"Proposed 8 Lot Subdivision"

1040 Main Street
Glastonbury, Connecticut

Draft Drainage Calculations

Prepared For

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Submitted To:

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1.0 PROJECT DESCRIPTION

This project consists of the subdivision of an existing 9.3 acre parcel currently known as #1040 Main Street into 8 Lots. The subject parcel is located on the east side of Main Street, across from Southgate Drive. The proposed development is located in the Residence AA and Groundwater Protection Zone 1 zoning districts.

2.0 EXISTING CONDITIONS

The existing parcel is primarily wooded. There is a steep upward slope that begins approximately 20 feet east of Main Street and extends to a north/south ridge. The property then gradually slopes down to the northeast corner of the property. There are two wetland areas on the property, as well as a vernal pool that is located in the southeast corner of the property.

3.0 PROPOSED CONDITIONS

It is proposed to develop the parcel into 8 residential building lots. The proposed road is 650 feet long and 22 feet wide, and will have curbing along each gutter. The proposed roadway drainage system consists of Type "C" catch basins and a sediment structure connected with reinforced concrete pipe, with 15" diameter minimum pipe size. Runoff from the proposed roadway, building lots, and driveways will be directed to the proposed stormwater/water quality basin. Roof leader drains are proposed to be directed into underground stormwater infiltration chambers. The stormwater basin was designed to provide a zero increase in runoff for the 2, 10, 25, and 100-year storm events assuming zero infiltration into the basin floor (conservative). An underdrain is proposed to drain the basin following storm events. The following table summarizes the pre and post development flows for the watershed that is being routed through the stormwater management area:

DRAINAGE SUMMARY				
CONDITION	FLOW (CFS)			
	2 Year	10 Year	25 Year	100 Year
Existing Conditions at Analysis Point	0.02	0.88	2.62	7.06
Discharge From Stormwater Management Area	0.00	0.45	1.32	5.06
Proposed Flow at Analysis Point	0.01	0.56	1.64	6.02
Change in Flow at Analysis Point	-0.01	-0.32	-0.98	-1.04

All of the proposed flows and design calculations for the proposed drainage system and stormwater basins are attached to this document.

4.0 METHODS

The SCS method was used to determine the peak discharge rates contributing to the stormwater management area. Soil types were obtained from NRCS soil mapping. Groundwater Recharge Volume calculations were performed in accordance with the 2004 Connecticut Stormwater Quality Manual Hydrologic Soil Group Approach.

5.0 - N.R.C.S. SOIL 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

January 15, 2021

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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Contents

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: 1:1,790 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 25 50 100 150

Feet: 0 50 100 200 300

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: 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: Jul 15, 2019—Aug 29, 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
15	Scarboro muck, 0 to 3 percent slopes	1.2	10.3%
37C	Manchester gravelly sandy loam, 3 to 15 percent slopes	1.3	10.8%
37E	Manchester gravelly sandy loam, 15 to 45 percent slopes	5.0	42.9%
306	Udorthents-Urban land complex	0.4	3.0%
704A	Enfield silt loam, 0 to 3 percent slopes	2.5	21.0%
704B	Enfield silt loam, 3 to 8 percent slopes	1.4	11.8%
Totals for Area of Interest		**11.7**	**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

15—Scarboro muck, 0 to 3 percent slopes

Map Unit Setting

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

Map Unit Composition

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

Description of Scarboro

Setting

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

Typical profile

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

Properties and qualities

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

Interpretive groups

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

Minor Components

Timakwa

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

Walpole

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

Deerfield

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

37C—Manchester gravelly sandy loam, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9ln6
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: Farmland of statewide importance

Map Unit Composition

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

Description of Manchester

Setting

Landform: Terraces, eskers, kames, outwash plains
Down-slope shape: Convex
Across-slope shape: Convex

Parent material: Sandy and gravelly glaciofluvial deposits derived from sandstone and shale and/or basalt

Typical profile

Ap - 0 to 9 inches: gravelly sandy loam
Bw - 9 to 18 inches: gravelly loamy sand
C - 18 to 65 inches: stratified extremely gravelly coarse sand to very gravelly loamy sand

Properties and qualities

Slope: 3 to 15 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): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

Minor Components

Penwood

Percent of map unit: 5 percent
Landform: Outwash plains, terraces
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Hartford

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

Branford

Percent of map unit: 3 percent
Landform: Outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ellington

Percent of map unit: 3 percent
Landform: Outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Unnamed, nongravelly surface
Percent of map unit: 2 percent
Hydric soil rating: No

Unnamed, gravelly loamy sand surface
Percent of map unit: 2 percent
Hydric soil rating: No

37E—Manchester gravelly sandy loam, 15 to 45 percent slopes

Map Unit Setting
National map unit symbol: 9ln7
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: Not prime farmland

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

Description of Manchester

Setting
Landform: Eskers, kames, outwash plains, terraces
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits derived from sandstone and shale and/or basalt

Typical profile
Ap - 0 to 9 inches: gravelly sandy loam
Bw - 9 to 18 inches: gravelly loamy sand
C - 18 to 65 inches: stratified extremely gravelly coarse sand to very gravelly loamy sand

Properties and qualities
Slope: 15 to 45 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: F145XY008MA - Dry Outwash
Hydric soil rating: No

Minor Components

Penwood

Percent of map unit: 5 percent
Landform: Outwash plains, terraces
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Branford

Percent of map unit: 5 percent
Landform: Outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Hartford

Percent of map unit: 5 percent
Landform: Outwash plains, terraces
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Walpole

Percent of map unit: 3 percent
Landform: Depressions on terraces, drainageways on terraces
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scitico

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

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

704A—Enfield silt loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 2y07p
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
Enfield and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Enfield

Setting
Landform: Outwash terraces, outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-silty eolian deposits over sandy and gravelly glaciofluvial deposits derived from granite, schist, and/or gneiss

Typical profile
Ap - 0 to 7 inches: silt loam
Bw1 - 7 to 15 inches: silt loam
Bw2 - 15 to 25 inches: silt loam
2C - 25 to 60 inches: stratified very gravelly coarse sand to loamy sand

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: 16 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 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 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Ecological site: F145XY009CT - Well Drained Outwash
Hydric soil rating: No

Minor Components

Haven

Percent of map unit: 5 percent
Landform: Outwash terraces, outwash plains
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: Valley trains, outwash terraces, outwash plains, deltas
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: Kames, moraines, outwash terraces, outwash plains, kame terraces
Landform position (two-dimensional): Summit, shoulder
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

704B—Enfield silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2y07q
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

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

Description of Enfield

Setting

Landform: Outwash terraces, outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-silty eolian deposits over sandy and gravelly glaciofluvial deposits derived from granite, schist, and/or gneiss

Typical profile

Ap - 0 to 7 inches: silt loam
Bw1 - 7 to 15 inches: silt loam
Bw2 - 15 to 25 inches: silt loam
2C - 25 to 60 inches: stratified very gravelly coarse sand to loamy sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 16 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 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 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F145XY009CT - Well Drained Outwash
Hydric soil rating: No

Minor Components

Haven

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: Outwash plains, deltas, valley trains, outwash terraces
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: Kames, moraines, outwash terraces, outwash plains, kame terraces
Landform position (two-dimensional): Backslope, shoulder, footslope, summit, toeslope
Landform position (three-dimensional): Side slope, crest, head slope, nose slope, tread
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Raypol

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

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6.0 - HYDROLOGIC DATA AND DRAINAGE CALCULATIONS

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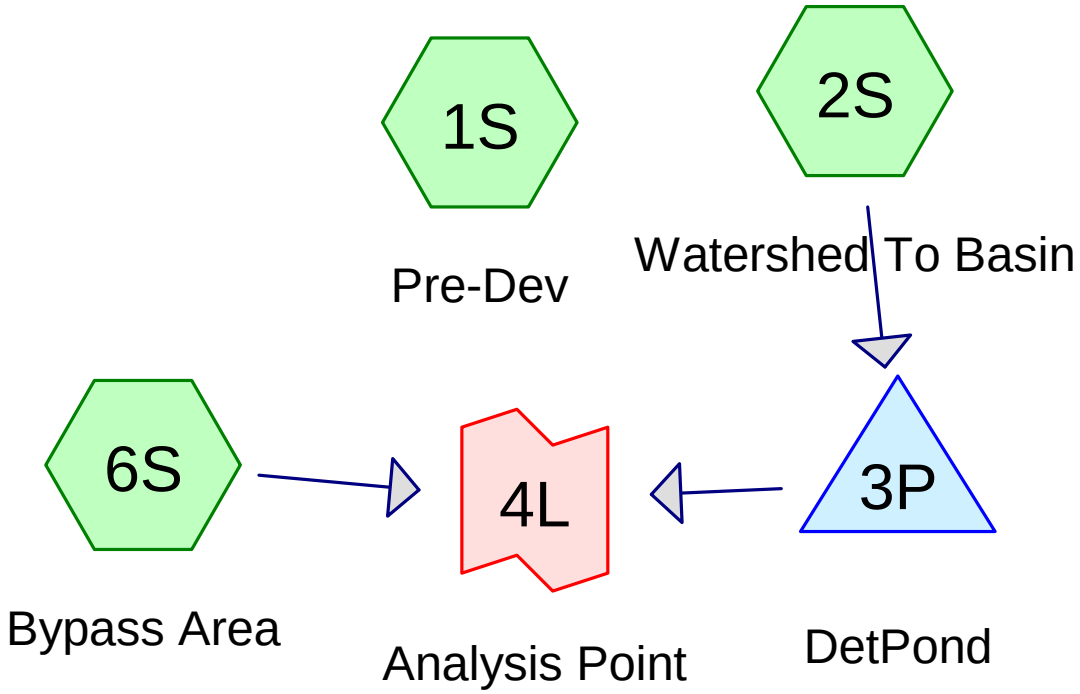


Subcat Reach Pond Link

Routing Diagram for 1040HCad

Prepared by {enter your company name here}, Printed 4/14/2021

Project Notes

Defined 6 rainfall events from PF_Depth_English_PDS IDF
Defined 4 rainfall events from PF_Depth_English_PDS IDF

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type III 24-hr		Default	24.00	1	3.20	2
2	10-yr	Type III 24-hr		Default	24.00	1	5.01	2
3	25-yr	Type III 24-hr		Default	24.00	1	6.14	2
4	100-yr	Type III 24-hr		Default	24.00	1	7.88	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.290	39	>75% Grass cover, Good, HSG A (2S, 6S)
2.120	61	>75% Grass cover, Good, HSG B (2S, 6S)
0.120	80	>75% Grass cover, Good, HSG D (2S, 6S)
0.830	98	Paved roads w/curbs & sewers (2S)
5.700	30	Woods, Good, HSG A (1S, 2S, 6S)
3.420	55	Woods, Good, HSG B (1S, 2S, 6S)
1.100	77	Woods, Good, HSG D (1S, 6S)
15.580	**48**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
7.990	HSG A	1S, 2S, 6S
5.540	HSG B	1S, 2S, 6S
0.000	HSG C	
1.220	HSG D	1S, 2S, 6S
0.830	Other	2S
15.580		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchmen Numbers
2.290	2.120	0.000	0.120	0.000	4.530	>75% Grass cover, Good	2S, 6S
0.000	0.000	0.000	0.000	0.830	0.830	Paved roads w/curbs & sewers	2S
5.700	3.420	0.000	1.100	0.000	10.220	Woods, Good	1S, 2S, 6S
7.990	**5.540**	**0.000**	**1.220**	**0.830**	**15.580**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	2S	0.00	0.00	735.0	0.0050	0.011	0.0	15.0	0.0
2	3P	93.00	92.50	100.0	0.0050	0.013	0.0	18.0	0.0

Time span=0.00-40.00 hrs, dt=0.05 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Dev Runoff Area=7.620 ac 0.00% Impervious Runoff Depth=0.02"
Flow Length=945' Tc=18.9 min CN=43 Runoff=0.02 cfs 0.014 af

Subcatchment 2S: Watershed To Basin Runoff Area=5.450 ac 15.23% Impervious Runoff Depth=0.31"
Flow Length=1,304' Tc=18.0 min CN=57 Runoff=0.71 cfs 0.141 af

Subcatchment 6S: Bypass Area Runoff Area=2.510 ac 0.00% Impervious Runoff Depth=0.04"
Flow Length=584' Tc=9.3 min CN=45 Runoff=0.01 cfs 0.009 af

Pond 3P: DetPond Peak Elev=96.66' Storage=6,127 cf Inflow=0.71 cfs 0.141 af
Outflow=0.00 cfs 0.000 af

Link 4L: Analysis Point Inflow=0.01 cfs 0.009 af
Primary=0.01 cfs 0.009 af

Total Runoff Area = 15.580 ac Runoff Volume = 0.164 af Average Runoff Depth = 0.13"
94.67% Pervious = 14.750 ac 5.33% Impervious = 0.830 ac

Summary for Subcatchment 1S: Pre-Dev

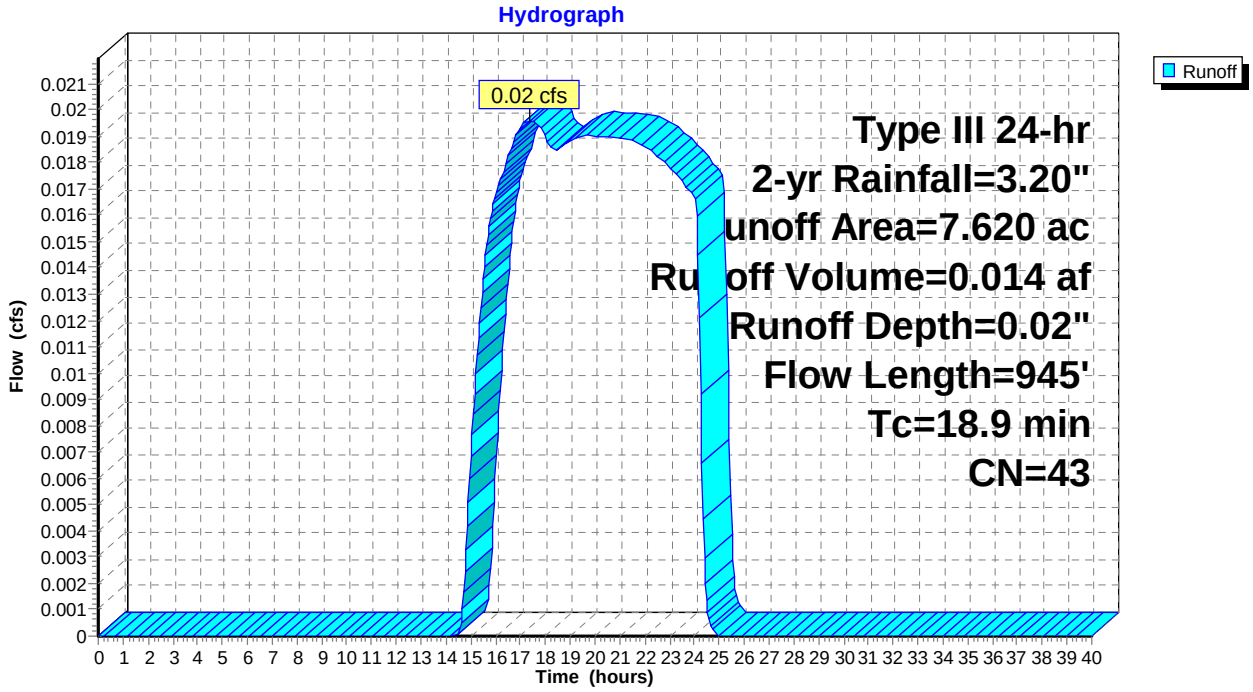
Runoff = 0.02 cfs @ 17.36 hrs, Volume= 0.014 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.20"

	Area (ac)	CN	Description
*	4.090	30	Woods, Good, HSG A
	2.920	55	Woods, Good, HSG B
	0.610	77	Woods, Good, HSG D
	7.620	43	Weighted Average
	7.620		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	100	0.2700	0.22		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
10.4	667	0.0460	1.07		**Shallow Concentrated Flow, Shallow Woods** Woodland Kv= 5.0 fps
0.9	178	0.0120	3.37	13.50	**Trap/Vee/Rect Channel Flow, Int Stream** Bot.W=2.00' D=1.00' Z= 2.0 '/' Top.W=6.00' n= 0.035 Earth, dense weeds
18.9	945	Total			

Subcatchment 1S: Pre-Dev



Hydrograph for Subcatchment 1S: Pre-Dev

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	29.00	3.20	0.02	0.00
0.50	0.02	0.00	0.00	29.50	3.20	0.02	0.00
1.00	0.03	0.00	0.00	30.00	3.20	0.02	0.00
1.50	0.05	0.00	0.00	30.50	3.20	0.02	0.00
2.00	0.06	0.00	0.00	31.00	3.20	0.02	0.00
2.50	0.08	0.00	0.00	31.50	3.20	0.02	0.00
3.00	0.10	0.00	0.00	32.00	3.20	0.02	0.00
3.50	0.12	0.00	0.00	32.50	3.20	0.02	0.00
4.00	0.14	0.00	0.00	33.00	3.20	0.02	0.00
4.50	0.16	0.00	0.00	33.50	3.20	0.02	0.00
5.00	0.18	0.00	0.00	34.00	3.20	0.02	0.00
5.50	0.21	0.00	0.00	34.50	3.20	0.02	0.00
6.00	0.23	0.00	0.00	35.00	3.20	0.02	0.00
6.50	0.26	0.00	0.00	35.50	3.20	0.02	0.00
7.00	0.29	0.00	0.00	36.00	3.20	0.02	0.00
7.50	0.33	0.00	0.00	36.50	3.20	0.02	0.00
8.00	0.36	0.00	0.00	37.00	3.20	0.02	0.00
8.50	0.41	0.00	0.00	37.50	3.20	0.02	0.00
9.00	0.47	0.00	0.00	38.00	3.20	0.02	0.00
9.50	0.53	0.00	0.00	38.50	3.20	0.02	0.00
10.00	0.60	0.00	0.00	39.00	3.20	0.02	0.00
10.50	0.69	0.00	0.00	39.50	3.20	0.02	0.00
11.00	0.80	0.00	0.00	40.00	3.20	0.02	0.00
11.50	0.95	0.00	0.00				
12.00	1.60	0.00	0.00				
12.50	2.25	0.00	0.00				
13.00	2.40	0.00	0.00				
13.50	2.51	0.00	0.00				
14.00	2.60	0.00	0.00				
14.50	2.67	0.00	0.00				
15.00	2.73	0.00	0.01				
15.50	2.79	0.00	0.01				
16.00	2.84	0.00	0.02				
16.50	2.87	0.00	0.02				
17.00	2.91	0.00	**0.02**				
17.50	2.94	0.01	**0.02**				
18.00	2.97	0.01	0.02				
18.50	2.99	0.01	0.02				
19.00	3.02	0.01	0.02				
19.50	3.04	0.01	0.02				
20.00	3.06	0.01	0.02				
20.50	3.08	0.01	0.02				
21.00	3.10	0.01	0.02				
21.50	3.12	0.02	0.02				
22.00	3.14	0.02	0.02				
22.50	3.16	0.02	0.02				
23.00	3.17	0.02	0.02				
23.50	3.19	0.02	0.02				
24.00	**3.20**	**0.02**	0.02				
24.50	3.20	0.02	0.00				
25.00	3.20	0.02	0.00				
25.50	3.20	0.02	0.00				
26.00	3.20	0.02	0.00				
26.50	3.20	0.02	0.00				
27.00	3.20	0.02	0.00				
27.50	3.20	0.02	0.00				
28.00	3.20	0.02	0.00				
28.50	3.20	0.02	0.00				

Summary for Subcatchment 2S: Watershed To Basin

House roofs to underground infiltration systems.

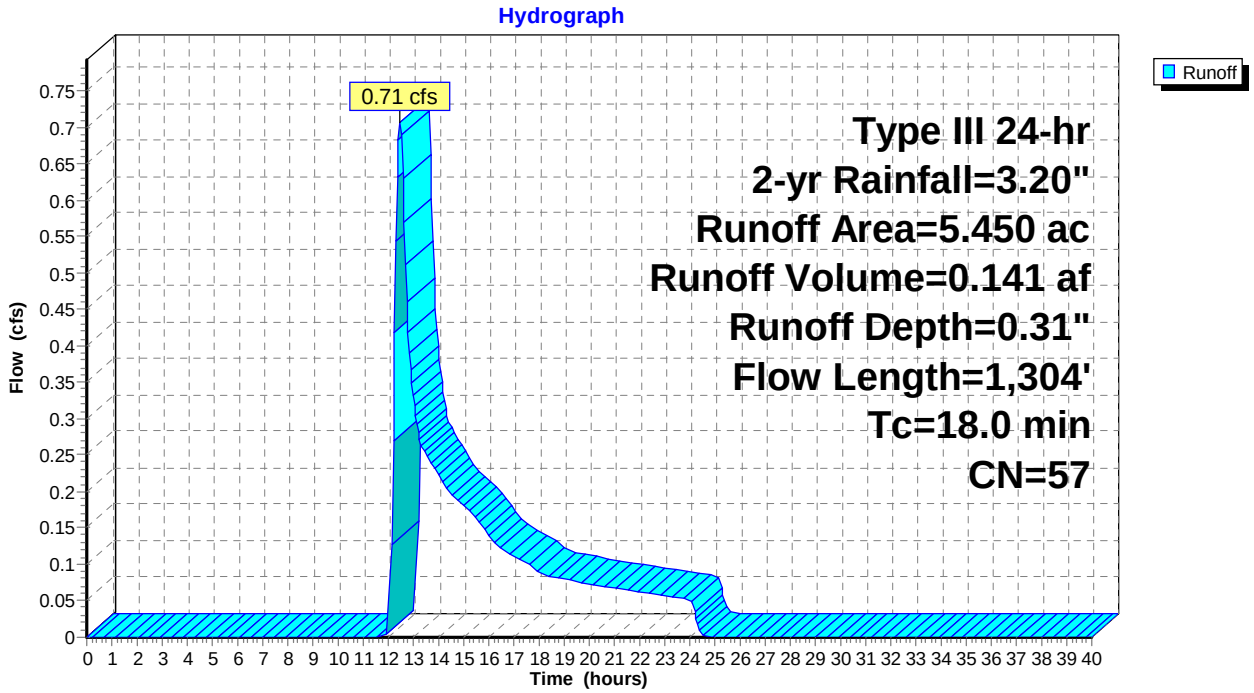
Runoff = 0.71 cfs @ 12.47 hrs, Volume= 0.141 af, Depth= 0.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.20"

	Area (ac)	CN	Description
*	0.830	98	Paved roads w/curbs & sewers
	1.820	39	>75% Grass cover, Good, HSG A
	2.000	61	>75% Grass cover, Good, HSG B
	0.010	80	>75% Grass cover, Good, HSG D
	0.320	30	Woods, Good, HSG A
	0.470	55	Woods, Good, HSG B
	5.450	57	Weighted Average
	4.620		84.77% Pervious Area
	0.830		15.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	70	0.0570	0.11		**Sheet Flow, Sheet Flow Woods** Woods: Light underbrush n= 0.400 P2= 3.20"
2.2	30	0.2000	0.23		**Sheet Flow, Sheet Flow Grass** Grass: Dense n= 0.240 P2= 3.20"
1.2	161	0.0960	2.17		**Shallow Concentrated Flow, Shallow Grass** Short Grass Pasture Kv= 7.0 fps
1.2	308	0.0450	4.31		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.8	735	0.0050	4.40	5.40	**Pipe Channel, Pipe** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011 Concrete pipe, straight & clean
18.0	1,304	Total			

