 0.33 | 0.34 | 0.33 | 0.13 | 3.44 | 2.63
17.72 | 17.72 | 166.76 | 0.90 | 0.0* | 1-S2n | 0.48 | 0.50 | 0.48 | 0.19 | 4.26 | 3.29
25.45 | 25.45 | 167.01 | 1.15 | 0.06 | 1-S2n | 0.60 | 0.64 | 0.60 | 0.23 | 4.86 | 3.78
33.17 | 33.17 | 167.25 | 1.39 | 0.24 | 1-S2n | 0.72 | 0.76 | 0.72 | 0.27 | 5.35 | 4.19
40.89 | 40.89 | 167.47 | 1.61 | 0.42 | 1-S2n | 0.83 | 0.88 | 0.83 | 0.31 | 5.75 | 4.55
48.62 | 48.62 | 167.71 | 1.85 | 0.61 | 1-S2n | 0.94 | 0.98 | 0.94 | 0.34 | 6.11 | 4.86
56.34 | 56.34 | 167.94 | 2.08 | 0.81 | 1-S2n | 1.04 | 1.09 | 1.04 | 0.38 | 6.42 | 5.14
64.06 | 64.06 | 168.17 | 2.31 | 1.02 | 1-S2n | 1.15 | 1.18 | 1.15 | 0.41 | 6.68 | 5.40
71.78 | 71.78 | 168.38 | 2.52 | 1.23 | 1-S2n | 1.25 | 1.28 | 1.25 | 0.43 | 6.94 | 5.63
79.51 | 79.51 | 168.59 | 2.73 | 1.46 | 1-S2n | 1.36 | 1.37 | 1.36 | 0.46 | 7.17 | 5.86
87.23 | 87.23 | 168.92 | 2.94 | 3.06 | 7-M2c | 1.46 | 1.46 | 1.46 | 0.49 | 7.38 | 6.06
Display
Crossing Summary Table
Culvert Summary Table
CULV C-3
Water Surface Profiles
Tapered Inlet Table
Customized Table
Options...
* Full Flow Headwater elevation is below inlet invert.
Geometry
Inlet Elevation: 165.86 ft
Outlet Elevation: 165.21 ft
Culvert Length: 20.01 ft
Culvert Slope: 0.0325
Inlet Crest: 0.00 ft
Inlet Throat: 0.00 ft
Outlet Control: Profiles
Plot
Crossing Rating Curve
Culvert Performance Curve
Selected Water Profile
Water Surface Profile Data
Help
Flow Types...
Edit Input Data...
Energy Dissipation...
AOP...
Low Flow...
Export Report
Adobe PDF (*.pdf)
Close

Water Surface Profile Table - CULV C-3

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Length Full (ft)	Length Free (ft)
10.00	10.00	166.47	**0.61**	0.0*	1-S2n	0.00	20.00
17.72	17.72	166.76	**0.90**	0.0*	1-S2n	0.00	20.00
25.45	25.45	167.01	**1.15**	0.06	1-S2n	0.00	20.00
33.17	33.17	167.25	**1.39**	0.24	1-S2n	0.00	20.00
40.89	40.89	167.47	**1.61**	0.42	1-S2n	0.00	20.00
48.62	48.62	167.71	**1.85**	0.61	1-S2n	0.00	20.00
56.34	56.34	167.94	**2.08**	0.81	1-S2n	0.00	20.00
64.06	64.06	168.17	**2.31**	1.02	1-S2n	0.00	20.00
71.78	71.78	168.38	**2.52**	1.23	1-S2n	0.00	20.00
79.51	79.51	168.59	**2.73**	1.46	1-S2n	0.00	20.00
87.23	87.23	168.92	2.94	**3.06**	7-M2c	0.00	20.00

Display

- ○ Crossing Summary Table
- ○ Culvert Summary Table — CULV C-3
- ◉ Water Surface Profiles
- ○ Tapered Inlet Table
- ○ Customized Table — Options...

Geometry

Inlet Elevation:	165.86 ft
Outlet Elevation:	165.21 ft
Culvert Length:	20.01 ft
Culvert Slope:	0.0325
Inlet Crest:	0.00 ft
Inlet Throat:	0.00 ft
Outlet Control:	Profiles

Plot

- Crossing Rating Curve
- Culvert Performance Curve
- Selected Water Profile
- Water Surface Profile Data

* Full Flow Headwater elevation is below inlet invert.

Help | Flow Types... | Edit Input Data... | Energy Dissipation... | AOP... | Low Flow... | Export Report | Adobe PDF (*.pdf) | Close

Tapered Inlet Table - CULV C-3

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Crest Control Elev(ft)	Face Control Elev(ft)	Throat Control Elev(ft)	Tailwater Elevation (ft)
10.00	10.00	166.47	**0.61**	0.0*	1-S2n	0.00	0.00	0.00	165.34
17.72	17.72	166.76	**0.90**	0.0*	1-S2n	0.00	0.00	0.00	165.40
25.45	25.45	167.01	**1.15**	0.06	1-S2n	0.00	0.00	0.00	165.44
33.17	33.17	167.25	**1.39**	0.24	1-S2n	0.00	0.00	0.00	165.48
40.89	40.89	167.47	**1.61**	0.42	1-S2n	0.00	0.00	0.00	165.52
48.62	48.62	167.71	**1.85**	0.61	1-S2n	0.00	0.00	0.00	165.55
56.34	56.34	167.94	**2.08**	0.81	1-S2n	0.00	0.00	0.00	165.59
64.06	64.06	168.17	**2.31**	1.02	1-S2n	0.00	0.00	0.00	165.62
71.78	71.78	168.38	**2.52**	1.23	1-S2n	0.00	0.00	0.00	165.64
79.51	79.51	168.59	**2.73**	1.46	1-S2n	0.00	0.00	0.00	165.67
87.23	87.23	168.92	2.94	**3.06**	7-M2c	0.00	0.00	0.00	165.70

Display

- ○ Crossing Summary Table
- ○ Culvert Summary Table — CULV C-3
- ○ Water Surface Profiles
- ◉ Tapered Inlet Table
- ○ Customized Table — Options...

Geometry

Inlet Elevation:	165.86 ft
Outlet Elevation:	165.21 ft
Culvert Length:	20.01 ft
Culvert Slope:	0.0325
Inlet Crest:	0.00 ft
Inlet Throat:	0.00 ft
Outlet Control:	Profiles

Plot

- Crossing Rating Curve
- Culvert Performance Curve
- Selected Water Profile
- Water Surface Profile Data

* Full Flow Headwater elevation is below inlet invert.

Help | Flow Types... | Edit Input Data... | Energy Dissipation... | AOP... | Low Flow... | Export Report | Adobe PDF (*.pdf) | Close

Custom Table - CULV C-3

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Crest Control Elev(ft)	Face Control Elev(ft)	Throat Control Elev(ft)	Tailwater Elevation (ft)
10.00	10.00	166.47	0.61	0.0*	1-S2n	0.00	0.00	0.00	165.34
17.72	17.72	166.76	0.90	0.0*	1-S2n	0.00	0.00	0.00	165.40
25.45	25.45	167.01	1.15	0.06	1-S2n	0.00	0.00	0.00	165.44
33.17	33.17	167.25	1.39	0.24	1-S2n	0.00	0.00	0.00	165.48
40.89	40.89	167.47	1.61	0.42	1-S2n	0.00	0.00	0.00	165.52
48.62	48.62	167.71	1.85	0.61	1-S2n	0.00	0.00	0.00	165.55
56.34	56.34	167.94	2.08	0.81	1-S2n	0.00	0.00	0.00	165.59
64.06	64.06	168.17	2.31	1.02	1-S2n	0.00	0.00	0.00	165.62
71.78	71.78	168.38	2.52	1.23	1-S2n	0.00	0.00	0.00	165.64
79.51	79.51	168.59	2.73	1.46	1-S2n	0.00	0.00	0.00	165.67
87.23	87.23	168.92	2.94	3.06	7-M2c	0.00	0.00	0.00	165.70

Display

- ○ Crossing Summary Table
- ○ Culvert Summary Table — CULV C-3
- ○ Water Surface Profiles
- ○ Tapered Inlet Table
- ◉ Customized Table — Options...

Geometry

Inlet Elevation:	165.86 ft
Outlet Elevation:	165.21 ft
Culvert Length:	20.01 ft
Culvert Slope:	0.0325
Inlet Crest:	0.00 ft
Inlet Throat:	0.00 ft
Outlet Control:	Profiles