Subcatchment 2S: Watershed To Basin



Hydrograph for Subcatchment 2S: Watershed To Basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	29.00	3.20	0.31	0.00
0.50	0.02	0.00	0.00	29.50	3.20	0.31	0.00
1.00	0.03	0.00	0.00	30.00	3.20	0.31	0.00
1.50	0.05	0.00	0.00	30.50	3.20	0.31	0.00
2.00	0.06	0.00	0.00	31.00	3.20	0.31	0.00
2.50	0.08	0.00	0.00	31.50	3.20	0.31	0.00
3.00	0.10	0.00	0.00	32.00	3.20	0.31	0.00
3.50	0.12	0.00	0.00	32.50	3.20	0.31	0.00
4.00	0.14	0.00	0.00	33.00	3.20	0.31	0.00
4.50	0.16	0.00	0.00	33.50	3.20	0.31	0.00
5.00	0.18	0.00	0.00	34.00	3.20	0.31	0.00
5.50	0.21	0.00	0.00	34.50	3.20	0.31	0.00
6.00	0.23	0.00	0.00	35.00	3.20	0.31	0.00
6.50	0.26	0.00	0.00	35.50	3.20	0.31	0.00
7.00	0.29	0.00	0.00	36.00	3.20	0.31	0.00
7.50	0.33	0.00	0.00	36.50	3.20	0.31	0.00
8.00	0.36	0.00	0.00	37.00	3.20	0.31	0.00
8.50	0.41	0.00	0.00	37.50	3.20	0.31	0.00
9.00	0.47	0.00	0.00	38.00	3.20	0.31	0.00
9.50	0.53	0.00	0.00	38.50	3.20	0.31	0.00
10.00	0.60	0.00	0.00	39.00	3.20	0.31	0.00
10.50	0.69	0.00	0.00	39.50	3.20	0.31	0.00
11.00	0.80	0.00	0.00	40.00	3.20	0.31	0.00
11.50	0.95	0.00	0.00				
12.00	1.60	0.00	**0.00**				
12.50	2.25	0.07	**0.70**				
13.00	2.40	0.09	0.33				
13.50	2.51	0.12	0.25				
14.00	2.60	0.14	0.22				
14.50	2.67	0.15	0.20				
15.00	2.73	0.17	0.18				
15.50	2.79	0.19	0.16				
16.00	2.84	0.20	0.14				
16.50	2.87	0.21	0.12				
17.00	2.91	0.22	0.11				
17.50	2.94	0.23	0.10				
18.00	2.97	0.24	0.09				
18.50	2.99	0.24	0.08				
19.00	3.02	0.25	0.08				
19.50	3.04	0.26	0.08				
20.00	3.06	0.27	0.07				
20.50	3.08	0.27	0.07				
21.00	3.10	0.28	0.07				
21.50	3.12	0.28	0.07				
22.00	3.14	0.29	0.06				
22.50	3.16	0.29	0.06				
23.00	3.17	0.30	0.06				
23.50	3.19	0.31	0.05				
24.00	**3.20**	**0.31**	0.05				
24.50	3.20	0.31	0.00				
25.00	3.20	0.31	0.00				
25.50	3.20	0.31	0.00				
26.00	3.20	0.31	0.00				
26.50	3.20	0.31	0.00				
27.00	3.20	0.31	0.00				
27.50	3.20	0.31	0.00				
28.00	3.20	0.31	0.00				
28.50	3.20	0.31	0.00				

Summary for Subcatchment 6S: Bypass Area

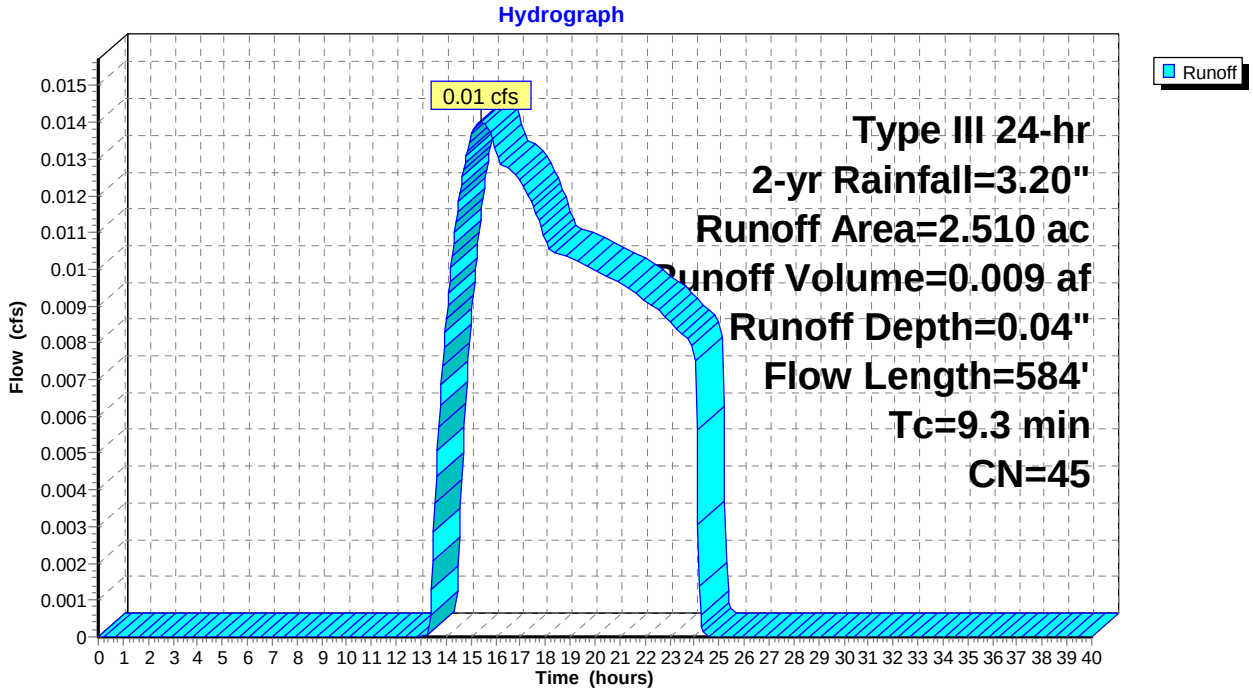
Runoff = 0.01 cfs @ 15.41 hrs, Volume= 0.009 af, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.20"

Area (ac)	CN	Description
1.290	30	Woods, Good, HSG A
0.030	55	Woods, Good, HSG B
0.490	77	Woods, Good, HSG D
0.470	39	>75% Grass cover, Good, HSG A
0.120	61	>75% Grass cover, Good, HSG B
0.110	80	>75% Grass cover, Good, HSG D
2.510	45	Weighted Average
2.510		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	100	0.3600	0.25		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
1.6	306	0.3900	3.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	178	0.0120	3.37	13.50	**Trap/Vee/Rect Channel Flow, Int stream** Bot.W=2.00' D=1.00' Z= 2.0 '/' Top.W=6.00' n= 0.035
9.3	584	Total			

Subcatchment 6S: Bypass Area



Hydrograph for Subcatchment 6S: Bypass Area

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	29.00	3.20	0.04	0.00
0.50	0.02	0.00	0.00	29.50	3.20	0.04	0.00
1.00	0.03	0.00	0.00	30.00	3.20	0.04	0.00
1.50	0.05	0.00	0.00	30.50	3.20	0.04	0.00
2.00	0.06	0.00	0.00	31.00	3.20	0.04	0.00
2.50	0.08	0.00	0.00	31.50	3.20	0.04	0.00
3.00	0.10	0.00	0.00	32.00	3.20	0.04	0.00
3.50	0.12	0.00	0.00	32.50	3.20	0.04	0.00
4.00	0.14	0.00	0.00	33.00	3.20	0.04	0.00
4.50	0.16	0.00	0.00	33.50	3.20	0.04	0.00
5.00	0.18	0.00	0.00	34.00	3.20	0.04	0.00
5.50	0.21	0.00	0.00	34.50	3.20	0.04	0.00
6.00	0.23	0.00	0.00	35.00	3.20	0.04	0.00
6.50	0.26	0.00	0.00	35.50	3.20	0.04	0.00
7.00	0.29	0.00	0.00	36.00	3.20	0.04	0.00
7.50	0.33	0.00	0.00	36.50	3.20	0.04	0.00
8.00	0.36	0.00	0.00	37.00	3.20	0.04	0.00
8.50	0.41	0.00	0.00	37.50	3.20	0.04	0.00
9.00	0.47	0.00	0.00	38.00	3.20	0.04	0.00
9.50	0.53	0.00	0.00	38.50	3.20	0.04	0.00
10.00	0.60	0.00	0.00	39.00	3.20	0.04	0.00
10.50	0.69	0.00	0.00	39.50	3.20	0.04	0.00
11.00	0.80	0.00	0.00	40.00	3.20	0.04	0.00
11.50	0.95	0.00	0.00				
12.00	1.60	0.00	0.00				
12.50	2.25	0.00	0.00				
13.00	2.40	0.00	0.00				
13.50	2.51	0.00	0.00				
14.00	2.60	0.00	0.01				
14.50	2.67	0.00	0.01				
15.00	2.73	0.01	**0.01**				
15.50	2.79	0.01	**0.01**				
16.00	2.84	0.01	0.01				
16.50	2.87	0.01	0.01				
17.00	2.91	0.02	0.01				
17.50	2.94	0.02	0.01				
18.00	2.97	0.02	0.01				
18.50	2.99	0.02	0.01				
19.00	3.02	0.03	0.01				
19.50	3.04	0.03	0.01				
20.00	3.06	0.03	0.01				
20.50	3.08	0.03	0.01				
21.00	3.10	0.03	0.01				
21.50	3.12	0.04	0.01				
22.00	3.14	0.04	0.01				
22.50	3.16	0.04	0.01				
23.00	3.17	0.04	0.01				
23.50	3.19	0.04	0.01				
24.00	**3.20**	**0.04**	0.01				
24.50	3.20	0.04	0.00				
25.00	3.20	0.04	0.00				
25.50	3.20	0.04	0.00				
26.00	3.20	0.04	0.00				
26.50	3.20	0.04	0.00				
27.00	3.20	0.04	0.00				
27.50	3.20	0.04	0.00				
28.00	3.20	0.04	0.00				
28.50	3.20	0.04	0.00				

Summary for Pond 3P: DetPond

Inflow Area = 5.450 ac, 15.23% Impervious, Inflow Depth = 0.31" for 2-yr event
Inflow = 0.71 cfs @ 12.47 hrs, Volume= 0.141 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Peak Elev= 96.66' @ 25.05 hrs Surf.Area= 3,687 sf Storage= 6,127 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	94.00'	26,376 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

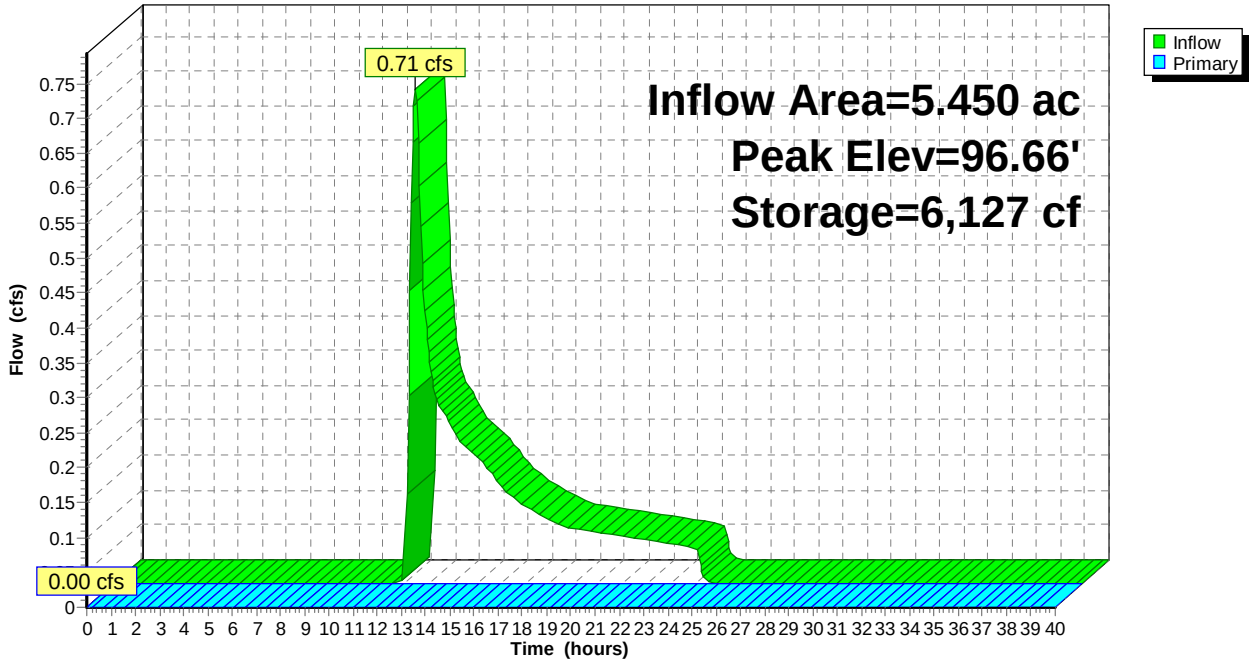
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
94.00	1,162	177.0	0	0	1,162
96.00	2,911	243.0	3,941	3,941	3,408
98.00	5,525	371.0	8,298	12,239	9,692
99.00	7,058	396.0	6,276	18,515	11,265
100.00	8,693	421.0	7,861	26,376	12,941

Device	Routing	Invert	Outlet Devices
#1	Primary	93.00'	**18.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 93.00' / 92.50' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	97.30'	**38.0 deg x 2.20' rise Sharp-Crested Vee/Trap Weir** Cv= 2.58 (C= 3.23)
#3	Device 1	99.50'	**36.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=94.00' (Free Discharge)
└**1=Culvert** (Passes 0.00 cfs of 3.37 cfs potential flow)
  ├**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

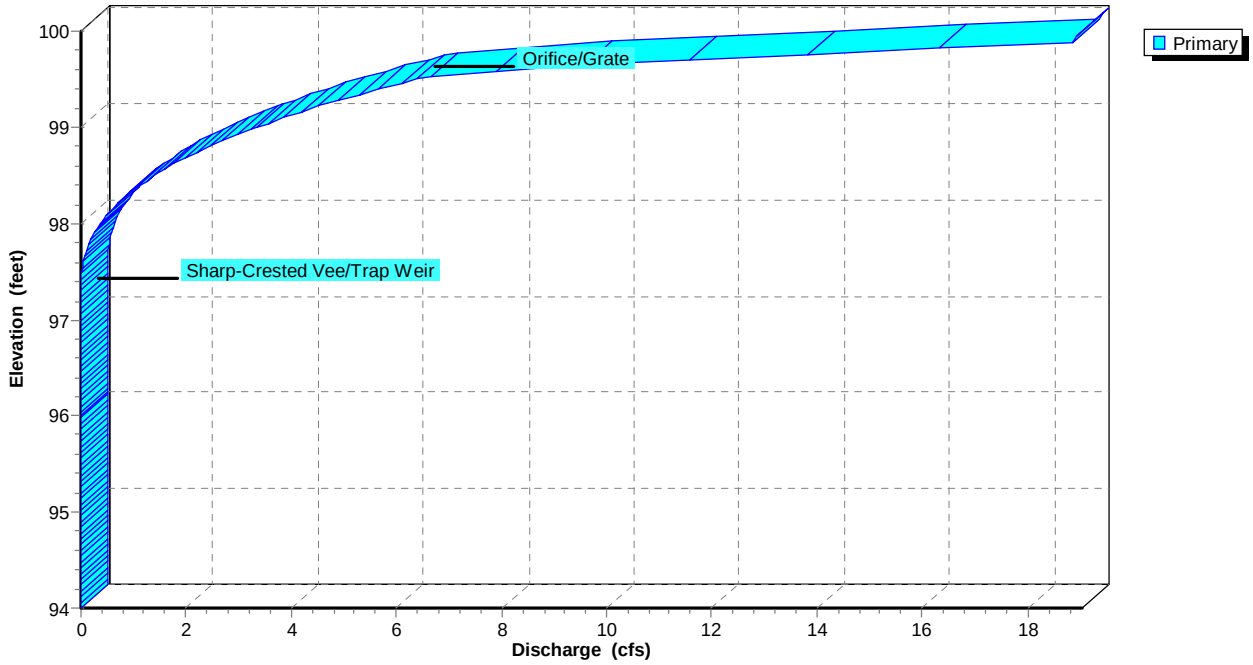
Pond 3P: DetPond

Hydrograph

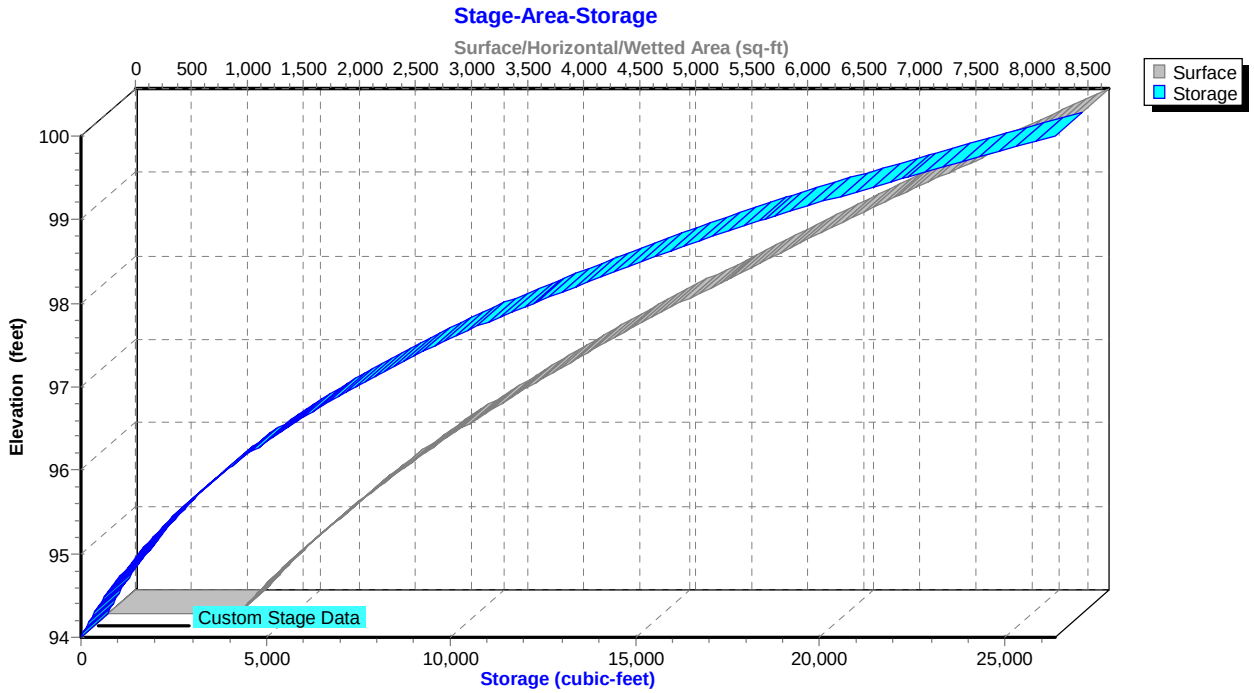


Pond 3P: DetPond

Stage-Discharge



Pond 3P: DetPond



Hydrograph for Pond 3P: DetPond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	94.00	**0.00**
1.00	0.00	0	94.00	0.00
2.00	0.00	0	94.00	0.00
3.00	0.00	0	94.00	0.00
4.00	0.00	0	94.00	0.00
5.00	0.00	0	94.00	0.00
6.00	0.00	0	94.00	0.00
7.00	0.00	0	94.00	0.00
8.00	0.00	0	94.00	0.00
9.00	0.00	0	94.00	0.00
10.00	0.00	0	94.00	0.00
11.00	0.00	0	94.00	0.00
12.00	**0.00**	0	94.00	0.00
13.00	**0.33**	1,560	95.01	0.00
14.00	0.22	2,490	95.45	0.00
15.00	0.18	3,207	95.73	0.00
16.00	0.14	3,789	95.95	0.00
17.00	0.11	4,234	96.10	0.00
18.00	0.09	4,600	96.22	0.00
19.00	0.08	4,901	96.31	0.00
20.00	0.07	5,176	96.39	0.00
21.00	0.07	5,430	96.47	0.00
22.00	0.06	5,665	96.54	0.00
23.00	0.06	5,881	96.60	0.00
24.00	0.05	6,076	96.65	0.00
25.00	0.00	**6,127**	**96.66**	0.00
26.00	0.00	**6,127**	**96.66**	0.00
27.00	0.00	6,127	96.66	0.00
28.00	0.00	6,127	96.66	0.00
29.00	0.00	6,127	96.66	0.00
30.00	0.00	6,127	96.66	0.00
31.00	0.00	6,127	96.66	0.00
32.00	0.00	6,127	96.66	0.00
33.00	0.00	6,127	96.66	0.00
34.00	0.00	6,127	96.66	0.00
35.00	0.00	6,127	96.66	0.00
36.00	0.00	6,127	96.66	0.00
37.00	0.00	6,127	96.66	0.00
38.00	0.00	6,127	96.66	0.00
39.00	0.00	6,127	96.66	0.00
40.00	0.00	6,127	96.66	0.00

Stage-Discharge for Pond 3P: DetPond

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
94.00	0.00	96.90	0.00	99.80	15.45
94.05	0.00	96.95	0.00	99.85	17.63
94.10	0.00	97.00	0.00	99.90	18.88
94.15	0.00	97.05	0.00	99.95	18.96
94.20	0.00	97.10	0.00	100.00	**19.04**
94.25	0.00	97.15	0.00		
94.30	0.00	97.20	0.00		
94.35	0.00	97.25	0.00		
94.40	0.00	97.30	0.00		
94.45	0.00	97.35	0.00		
94.50	0.00	97.40	0.00		
94.55	0.00	97.45	0.01		
94.60	0.00	97.50	0.02		
94.65	0.00	97.55	0.03		
94.70	0.00	97.60	0.04		
94.75	0.00	97.65	0.06		
94.80	0.00	97.70	0.09		
94.85	0.00	97.75	0.12		
94.90	0.00	97.80	0.16		
94.95	0.00	97.85	0.20		
95.00	0.00	97.90	0.25		
95.05	0.00	97.95	0.30		
95.10	0.00	98.00	0.36		
95.15	0.00	98.05	0.43		
95.20	0.00	98.10	0.51		
95.25	0.00	98.15	0.59		
95.30	0.00	98.20	0.68		
95.35	0.00	98.25	0.78		
95.40	0.00	98.30	0.89		
95.45	0.00	98.35	1.00		
95.50	0.00	98.40	1.13		
95.55	0.00	98.45	1.26		
95.60	0.00	98.50	1.40		
95.65	0.00	98.55	1.55		
95.70	0.00	98.60	1.71		
95.75	0.00	98.65	1.88		
95.80	0.00	98.70	2.06		
95.85	0.00	98.75	2.25		
95.90	0.00	98.80	2.45		
95.95	0.00	98.85	2.66		
96.00	0.00	98.90	2.88		
96.05	0.00	98.95	3.11		
96.10	0.00	99.00	3.35		
96.15	0.00	99.05	3.60		
96.20	0.00	99.10	3.86		
96.25	0.00	99.15	4.14		
96.30	0.00	99.20	4.42		
96.35	0.00	99.25	4.72		
96.40	0.00	99.30	5.03		
96.45	0.00	99.35	5.35		
96.50	0.00	99.40	5.68		
96.55	0.00	99.45	6.02		
96.60	0.00	99.50	6.38		
96.65	0.00	99.55	7.20		
96.70	0.00	99.60	8.42		
96.75	0.00	99.65	9.89		
96.80	0.00	99.70	11.57		
96.85	0.00	99.75	13.43		