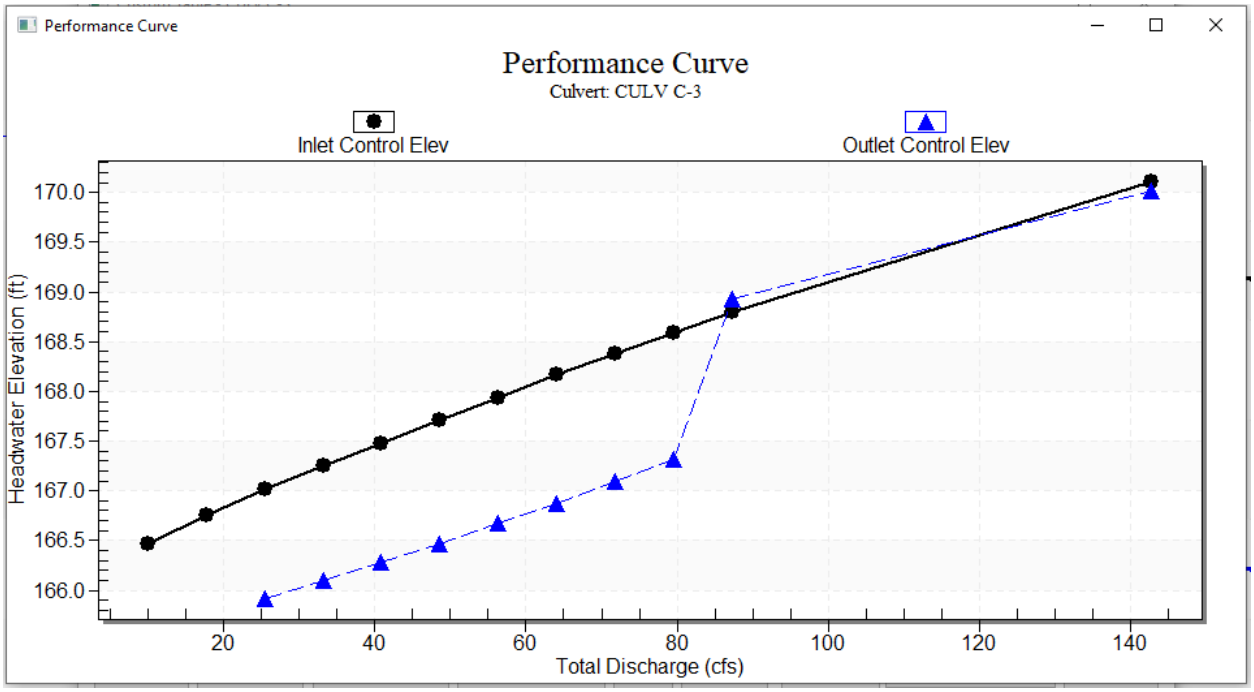
Plot

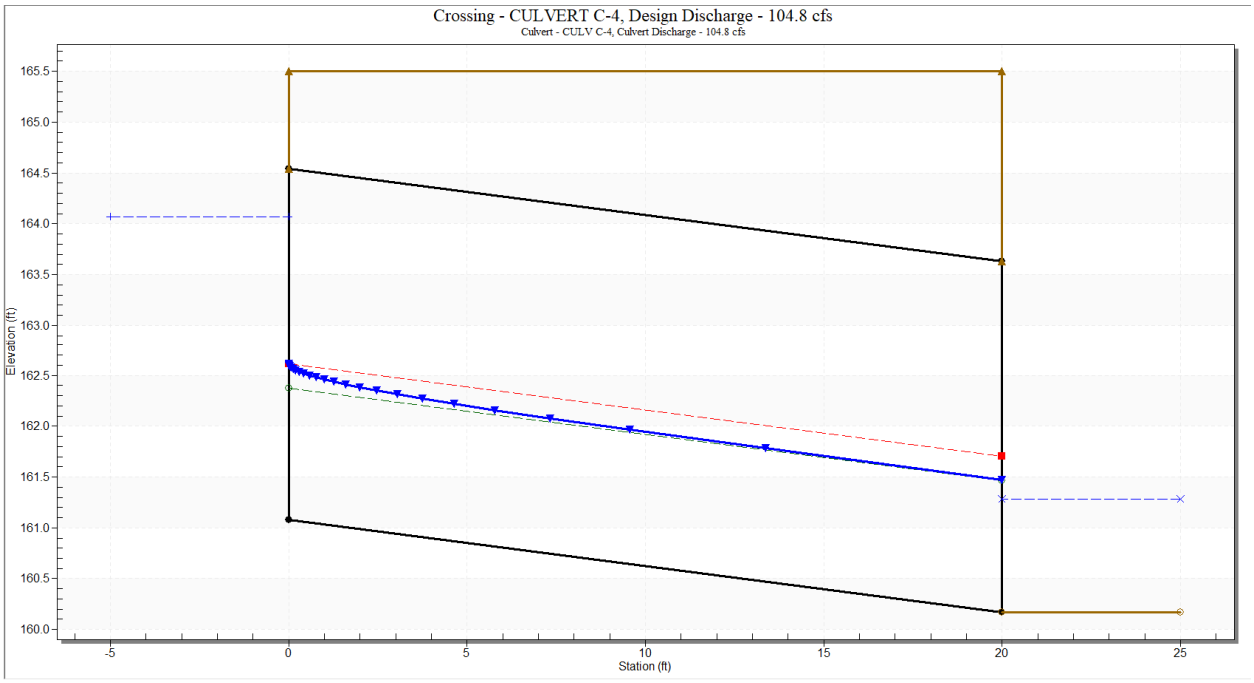
- Crossing Rating Curve
- Culvert Performance Curve
- Selected Water Profile
- Water Surface Profile Data

* Full Flow Headwater elevation is below inlet invert.

Help | Flow Types... | Edit Input Data... | Energy Dissipation... | AOP... | Low Flow... | Export Report | Adobe PDF (*.pdf) | Close

Performance Curve





Crossing Data - CULVERT C-4

Crossing Properties

Name: CULVERT C-4

Parameter	Value	Units
DISCHARGE DATA		
Discharge Method	Minimum, Design, and Maximum	
Minimum Flow	10.000	cfs
Design Flow	104.780	cfs
Maximum Flow	104.780	cfs
TAILWATER DATA		
Channel Type	Trapezoidal Channel	
Bottom Width	10.000	ft
Side Slope (H:V)	8.000	_:1
Channel Slope	0.0200	ft/ft
Manning's n (channel)	0.035	
Channel Invert Elevation	160.170	ft
Rating Curve	View...	
ROADWAY DATA		
Roadway Profile Shape	Constant Roadway Elevation	
First Roadway Station	0.000	ft
Crest Length	100.000	ft
Crest Elevation	165.500	ft
Roadway Surface	Gravel	
Top Width	20.000	ft