Stage-Area-Storage for Pond 3P: DetPond

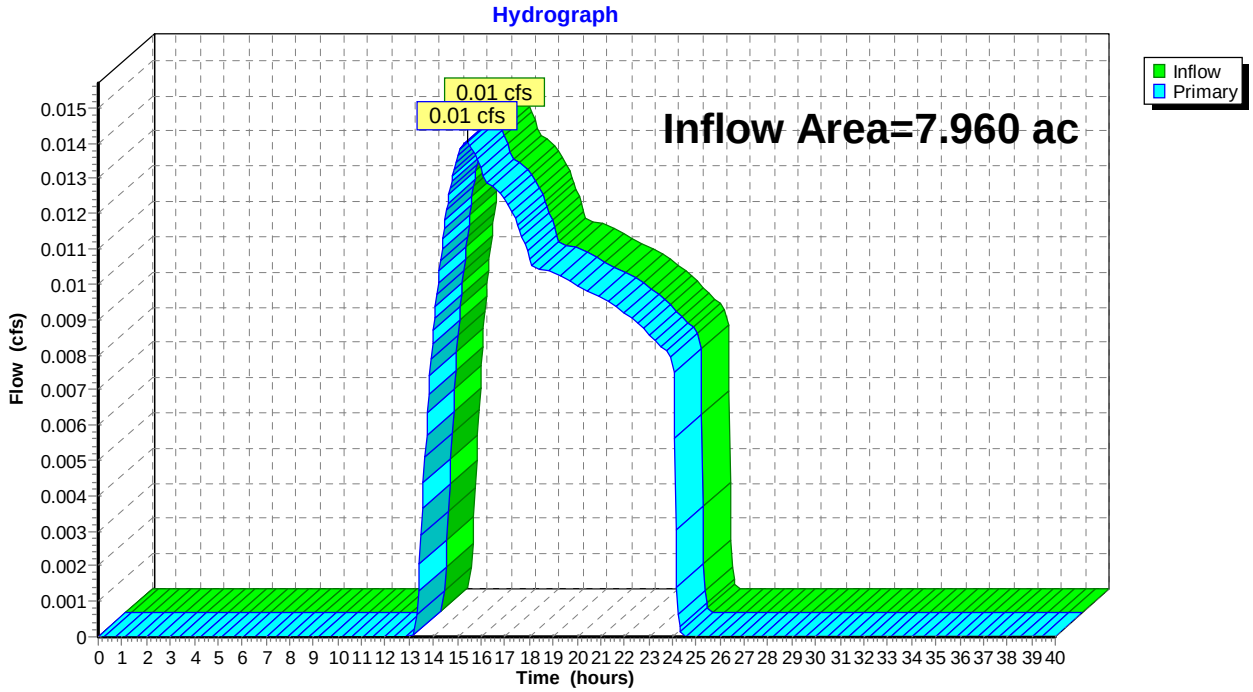
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
94.00	1,162	0
94.10	1,231	120
94.20	1,301	246
94.30	1,374	380
94.40	1,449	521
94.50	1,525	670
94.60	1,604	826
94.70	1,684	991
94.80	1,767	1,163
94.90	1,851	1,344
95.00	1,938	1,533
95.10	2,026	1,732
95.20	2,117	1,939
95.30	2,209	2,155
95.40	2,303	2,381
95.50	2,400	2,616
95.60	2,498	2,861
95.70	2,598	3,115
95.80	2,701	3,380
95.90	2,805	3,656
96.00	2,911	3,941
96.10	3,022	4,238
96.20	3,135	4,546
96.30	3,250	4,865
96.40	3,367	5,196
96.50	3,487	5,539
96.60	3,608	5,893
96.70	3,731	6,260
96.80	3,857	6,640
96.90	3,985	7,032
97.00	4,114	7,437
97.10	4,246	7,855
97.20	4,380	8,286
97.30	4,516	8,731
97.40	4,654	9,189
97.50	4,794	9,662
97.60	4,936	10,148
97.70	5,080	10,649
97.80	5,226	11,164
97.90	5,375	11,694
98.00	5,525	12,239
98.10	5,670	12,799
98.20	5,817	13,373
98.30	5,965	13,962
98.40	6,116	14,566
98.50	6,268	15,185
98.60	6,422	15,820
98.70	6,578	16,470
98.80	6,736	17,136
98.90	6,896	17,817
99.00	7,058	18,515
99.10	7,214	19,229
99.20	7,371	19,958
99.30	7,531	20,703
99.40	7,692	21,464
99.50	7,854	22,241
99.60	8,019	23,035
99.70	8,185	23,845
99.80	8,352	24,672
99.90	8,522	25,516
100.00	**8,693**	**26,376**

Summary for Link 4L: Analysis Point

Inflow Area = 7.960 ac, 10.43% Impervious, Inflow Depth = 0.01" for 2-yr event
Inflow = 0.01 cfs @ 15.41 hrs, Volume= 0.009 af
Primary = 0.01 cfs @ 15.41 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link 4L: Analysis Point



Hydrograph for Link 4L: Analysis Point

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	29.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00	29.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	30.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00	31.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	31.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00	32.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	32.50	0.00	0.00	0.00
4.00	0.00	0.00	0.00	33.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	33.50	0.00	0.00	0.00
5.00	0.00	0.00	0.00	34.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	34.50	0.00	0.00	0.00
6.00	0.00	0.00	0.00	35.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	35.50	0.00	0.00	0.00
7.00	0.00	0.00	0.00	36.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	36.50	0.00	0.00	0.00
8.00	0.00	0.00	0.00	37.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	37.50	0.00	0.00	0.00
9.00	0.00	0.00	0.00	38.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	38.50	0.00	0.00	0.00
10.00	0.00	0.00	0.00	39.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	39.50	0.00	0.00	0.00
11.00	0.00	0.00	0.00	40.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00				
12.00	0.00	0.00	0.00				
12.50	0.00	0.00	0.00				
13.00	0.00	0.00	0.00				
13.50	0.00	0.00	0.00				
14.00	0.01	0.00	0.01				
14.50	0.01	0.00	0.01				
15.00	**0.01**	0.00	**0.01**				
15.50	**0.01**	0.00	**0.01**				
16.00	0.01	0.00	0.01				
16.50	0.01	0.00	0.01				
17.00	0.01	0.00	0.01				
17.50	0.01	0.00	0.01				
18.00	0.01	0.00	0.01				
18.50	0.01	0.00	0.01				
19.00	0.01	0.00	0.01				
19.50	0.01	0.00	0.01				
20.00	0.01	0.00	0.01				
20.50	0.01	0.00	0.01				
21.00	0.01	0.00	0.01				
21.50	0.01	0.00	0.01				
22.00	0.01	0.00	0.01				
22.50	0.01	0.00	0.01				
23.00	0.01	0.00	0.01				
23.50	0.01	0.00	0.01				
24.00	0.01	0.00	0.01				
24.50	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
25.50	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
26.50	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
27.50	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
28.50	0.00	0.00	0.00				

Time span=0.00-40.00 hrs, dt=0.05 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Dev Runoff Area=7.620 ac 0.00% Impervious Runoff Depth=0.36"
Flow Length=945' Tc=18.9 min CN=43 Runoff=0.88 cfs 0.226 af

Subcatchment 2S: Watershed To Basin Runoff Area=5.450 ac 15.23% Impervious Runoff Depth=1.11"
Flow Length=1,304' Tc=18.0 min CN=57 Runoff=4.16 cfs 0.504 af

Subcatchment 6S: Bypass Area Runoff Area=2.510 ac 0.00% Impervious Runoff Depth=0.45"
Flow Length=584' Tc=9.3 min CN=45 Runoff=0.49 cfs 0.093 af

Pond 3P: DetPond Peak Elev=98.06' Storage=12,583 cf Inflow=4.16 cfs 0.504 af
Outflow=0.45 cfs 0.289 af

Link 4L: Analysis Point Inflow=0.56 cfs 0.382 af
Primary=0.56 cfs 0.382 af

Total Runoff Area = 15.580 ac Runoff Volume = 0.823 af Average Runoff Depth = 0.63"
94.67% Pervious = 14.750 ac 5.33% Impervious = 0.830 ac

Summary for Subcatchment 1S: Pre-Dev

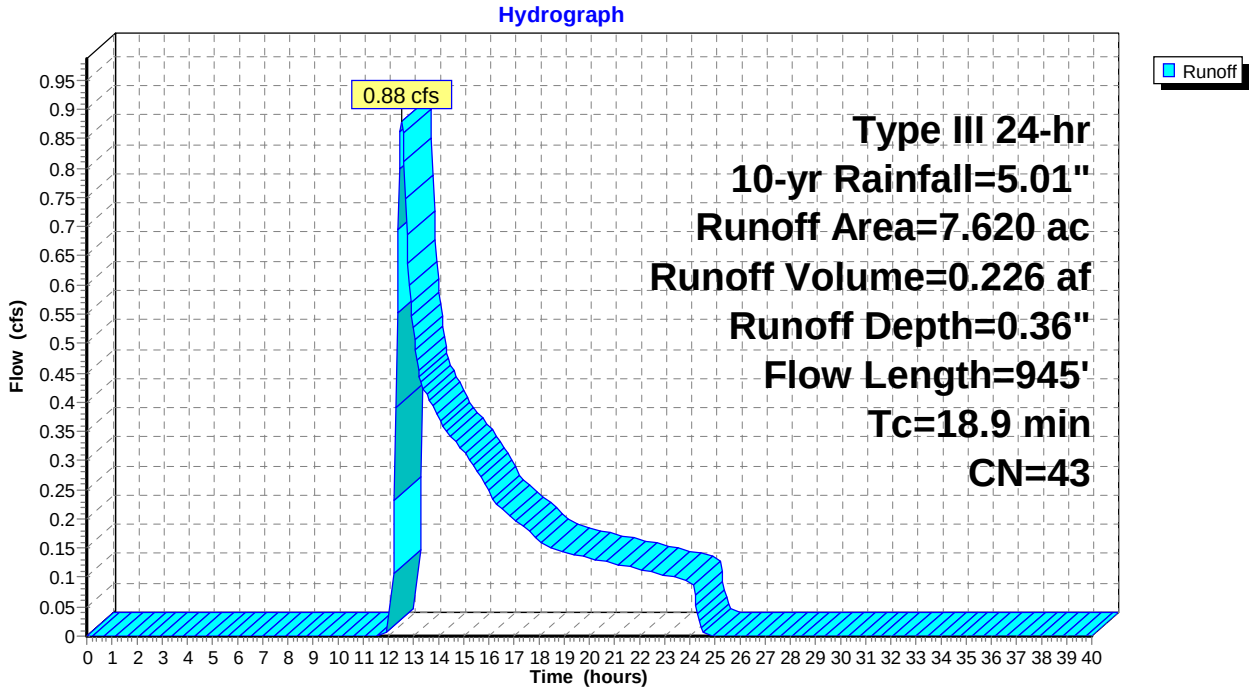
Runoff = 0.88 cfs @ 12.55 hrs, Volume= 0.226 af, Depth= 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.01"

	Area (ac)	CN	Description
*	4.090	30	Woods, Good, HSG A
	2.920	55	Woods, Good, HSG B
	0.610	77	Woods, Good, HSG D
	7.620	43	Weighted Average
	7.620		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	100	0.2700	0.22		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
10.4	667	0.0460	1.07		**Shallow Concentrated Flow, Shallow Woods** Woodland Kv= 5.0 fps
0.9	178	0.0120	3.37	13.50	**Trap/Vee/Rect Channel Flow, Int Stream** Bot.W=2.00' D=1.00' Z= 2.0 '/' Top.W=6.00' n= 0.035 Earth, dense weeds
18.9	945	Total			

Subcatchment 1S: Pre-Dev



Hydrograph for Subcatchment 1S: Pre-Dev

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	29.00	5.01	0.36	0.00
0.50	0.03	0.00	0.00	29.50	5.01	0.36	0.00
1.00	0.05	0.00	0.00	30.00	5.01	0.36	0.00
1.50	0.08	0.00	0.00	30.50	5.01	0.36	0.00
2.00	0.10	0.00	0.00	31.00	5.01	0.36	0.00
2.50	0.13	0.00	0.00	31.50	5.01	0.36	0.00
3.00	0.15	0.00	0.00	32.00	5.01	0.36	0.00
3.50	0.18	0.00	0.00	32.50	5.01	0.36	0.00
4.00	0.22	0.00	0.00	33.00	5.01	0.36	0.00
4.50	0.25	0.00	0.00	33.50	5.01	0.36	0.00
5.00	0.28	0.00	0.00	34.00	5.01	0.36	0.00
5.50	0.32	0.00	0.00	34.50	5.01	0.36	0.00
6.00	0.36	0.00	0.00	35.00	5.01	0.36	0.00
6.50	0.40	0.00	0.00	35.50	5.01	0.36	0.00
7.00	0.45	0.00	0.00	36.00	5.01	0.36	0.00
7.50	0.51	0.00	0.00	36.50	5.01	0.36	0.00
8.00	0.57	0.00	0.00	37.00	5.01	0.36	0.00
8.50	0.64	0.00	0.00	37.50	5.01	0.36	0.00
9.00	0.73	0.00	0.00	38.00	5.01	0.36	0.00
9.50	0.83	0.00	0.00	38.50	5.01	0.36	0.00
10.00	0.95	0.00	0.00	39.00	5.01	0.36	0.00
10.50	1.08	0.00	0.00	39.50	5.01	0.36	0.00
11.00	1.25	0.00	0.00	40.00	5.01	0.36	0.00
11.50	1.49	0.00	0.00				
12.00	2.50	0.00	0.00				
12.50	3.52	0.05	**0.86**				
13.00	3.76	0.09	**0.53**				
13.50	3.93	0.11	0.41				
14.00	4.06	0.14	0.38				
14.50	4.18	0.16	0.34				
15.00	4.28	0.18	0.32				
15.50	4.37	0.20	0.28				
16.00	4.44	0.21	0.25				
16.50	4.50	0.23	0.22				
17.00	4.56	0.24	0.20				
17.50	4.61	0.25	0.18				
18.00	4.65	0.26	0.16				
18.50	4.69	0.27	0.15				
19.00	4.73	0.28	0.14				
19.50	4.76	0.29	0.14				
20.00	4.79	0.30	0.13				
20.50	4.83	0.31	0.13				
21.00	4.86	0.31	0.12				
21.50	4.89	0.32	0.12				
22.00	4.91	0.33	0.11				
22.50	4.94	0.34	0.11				
23.00	4.96	0.34	0.10				
23.50	4.99	0.35	0.10				
24.00	**5.01**	**0.36**	0.09				
24.50	5.01	0.36	0.01				
25.00	5.01	0.36	0.00				
25.50	5.01	0.36	0.00				
26.00	5.01	0.36	0.00				
26.50	5.01	0.36	0.00				
27.00	5.01	0.36	0.00				
27.50	5.01	0.36	0.00				
28.00	5.01	0.36	0.00				
28.50	5.01	0.36	0.00				

Summary for Subcatchment 2S: Watershed To Basin

House roofs to underground infiltration systems.

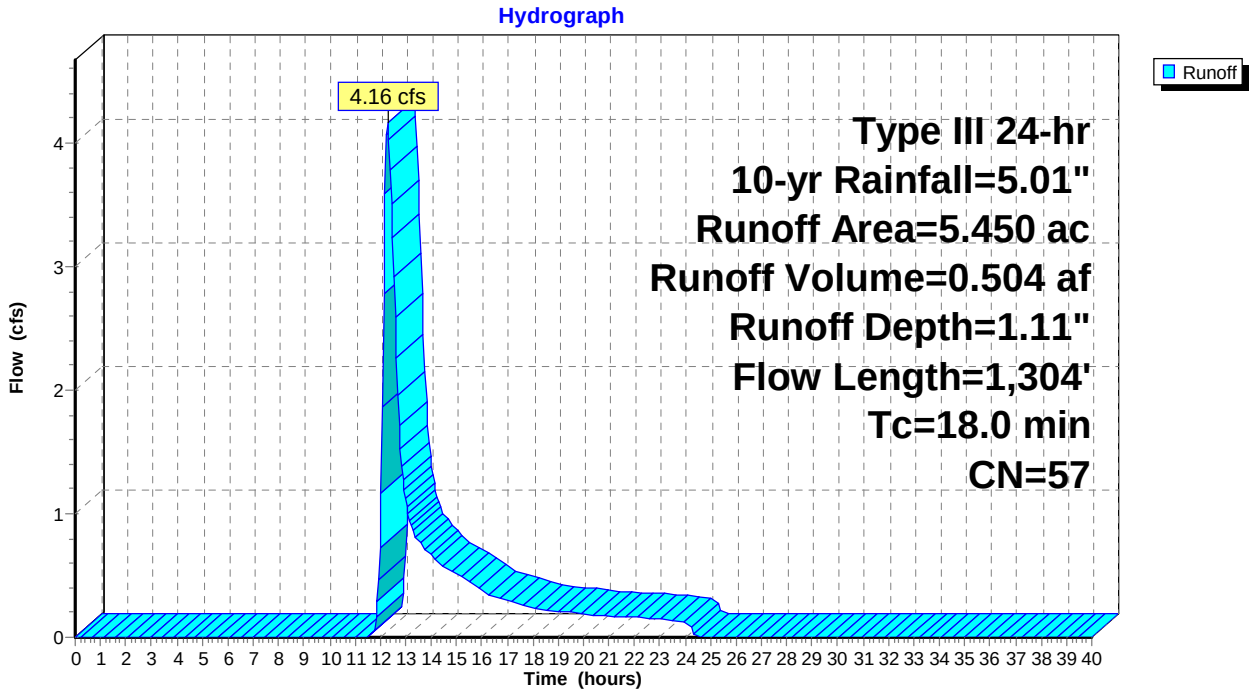
Runoff = 4.16 cfs @ 12.30 hrs, Volume= 0.504 af, Depth= 1.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.01"

	Area (ac)	CN	Description
*	0.830	98	Paved roads w/curbs & sewers
	1.820	39	>75% Grass cover, Good, HSG A
	2.000	61	>75% Grass cover, Good, HSG B
	0.010	80	>75% Grass cover, Good, HSG D
	0.320	30	Woods, Good, HSG A
	0.470	55	Woods, Good, HSG B
	5.450	57	Weighted Average
	4.620		84.77% Pervious Area
	0.830		15.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	70	0.0570	0.11		**Sheet Flow, Sheet Flow Woods** Woods: Light underbrush n= 0.400 P2= 3.20"
2.2	30	0.2000	0.23		**Sheet Flow, Sheet Flow Grass** Grass: Dense n= 0.240 P2= 3.20"
1.2	161	0.0960	2.17		**Shallow Concentrated Flow, Shallow Grass** Short Grass Pasture Kv= 7.0 fps
1.2	308	0.0450	4.31		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.8	735	0.0050	4.40	5.40	**Pipe Channel, Pipe** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011 Concrete pipe, straight & clean
18.0	1,304	Total			

Subcatchment 2S: Watershed To Basin



Hydrograph for Subcatchment 2S: Watershed To Basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	29.00	5.01	1.11	0.00
0.50	0.03	0.00	0.00	29.50	5.01	1.11	0.00
1.00	0.05	0.00	0.00	30.00	5.01	1.11	0.00
1.50	0.08	0.00	0.00	30.50	5.01	1.11	0.00
2.00	0.10	0.00	0.00	31.00	5.01	1.11	0.00
2.50	0.13	0.00	0.00	31.50	5.01	1.11	0.00
3.00	0.15	0.00	0.00	32.00	5.01	1.11	0.00
3.50	0.18	0.00	0.00	32.50	5.01	1.11	0.00
4.00	0.22	0.00	0.00	33.00	5.01	1.11	0.00
4.50	0.25	0.00	0.00	33.50	5.01	1.11	0.00
5.00	0.28	0.00	0.00	34.00	5.01	1.11	0.00
5.50	0.32	0.00	0.00	34.50	5.01	1.11	0.00
6.00	0.36	0.00	0.00	35.00	5.01	1.11	0.00
6.50	0.40	0.00	0.00	35.50	5.01	1.11	0.00
7.00	0.45	0.00	0.00	36.00	5.01	1.11	0.00
7.50	0.51	0.00	0.00	36.50	5.01	1.11	0.00
8.00	0.57	0.00	0.00	37.00	5.01	1.11	0.00
8.50	0.64	0.00	0.00	37.50	5.01	1.11	0.00
9.00	0.73	0.00	0.00	38.00	5.01	1.11	0.00
9.50	0.83	0.00	0.00	38.50	5.01	1.11	0.00
10.00	0.95	0.00	0.00	39.00	5.01	1.11	0.00
10.50	1.08	0.00	0.00	39.50	5.01	1.11	0.00
11.00	1.25	0.00	0.00	40.00	5.01	1.11	0.00
11.50	1.49	0.00	0.00				
12.00	2.50	0.12	**0.72**				
12.50	3.52	0.42	**3.23**				
13.00	3.76	0.52	1.12				
13.50	3.93	0.59	0.78				
14.00	4.06	0.65	0.66				
14.50	4.18	0.70	0.57				
15.00	4.28	0.74	0.51				
15.50	4.37	0.79	0.45				
16.00	4.44	0.82	0.38				
16.50	4.50	0.85	0.33				
17.00	4.56	0.88	0.30				
17.50	4.61	0.90	0.27				
18.00	4.65	0.92	0.24				
18.50	4.69	0.94	0.22				
19.00	4.73	0.96	0.21				
19.50	4.76	0.98	0.20				
20.00	4.79	1.00	0.19				
20.50	4.83	1.01	0.18				
21.00	4.86	1.03	0.17				
21.50	4.89	1.04	0.17				
22.00	4.91	1.06	0.16				
22.50	4.94	1.07	0.15				
23.00	4.96	1.09	0.14				
23.50	4.99	1.10	0.14				
24.00	**5.01**	**1.11**	0.13				
24.50	5.01	1.11	0.01				
25.00	5.01	1.11	0.00				
25.50	5.01	1.11	0.00				
26.00	5.01	1.11	0.00				
26.50	5.01	1.11	0.00				
27.00	5.01	1.11	0.00				
27.50	5.01	1.11	0.00				
28.00	5.01	1.11	0.00				
28.50	5.01	1.11	0.00				

Summary for Subcatchment 6S: Bypass Area

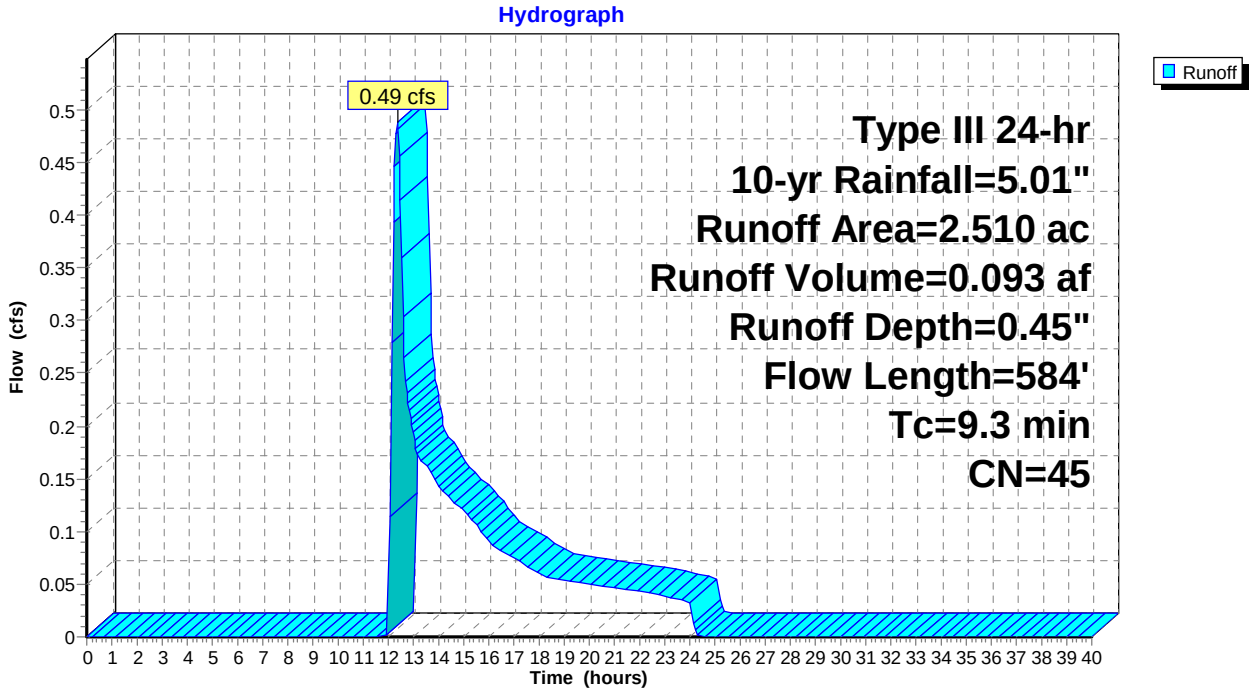
Runoff = 0.49 cfs @ 12.36 hrs, Volume= 0.093 af, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=5.01"