Culvert Properties

CULV C-4

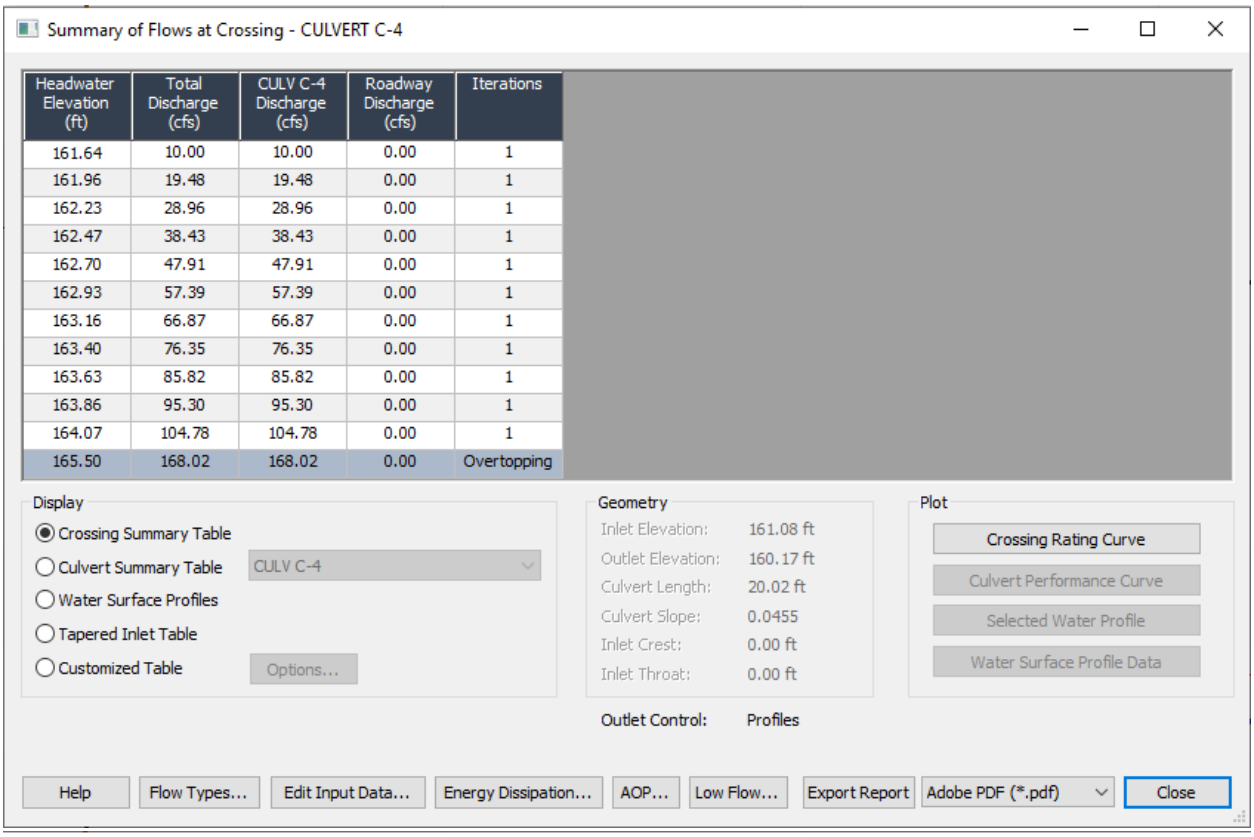
Add Culvert

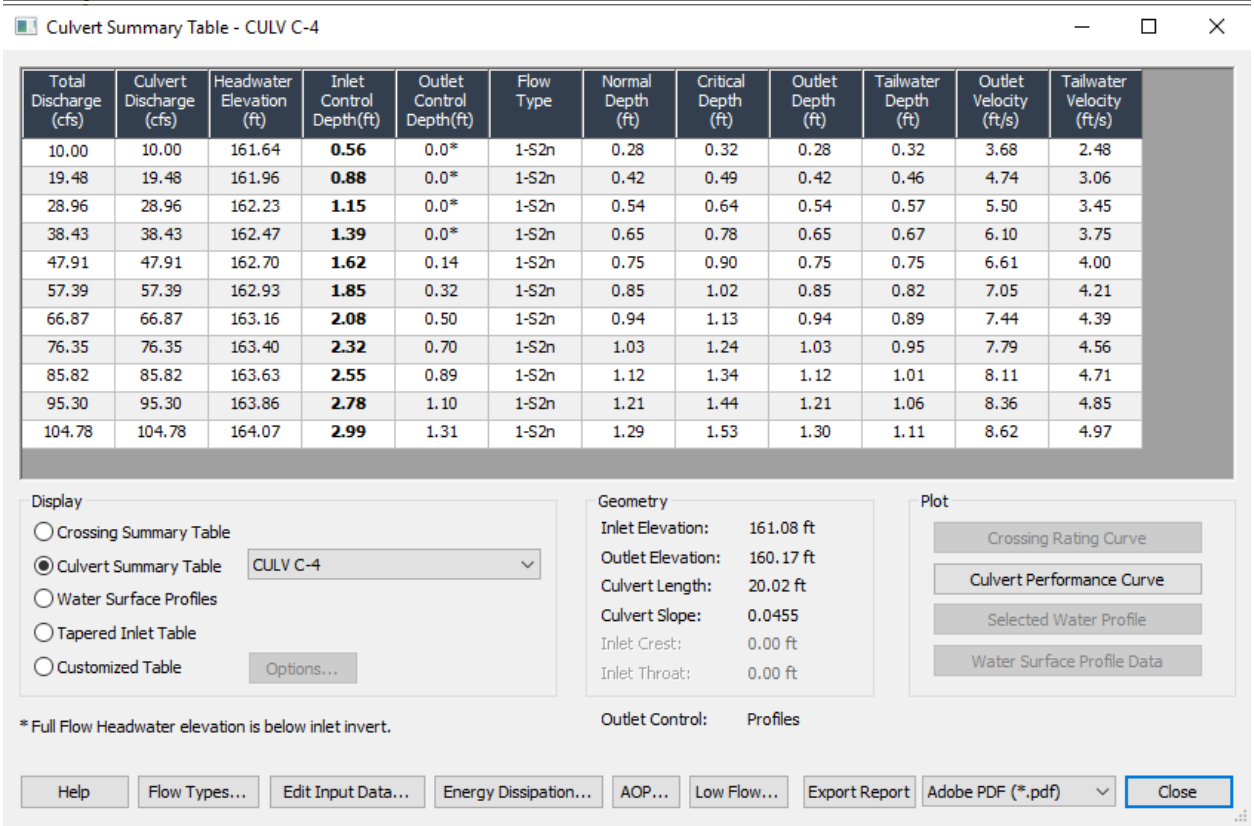
Duplicate Culvert

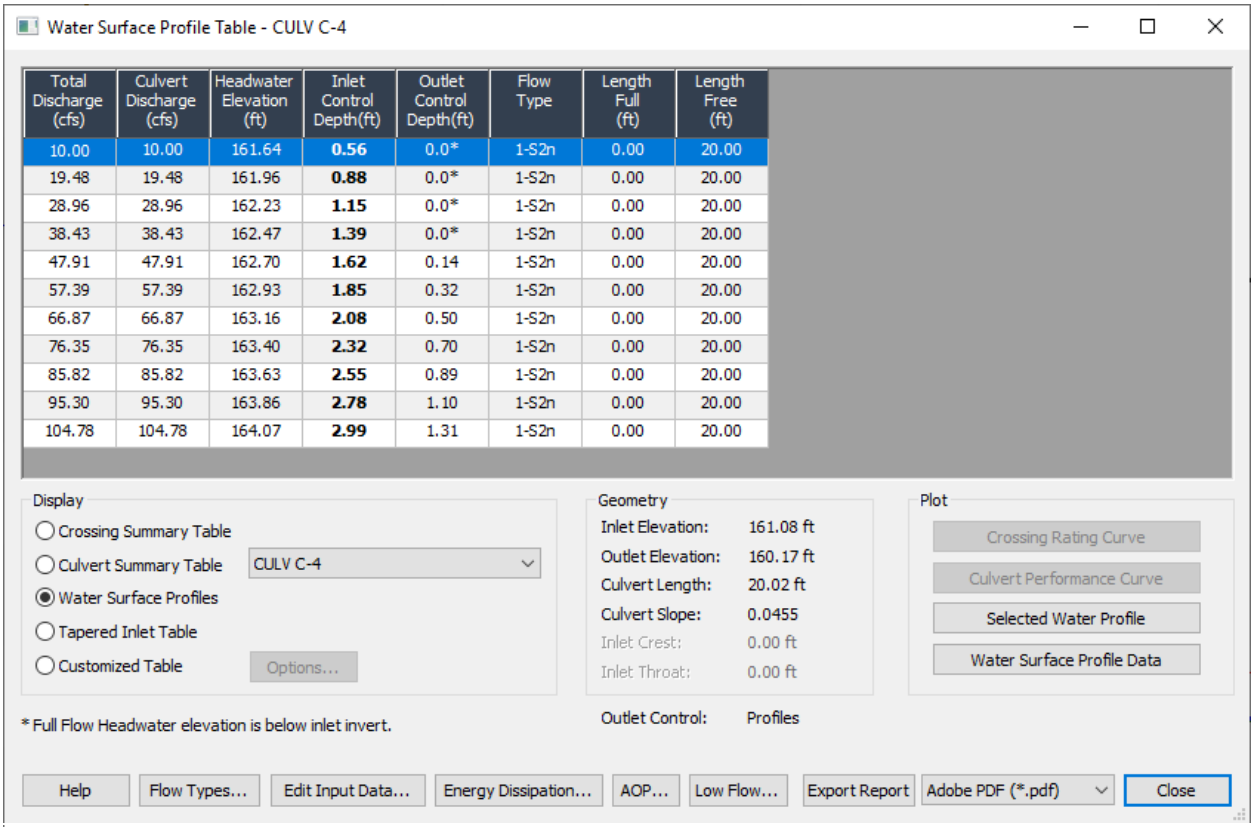
Delete Culvert

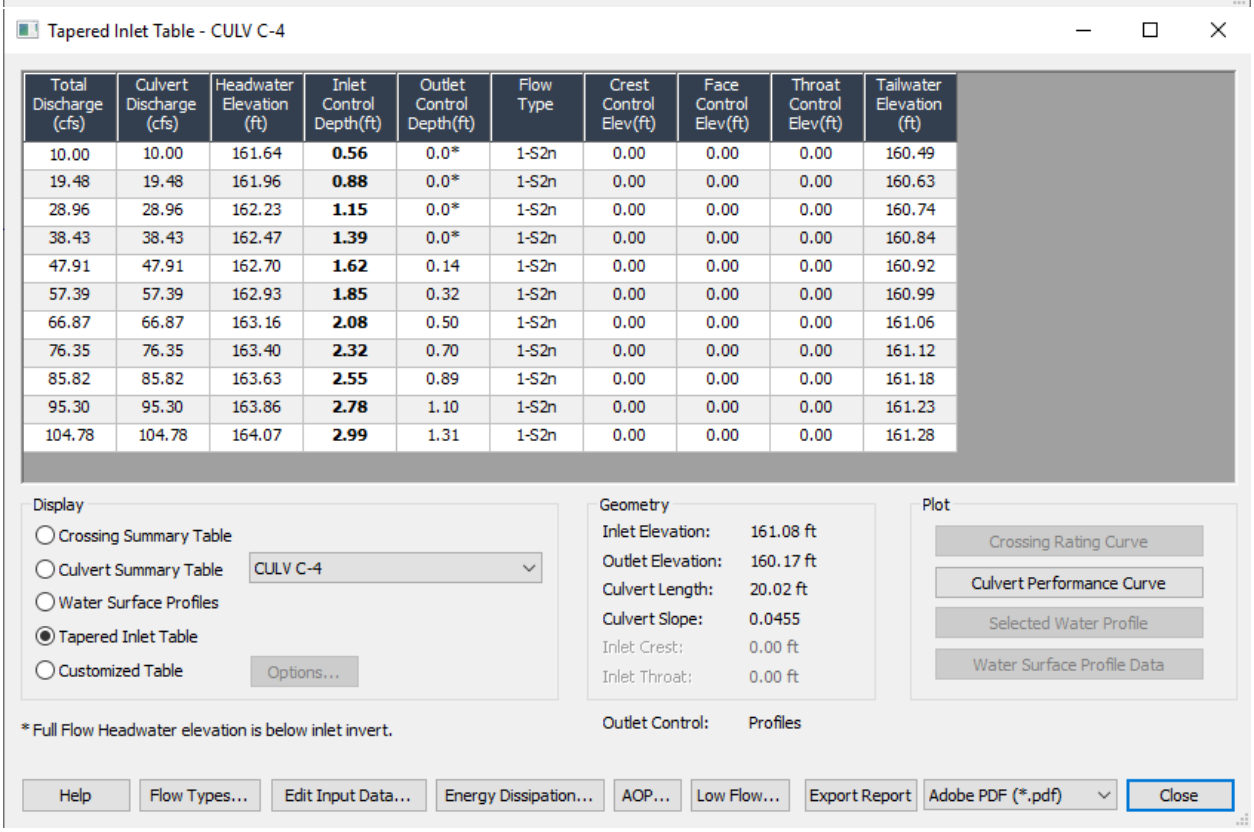
Parameter	Value	Units
CULVERT DATA		
Name	CULV C-4	
Shape	Arch, Open Bottom	
Material	Corrugated Steel	
Size	Define...	
Span	10.000	ft
Rise	3.458	ft
Embedment Depth	0.000	in
Manning's n (Top/Sides)	0.035	
Manning's n (Bottom)	0.035	
Culvert Type	Straight	
Inlet Configuration	Thin Edge Projecting	
Inlet Depression?	No	
SITE DATA		
Site Data Input Option	Culvert Invert Data	
Inlet Station	0.000	ft
Inlet Elevation	161.080	ft
Outlet Station	20.000	ft
Outlet Elevation	160.170	ft
Number of Barrels	1	

Help | Click on any icon for help on a specific topic | Low Flow | AOP | Energy Dissipation | Analyze Crossing | OK | Cancel


Summary of Flows at Crossing - CULVERT C-4
Headwater Elevation (ft) | Total Discharge (cfs) | CULV C-4 Discharge (cfs) | Roadway Discharge (cfs) | Iterations
161.64 | 10.00 | 10.00 | 0.00 | 1
161.96 | 19.48 | 19.48 | 0.00 | 1
162.23 | 28.96 | 28.96 | 0.00 | 1
162.47 | 38.43 | 38.43 | 0.00 | 1
162.70 | 47.91 | 47.91 | 0.00 | 1
162.93 | 57.39 | 57.39 | 0.00 | 1
163.16 | 66.87 | 66.87 | 0.00 | 1
163.40 | 76.35 | 76.35 | 0.00 | 1
163.63 | 85.82 | 85.82 | 0.00 | 1
163.86 | 95.30 | 95.30 | 0.00 | 1
164.07 | 104.78 | 104.78 | 0.00 | 1
165.50 | 168.02 | 168.02 | 0.00 | Overtopping
Display
Crossing Summary Table
Culvert Summary Table
CULV C-4
Water Surface Profiles
Tapered Inlet Table
Customized Table
Options...
Geometry
Inlet Elevation: 161.08 ft
Outlet Elevation: 160.17 ft
Culvert Length: 20.02 ft
Culvert Slope: 0.0455
Inlet Crest: 0.00 ft
Inlet Throat: 0.00 ft
Outlet Control: Profiles
Plot
Crossing Rating Curve
Culvert Performance Curve
Selected Water Profile
Water Surface Profile Data
Help
Flow Types...
Edit Input Data...
Energy Dissipation...
AOP...
Low Flow...
Export Report
Adobe PDF (*.pdf)
Close