Area (ac)	CN	Description
1.290	30	Woods, Good, HSG A
0.030	55	Woods, Good, HSG B
0.490	77	Woods, Good, HSG D
0.470	39	>75% Grass cover, Good, HSG A
0.120	61	>75% Grass cover, Good, HSG B
0.110	80	>75% Grass cover, Good, HSG D
2.510	45	Weighted Average
2.510		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	100	0.3600	0.25		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
1.6	306	0.3900	3.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	178	0.0120	3.37	13.50	**Trap/Vee/Rect Channel Flow, Int stream** Bot.W=2.00' D=1.00' Z= 2.0 '/' Top.W=6.00' n= 0.035
9.3	584	Total			

Subcatchment 6S: Bypass Area



Hydrograph for Subcatchment 6S: Bypass Area

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	29.00	5.01	0.45	0.00
0.50	0.03	0.00	0.00	29.50	5.01	0.45	0.00
1.00	0.05	0.00	0.00	30.00	5.01	0.45	0.00
1.50	0.08	0.00	0.00	30.50	5.01	0.45	0.00
2.00	0.10	0.00	0.00	31.00	5.01	0.45	0.00
2.50	0.13	0.00	0.00	31.50	5.01	0.45	0.00
3.00	0.15	0.00	0.00	32.00	5.01	0.45	0.00
3.50	0.18	0.00	0.00	32.50	5.01	0.45	0.00
4.00	0.22	0.00	0.00	33.00	5.01	0.45	0.00
4.50	0.25	0.00	0.00	33.50	5.01	0.45	0.00
5.00	0.28	0.00	0.00	34.00	5.01	0.45	0.00
5.50	0.32	0.00	0.00	34.50	5.01	0.45	0.00
6.00	0.36	0.00	0.00	35.00	5.01	0.45	0.00
6.50	0.40	0.00	0.00	35.50	5.01	0.45	0.00
7.00	0.45	0.00	0.00	36.00	5.01	0.45	0.00
7.50	0.51	0.00	0.00	36.50	5.01	0.45	0.00
8.00	0.57	0.00	0.00	37.00	5.01	0.45	0.00
8.50	0.64	0.00	0.00	37.50	5.01	0.45	0.00
9.00	0.73	0.00	0.00	38.00	5.01	0.45	0.00
9.50	0.83	0.00	0.00	38.50	5.01	0.45	0.00
10.00	0.95	0.00	0.00	39.00	5.01	0.45	0.00
10.50	1.08	0.00	0.00	39.50	5.01	0.45	0.00
11.00	1.25	0.00	0.00	40.00	5.01	0.45	0.00
11.50	1.49	0.00	0.00				
12.00	2.50	0.00	**0.00**				
12.50	3.52	0.09	**0.41**				
13.00	3.76	0.13	0.19				
13.50	3.93	0.16	0.16				
14.00	4.06	0.19	0.14				
14.50	4.18	0.22	0.13				
15.00	4.28	0.24	0.12				
15.50	4.37	0.26	0.11				
16.00	4.44	0.28	0.09				
16.50	4.50	0.30	0.08				
17.00	4.56	0.31	0.07				
17.50	4.61	0.32	0.07				
18.00	4.65	0.34	0.06				
18.50	4.69	0.35	0.06				
19.00	4.73	0.36	0.05				
19.50	4.76	0.37	0.05				
20.00	4.79	0.38	0.05				
20.50	4.83	0.39	0.05				
21.00	4.86	0.40	0.05				
21.50	4.89	0.41	0.04				
22.00	4.91	0.41	0.04				
22.50	4.94	0.42	0.04				
23.00	4.96	0.43	0.04				
23.50	4.99	0.44	0.04				
24.00	**5.01**	**0.45**	0.03				
24.50	5.01	0.45	0.00				
25.00	5.01	0.45	0.00				
25.50	5.01	0.45	0.00				
26.00	5.01	0.45	0.00				
26.50	5.01	0.45	0.00				
27.00	5.01	0.45	0.00				
27.50	5.01	0.45	0.00				
28.00	5.01	0.45	0.00				
28.50	5.01	0.45	0.00				

Summary for Pond 3P: DetPond

Inflow Area = 5.450 ac, 15.23% Impervious, Inflow Depth = 1.11" for 10-yr event
Inflow = 4.16 cfs @ 12.30 hrs, Volume= 0.504 af
Outflow = 0.45 cfs @ 15.50 hrs, Volume= 0.289 af, Atten= 89%, Lag= 192.4 min
Primary = 0.45 cfs @ 15.50 hrs, Volume= 0.289 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Peak Elev= 98.06' @ 15.50 hrs Surf.Area= 5,614 sf Storage= 12,583 cf

Plug-Flow detention time= 403.0 min calculated for 0.288 af (57% of inflow)
Center-of-Mass det. time= 271.9 min (1,168.2 - 896.3)

Volume	Invert	Avail.Storage	Storage Description
#1	94.00'	26,376 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

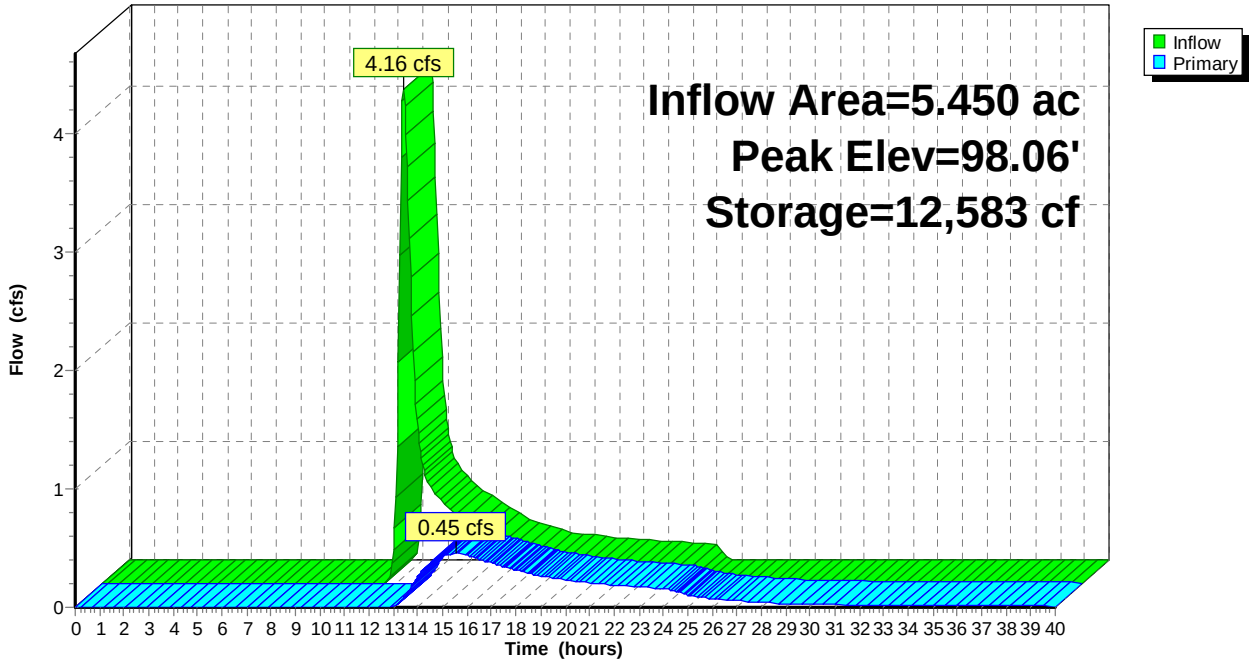
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
94.00	1,162	177.0	0	0	1,162
96.00	2,911	243.0	3,941	3,941	3,408
98.00	5,525	371.0	8,298	12,239	9,692
99.00	7,058	396.0	6,276	18,515	11,265
100.00	8,693	421.0	7,861	26,376	12,941

Device	Routing	Invert	Outlet Devices
#1	Primary	93.00'	**18.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 93.00' / 92.50' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	97.30'	**38.0 deg x 2.20' rise Sharp-Crested Vee/Trap Weir** Cv= 2.58 (C= 3.23)
#3	Device 1	99.50'	**36.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.45 cfs @ 15.50 hrs HW=98.06' (Free Discharge)
└─**1=Culvert** (Passes 0.45 cfs of 15.66 cfs potential flow)
  ├─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.45 cfs @ 2.25 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

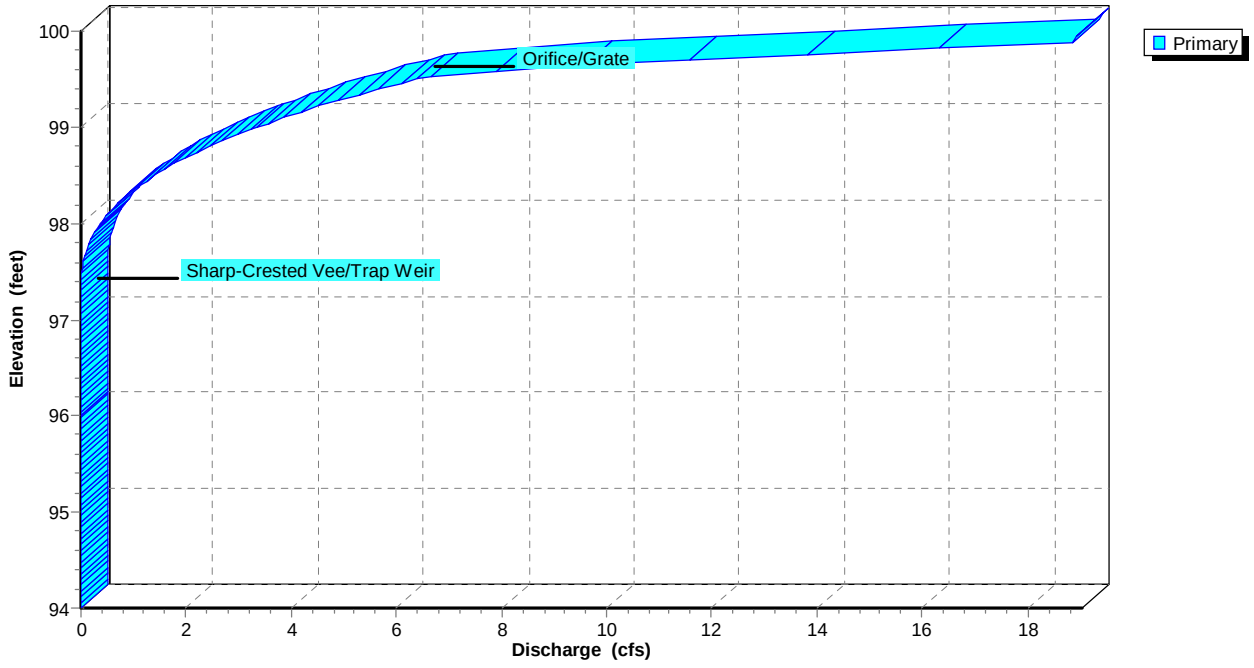
Pond 3P: DetPond

Hydrograph

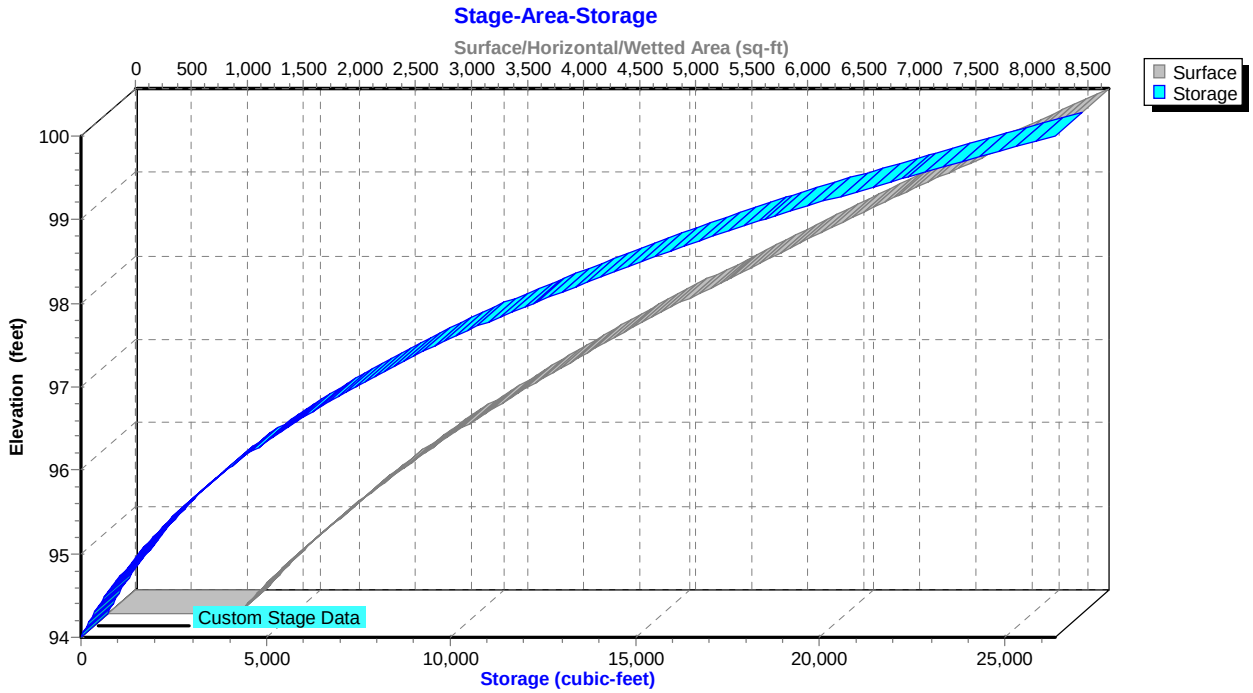


Pond 3P: DetPond

Stage-Discharge



Pond 3P: DetPond



Hydrograph for Pond 3P: DetPond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	94.00	0.00
1.00	0.00	0	94.00	0.00
2.00	0.00	0	94.00	0.00
3.00	0.00	0	94.00	0.00
4.00	0.00	0	94.00	0.00
5.00	0.00	0	94.00	0.00
6.00	0.00	0	94.00	0.00
7.00	0.00	0	94.00	0.00
8.00	0.00	0	94.00	0.00
9.00	0.00	0	94.00	0.00
10.00	0.00	0	94.00	0.00
11.00	0.00	0	94.00	0.00
12.00	**0.72**	256	94.21	0.00
13.00	**1.12**	9,223	97.41	0.00
14.00	0.66	11,737	97.91	0.26
15.00	0.51	**12,515**	**98.05**	**0.43**
16.00	0.38	**12,532**	**98.05**	**0.44**
17.00	0.30	12,278	98.01	0.37
18.00	0.24	12,016	97.96	0.31
19.00	0.21	11,771	97.91	0.26
20.00	0.19	11,602	97.88	0.23
21.00	0.17	11,468	97.86	0.21
22.00	0.16	11,359	97.84	0.19
23.00	0.14	11,258	97.82	0.17
24.00	0.13	11,158	97.80	0.16
25.00	0.00	10,799	97.73	0.11
26.00	0.00	10,480	97.67	0.07
27.00	0.00	10,257	97.62	0.05
28.00	0.00	10,091	97.59	0.04
29.00	0.00	9,962	97.56	0.03
30.00	0.00	9,859	97.54	0.03
31.00	0.00	9,775	97.52	0.02
32.00	0.00	9,704	97.51	0.02
33.00	0.00	9,643	97.50	0.02
34.00	0.00	9,591	97.49	0.01
35.00	0.00	9,546	97.48	0.01
36.00	0.00	9,506	97.47	0.01
37.00	0.00	9,470	97.46	0.01
38.00	0.00	9,437	97.45	0.01
39.00	0.00	9,407	97.45	0.01
40.00	0.00	9,380	97.44	0.01

Stage-Discharge for Pond 3P: DetPond

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
94.00	0.00	96.90	0.00	99.80	15.45
94.05	0.00	96.95	0.00	99.85	17.63
94.10	0.00	97.00	0.00	99.90	18.88
94.15	0.00	97.05	0.00	99.95	18.96
94.20	0.00	97.10	0.00	100.00	**19.04**
94.25	0.00	97.15	0.00		
94.30	0.00	97.20	0.00		
94.35	0.00	97.25	0.00		
94.40	0.00	97.30	0.00		
94.45	0.00	97.35	0.00		
94.50	0.00	97.40	0.00		
94.55	0.00	97.45	0.01		
94.60	0.00	97.50	0.02		
94.65	0.00	97.55	0.03		
94.70	0.00	97.60	0.04		
94.75	0.00	97.65	0.06		
94.80	0.00	97.70	0.09		
94.85	0.00	97.75	0.12		
94.90	0.00	97.80	0.16		
94.95	0.00	97.85	0.20		
95.00	0.00	97.90	0.25		
95.05	0.00	97.95	0.30		
95.10	0.00	98.00	0.36		
95.15	0.00	98.05	0.43		
95.20	0.00	98.10	0.51		
95.25	0.00	98.15	0.59		
95.30	0.00	98.20	0.68		
95.35	0.00	98.25	0.78		
95.40	0.00	98.30	0.89		
95.45	0.00	98.35	1.00		
95.50	0.00	98.40	1.13		
95.55	0.00	98.45	1.26		
95.60	0.00	98.50	1.40		
95.65	0.00	98.55	1.55		
95.70	0.00	98.60	1.71		
95.75	0.00	98.65	1.88		
95.80	0.00	98.70	2.06		
95.85	0.00	98.75	2.25		
95.90	0.00	98.80	2.45		
95.95	0.00	98.85	2.66		
96.00	0.00	98.90	2.88		
96.05	0.00	98.95	3.11		
96.10	0.00	99.00	3.35		
96.15	0.00	99.05	3.60		
96.20	0.00	99.10	3.86		
96.25	0.00	99.15	4.14		
96.30	0.00	99.20	4.42		
96.35	0.00	99.25	4.72		
96.40	0.00	99.30	5.03		
96.45	0.00	99.35	5.35		
96.50	0.00	99.40	5.68		
96.55	0.00	99.45	6.02		
96.60	0.00	99.50	6.38		
96.65	0.00	99.55	7.20		
96.70	0.00	99.60	8.42		
96.75	0.00	99.65	9.89		
96.80	0.00	99.70	11.57		
96.85	0.00	99.75	13.43		

Stage-Area-Storage for Pond 3P: DetPond

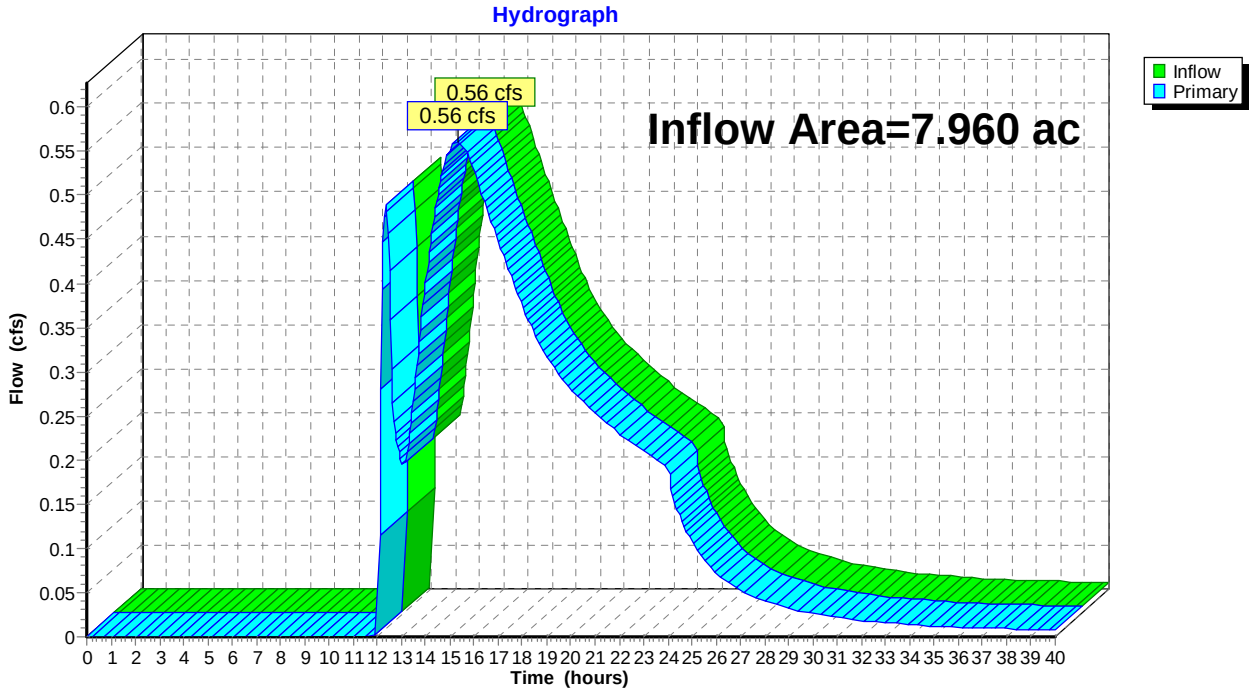
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
94.00	1,162	0
94.10	1,231	120
94.20	1,301	246
94.30	1,374	380
94.40	1,449	521
94.50	1,525	670
94.60	1,604	826
94.70	1,684	991
94.80	1,767	1,163
94.90	1,851	1,344
95.00	1,938	1,533
95.10	2,026	1,732
95.20	2,117	1,939
95.30	2,209	2,155
95.40	2,303	2,381
95.50	2,400	2,616
95.60	2,498	2,861
95.70	2,598	3,115
95.80	2,701	3,380
95.90	2,805	3,656
96.00	2,911	3,941
96.10	3,022	4,238
96.20	3,135	4,546
96.30	3,250	4,865
96.40	3,367	5,196
96.50	3,487	5,539
96.60	3,608	5,893
96.70	3,731	6,260
96.80	3,857	6,640
96.90	3,985	7,032
97.00	4,114	7,437
97.10	4,246	7,855
97.20	4,380	8,286
97.30	4,516	8,731
97.40	4,654	9,189
97.50	4,794	9,662
97.60	4,936	10,148
97.70	5,080	10,649
97.80	5,226	11,164
97.90	5,375	11,694
98.00	5,525	12,239
98.10	5,670	12,799
98.20	5,817	13,373
98.30	5,965	13,962
98.40	6,116	14,566
98.50	6,268	15,185
98.60	6,422	15,820
98.70	6,578	16,470
98.80	6,736	17,136
98.90	6,896	17,817
99.00	7,058	18,515
99.10	7,214	19,229
99.20	7,371	19,958
99.30	7,531	20,703
99.40	7,692	21,464
99.50	7,854	22,241
99.60	8,019	23,035
99.70	8,185	23,845
99.80	8,352	24,672
99.90	8,522	25,516
100.00	**8,693**	**26,376**