Culvert Summary Table - CULV C-4
Total Discharge (cfs) | Culvert Discharge (cfs) | Headwater Elevation (ft) | Inlet Control Depth(ft) | Outlet Control Depth(ft) | Flow Type | Normal Depth (ft) | Critical Depth (ft) | Outlet Depth (ft) | Tailwater Depth (ft) | Outlet Velocity (ft/s) | Tailwater Velocity (ft/s)
10.00 | 10.00 | 161.64 | 0.56 | 0.0* | 1-S2n | 0.28 | 0.32 | 0.28 | 0.32 | 3.68 | 2.48
19.48 | 19.48 | 161.96 | 0.88 | 0.0* | 1-S2n | 0.42 | 0.49 | 0.42 | 0.46 | 4.74 | 3.06
28.96 | 28.96 | 162.23 | 1.15 | 0.0* | 1-S2n | 0.54 | 0.64 | 0.54 | 0.57 | 5.50 | 3.45
38.43 | 38.43 | 162.47 | 1.39 | 0.0* | 1-S2n | 0.65 | 0.78 | 0.65 | 0.67 | 6.10 | 3.75
47.91 | 47.91 | 162.70 | 1.62 | 0.14 | 1-S2n | 0.75 | 0.90 | 0.75 | 0.75 | 6.61 | 4.00
57.39 | 57.39 | 162.93 | 1.85 | 0.32 | 1-S2n | 0.85 | 1.02 | 0.85 | 0.82 | 7.05 | 4.21
66.87 | 66.87 | 163.16 | 2.08 | 0.50 | 1-S2n | 0.94 | 1.13 | 0.94 | 0.89 | 7.44 | 4.39
76.35 | 76.35 | 163.40 | 2.32 | 0.70 | 1-S2n | 1.03 | 1.24 | 1.03 | 0.95 | 7.79 | 4.56
85.82 | 85.82 | 163.63 | 2.55 | 0.89 | 1-S2n | 1.12 | 1.34 | 1.12 | 1.01 | 8.11 | 4.71
95.30 | 95.30 | 163.86 | 2.78 | 1.10 | 1-S2n | 1.21 | 1.44 | 1.21 | 1.06 | 8.36 | 4.85
104.78 | 104.78 | 164.07 | 2.99 | 1.31 | 1-S2n | 1.29 | 1.53 | 1.30 | 1.11 | 8.62 | 4.97
Display
Crossing Summary Table
Culvert Summary Table
CULV C-4
Water Surface Profiles
Tapered Inlet Table
Customized Table
Options...
Geometry
Inlet Elevation: 161.08 ft
Outlet Elevation: 160.17 ft
Culvert Length: 20.02 ft
Culvert Slope: 0.0455
Inlet Crest: 0.00 ft
Inlet Throat: 0.00 ft
Outlet Control: Profiles
Plot
Crossing Rating Curve
Culvert Performance Curve
Selected Water Profile
Water Surface Profile Data
* Full Flow Headwater elevation is below inlet invert.
Help
Flow Types...
Edit Input Data...
Energy Dissipation...
AOP...
Low Flow...
Export Report
Adobe PDF (*.pdf)
Close


Water Surface Profile Table - CULV C-4
Total Discharge (cfs) | Culvert Discharge (cfs) | Headwater Elevation (ft) | Inlet Control Depth(ft) | Outlet Control Depth(ft) | Flow Type | Length Full (ft) | Length Free (ft)
10.00 | 10.00 | 161.64 | 0.56 | 0.0* | 1-S2n | 0.00 | 20.00
19.48 | 19.48 | 161.96 | 0.88 | 0.0* | 1-S2n | 0.00 | 20.00
28.96 | 28.96 | 162.23 | 1.15 | 0.0* | 1-S2n | 0.00 | 20.00
38.43 | 38.43 | 162.47 | 1.39 | 0.0* | 1-S2n | 0.00 | 20.00
47.91 | 47.91 | 162.70 | 1.62 | 0.14 | 1-S2n | 0.00 | 20.00
57.39 | 57.39 | 162.93 | 1.85 | 0.32 | 1-S2n | 0.00 | 20.00
66.87 | 66.87 | 163.16 | 2.08 | 0.50 | 1-S2n | 0.00 | 20.00
76.35 | 76.35 | 163.40 | 2.32 | 0.70 | 1-S2n | 0.00 | 20.00
85.82 | 85.82 | 163.63 | 2.55 | 0.89 | 1-S2n | 0.00 | 20.00
95.30 | 95.30 | 163.86 | 2.78 | 1.10 | 1-S2n | 0.00 | 20.00
104.78 | 104.78 | 164.07 | 2.99 | 1.31 | 1-S2n | 0.00 | 20.00
Display
Crossing Summary Table
Culvert Summary Table
CULV C-4
Water Surface Profiles
Tapered Inlet Table
Customized Table
Options...
Geometry
Inlet Elevation: 161.08 ft
Outlet Elevation: 160.17 ft
Culvert Length: 20.02 ft
Culvert Slope: 0.0455
Inlet Crest: 0.00 ft
Inlet Throat: 0.00 ft
Outlet Control: Profiles
Plot
Crossing Rating Curve
Culvert Performance Curve
Selected Water Profile
Water Surface Profile Data
* Full Flow Headwater elevation is below inlet invert.
Help
Flow Types...
Edit Input Data...
Energy Dissipation...
AOP...
Low Flow...
Export Report
Adobe PDF (*.pdf)
Close


Tapered Inlet Table - CULV C-4
Total Discharge (cfs) | Culvert Discharge (cfs) | Headwater Elevation (ft) | Inlet Control Depth(ft) | Outlet Control Depth(ft) | Flow Type | Crest Control Elev(ft) | Face Control Elev(ft) | Throat Control Elev(ft) | Tailwater Elevation (ft)
10.00 | 10.00 | 161.64 | 0.56 | 0.0* | 1-S2n | 0.00 | 0.00 | 0.00 | 160.49
19.48 | 19.48 | 161.96 | 0.88 | 0.0* | 1-S2n | 0.00 | 0.00 | 0.00 | 160.63
28.96 | 28.96 | 162.23 | 1.15 | 0.0* | 1-S2n | 0.00 | 0.00 | 0.00 | 160.74
38.43 | 38.43 | 162.47 | 1.39 | 0.0* | 1-S2n | 0.00 | 0.00 | 0.00 | 160.84
47.91 | 47.91 | 162.70 | 1.62 | 0.14 | 1-S2n | 0.00 | 0.00 | 0.00 | 160.92
57.39 | 57.39 | 162.93 | 1.85 | 0.32 | 1-S2n | 0.00 | 0.00 | 0.00 | 160.99
66.87 | 66.87 | 163.16 | 2.08 | 0.50 | 1-S2n | 0.00 | 0.00 | 0.00 | 161.06
76.35 | 76.35 | 163.40 | 2.32 | 0.70 | 1-S2n | 0.00 | 0.00 | 0.00 | 161.12
85.82 | 85.82 | 163.63 | 2.55 | 0.89 | 1-S2n | 0.00 | 0.00 | 0.00 | 161.18
95.30 | 95.30 | 163.86 | 2.78 | 1.10 | 1-S2n | 0.00 | 0.00 | 0.00 | 161.23
104.78 | 104.78 | 164.07 | 2.99 | 1.31 | 1-S2n | 0.00 | 0.00 | 0.00 | 161.28
Display
Crossing Summary Table
Culvert Summary Table
CULV C-4
Water Surface Profiles
Tapered Inlet Table
Customized Table
Options...
Geometry
Inlet Elevation: 161.08 ft
Outlet Elevation: 160.17 ft
Culvert Length: 20.02 ft
Culvert Slope: 0.0455
Inlet Crest: 0.00 ft
Inlet Throat: 0.00 ft
Outlet Control: Profiles
Plot
Crossing Rating Curve
Culvert Performance Curve
Selected Water Profile
Water Surface Profile Data
* Full Flow Headwater elevation is below inlet invert.
Help
Flow Types...
Edit Input Data...
Energy Dissipation...
AOP...
Low Flow...
Export Report
Adobe PDF (*.pdf)
Close

Custom Table - CULV C-4

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Crest Control Elev(ft)	Face Control Elev(ft)	Throat Control Elev(ft)	Tailwater Elevation (ft)
10.00	10.00	161.64	0.56	0.0*	1-S2n	0.00	0.00	0.00	160.49
19.48	19.48	161.96	0.88	0.0*	1-S2n	0.00	0.00	0.00	160.63
28.96	28.96	162.23	1.15	0.0*	1-S2n	0.00	0.00	0.00	160.74
38.43	38.43	162.47	1.39	0.0*	1-S2n	0.00	0.00	0.00	160.84
47.91	47.91	162.70	1.62	0.14	1-S2n	0.00	0.00	0.00	160.92
57.39	57.39	162.93	1.85	0.32	1-S2n	0.00	0.00	0.00	160.99
66.87	66.87	163.16	2.08	0.50	1-S2n	0.00	0.00	0.00	161.06
76.35	76.35	163.40	2.32	0.70	1-S2n	0.00	0.00	0.00	161.12
85.82	85.82	163.63	2.55	0.89	1-S2n	0.00	0.00	0.00	161.18
95.30	95.30	163.86	2.78	1.10	1-S2n	0.00	0.00	0.00	161.23
104.78	104.78	164.07	2.99	1.31	1-S2n	0.00	0.00	0.00	161.28

Display

- ○ Crossing Summary Table
- ○ Culvert Summary Table — CULV C-4
- ○ Water Surface Profiles
- ○ Tapered Inlet Table
- ◉ Customized Table — Options...