Summary for Link 4L: Analysis Point

Inflow Area = 7.960 ac, 10.43% Impervious, Inflow Depth > 0.58" for 10-yr event
Inflow = 0.56 cfs @ 15.30 hrs, Volume= 0.382 af
Primary = 0.56 cfs @ 15.30 hrs, Volume= 0.382 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link 4L: Analysis Point



Hydrograph for Link 4L: Analysis Point

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	29.00	0.03	0.00	0.03
0.50	0.00	0.00	0.00	29.50	0.03	0.00	0.03
1.00	0.00	0.00	0.00	30.00	0.03	0.00	0.03
1.50	0.00	0.00	0.00	30.50	0.02	0.00	0.02
2.00	0.00	0.00	0.00	31.00	0.02	0.00	0.02
2.50	0.00	0.00	0.00	31.50	0.02	0.00	0.02
3.00	0.00	0.00	0.00	32.00	0.02	0.00	0.02
3.50	0.00	0.00	0.00	32.50	0.02	0.00	0.02
4.00	0.00	0.00	0.00	33.00	0.02	0.00	0.02
4.50	0.00	0.00	0.00	33.50	0.01	0.00	0.01
5.00	0.00	0.00	0.00	34.00	0.01	0.00	0.01
5.50	0.00	0.00	0.00	34.50	0.01	0.00	0.01
6.00	0.00	0.00	0.00	35.00	0.01	0.00	0.01
6.50	0.00	0.00	0.00	35.50	0.01	0.00	0.01
7.00	0.00	0.00	0.00	36.00	0.01	0.00	0.01
7.50	0.00	0.00	0.00	36.50	0.01	0.00	0.01
8.00	0.00	0.00	0.00	37.00	0.01	0.00	0.01
8.50	0.00	0.00	0.00	37.50	0.01	0.00	0.01
9.00	0.00	0.00	0.00	38.00	0.01	0.00	0.01
9.50	0.00	0.00	0.00	38.50	0.01	0.00	0.01
10.00	0.00	0.00	0.00	39.00	0.01	0.00	0.01
10.50	0.00	0.00	0.00	39.50	0.01	0.00	0.01
11.00	0.00	0.00	0.00	40.00	0.01	0.00	0.01
11.50	0.00	0.00	0.00				
12.00	0.00	0.00	0.00				
12.50	0.41	0.00	0.41				
13.00	0.20	0.00	0.20				
13.50	0.27	0.00	0.27				
14.00	0.40	0.00	0.40				
14.50	0.50	0.00	0.50				
15.00	**0.55**	0.00	**0.55**				
15.50	**0.56**	0.00	**0.56**				
16.00	0.53	0.00	0.53				
16.50	0.49	0.00	0.49				
17.00	0.45	0.00	0.45				
17.50	0.41	0.00	0.41				
18.00	0.37	0.00	0.37				
18.50	0.34	0.00	0.34				
19.00	0.32	0.00	0.32				
19.50	0.30	0.00	0.30				
20.00	0.28	0.00	0.28				
20.50	0.27	0.00	0.27				
21.00	0.25	0.00	0.25				
21.50	0.24	0.00	0.24				
22.00	0.23	0.00	0.23				
22.50	0.22	0.00	0.22				
23.00	0.21	0.00	0.21				
23.50	0.20	0.00	0.20				
24.00	0.19	0.00	0.19				
24.50	0.14	0.00	0.14				
25.00	0.11	0.00	0.11				
25.50	0.09	0.00	0.09				
26.00	0.07	0.00	0.07				
26.50	0.06	0.00	0.06				
27.00	0.05	0.00	0.05				
27.50	0.05	0.00	0.05				
28.00	0.04	0.00	0.04				
28.50	0.04	0.00	0.04				

Time span=0.00-40.00 hrs, dt=0.05 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Dev Runoff Area=7.620 ac 0.00% Impervious Runoff Depth=0.73"
Flow Length=945' Tc=18.9 min CN=43 Runoff=2.62 cfs 0.462 af

Subcatchment 2S: Watershed To Basin Runoff Area=5.450 ac 15.23% Impervious Runoff Depth=1.76"
Flow Length=1,304' Tc=18.0 min CN=57 Runoff=7.22 cfs 0.800 af

Subcatchment 6S: Bypass Area Runoff Area=2.510 ac 0.00% Impervious Runoff Depth=0.86"
Flow Length=584' Tc=9.3 min CN=45 Runoff=1.38 cfs 0.179 af

Pond 3P: DetPond Peak Elev=98.47' Storage=15,007 cf Inflow=7.22 cfs 0.800 af
Outflow=1.32 cfs 0.584 af

Link 4L: Analysis Point Inflow=1.64 cfs 0.764 af
Primary=1.64 cfs 0.764 af

Total Runoff Area = 15.580 ac Runoff Volume = 1.441 af Average Runoff Depth = 1.11"
94.67% Pervious = 14.750 ac 5.33% Impervious = 0.830 ac

Summary for Subcatchment 1S: Pre-Dev

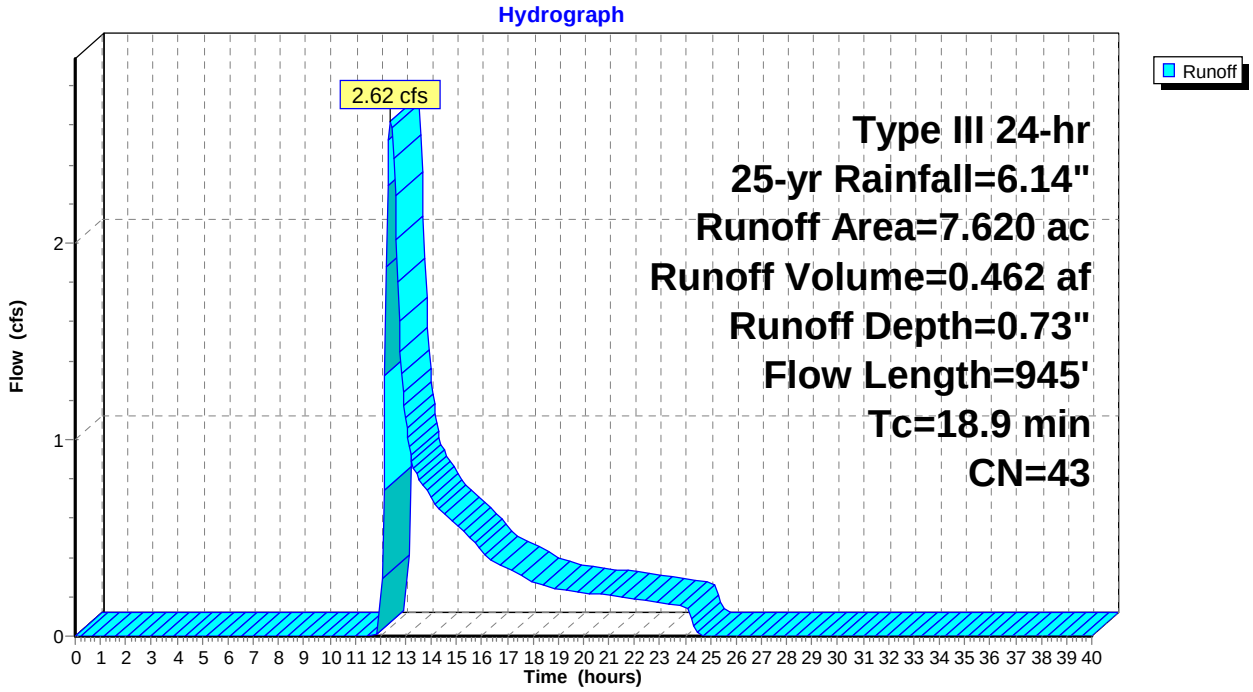
Runoff = 2.62 cfs @ 12.43 hrs, Volume= 0.462 af, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.14"

	Area (ac)	CN	Description
*	4.090	30	Woods, Good, HSG A
	2.920	55	Woods, Good, HSG B
	0.610	77	Woods, Good, HSG D
	7.620	43	Weighted Average
	7.620		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	100	0.2700	0.22		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
10.4	667	0.0460	1.07		**Shallow Concentrated Flow, Shallow Woods** Woodland Kv= 5.0 fps
0.9	178	0.0120	3.37	13.50	**Trap/Vee/Rect Channel Flow, Int Stream** Bot.W=2.00' D=1.00' Z= 2.0 '/' Top.W=6.00' n= 0.035 Earth, dense weeds
18.9	945	Total			

Subcatchment 1S: Pre-Dev



Hydrograph for Subcatchment 1S: Pre-Dev

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00
1.00	0.06	0.00	0.00
1.50	0.09	0.00	0.00
2.00	0.12	0.00	0.00
2.50	0.15	0.00	0.00
3.00	0.19	0.00	0.00
3.50	0.23	0.00	0.00
4.00	0.26	0.00	0.00
4.50	0.31	0.00	0.00
5.00	0.35	0.00	0.00
5.50	0.39	0.00	0.00
6.00	0.44	0.00	0.00
6.50	0.50	0.00	0.00
7.00	0.56	0.00	0.00
7.50	0.62	0.00	0.00
8.00	0.70	0.00	0.00
8.50	0.79	0.00	0.00
9.00	0.89	0.00	0.00
9.50	1.02	0.00	0.00
10.00	1.16	0.00	0.00
10.50	1.33	0.00	0.00
11.00	1.54	0.00	0.00
11.50	1.83	0.00	0.00
12.00	3.07	0.01	**0.01**
12.50	4.31	0.18	**2.56**
13.00	4.60	0.25	1.11
13.50	4.81	0.30	0.81
14.00	4.98	0.35	0.71
14.50	5.12	0.39	0.62
15.00	5.25	0.42	0.57
15.50	5.35	0.46	0.50
16.00	5.44	0.48	0.43
16.50	5.52	0.51	0.38
17.00	5.58	0.53	0.35
17.50	5.64	0.55	0.31
18.00	5.70	0.57	0.28
18.50	5.75	0.59	0.25
19.00	5.79	0.60	0.24
19.50	5.83	0.62	0.23
20.00	5.88	0.63	0.22
20.50	5.92	0.64	0.21
21.00	5.95	0.66	0.21
21.50	5.99	0.67	0.20
22.00	6.02	0.68	0.19
22.50	6.05	0.70	0.18
23.00	6.08	0.71	0.17
23.50	6.11	0.72	0.16
24.00	**6.14**	**0.73**	0.15
24.50	6.14	0.73	0.01
25.00	6.14	0.73	0.00
25.50	6.14	0.73	0.00
26.00	6.14	0.73	0.00
26.50	6.14	0.73	0.00
27.00	6.14	0.73	0.00
27.50	6.14	0.73	0.00
28.00	6.14	0.73	0.00
28.50	6.14	0.73	0.00
29.00	6.14	0.73	0.00
29.50	6.14	0.73	0.00
30.00	6.14	0.73	0.00
30.50	6.14	0.73	0.00
31.00	6.14	0.73	0.00
31.50	6.14	0.73	0.00
32.00	6.14	0.73	0.00
32.50	6.14	0.73	0.00
33.00	6.14	0.73	0.00
33.50	6.14	0.73	0.00
34.00	6.14	0.73	0.00
34.50	6.14	0.73	0.00
35.00	6.14	0.73	0.00
35.50	6.14	0.73	0.00
36.00	6.14	0.73	0.00
36.50	6.14	0.73	0.00
37.00	6.14	0.73	0.00
37.50	6.14	0.73	0.00
38.00	6.14	0.73	0.00
38.50	6.14	0.73	0.00
39.00	6.14	0.73	0.00
39.50	6.14	0.73	0.00
40.00	6.14	0.73	0.00

Summary for Subcatchment 2S: Watershed To Basin

House roofs to underground infiltration systems.

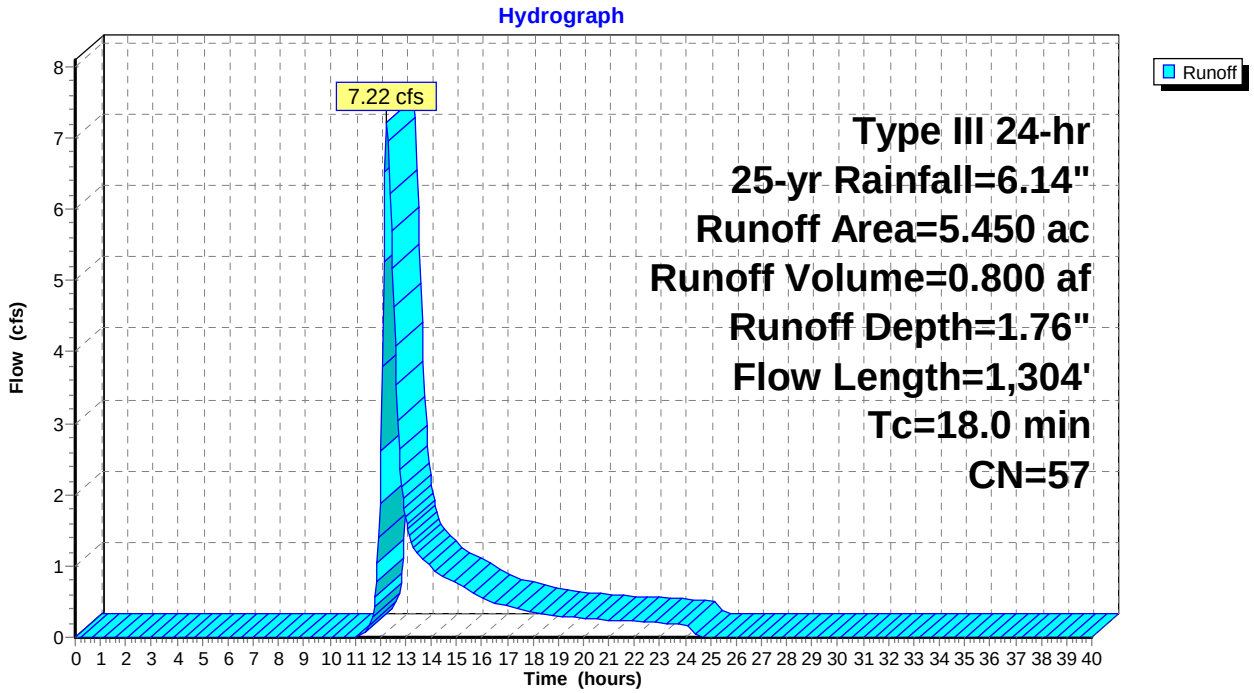
Runoff = 7.22 cfs @ 12.27 hrs, Volume= 0.800 af, Depth= 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.14"

	Area (ac)	CN	Description
*	0.830	98	Paved roads w/curbs & sewers
	1.820	39	>75% Grass cover, Good, HSG A
	2.000	61	>75% Grass cover, Good, HSG B
	0.010	80	>75% Grass cover, Good, HSG D
	0.320	30	Woods, Good, HSG A
	0.470	55	Woods, Good, HSG B
	5.450	57	Weighted Average
	4.620		84.77% Pervious Area
	0.830		15.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	70	0.0570	0.11		**Sheet Flow, Sheet Flow Woods** Woods: Light underbrush n= 0.400 P2= 3.20"
2.2	30	0.2000	0.23		**Sheet Flow, Sheet Flow Grass** Grass: Dense n= 0.240 P2= 3.20"
1.2	161	0.0960	2.17		**Shallow Concentrated Flow, Shallow Grass** Short Grass Pasture Kv= 7.0 fps
1.2	308	0.0450	4.31		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.8	735	0.0050	4.40	5.40	**Pipe Channel, Pipe** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011 Concrete pipe, straight & clean
18.0	1,304	Total			

Subcatchment 2S: Watershed To Basin



Hydrograph for Subcatchment 2S: Watershed To Basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	29.00	6.14	1.76	0.00
0.50	0.03	0.00	0.00	29.50	6.14	1.76	0.00
1.00	0.06	0.00	0.00	30.00	6.14	1.76	0.00
1.50	0.09	0.00	0.00	30.50	6.14	1.76	0.00
2.00	0.12	0.00	0.00	31.00	6.14	1.76	0.00
2.50	0.15	0.00	0.00	31.50	6.14	1.76	0.00
3.00	0.19	0.00	0.00	32.00	6.14	1.76	0.00
3.50	0.23	0.00	0.00	32.50	6.14	1.76	0.00
4.00	0.26	0.00	0.00	33.00	6.14	1.76	0.00
4.50	0.31	0.00	0.00	33.50	6.14	1.76	0.00
5.00	0.35	0.00	0.00	34.00	6.14	1.76	0.00
5.50	0.39	0.00	0.00	34.50	6.14	1.76	0.00
6.00	0.44	0.00	0.00	35.00	6.14	1.76	0.00
6.50	0.50	0.00	0.00	35.50	6.14	1.76	0.00
7.00	0.56	0.00	0.00	36.00	6.14	1.76	0.00
7.50	0.62	0.00	0.00	36.50	6.14	1.76	0.00
8.00	0.70	0.00	0.00	37.00	6.14	1.76	0.00
8.50	0.79	0.00	0.00	37.50	6.14	1.76	0.00
9.00	0.89	0.00	0.00	38.00	6.14	1.76	0.00
9.50	1.02	0.00	0.00	38.50	6.14	1.76	0.00
10.00	1.16	0.00	0.00	39.00	6.14	1.76	0.00
10.50	1.33	0.00	0.00	39.50	6.14	1.76	0.00
11.00	1.54	0.00	0.00	40.00	6.14	1.76	0.00
11.50	1.83	0.01	0.12				
12.00	3.07	0.27	**1.87**				
12.50	4.31	0.76	**5.18**				
13.00	4.60	0.90	1.69				
13.50	4.81	1.01	1.16				
14.00	4.98	1.09	0.98				
14.50	5.12	1.17	0.84				
15.00	5.25	1.24	0.75				
15.50	5.35	1.30	0.66				
16.00	5.44	1.35	0.56				
16.50	5.52	1.39	0.48				
17.00	5.58	1.43	0.44				
17.50	5.64	1.46	0.39				
18.00	5.70	1.50	0.34				
18.50	5.75	1.52	0.31				
19.00	5.79	1.55	0.30				
19.50	5.83	1.58	0.28				
20.00	5.88	1.60	0.27				
20.50	5.92	1.62	0.26				
21.00	5.95	1.65	0.25				
21.50	5.99	1.67	0.24				
22.00	6.02	1.69	0.23				
22.50	6.05	1.71	0.22				
23.00	6.08	1.73	0.21				
23.50	6.11	1.75	0.19				
24.00	**6.14**	**1.76**	0.18				
24.50	6.14	1.76	0.01				
25.00	6.14	1.76	0.00				
25.50	6.14	1.76	0.00				
26.00	6.14	1.76	0.00				
26.50	6.14	1.76	0.00				
27.00	6.14	1.76	0.00				
27.50	6.14	1.76	0.00				
28.00	6.14	1.76	0.00				
28.50	6.14	1.76	0.00				

Summary for Subcatchment 6S: Bypass Area

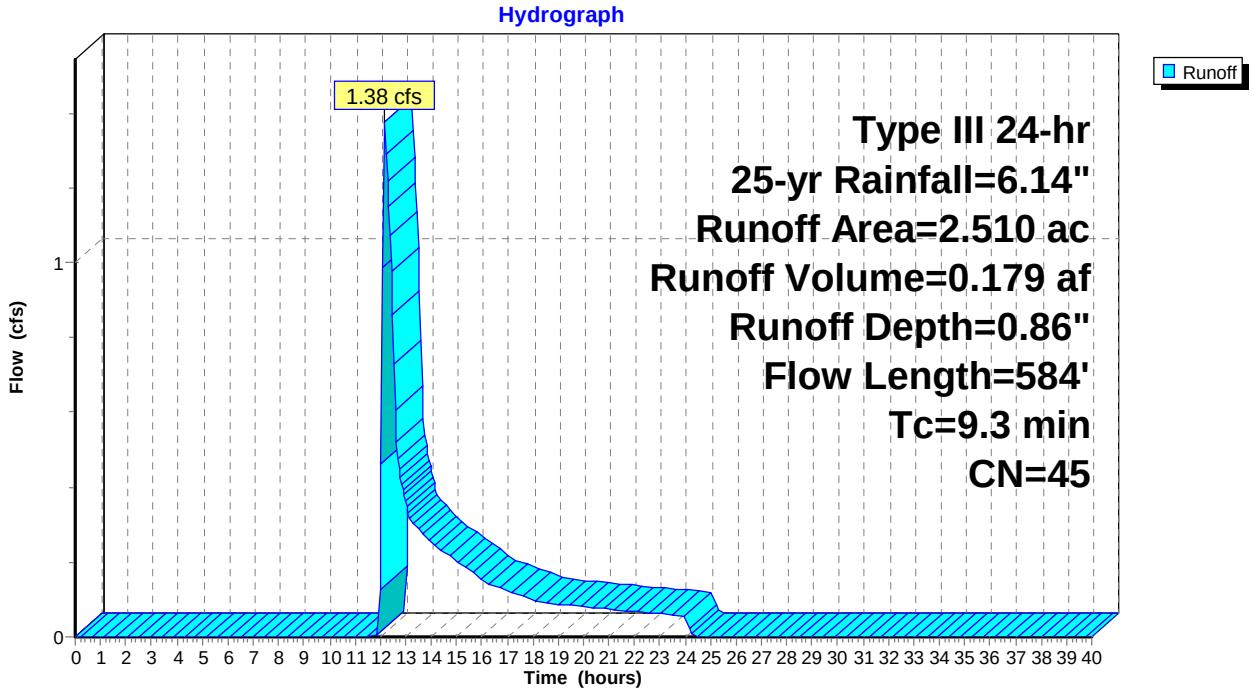
Runoff = 1.38 cfs @ 12.19 hrs, Volume= 0.179 af, Depth= 0.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (ac)	CN	Description
1.290	30	Woods, Good, HSG A
0.030	55	Woods, Good, HSG B
0.490	77	Woods, Good, HSG D
0.470	39	>75% Grass cover, Good, HSG A
0.120	61	>75% Grass cover, Good, HSG B
0.110	80	>75% Grass cover, Good, HSG D
2.510	45	Weighted Average
2.510		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	100	0.3600	0.25		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
1.6	306	0.3900	3.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	178	0.0120	3.37	13.50	**Trap/Vee/Rect Channel Flow, Int stream** Bot.W=2.00' D=1.00' Z= 2.0 '/' Top.W=6.00' n= 0.035
9.3	584	Total			

Subcatchment 6S: Bypass Area



Hydrograph for Subcatchment 6S: Bypass Area

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
0.50	0.03	0.00	0.00
1.00	0.06	0.00	0.00
1.50	0.09	0.00	0.00
2.00	0.12	0.00	0.00
2.50	0.15	0.00	0.00
3.00	0.19	0.00	0.00
3.50	0.23	0.00	0.00
4.00	0.26	0.00	0.00
4.50	0.31	0.00	0.00
5.00	0.35	0.00	0.00
5.50	0.39	0.00	0.00
6.00	0.44	0.00	0.00
6.50	0.50	0.00	0.00
7.00	0.56	0.00	0.00
7.50	0.62	0.00	0.00
8.00	0.70	0.00	0.00
8.50	0.79	0.00	0.00
9.00	0.89	0.00	0.00
9.50	1.02	0.00	0.00
10.00	1.16	0.00	0.00
10.50	1.33	0.00	0.00
11.00	1.54	0.00	0.00
11.50	1.83	0.00	0.00
12.00	3.07	0.03	**0.13**
12.50	4.31	0.25	**0.86**
13.00	4.60	0.32	0.36
13.50	4.81	0.38	0.29
14.00	4.98	0.44	0.25
14.50	5.12	0.48	0.23
15.00	5.25	0.52	0.20
15.50	5.35	0.56	0.18
16.00	5.44	0.59	0.15
16.50	5.52	0.62	0.14
17.00	5.58	0.64	0.12
17.50	5.64	0.66	0.11
18.00	5.70	0.68	0.10
18.50	5.75	0.70	0.09
19.00	5.79	0.72	0.09
19.50	5.83	0.74	0.08
20.00	5.88	0.75	0.08
20.50	5.92	0.77	0.08
21.00	5.95	0.78	0.07
21.50	5.99	0.80	0.07
22.00	6.02	0.81	0.07
22.50	6.05	0.82	0.06
23.00	6.08	0.84	0.06
23.50	6.11	0.85	0.06
24.00	**6.14**	**0.86**	0.06
24.50	6.14	0.86	0.00
25.00	6.14	0.86	0.00
25.50	6.14	0.86	0.00
26.00	6.14	0.86	0.00
26.50	6.14	0.86	0.00
27.00	6.14	0.86	0.00
27.50	6.14	0.86	0.00
28.00	6.14	0.86	0.00
28.50	6.14	0.86	0.00
29.00	6.14	0.86	0.00
29.50	6.14	0.86	0.00
30.00	6.14	0.86	0.00
30.50	6.14	0.86	0.00
31.00	6.14	0.86	0.00
31.50	6.14	0.86	0.00
32.00	6.14	0.86	0.00
32.50	6.14	0.86	0.00
33.00	6.14	0.86	0.00
33.50	6.14	0.86	0.00
34.00	6.14	0.86	0.00
34.50	6.14	0.86	0.00
35.00	6.14	0.86	0.00
35.50	6.14	0.86	0.00
36.00	6.14	0.86	0.00
36.50	6.14	0.86	0.00
37.00	6.14	0.86	0.00
37.50	6.14	0.86	0.00
38.00	6.14	0.86	0.00
38.50	6.14	0.86	0.00
39.00	6.14	0.86	0.00
39.50	6.14	0.86	0.00
40.00	6.14	0.86	0.00

Summary for Pond 3P: DetPond

Inflow Area = 5.450 ac, 15.23% Impervious, Inflow Depth = 1.76" for 25-yr event
Inflow = 7.22 cfs @ 12.27 hrs, Volume= 0.800 af
Outflow = 1.32 cfs @ 13.24 hrs, Volume= 0.584 af, Atten= 82%, Lag= 58.0 min
Primary = 1.32 cfs @ 13.24 hrs, Volume= 0.584 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Peak Elev= 98.47' @ 13.24 hrs Surf.Area= 6,224 sf Storage= 15,007 cf

Plug-Flow detention time= 267.6 min calculated for 0.584 af (73% of inflow)
Center-of-Mass det. time= 168.0 min (1,048.7 - 880.6)

Volume	Invert	Avail.Storage	Storage Description
#1	94.00'	26,376 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

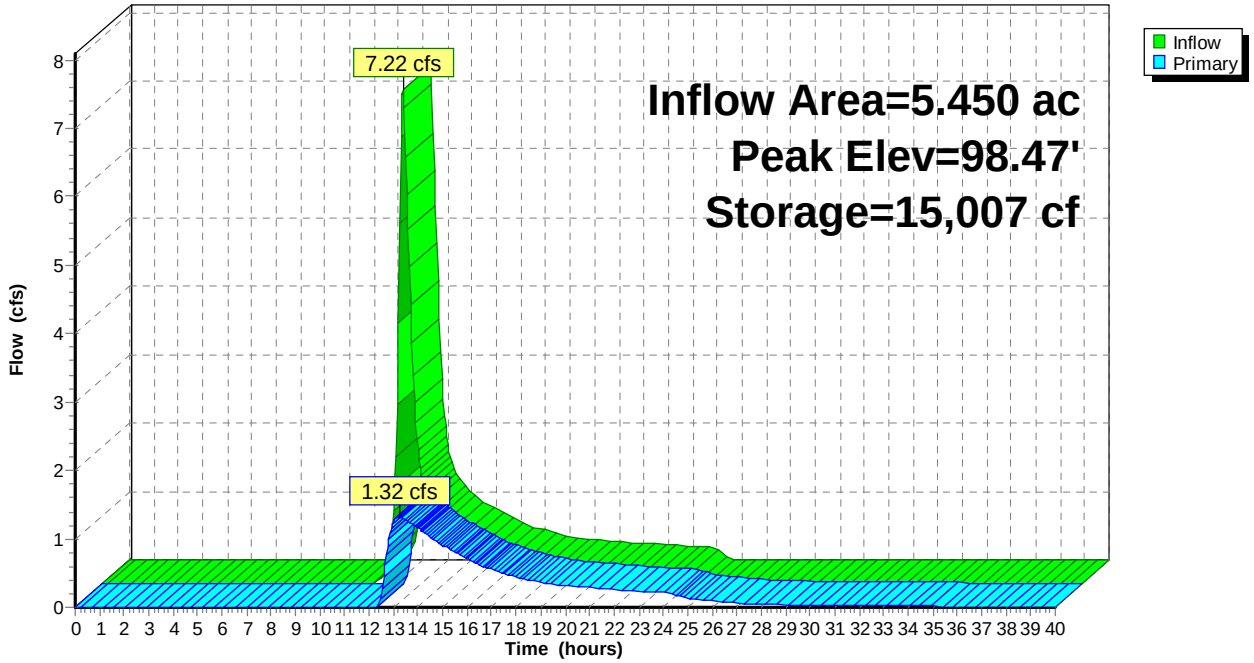
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
94.00	1,162	177.0	0	0	1,162
96.00	2,911	243.0	3,941	3,941	3,408
98.00	5,525	371.0	8,298	12,239	9,692
99.00	7,058	396.0	6,276	18,515	11,265
100.00	8,693	421.0	7,861	26,376	12,941

Device	Routing	Invert	Outlet Devices
#1	Primary	93.00'	**18.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 93.00' / 92.50' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	97.30'	**38.0 deg x 2.20' rise Sharp-Crested Vee/Trap Weir** Cv= 2.58 (C= 3.23)
#3	Device 1	99.50'	**36.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.32 cfs @ 13.24 hrs HW=98.47' (Free Discharge)
└**1=Culvert** (Passes 1.32 cfs of 16.44 cfs potential flow)
  ├**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 1.32 cfs @ 2.79 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

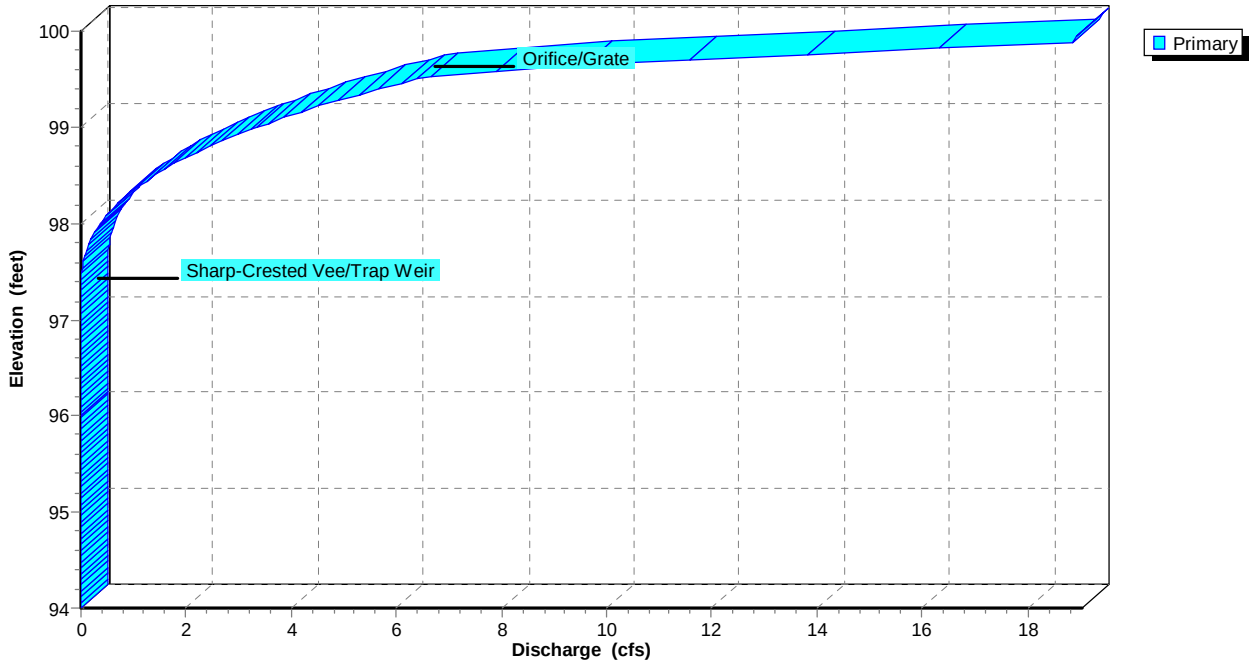
Pond 3P: DetPond

Hydrograph

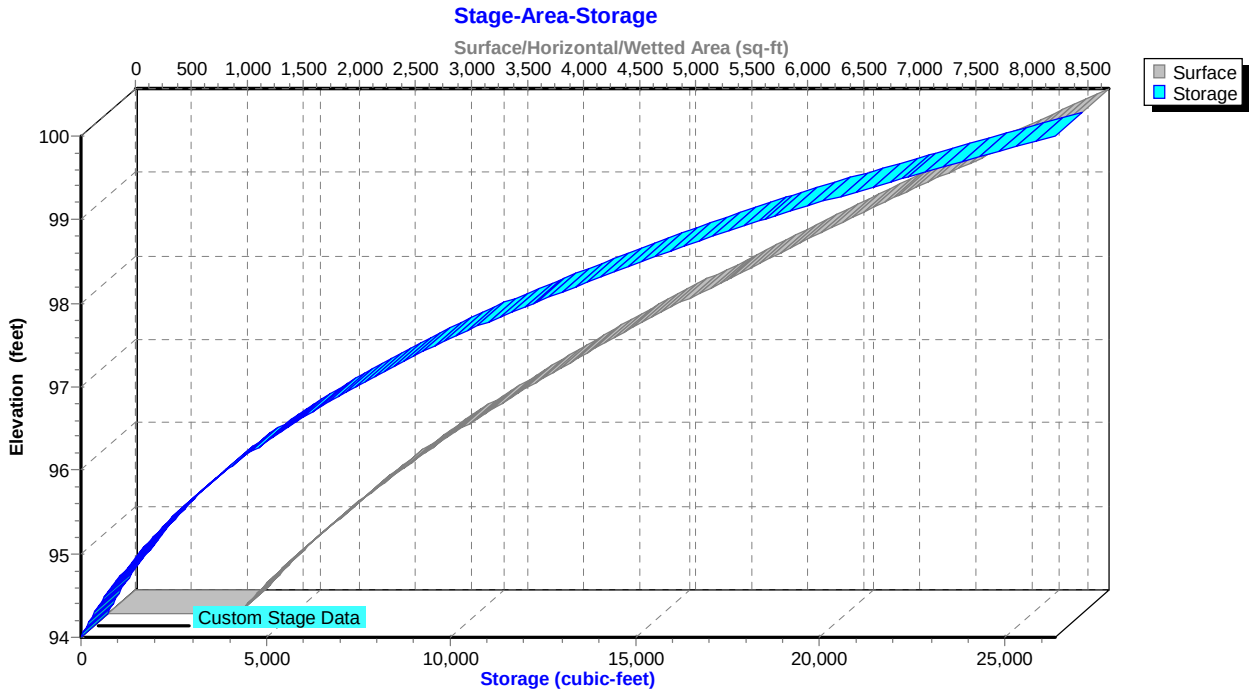


Pond 3P: DetPond

Stage-Discharge



Pond 3P: DetPond



Hydrograph for Pond 3P: DetPond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	94.00	0.00
1.00	0.00	0	94.00	0.00
2.00	0.00	0	94.00	0.00
3.00	0.00	0	94.00	0.00
4.00	0.00	0	94.00	0.00
5.00	0.00	0	94.00	0.00
6.00	0.00	0	94.00	0.00
7.00	0.00	0	94.00	0.00
8.00	0.00	0	94.00	0.00
9.00	0.00	0	94.00	0.00
10.00	0.00	0	94.00	0.00
11.00	0.00	0	94.00	0.00
12.00	**1.87**	1,166	94.80	0.00
13.00	**1.69**	**14,846**	**98.45**	**1.25**
14.00	0.98	**14,652**	**98.41**	**1.16**
15.00	0.75	14,010	98.31	0.91
16.00	0.56	13,461	98.21	0.71
17.00	0.44	12,951	98.13	0.55
18.00	0.34	12,563	98.06	0.45
19.00	0.30	12,246	98.00	0.37
20.00	0.27	12,041	97.96	0.32
21.00	0.25	11,884	97.93	0.29
22.00	0.23	11,755	97.91	0.26
23.00	0.21	11,638	97.89	0.24
24.00	0.18	11,519	97.87	0.22
25.00	0.00	11,044	97.78	0.14
26.00	0.00	10,641	97.70	0.09
27.00	0.00	10,371	97.64	0.06
28.00	0.00	10,177	97.61	0.05
29.00	0.00	10,030	97.58	0.04
30.00	0.00	9,913	97.55	0.03
31.00	0.00	9,820	97.53	0.02
32.00	0.00	9,742	97.52	0.02
33.00	0.00	9,675	97.50	0.02
34.00	0.00	9,618	97.49	0.01
35.00	0.00	9,570	97.48	0.01
36.00	0.00	9,528	97.47	0.01
37.00	0.00	9,489	97.46	0.01
38.00	0.00	9,455	97.46	0.01
39.00	0.00	9,423	97.45	0.01
40.00	0.00	9,395	97.44	0.01

Stage-Discharge for Pond 3P: DetPond

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
94.00	0.00	96.90	0.00	99.80	15.45
94.05	0.00	96.95	0.00	99.85	17.63
94.10	0.00	97.00	0.00	99.90	18.88
94.15	0.00	97.05	0.00	99.95	18.96
94.20	0.00	97.10	0.00	100.00	**19.04**
94.25	0.00	97.15	0.00		
94.30	0.00	97.20	0.00		
94.35	0.00	97.25	0.00		
94.40	0.00	97.30	0.00		
94.45	0.00	97.35	0.00		
94.50	0.00	97.40	0.00		
94.55	0.00	97.45	0.01		
94.60	0.00	97.50	0.02		
94.65	0.00	97.55	0.03		
94.70	0.00	97.60	0.04		
94.75	0.00	97.65	0.06		
94.80	0.00	97.70	0.09		
94.85	0.00	97.75	0.12		
94.90	0.00	97.80	0.16		
94.95	0.00	97.85	0.20		
95.00	0.00	97.90	0.25		
95.05	0.00	97.95	0.30		
95.10	0.00	98.00	0.36		
95.15	0.00	98.05	0.43		
95.20	0.00	98.10	0.51		
95.25	0.00	98.15	0.59		
95.30	0.00	98.20	0.68		
95.35	0.00	98.25	0.78		
95.40	0.00	98.30	0.89		
95.45	0.00	98.35	1.00		
95.50	0.00	98.40	1.13		
95.55	0.00	98.45	1.26		
95.60	0.00	98.50	1.40		
95.65	0.00	98.55	1.55		
95.70	0.00	98.60	1.71		
95.75	0.00	98.65	1.88		
95.80	0.00	98.70	2.06		
95.85	0.00	98.75	2.25		
95.90	0.00	98.80	2.45		
95.95	0.00	98.85	2.66		
96.00	0.00	98.90	2.88		
96.05	0.00	98.95	3.11		
96.10	0.00	99.00	3.35		
96.15	0.00	99.05	3.60		
96.20	0.00	99.10	3.86		
96.25	0.00	99.15	4.14		
96.30	0.00	99.20	4.42		
96.35	0.00	99.25	4.72		
96.40	0.00	99.30	5.03		
96.45	0.00	99.35	5.35		
96.50	0.00	99.40	5.68		
96.55	0.00	99.45	6.02		
96.60	0.00	99.50	6.38		
96.65	0.00	99.55	7.20		
96.70	0.00	99.60	8.42		
96.75	0.00	99.65	9.89		
96.80	0.00	99.70	11.57		
96.85	0.00	99.75	13.43		

Stage-Area-Storage for Pond 3P: DetPond

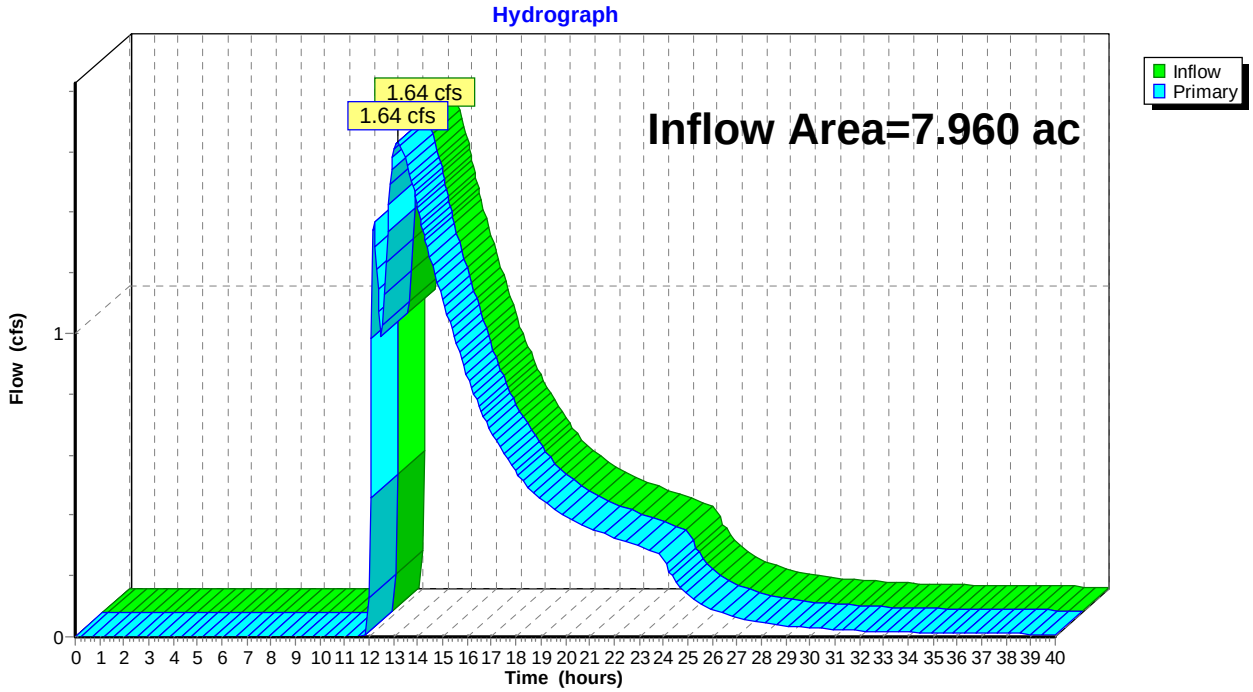
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
94.00	1,162	0
94.10	1,231	120
94.20	1,301	246
94.30	1,374	380
94.40	1,449	521
94.50	1,525	670
94.60	1,604	826
94.70	1,684	991
94.80	1,767	1,163
94.90	1,851	1,344
95.00	1,938	1,533
95.10	2,026	1,732
95.20	2,117	1,939
95.30	2,209	2,155
95.40	2,303	2,381
95.50	2,400	2,616
95.60	2,498	2,861
95.70	2,598	3,115
95.80	2,701	3,380
95.90	2,805	3,656
96.00	2,911	3,941
96.10	3,022	4,238
96.20	3,135	4,546
96.30	3,250	4,865
96.40	3,367	5,196
96.50	3,487	5,539
96.60	3,608	5,893
96.70	3,731	6,260
96.80	3,857	6,640
96.90	3,985	7,032
97.00	4,114	7,437
97.10	4,246	7,855
97.20	4,380	8,286
97.30	4,516	8,731
97.40	4,654	9,189
97.50	4,794	9,662
97.60	4,936	10,148
97.70	5,080	10,649
97.80	5,226	11,164
97.90	5,375	11,694
98.00	5,525	12,239
98.10	5,670	12,799
98.20	5,817	13,373
98.30	5,965	13,962
98.40	6,116	14,566
98.50	6,268	15,185
98.60	6,422	15,820
98.70	6,578	16,470
98.80	6,736	17,136
98.90	6,896	17,817
99.00	7,058	18,515
99.10	7,214	19,229
99.20	7,371	19,958
99.30	7,531	20,703
99.40	7,692	21,464
99.50	7,854	22,241
99.60	8,019	23,035
99.70	8,185	23,845
99.80	8,352	24,672
99.90	8,522	25,516
100.00	**8,693**	**26,376**

Summary for Link 4L: Analysis Point

Inflow Area = 7.960 ac, 10.43% Impervious, Inflow Depth > 1.15" for 25-yr event
Inflow = 1.64 cfs @ 13.18 hrs, Volume= 0.764 af
Primary = 1.64 cfs @ 13.18 hrs, Volume= 0.764 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link 4L: Analysis Point



Hydrograph for Link 4L: Analysis Point

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	29.00	0.04	0.00	0.04
0.50	0.00	0.00	0.00	29.50	0.03	0.00	0.03
1.00	0.00	0.00	0.00	30.00	0.03	0.00	0.03
1.50	0.00	0.00	0.00	30.50	0.03	0.00	0.03
2.00	0.00	0.00	0.00	31.00	0.02	0.00	0.02
2.50	0.00	0.00	0.00	31.50	0.02	0.00	0.02
3.00	0.00	0.00	0.00	32.00	0.02	0.00	0.02
3.50	0.00	0.00	0.00	32.50	0.02	0.00	0.02
4.00	0.00	0.00	0.00	33.00	0.02	0.00	0.02
4.50	0.00	0.00	0.00	33.50	0.02	0.00	0.02
5.00	0.00	0.00	0.00	34.00	0.01	0.00	0.01
5.50	0.00	0.00	0.00	34.50	0.01	0.00	0.01
6.00	0.00	0.00	0.00	35.00	0.01	0.00	0.01
6.50	0.00	0.00	0.00	35.50	0.01	0.00	0.01
7.00	0.00	0.00	0.00	36.00	0.01	0.00	0.01
7.50	0.00	0.00	0.00	36.50	0.01	0.00	0.01
8.00	0.00	0.00	0.00	37.00	0.01	0.00	0.01
8.50	0.00	0.00	0.00	37.50	0.01	0.00	0.01
9.00	0.00	0.00	0.00	38.00	0.01	0.00	0.01
9.50	0.00	0.00	0.00	38.50	0.01	0.00	0.01
10.00	0.00	0.00	0.00	39.00	0.01	0.00	0.01
10.50	0.00	0.00	0.00	39.50	0.01	0.00	0.01
11.00	0.00	0.00	0.00	40.00	0.01	0.00	0.01
11.50	0.00	0.00	0.00				
12.00	0.13	0.00	0.13				
12.50	0.99	0.00	0.99				
13.00	**1.61**	0.00	**1.61**				
13.50	**1.58**	0.00	**1.58**				
14.00	1.42	0.00	1.42				
14.50	1.25	0.00	1.25				
15.00	1.11	0.00	1.11				
15.50	0.99	0.00	0.99				
16.00	0.86	0.00	0.86				
16.50	0.76	0.00	0.76				
17.00	0.68	0.00	0.68				
17.50	0.61	0.00	0.61				
18.00	0.54	0.00	0.54				
18.50	0.49	0.00	0.49				
19.00	0.45	0.00	0.45				
19.50	0.42	0.00	0.42				
20.00	0.40	0.00	0.40				
20.50	0.38	0.00	0.38				
21.00	0.36	0.00	0.36				
21.50	0.34	0.00	0.34				
22.00	0.33	0.00	0.33				
22.50	0.31	0.00	0.31				
23.00	0.30	0.00	0.30				
23.50	0.29	0.00	0.29				
24.00	0.27	0.00	0.27				
24.50	0.18	0.00	0.18				
25.00	0.14	0.00	0.14				
25.50	0.11	0.00	0.11				
26.00	0.09	0.00	0.09				
26.50	0.07	0.00	0.07				
27.00	0.06	0.00	0.06				
27.50	0.05	0.00	0.05				
28.00	0.05	0.00	0.05				
28.50	0.04	0.00	0.04				