Geometry

Inlet Elevation:	161.08 ft
Outlet Elevation:	160.17 ft
Culvert Length:	20.02 ft
Culvert Slope:	0.0455
Inlet Crest:	0.00 ft
Inlet Throat:	0.00 ft
Outlet Control:	Profiles

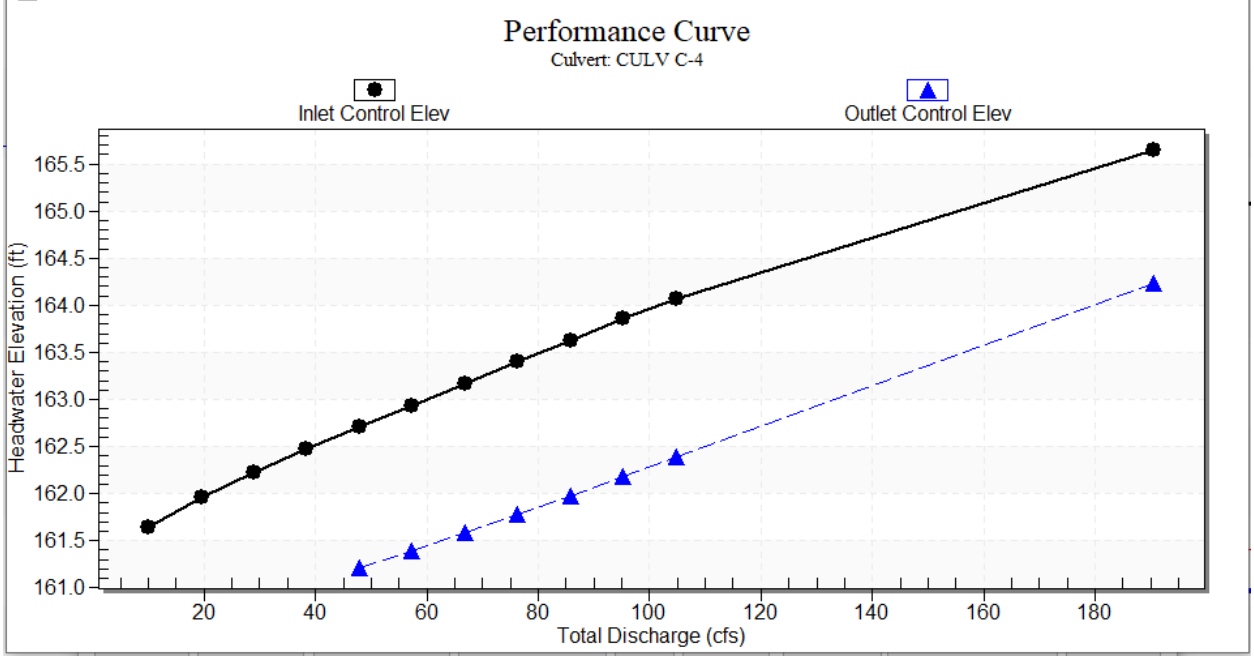
Plot

- Crossing Rating Curve
- Culvert Performance Curve
- Selected Water Profile
- Water Surface Profile Data

* Full Flow Headwater elevation is below inlet invert.

Help | Flow Types... | Edit Input Data... | Energy Dissipation... | AOP... | Low Flow... | Export Report | Adobe PDF (*.pdf) | Close

Performance Curve



Stonington Solar Array Facility
North Stonington, CT
SRC

9/21/2020

Ditch Calculations

Storm Event: 10-yr 24-hr (Conveyance Protection, per DEEP storm manual 2004 Table 7-1)

Manning's "n": 0.025
Desired Freeboard: 6"

Drainage Area and Design Flow						Ditch Slope					Ditch Dims and Results							
Drainage Area	Grading Area	Total Peak Runoff 10-yr Event (cfs)	Ditch	% of Drainage Area	Weighted Peak Runoff 10-yr Event (cfs)	Length	Starting Inv.	Ending Inv.	Fall (ft)	Avg. Slope (%)	Shape	z:1	Bott. (ft)	Depth (ft)	Top Width (ft)	Flow Depth (ft)	Free-board (ft)	Free-board (in)
1A	A	6.07	1A	29%	1.75	289	131.5	130	1.5	0.52%	Tri.	4	0	1	8	0.51	0.49	5.88
1B	A	11.09	1B	30%	3.38	305	130	128	2	0.66%	Tri.	3	0	1.2	7.2	0.7	0.5	6.00
1C	A	11.3	1C	38%	4.30	800	140	132	8	1.00%	Trap.	3	2	1	8	0.47	0.53	6.36
2	D	12.81	2A	32%	4.08	527	185	138	47	8.92%	Tri.	3	0	1	6	0.46	0.54	6.48
3	C	7.21	3A	37%	2.65	95	180	174	6	6.32%	Tri.	3	0	1	6	0.42	0.58	6.96
4	B	15.29	4A	41%	6.27	130	132	130	2	1.54%	Tri.	3	0	1.25	7.5	0.76	0.49	5.88
			4B	59%	9.02	660	138	129	9	1.36%	Trap.	3	1	1.25	8.5	0.74	0.51	6.12
5	F	26.2	5A	30%	7.91	870	170	125	45	5.17%	Trap.	3	1	1	7	0.52	0.48	5.76

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Sep 21 2020

DITCH 1A

Triangular

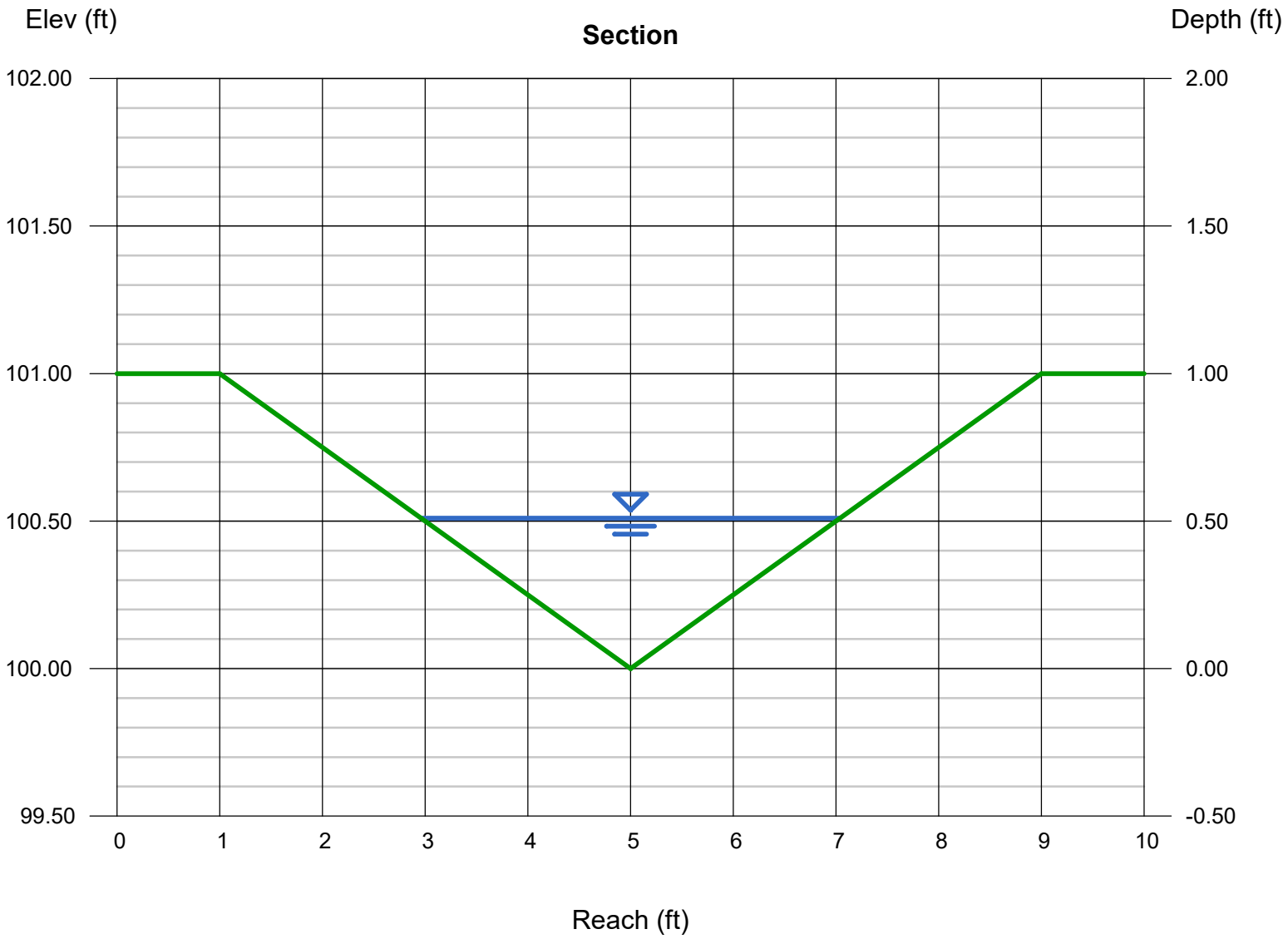
Side Slopes (z:1)	= 4.00, 4.00
Total Depth (ft)	= 1.00
Invert Elev (ft)	= 100.00
Slope (%)	= 0.52
N-Value	= 0.025

Calculations

Compute by:	Known Q
Known Q (cfs)	= 1.75

Highlighted

Depth (ft)	= 0.51
Q (cfs)	= 1.750
Area (sqft)	= 1.04
Velocity (ft/s)	= 1.68
Wetted Perim (ft)	= 4.21
Crit Depth, Yc (ft)	= 0.42
Top Width (ft)	= 4.08
EGL (ft)	= 0.55