Time span=0.00-40.00 hrs, dt=0.05 hrs, 801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Dev Runoff Area=7.620 ac 0.00% Impervious Runoff Depth=1.48"
Flow Length=945' Tc=18.9 min CN=43 Runoff=7.06 cfs 0.939 af

Subcatchment 2S: Watershed To Basin Runoff Area=5.450 ac 15.23% Impervious Runoff Depth=2.92"
Flow Length=1,304' Tc=18.0 min CN=57 Runoff=12.62 cfs 1.325 af

Subcatchment 6S: Bypass Area Runoff Area=2.510 ac 0.00% Impervious Runoff Depth=1.67"
Flow Length=584' Tc=9.3 min CN=45 Runoff=3.59 cfs 0.350 af

Pond 3P: DetPond Peak Elev=99.31' Storage=20,743 cf Inflow=12.62 cfs 1.325 af
Outflow=5.06 cfs 1.109 af

Link 4L: Analysis Point Inflow=6.02 cfs 1.459 af
Primary=6.02 cfs 1.459 af

Total Runoff Area = 15.580 ac Runoff Volume = 2.614 af Average Runoff Depth = 2.01"
94.67% Pervious = 14.750 ac 5.33% Impervious = 0.830 ac

Summary for Subcatchment 1S: Pre-Dev

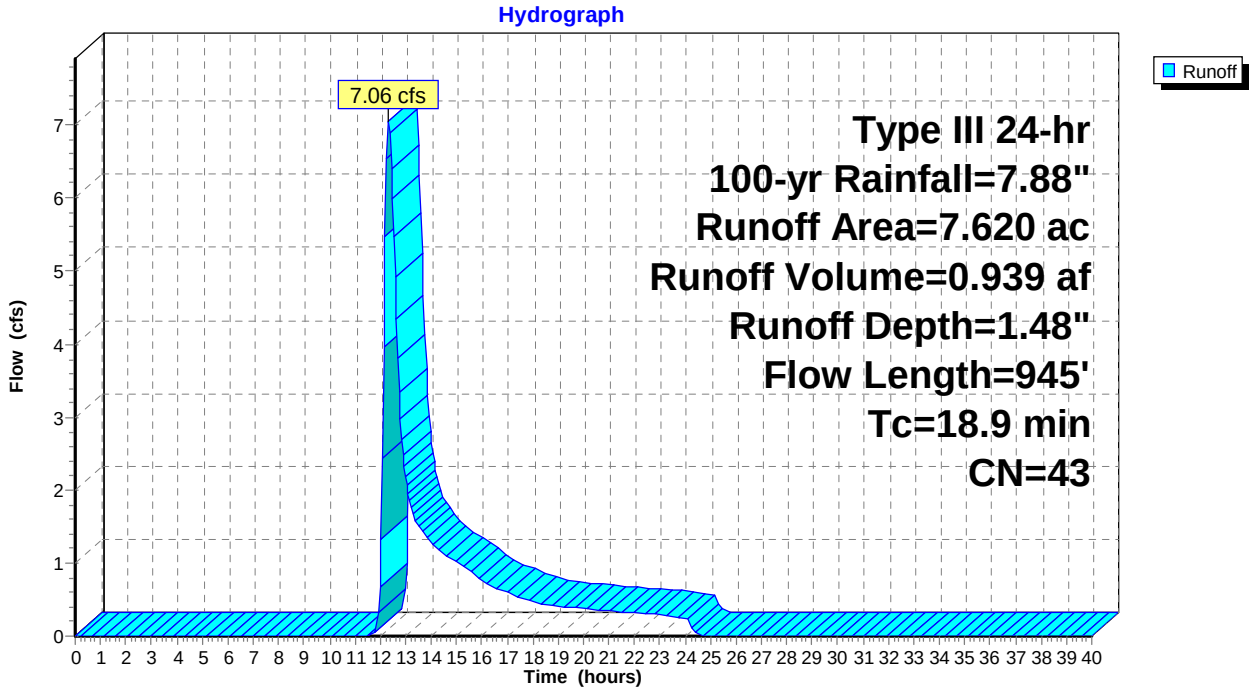
Runoff = 7.06 cfs @ 12.33 hrs, Volume= 0.939 af, Depth= 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.88"

	Area (ac)	CN	Description
*	4.090	30	Woods, Good, HSG A
	2.920	55	Woods, Good, HSG B
	0.610	77	Woods, Good, HSG D
	7.620	43	Weighted Average
	7.620		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.6	100	0.2700	0.22		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
10.4	667	0.0460	1.07		**Shallow Concentrated Flow, Shallow Woods** Woodland Kv= 5.0 fps
0.9	178	0.0120	3.37	13.50	**Trap/Vee/Rect Channel Flow, Int Stream** Bot.W=2.00' D=1.00' Z= 2.0 '/' Top.W=6.00' n= 0.035 Earth, dense weeds
18.9	945	Total			

Subcatchment 1S: Pre-Dev



Hydrograph for Subcatchment 1S: Pre-Dev

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	29.00	7.88	1.48	0.00
0.50	0.04	0.00	0.00	29.50	7.88	1.48	0.00
1.00	0.08	0.00	0.00	30.00	7.88	1.48	0.00
1.50	0.12	0.00	0.00	30.50	7.88	1.48	0.00
2.00	0.16	0.00	0.00	31.00	7.88	1.48	0.00
2.50	0.20	0.00	0.00	31.50	7.88	1.48	0.00
3.00	0.24	0.00	0.00	32.00	7.88	1.48	0.00
3.50	0.29	0.00	0.00	32.50	7.88	1.48	0.00
4.00	0.34	0.00	0.00	33.00	7.88	1.48	0.00
4.50	0.39	0.00	0.00	33.50	7.88	1.48	0.00
5.00	0.45	0.00	0.00	34.00	7.88	1.48	0.00
5.50	0.51	0.00	0.00	34.50	7.88	1.48	0.00
6.00	0.57	0.00	0.00	35.00	7.88	1.48	0.00
6.50	0.64	0.00	0.00	35.50	7.88	1.48	0.00
7.00	0.71	0.00	0.00	36.00	7.88	1.48	0.00
7.50	0.80	0.00	0.00	36.50	7.88	1.48	0.00
8.00	0.90	0.00	0.00	37.00	7.88	1.48	0.00
8.50	1.01	0.00	0.00	37.50	7.88	1.48	0.00
9.00	1.15	0.00	0.00	38.00	7.88	1.48	0.00
9.50	1.31	0.00	0.00	38.50	7.88	1.48	0.00
10.00	1.49	0.00	0.00	39.00	7.88	1.48	0.00
10.50	1.71	0.00	0.00	39.50	7.88	1.48	0.00
11.00	1.97	0.00	0.00	40.00	7.88	1.48	0.00
11.50	2.35	0.00	0.00				
12.00	3.94	0.11	**0.67**				
12.50	5.53	0.51	**5.98**				
13.00	5.91	0.64	2.18				
13.50	6.17	0.74	1.51				
14.00	6.39	0.82	1.30				
14.50	6.57	0.90	1.12				
15.00	6.73	0.96	1.01				
15.50	6.87	1.02	0.89				
16.00	6.98	1.07	0.76				
16.50	7.08	1.11	0.66				
17.00	7.17	1.15	0.60				
17.50	7.24	1.18	0.54				
18.00	7.31	1.21	0.48				
18.50	7.37	1.24	0.43				
19.00	7.43	1.27	0.41				
19.50	7.49	1.29	0.40				
20.00	7.54	1.32	0.38				
20.50	7.59	1.34	0.36				
21.00	7.64	1.36	0.35				
21.50	7.68	1.39	0.33				
22.00	7.73	1.41	0.32				
22.50	7.77	1.43	0.30				
23.00	7.81	1.44	0.29				
23.50	7.85	1.46	0.27				
24.00	**7.88**	**1.48**	0.26				
24.50	7.88	1.48	0.02				
25.00	7.88	1.48	0.00				
25.50	7.88	1.48	0.00				
26.00	7.88	1.48	0.00				
26.50	7.88	1.48	0.00				
27.00	7.88	1.48	0.00				
27.50	7.88	1.48	0.00				
28.00	7.88	1.48	0.00				
28.50	7.88	1.48	0.00				

Summary for Subcatchment 2S: Watershed To Basin

House roofs to underground infiltration systems.

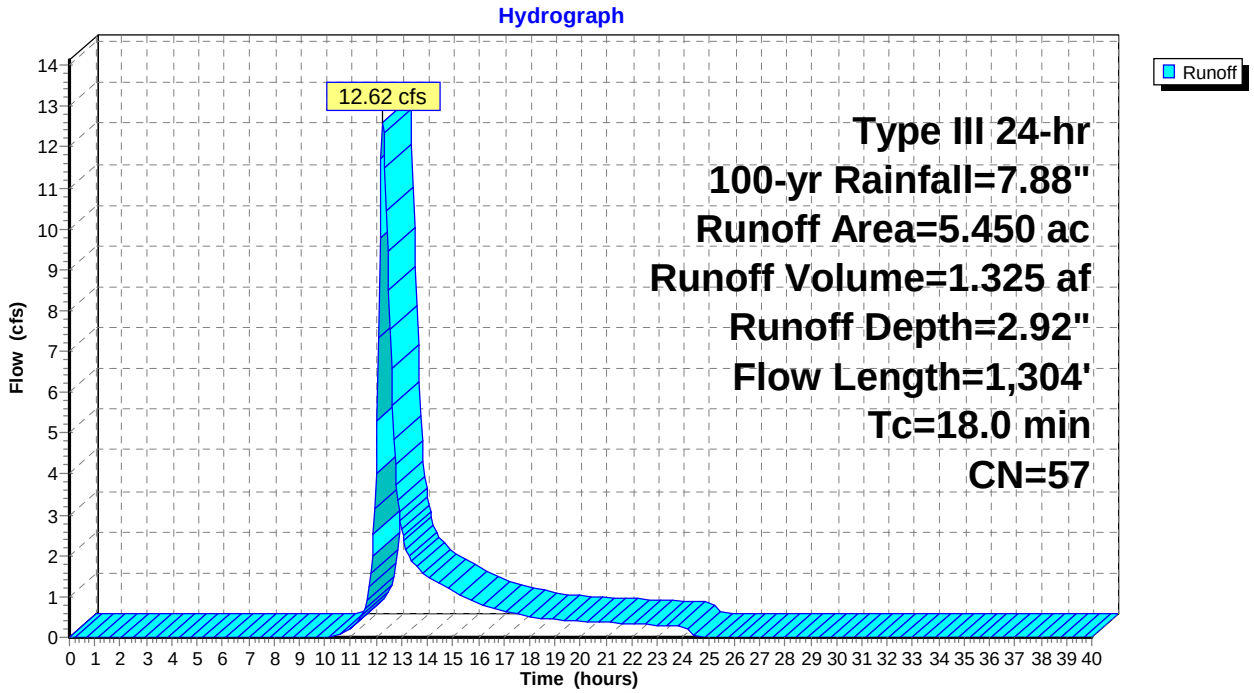
Runoff = 12.62 cfs @ 12.26 hrs, Volume= 1.325 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.88"

	Area (ac)	CN	Description
*	0.830	98	Paved roads w/curbs & sewers
	1.820	39	>75% Grass cover, Good, HSG A
	2.000	61	>75% Grass cover, Good, HSG B
	0.010	80	>75% Grass cover, Good, HSG D
	0.320	30	Woods, Good, HSG A
	0.470	55	Woods, Good, HSG B
	5.450	57	Weighted Average
	4.620		84.77% Pervious Area
	0.830		15.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	70	0.0570	0.11		**Sheet Flow, Sheet Flow Woods** Woods: Light underbrush n= 0.400 P2= 3.20"
2.2	30	0.2000	0.23		**Sheet Flow, Sheet Flow Grass** Grass: Dense n= 0.240 P2= 3.20"
1.2	161	0.0960	2.17		**Shallow Concentrated Flow, Shallow Grass** Short Grass Pasture Kv= 7.0 fps
1.2	308	0.0450	4.31		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.8	735	0.0050	4.40	5.40	**Pipe Channel, Pipe** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.011 Concrete pipe, straight & clean
18.0	1,304	Total			

Subcatchment 2S: Watershed To Basin



Hydrograph for Subcatchment 2S: Watershed To Basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	29.00	7.88	2.92	0.00
0.50	0.04	0.00	0.00	29.50	7.88	2.92	0.00
1.00	0.08	0.00	0.00	30.00	7.88	2.92	0.00
1.50	0.12	0.00	0.00	30.50	7.88	2.92	0.00
2.00	0.16	0.00	0.00	31.00	7.88	2.92	0.00
2.50	0.20	0.00	0.00	31.50	7.88	2.92	0.00
3.00	0.24	0.00	0.00	32.00	7.88	2.92	0.00
3.50	0.29	0.00	0.00	32.50	7.88	2.92	0.00
4.00	0.34	0.00	0.00	33.00	7.88	2.92	0.00
4.50	0.39	0.00	0.00	33.50	7.88	2.92	0.00
5.00	0.45	0.00	0.00	34.00	7.88	2.92	0.00
5.50	0.51	0.00	0.00	34.50	7.88	2.92	0.00
6.00	0.57	0.00	0.00	35.00	7.88	2.92	0.00
6.50	0.64	0.00	0.00	35.50	7.88	2.92	0.00
7.00	0.71	0.00	0.00	36.00	7.88	2.92	0.00
7.50	0.80	0.00	0.00	36.50	7.88	2.92	0.00
8.00	0.90	0.00	0.00	37.00	7.88	2.92	0.00
8.50	1.01	0.00	0.00	37.50	7.88	2.92	0.00
9.00	1.15	0.00	0.00	38.00	7.88	2.92	0.00
9.50	1.31	0.00	0.00	38.50	7.88	2.92	0.00
10.00	1.49	0.00	0.00	39.00	7.88	2.92	0.00
10.50	1.71	0.01	0.05	39.50	7.88	2.92	0.00
11.00	1.97	0.03	0.22	40.00	7.88	2.92	0.00
11.50	2.35	0.08	0.60				
12.00	3.94	0.59	**4.01**				
12.50	5.53	1.40	**8.51**				
13.00	5.91	1.62	2.65				
13.50	6.17	1.78	1.80				
14.00	6.39	1.92	1.51				
14.50	6.57	2.03	1.28				
15.00	6.73	2.14	1.14				
15.50	6.87	2.23	0.99				
16.00	6.98	2.30	0.84				
16.50	7.08	2.37	0.72				
17.00	7.17	2.42	0.65				
17.50	7.24	2.48	0.58				
18.00	7.31	2.52	0.51				
18.50	7.37	2.57	0.46				
19.00	7.43	2.61	0.44				
19.50	7.49	2.64	0.42				
20.00	7.54	2.68	0.40				
20.50	7.59	2.72	0.38				
21.00	7.64	2.75	0.37				
21.50	7.68	2.78	0.35				
22.00	7.73	2.81	0.33				
22.50	7.77	2.84	0.32				
23.00	7.81	2.87	0.30				
23.50	7.85	2.89	0.29				
24.00	**7.88**	**2.92**	0.27				
24.50	7.88	2.92	0.02				
25.00	7.88	2.92	0.00				
25.50	7.88	2.92	0.00				
26.00	7.88	2.92	0.00				
26.50	7.88	2.92	0.00				
27.00	7.88	2.92	0.00				
27.50	7.88	2.92	0.00				
28.00	7.88	2.92	0.00				
28.50	7.88	2.92	0.00				

Summary for Subcatchment 6S: Bypass Area

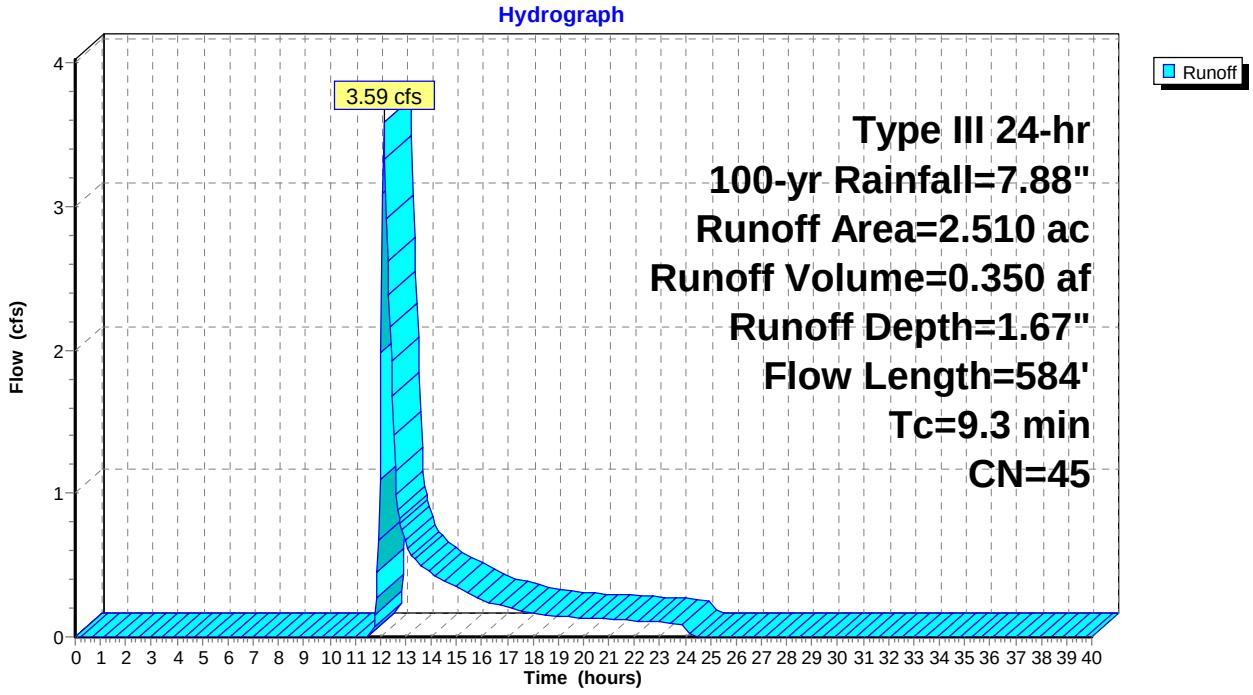
Runoff = 3.59 cfs @ 12.16 hrs, Volume= 0.350 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-yr Rainfall=7.88"

Area (ac)	CN	Description
1.290	30	Woods, Good, HSG A
0.030	55	Woods, Good, HSG B
0.490	77	Woods, Good, HSG D
0.470	39	>75% Grass cover, Good, HSG A
0.120	61	>75% Grass cover, Good, HSG B
0.110	80	>75% Grass cover, Good, HSG D
2.510	45	Weighted Average
2.510		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	100	0.3600	0.25		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.20"
1.6	306	0.3900	3.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.9	178	0.0120	3.37	13.50	**Trap/Vee/Rect Channel Flow, Int stream** Bot.W=2.00' D=1.00' Z= 2.0 '/' Top.W=6.00' n= 0.035
9.3	584	Total			

Subcatchment 6S: Bypass Area



Hydrograph for Subcatchment 6S: Bypass Area

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	29.00	7.88	1.67	0.00
0.50	0.04	0.00	0.00	29.50	7.88	1.67	0.00
1.00	0.08	0.00	0.00	30.00	7.88	1.67	0.00
1.50	0.12	0.00	0.00	30.50	7.88	1.67	0.00
2.00	0.16	0.00	0.00	31.00	7.88	1.67	0.00
2.50	0.20	0.00	0.00	31.50	7.88	1.67	0.00
3.00	0.24	0.00	0.00	32.00	7.88	1.67	0.00
3.50	0.29	0.00	0.00	32.50	7.88	1.67	0.00
4.00	0.34	0.00	0.00	33.00	7.88	1.67	0.00
4.50	0.39	0.00	0.00	33.50	7.88	1.67	0.00
5.00	0.45	0.00	0.00	34.00	7.88	1.67	0.00
5.50	0.51	0.00	0.00	34.50	7.88	1.67	0.00
6.00	0.57	0.00	0.00	35.00	7.88	1.67	0.00
6.50	0.64	0.00	0.00	35.50	7.88	1.67	0.00
7.00	0.71	0.00	0.00	36.00	7.88	1.67	0.00
7.50	0.80	0.00	0.00	36.50	7.88	1.67	0.00
8.00	0.90	0.00	0.00	37.00	7.88	1.67	0.00
8.50	1.01	0.00	0.00	37.50	7.88	1.67	0.00
9.00	1.15	0.00	0.00	38.00	7.88	1.67	0.00
9.50	1.31	0.00	0.00	38.50	7.88	1.67	0.00
10.00	1.49	0.00	0.00	39.00	7.88	1.67	0.00
10.50	1.71	0.00	0.00	39.50	7.88	1.67	0.00
11.00	1.97	0.00	0.00	40.00	7.88	1.67	0.00
11.50	2.35	0.00	0.00				
12.00	3.94	0.16	**1.10**				
12.50	5.53	0.62	**1.67**				
13.00	5.91	0.77	0.66				
13.50	6.17	0.87	0.52				
14.00	6.39	0.96	0.44				
14.50	6.57	1.04	0.39				
15.00	6.73	1.11	0.35				
15.50	6.87	1.18	0.31				
16.00	6.98	1.23	0.26				
16.50	7.08	1.27	0.23				
17.00	7.17	1.32	0.21				
17.50	7.24	1.35	0.19				
18.00	7.31	1.39	0.16				
18.50	7.37	1.42	0.15				
19.00	7.43	1.45	0.15				
19.50	7.49	1.47	0.14				
20.00	7.54	1.50	0.13				
20.50	7.59	1.53	0.13				
21.00	7.64	1.55	0.12				
21.50	7.68	1.57	0.12				
22.00	7.73	1.59	0.11				
22.50	7.77	1.62	0.11				
23.00	7.81	1.64	0.10				
23.50	7.85	1.66	0.10				
24.00	**7.88**	**1.67**	0.09				
24.50	7.88	1.67	0.00				
25.00	7.88	1.67	0.00				
25.50	7.88	1.67	0.00				
26.00	7.88	1.67	0.00				
26.50	7.88	1.67	0.00				
27.00	7.88	1.67	0.00				
27.50	7.88	1.67	0.00				
28.00	7.88	1.67	0.00				
28.50	7.88	1.67	0.00				

Summary for Pond 3P: DetPond

Inflow Area = 5.450 ac, 15.23% Impervious, Inflow Depth = 2.92" for 100-yr event
Inflow = 12.62 cfs @ 12.26 hrs, Volume= 1.325 af
Outflow = 5.06 cfs @ 12.69 hrs, Volume= 1.109 af, Atten= 60%, Lag= 25.6 min
Primary = 5.06 cfs @ 12.69 hrs, Volume= 1.109 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
Peak Elev= 99.31' @ 12.69 hrs Surf.Area= 7,539 sf Storage= 20,743 cf

Plug-Flow detention time= 178.6 min calculated for 1.109 af (84% of inflow)
Center-of-Mass det. time= 108.1 min (973.0 - 864.9)

Volume	Invert	Avail.Storage	Storage Description
#1	94.00'	26,376 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