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Sep 21 2020

DITCH 1B

Triangular

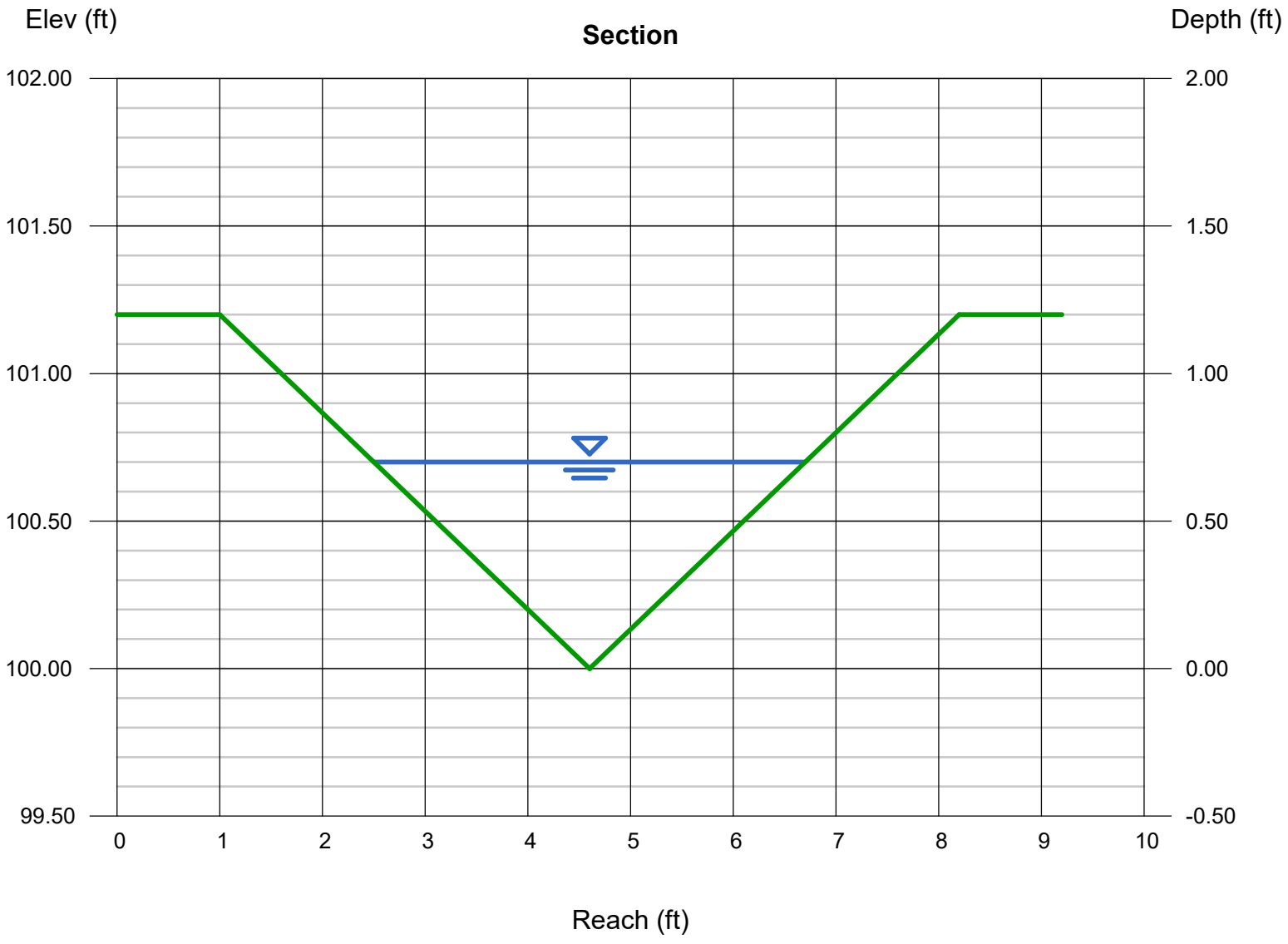
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 1.20
Invert Elev (ft)	= 100.00
Slope (%)	= 0.66
N-Value	= 0.025

Calculations

Compute by:	Known Q
Known Q (cfs)	= 3.38

Highlighted

Depth (ft)	= 0.70
Q (cfs)	= 3.380
Area (sqft)	= 1.47
Velocity (ft/s)	= 2.30
Wetted Perim (ft)	= 4.43
Crit Depth, Yc (ft)	= 0.61
Top Width (ft)	= 4.20
EGL (ft)	= 0.78



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Sep 21 2020

DITCH 1C

Trapezoidal

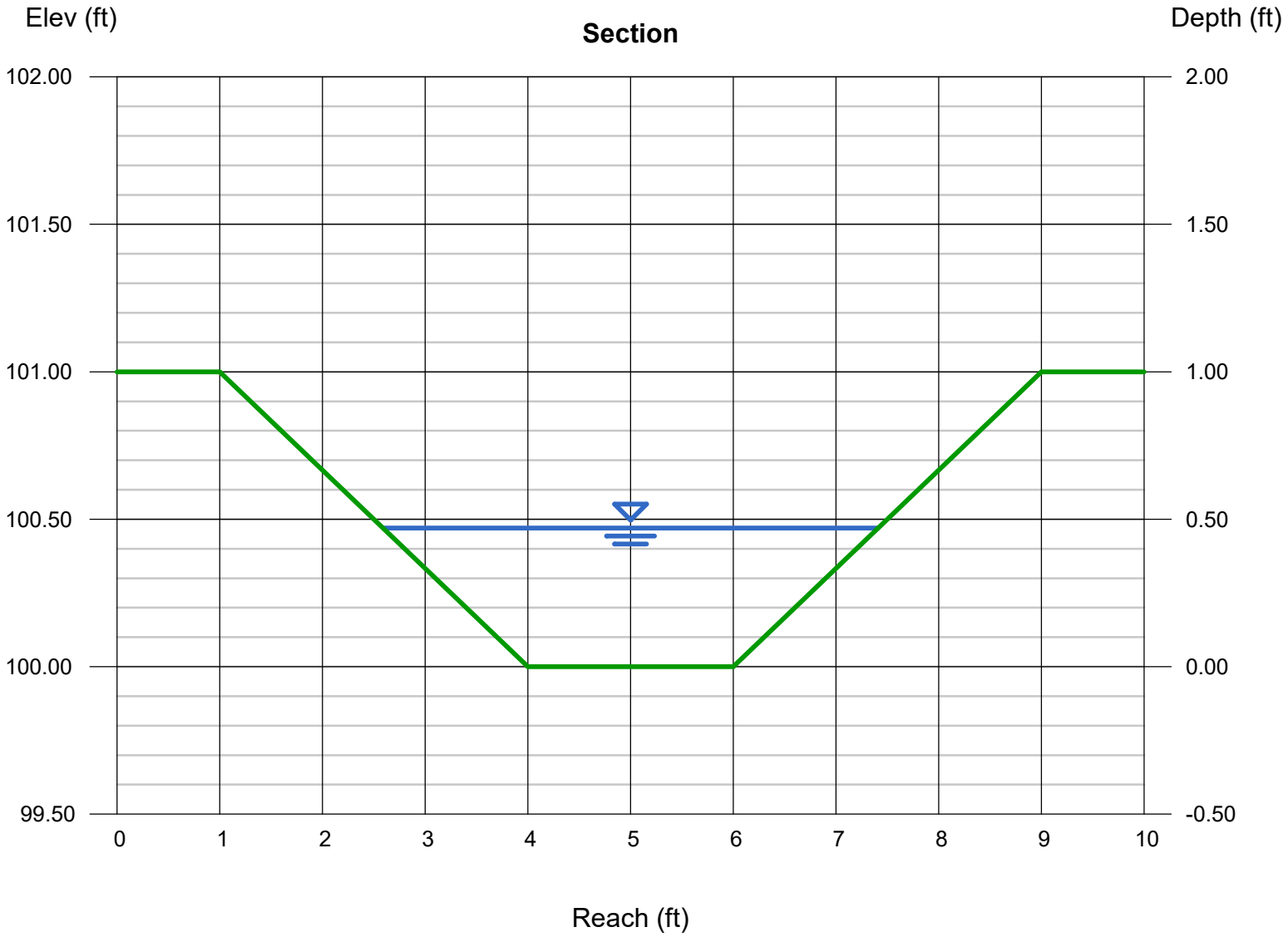
Bottom Width (ft)	= 2.00
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 1.00
Invert Elev (ft)	= 100.00
Slope (%)	= 1.00
N-Value	= 0.025

Calculations

Compute by:	Known Q
Known Q (cfs)	= 4.30

Highlighted

Depth (ft)	= 0.47
Q (cfs)	= 4.300
Area (sqft)	= 1.60
Velocity (ft/s)	= 2.68
Wetted Perim (ft)	= 4.97
Crit Depth, Yc (ft)	= 0.43
Top Width (ft)	= 4.82
EGL (ft)	= 0.58



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Sep 21 2020

DITCH 2A

Triangular

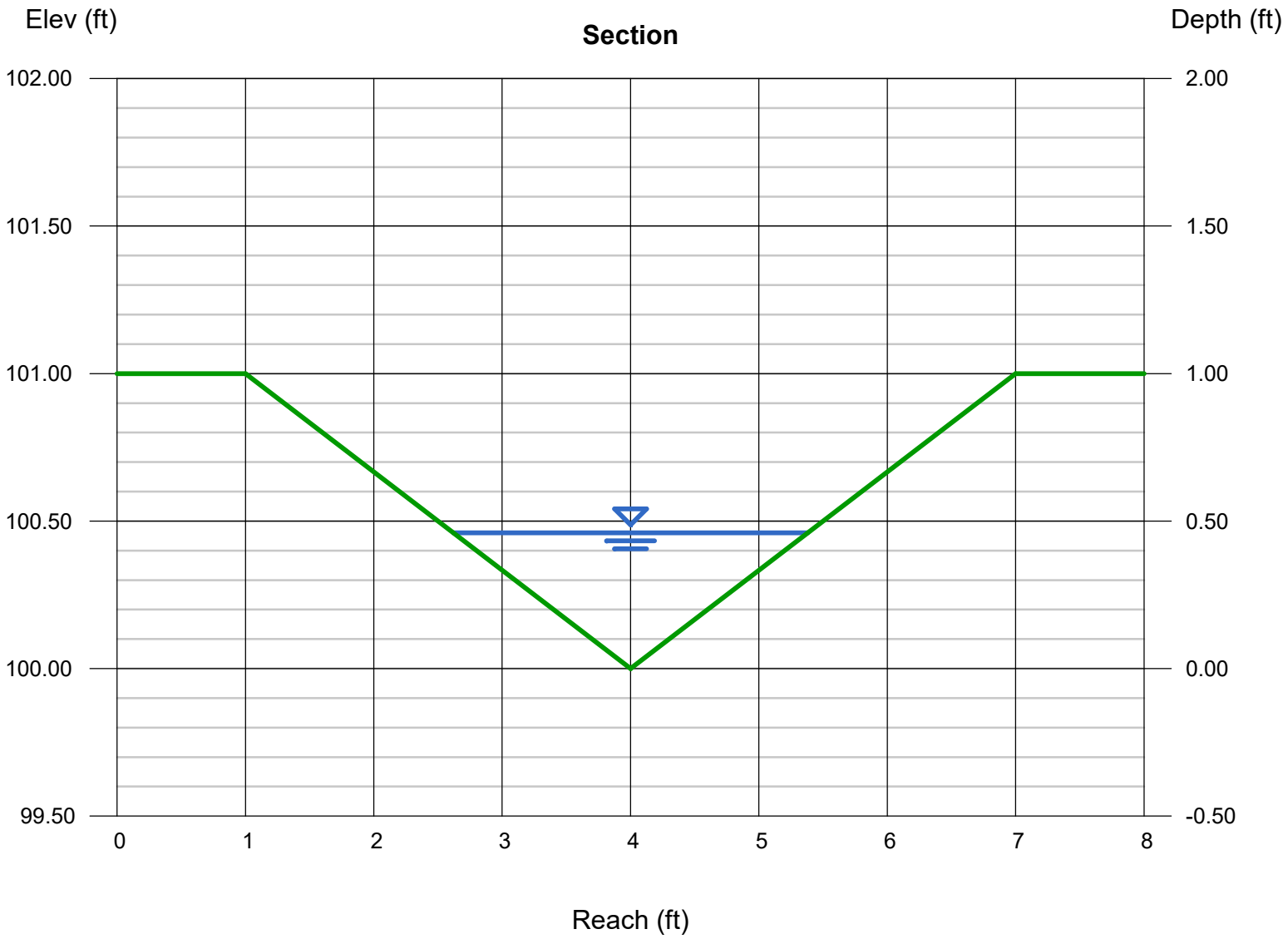
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 1.00
Invert Elev (ft)	= 100.00
Slope (%)	= 8.92
N-Value	= 0.025

Calculations

Compute by:	Known Q
Known Q (cfs)	= 4.08

Highlighted

Depth (ft)	= 0.46
Q (cfs)	= 4.080
Area (sqft)	= 0.63
Velocity (ft/s)	= 6.43
Wetted Perim (ft)	= 2.91
Crit Depth, Yc (ft)	= 0.65
Top Width (ft)	= 2.76
EGL (ft)	= 1.10



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Sep 21 2020

DITCH 3A

Triangular

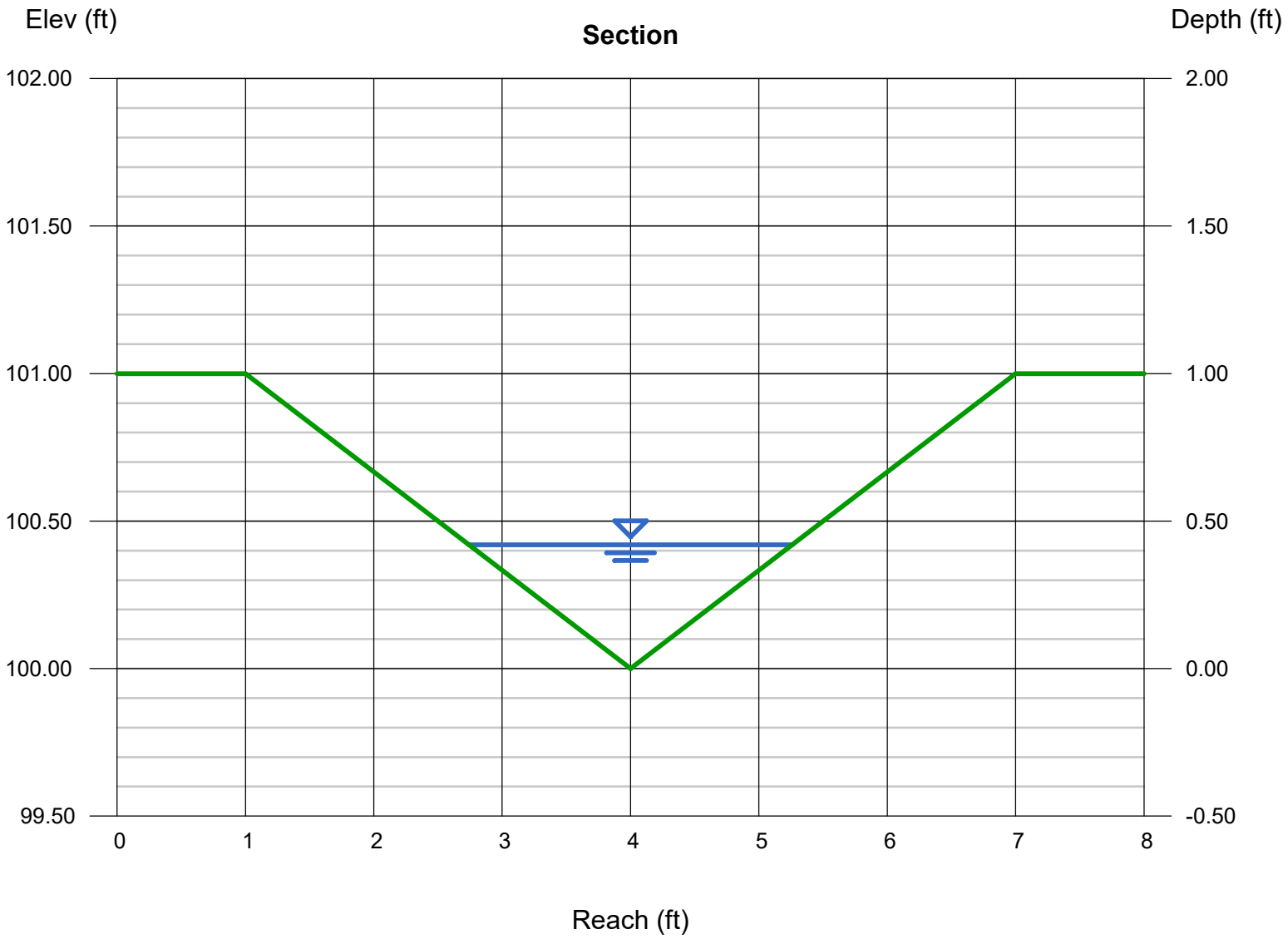
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 1.00
Invert Elev (ft)	= 100.00
Slope (%)	= 6.32
N-Value	= 0.025

Calculations

Compute by:	Known Q
Known Q (cfs)	= 2.65

Highlighted

Depth (ft)	= 0.42
Q (cfs)	= 2.650
Area (sqft)	= 0.53
Velocity (ft/s)	= 5.01
Wetted Perim (ft)	= 2.66
Crit Depth, Yc (ft)	= 0.55
Top Width (ft)	= 2.52
EGL (ft)	= 0.81



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Sep 21 2020

DITCH 4A

Triangular

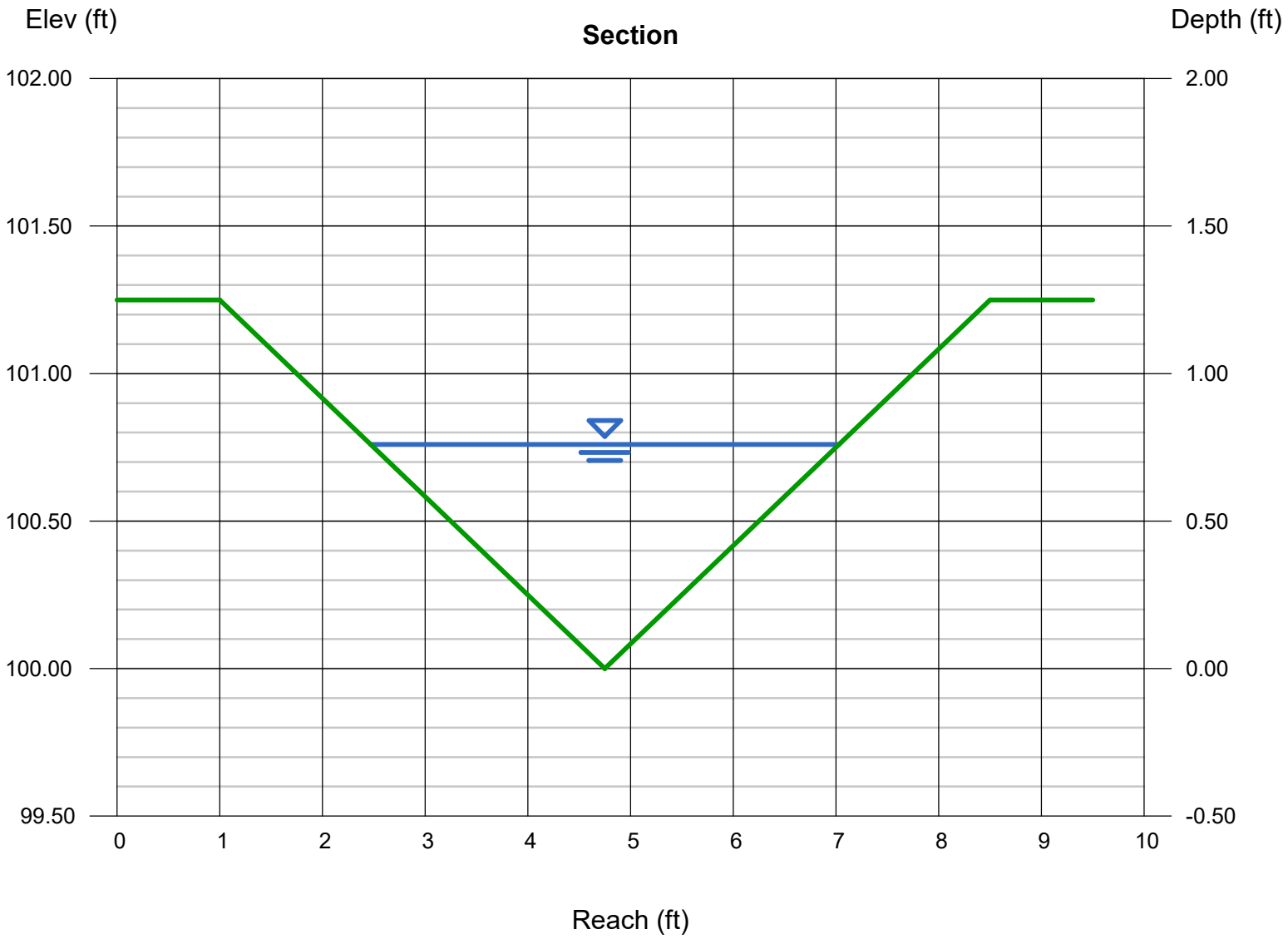
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 1.25
Invert Elev (ft)	= 100.00
Slope (%)	= 1.54
N-Value	= 0.025

Calculations

Compute by:	Known Q
Known Q (cfs)	= 6.27

Highlighted

Depth (ft)	= 0.76
Q (cfs)	= 6.270
Area (sqft)	= 1.73
Velocity (ft/s)	= 3.62
Wetted Perim (ft)	= 4.81
Crit Depth, Yc (ft)	= 0.78
Top Width (ft)	= 4.56
EGL (ft)	= 0.96



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Sep 21 2020

DITCH 4B

Trapezoidal

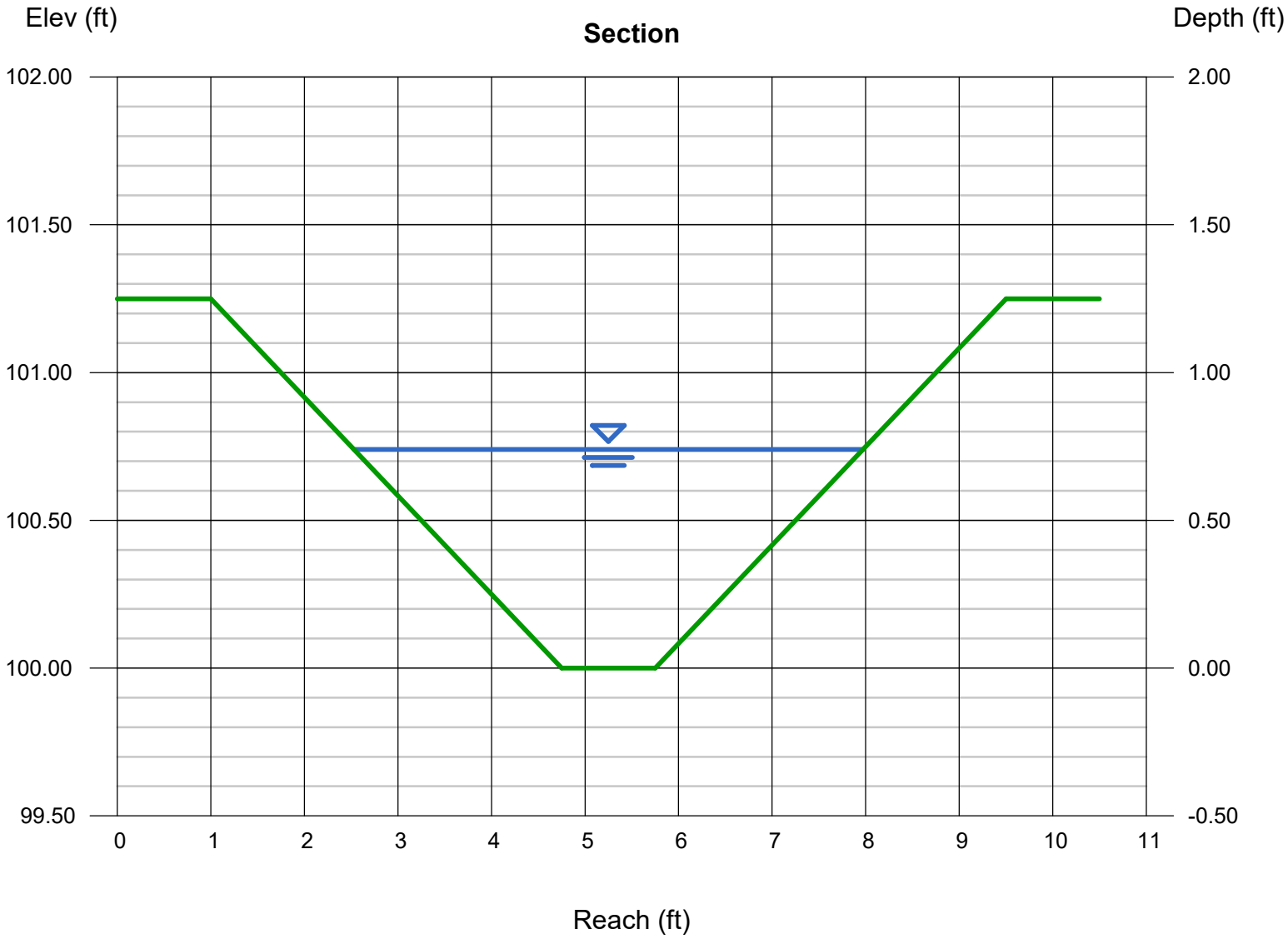
Bottom Width (ft)	= 1.00
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 1.25
Invert Elev (ft)	= 100.00
Slope (%)	= 1.36
N-Value	= 0.025

Calculations

Compute by:	Known Q
Known Q (cfs)	= 9.02

Highlighted

Depth (ft)	= 0.74
Q (cfs)	= 9.020
Area (sqft)	= 2.38
Velocity (ft/s)	= 3.79
Wetted Perim (ft)	= 5.68
Crit Depth, Yc (ft)	= 0.75
Top Width (ft)	= 5.44
EGL (ft)	= 0.96



Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Sep 21 2020

DITCH 5A

Trapezoidal

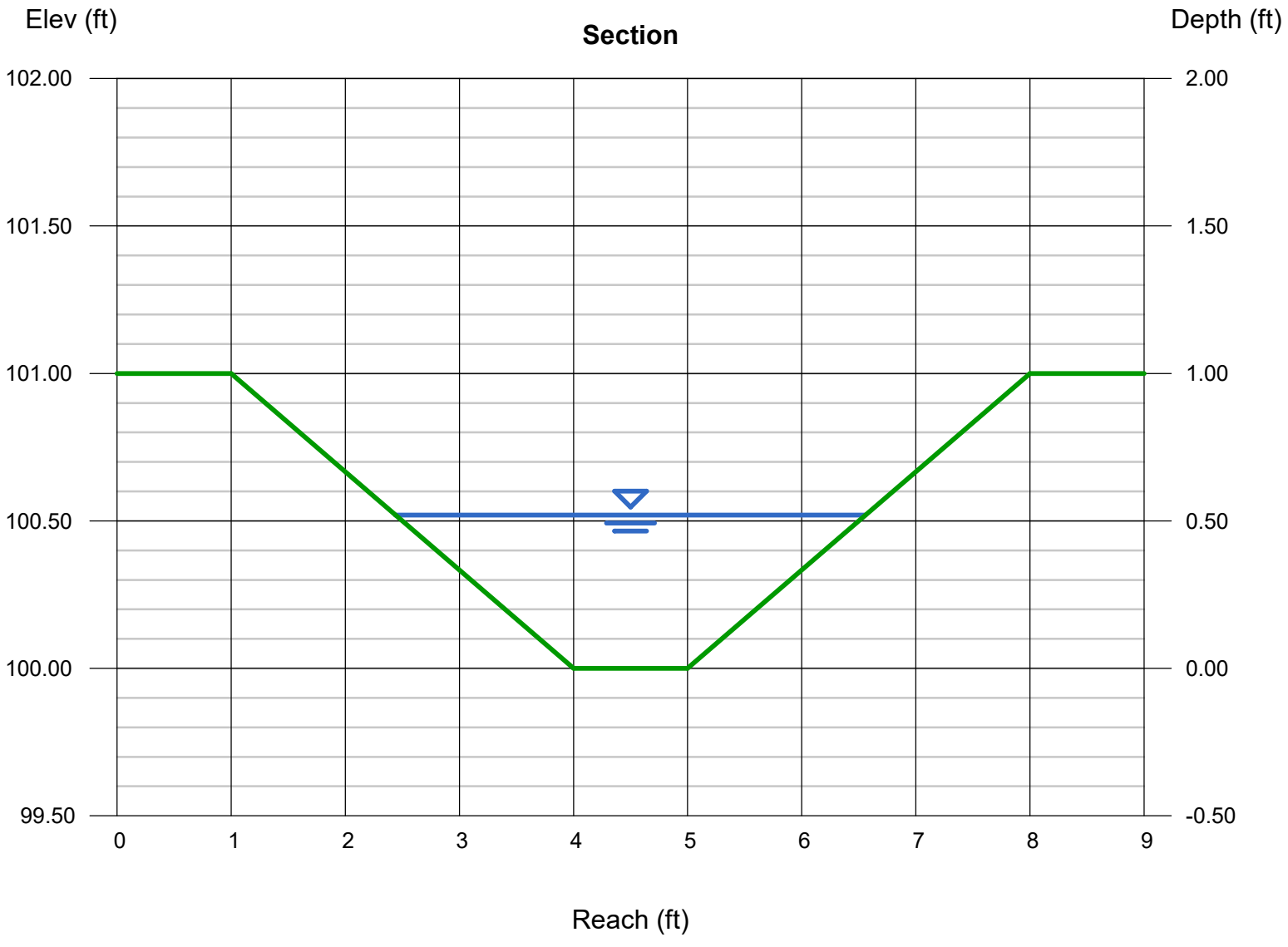
Bottom Width (ft)	= 1.00
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 1.00
Invert Elev (ft)	= 100.00
Slope (%)	= 5.17
N-Value	= 0.025

Calculations

Compute by:	Known Q
Known Q (cfs)	= 7.91

Highlighted

Depth (ft)	= 0.52
Q (cfs)	= 7.910
Area (sqft)	= 1.33
Velocity (ft/s)	= 5.94
Wetted Perim (ft)	= 4.29
Crit Depth, Yc (ft)	= 0.70
Top Width (ft)	= 4.12
EGL (ft)	= 1.07



Stonington Solar Array Facility
North Stonington, CT
SRC

9/11/2020

Water Quality Calculations

WQV = (1")(R)(A)/12

I = % Impervious Cover
R = Volumetric Runoff Coeff. = 0.05 + 0.009 (I)
A = Site Area (Ac)

Drainage Area	Area (A) (Ac)	Imp. Cover (I) (%)	Vol. Runoff Coeff. (R)	Required WQV (Ac-ft)	Provided WQV (Ac-ft)	Pond Stage Elev.	Shape X' x 20' x 1'		Impervious Area						
									Total Panel Array Area Slopes Above 10% (sf)	Total Array Area Slopes Above 10% (50% GCR) (sf)	**Resulting Panel Imp. Area (Ac)**	Length of Access Roads (ft)	Area of Access Roads (L x 16 ft) (sf)	**Area of Access Roads (Lx16 ft) (Ac)**	**Total Impervious Area (Ac)**
1A	4.69	3.63	0.083	0.03	0.04	127.20	95	4.72626	0.0	0.0	**0.00**	463	7,408	**0.17**	**0.17**
1B	10.54	4.28	0.088	0.08	0.08	128.45	181	9.065925	0.0	0.0	**0.00**	1,227	19,632	**0.45**	**0.45**
1C	8.58	1.58	0.064	0.05	0.05	128.20	115	5.7717	0.0	0.0	**0.00**	370	5,920	**0.14**	**0.14**
2	9.6	14.86	0.184	0.15	0.15	134.10	319	15.94296	84,767	42,384	**0.97**	1,235	19,760	**0.45**	**1.43**
3	4.16	5.10	0.096	0.03	0.03	168.40	66	3.31056	13,373	6,687	**0.15**	160	2,560	**0.06**	**0.21**
4	9.08	15.60	0.190	0.14	0.15	123.35	324	16.17942857	100,383	50,192	**1.15**	720	11,520	**0.26**	**1.42**
5	15.23	12.48	0.162	0.21	0.21	120.90	459	22.93434	87,235	43,618	**1.00**	2,450	39,200	**0.90**	**1.90**