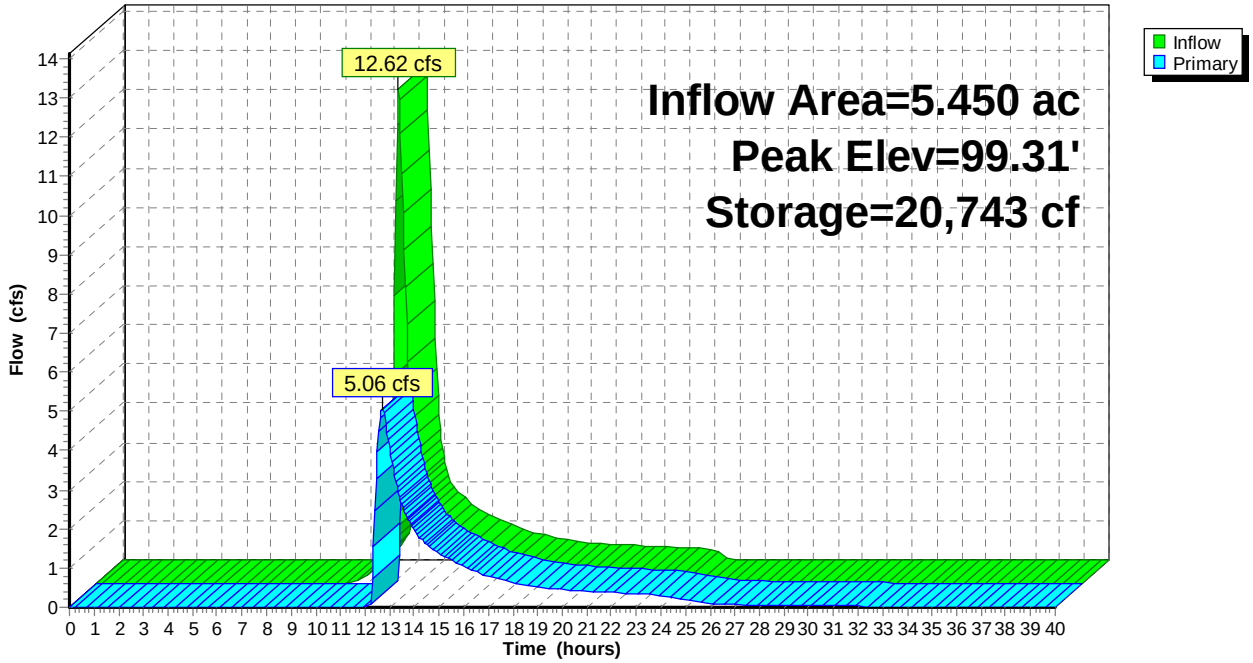
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
94.00	1,162	177.0	0	0	1,162
96.00	2,911	243.0	3,941	3,941	3,408
98.00	5,525	371.0	8,298	12,239	9,692
99.00	7,058	396.0	6,276	18,515	11,265
100.00	8,693	421.0	7,861	26,376	12,941

Device	Routing	Invert	Outlet Devices
#1	Primary	93.00'	**18.0" Round Culvert** L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 93.00' / 92.50' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Device 1	97.30'	**38.0 deg x 2.20' rise Sharp-Crested Vee/Trap Weir** Cv= 2.58 (C= 3.23)
#3	Device 1	99.50'	**36.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.05 cfs @ 12.69 hrs HW=99.30' (Free Discharge)
└**1=Culvert** (Passes 5.05 cfs of 17.90 cfs potential flow)
  └**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 5.05 cfs @ 3.65 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

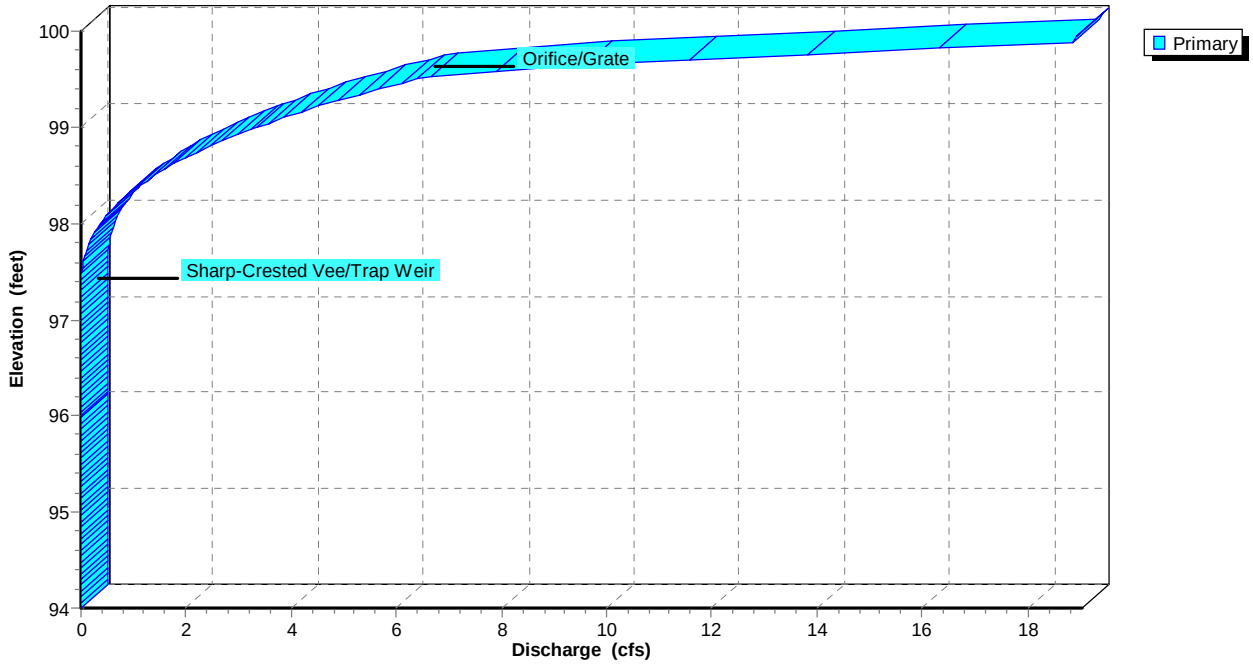
Pond 3P: DetPond

Hydrograph

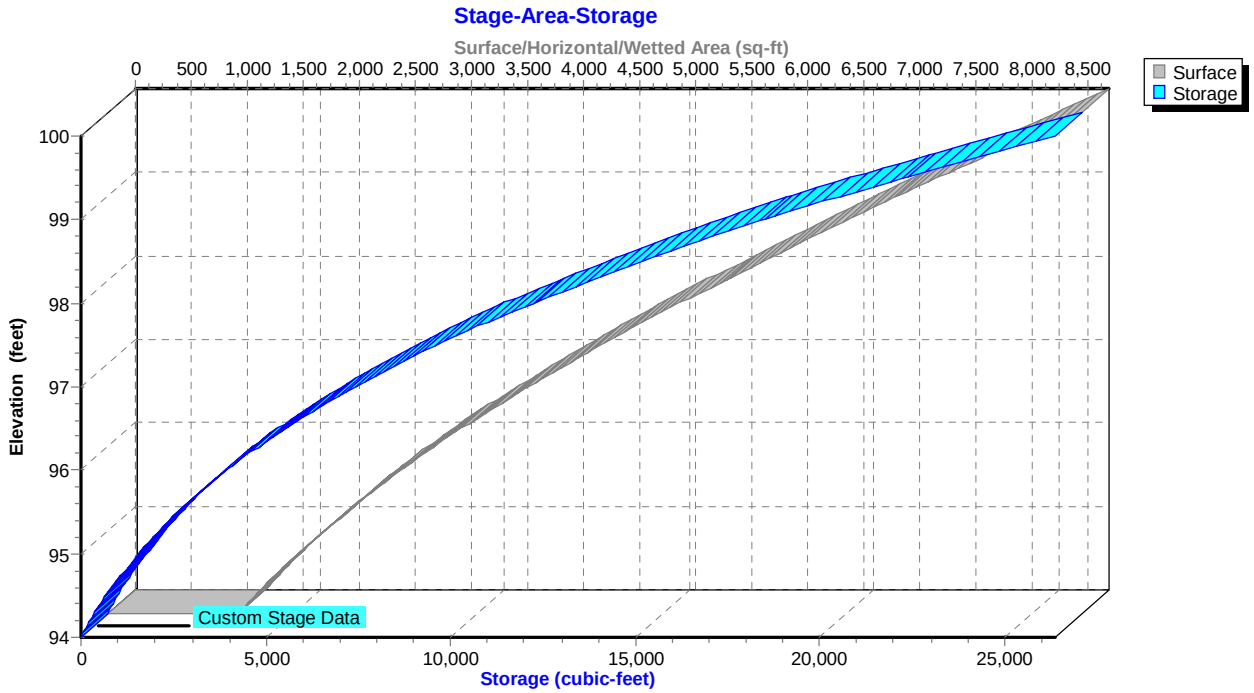


Pond 3P: DetPond

Stage-Discharge



Pond 3P: DetPond



Hydrograph for Pond 3P: DetPond

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	94.00	0.00
1.00	0.00	0	94.00	0.00
2.00	0.00	0	94.00	0.00
3.00	0.00	0	94.00	0.00
4.00	0.00	0	94.00	0.00
5.00	0.00	0	94.00	0.00
6.00	0.00	0	94.00	0.00
7.00	0.00	0	94.00	0.00
8.00	0.00	0	94.00	0.00
9.00	0.00	0	94.00	0.00
10.00	0.00	0	94.00	0.00
11.00	0.22	254	94.21	0.00
12.00	**4.01**	**3,806**	**95.95**	**0.00**
13.00	**2.65**	**19,505**	**99.14**	**4.07**
14.00	1.51	16,317	98.68	1.98
15.00	1.14	15,118	98.49	1.37
16.00	0.84	14,358	98.37	1.04
17.00	0.65	13,705	98.26	0.80
18.00	0.51	13,230	98.18	0.64
19.00	0.44	12,845	98.11	0.52
20.00	0.40	12,608	98.07	0.46
21.00	0.37	12,427	98.03	0.41
22.00	0.33	12,280	98.01	0.37
23.00	0.30	12,139	97.98	0.34
24.00	0.27	11,996	97.96	0.31
25.00	0.00	11,346	97.83	0.19
26.00	0.00	10,827	97.73	0.11
27.00	0.00	10,499	97.67	0.07
28.00	0.00	10,271	97.62	0.05
29.00	0.00	10,102	97.59	0.04
30.00	0.00	9,971	97.56	0.03
31.00	0.00	9,866	97.54	0.03
32.00	0.00	9,781	97.52	0.02
33.00	0.00	9,708	97.51	0.02
34.00	0.00	9,647	97.50	0.02
35.00	0.00	9,594	97.49	0.01
36.00	0.00	9,549	97.48	0.01
37.00	0.00	9,509	97.47	0.01
38.00	0.00	9,472	97.46	0.01
39.00	0.00	9,439	97.45	0.01
40.00	0.00	9,409	97.45	0.01

Stage-Discharge for Pond 3P: DetPond

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
94.00	0.00	96.90	0.00	99.80	15.45
94.05	0.00	96.95	0.00	99.85	17.63
94.10	0.00	97.00	0.00	99.90	18.88
94.15	0.00	97.05	0.00	99.95	18.96
94.20	0.00	97.10	0.00	100.00	**19.04**
94.25	0.00	97.15	0.00		
94.30	0.00	97.20	0.00		
94.35	0.00	97.25	0.00		
94.40	0.00	97.30	0.00		
94.45	0.00	97.35	0.00		
94.50	0.00	97.40	0.00		
94.55	0.00	97.45	0.01		
94.60	0.00	97.50	0.02		
94.65	0.00	97.55	0.03		
94.70	0.00	97.60	0.04		
94.75	0.00	97.65	0.06		
94.80	0.00	97.70	0.09		
94.85	0.00	97.75	0.12		
94.90	0.00	97.80	0.16		
94.95	0.00	97.85	0.20		
95.00	0.00	97.90	0.25		
95.05	0.00	97.95	0.30		
95.10	0.00	98.00	0.36		
95.15	0.00	98.05	0.43		
95.20	0.00	98.10	0.51		
95.25	0.00	98.15	0.59		
95.30	0.00	98.20	0.68		
95.35	0.00	98.25	0.78		
95.40	0.00	98.30	0.89		
95.45	0.00	98.35	1.00		
95.50	0.00	98.40	1.13		
95.55	0.00	98.45	1.26		
95.60	0.00	98.50	1.40		
95.65	0.00	98.55	1.55		
95.70	0.00	98.60	1.71		
95.75	0.00	98.65	1.88		
95.80	0.00	98.70	2.06		
95.85	0.00	98.75	2.25		
95.90	0.00	98.80	2.45		
95.95	0.00	98.85	2.66		
96.00	0.00	98.90	2.88		
96.05	0.00	98.95	3.11		
96.10	0.00	99.00	3.35		
96.15	0.00	99.05	3.60		
96.20	0.00	99.10	3.86		
96.25	0.00	99.15	4.14		
96.30	0.00	99.20	4.42		
96.35	0.00	99.25	4.72		
96.40	0.00	99.30	5.03		
96.45	0.00	99.35	5.35		
96.50	0.00	99.40	5.68		
96.55	0.00	99.45	6.02		
96.60	0.00	99.50	6.38		
96.65	0.00	99.55	7.20		
96.70	0.00	99.60	8.42		
96.75	0.00	99.65	9.89		
96.80	0.00	99.70	11.57		
96.85	0.00	99.75	13.43		

Stage-Area-Storage for Pond 3P: DetPond

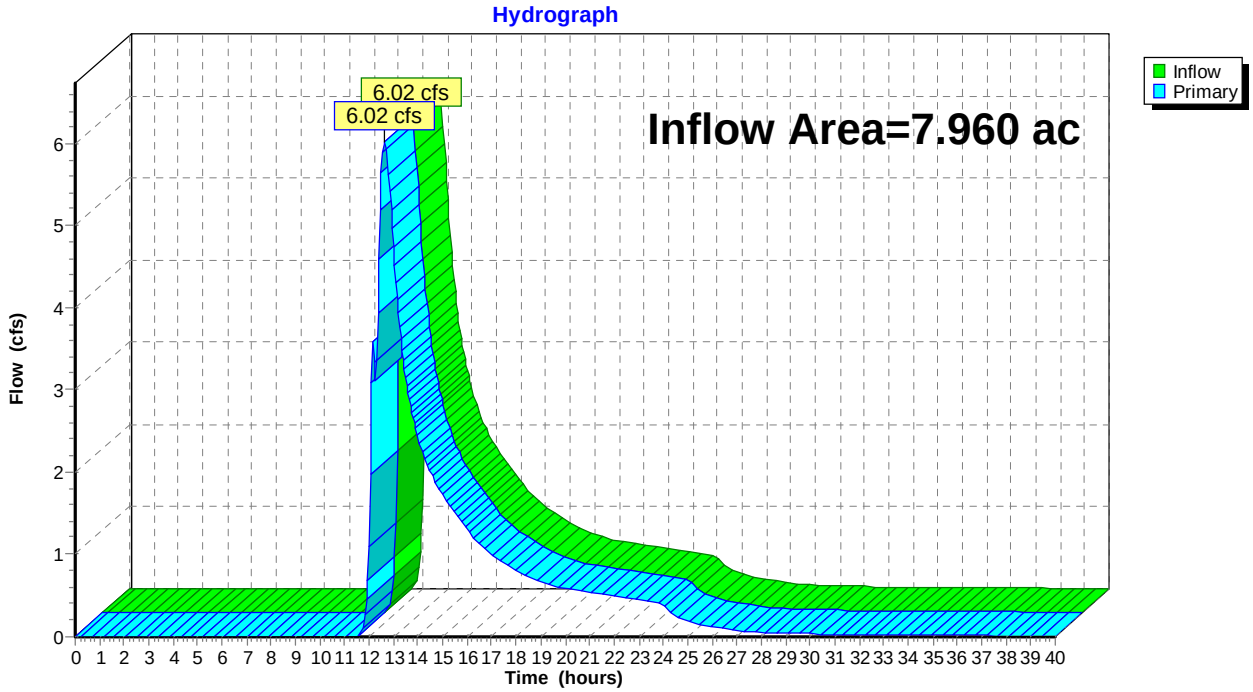
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
94.00	1,162	0
94.10	1,231	120
94.20	1,301	246
94.30	1,374	380
94.40	1,449	521
94.50	1,525	670
94.60	1,604	826
94.70	1,684	991
94.80	1,767	1,163
94.90	1,851	1,344
95.00	1,938	1,533
95.10	2,026	1,732
95.20	2,117	1,939
95.30	2,209	2,155
95.40	2,303	2,381
95.50	2,400	2,616
95.60	2,498	2,861
95.70	2,598	3,115
95.80	2,701	3,380
95.90	2,805	3,656
96.00	2,911	3,941
96.10	3,022	4,238
96.20	3,135	4,546
96.30	3,250	4,865
96.40	3,367	5,196
96.50	3,487	5,539
96.60	3,608	5,893
96.70	3,731	6,260
96.80	3,857	6,640
96.90	3,985	7,032
97.00	4,114	7,437
97.10	4,246	7,855
97.20	4,380	8,286
97.30	4,516	8,731
97.40	4,654	9,189
97.50	4,794	9,662
97.60	4,936	10,148
97.70	5,080	10,649
97.80	5,226	11,164
97.90	5,375	11,694
98.00	5,525	12,239
98.10	5,670	12,799
98.20	5,817	13,373
98.30	5,965	13,962
98.40	6,116	14,566
98.50	6,268	15,185
98.60	6,422	15,820
98.70	6,578	16,470
98.80	6,736	17,136
98.90	6,896	17,817
99.00	7,058	18,515
99.10	7,214	19,229
99.20	7,371	19,958
99.30	7,531	20,703
99.40	7,692	21,464
99.50	7,854	22,241
99.60	8,019	23,035
99.70	8,185	23,845
99.80	8,352	24,672
99.90	8,522	25,516
100.00	**8,693**	**26,376**

Summary for Link 4L: Analysis Point

Inflow Area = 7.960 ac, 10.43% Impervious, Inflow Depth > 2.20" for 100-yr event
Inflow = 6.02 cfs @ 12.63 hrs, Volume= 1.459 af
Primary = 6.02 cfs @ 12.63 hrs, Volume= 1.459 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link 4L: Analysis Point



Hydrograph for Link 4L: Analysis Point

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
0.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00
4.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00
5.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00
6.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00
7.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00
8.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00
9.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00
10.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00
11.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00
12.00	1.10	0.00	1.10
12.50	**5.64**	0.00	**5.64**
13.00	**4.73**	0.00	**4.73**
13.50	3.15	0.00	3.15
14.00	2.42	0.00	2.42
14.50	1.99	0.00	1.99
15.00	1.72	0.00	1.72
15.50	1.50	0.00	1.50
16.00	1.30	0.00	1.30
16.50	1.13	0.00	1.13
17.00	1.00	0.00	1.00
17.50	0.90	0.00	0.90
18.00	0.80	0.00	0.80
18.50	0.72	0.00	0.72
19.00	0.67	0.00	0.67
19.50	0.62	0.00	0.62
20.00	0.59	0.00	0.59
20.50	0.56	0.00	0.56
21.00	0.53	0.00	0.53
21.50	0.51	0.00	0.51
22.00	0.49	0.00	0.49
22.50	0.46	0.00	0.46
23.00	0.44	0.00	0.44
23.50	0.42	0.00	0.42
24.00	0.40	0.00	0.40
24.50	0.26	0.00	0.26
25.00	0.19	0.00	0.19
25.50	0.14	0.00	0.14
26.00	0.11	0.00	0.11
26.50	0.09	0.00	0.09
27.00	0.07	0.00	0.07
27.50	0.06	0.00	0.06
28.00	0.05	0.00	0.05
28.50	0.05	0.00	0.05
29.00	0.04	0.00	0.04
29.50	0.04	0.00	0.04
30.00	0.03	0.00	0.03
30.50	0.03	0.00	0.03
31.00	0.03	0.00	0.03
31.50	0.02	0.00	0.02
32.00	0.02	0.00	0.02
32.50	0.02	0.00	0.02
33.00	0.02	0.00	0.02
33.50	0.02	0.00	0.02
34.00	0.02	0.00	0.02
34.50	0.01	0.00	0.01
35.00	0.01	0.00	0.01
35.50	0.01	0.00	0.01
36.00	0.01	0.00	0.01
36.50	0.01	0.00	0.01
37.00	0.01	0.00	0.01
37.50	0.01	0.00	0.01
38.00	0.01	0.00	0.01
38.50	0.01	0.00	0.01
39.00	0.01	0.00	0.01
39.50	0.01	0.00	0.01
40.00	0.01	0.00	0.01

7.0 - WATER QUALITY CALCULATIONS

	WOLFF ENGINEERING						Project	
	COMPUTATION SHEET						Made By:	RPW
Subject:	**1040 Main Street Glastonbury**						Date:	4/1/2021
							Chkd by:	SDG
							Date:	4/10/2021

WATER QUALITY VOLUME, (WQV)

Contributing On-site Areas To Basin	Wooded Area (acres)	Grass Area (acres)	Paved Area (acres)	Total Area (acres)	Description
1	0.79	3.83	0.830	5.450	Drainage Area
Total	0.790	3.830	0.830	5.450	

Equation 10.31: WQV = (1")(R)(A)/12

I = % of Impervious Cover =	15.2%		
R = volumetric runoff coeff. 0.05 + 0.009(I) =	0.187		
A = site area (acres) =	5.450	acres =	
Equation 10.31: WQV = (1")(R)(A)/12 =	0.085	acre-feet =	**3701** **Cubic Feet**

WATER QUALITY VOLUME PROVIDED IN POND

ELEV.	AREA SQ. FT.	AVG. AREA SQ. FT.	VOLUME, CU. FT.
97.3	4468		
		3689.5	4796.35
96	2911		
		2036.5	4073
94	1162		
WQV PROVIDED IN BASIN =			**8869.35**

REQUIRED WQV = 3701 Cubic Feet

WQV PROVIDED IN POND OK

CHECK WQV PROVIDED IN FOREBAY

ELEV.	AREA SQ. FT.	AVG. AREA SQ. FT.	VOLUME, CU. FT.
96	756		
		591	591
95	426		
		299.5	299.5
94	173		
WQV PROVIDED IN FOREBAY =			**890.5**

REQUIRED WQV IN FOREBAY = 10% OF WQV =	370	CUBIC FEET
WQV PROVIDED IN FOREBAY OK		

8.0 - GROUNDWATER RECHARGE VOLUME CALCULATIONS

	WOLFF ENGINEERING						Project	
	COMPUTATION SHEET						Made By:	RPW
Subject:	**1040 Main Street Glastonbury**						Date:	4/1/2021
							Chkd by:	SDG
							Date:	4/10/2021

GROUNDWATER RECHARGE VOLUME (GRV)

GRV =(D)(A)(I)/12

1. COMPUTE RUNOFF DEPTH TO BE RECHARGED, (D)

NRCS HYDROLOGIC SOIL GROUP: A

GROUNDWATER RECHARGE DEPTH, (D): 0.4 Inches (Table 7-4 2004, Stormwater Quality Manual)

2. COMPUTE NET INCREASE IN SITE IMPERVIOUSNESS I (Proposed) - I (Existing)

SITE AREA, A = 9.343 Acres

I (Existing) = 0

COMPUTE PROPOSED IMPERVIOUS AREAS:

Impervious Area #	Impervious Area (acres)	Description
1	0.730	Road, Driveways, Roofs, Sidewalk
Total	0.730	

I (Proposed) = 0.078

I (Proposed) - I (Existing) = 0.078

GRV REQ'D = 0.024 Acre-Ft

GRV REQ'D = 1060 cubic feet

1. COMPUTE RUNOFF DEPTH TO BE RECHARGED, (D)

NRCS HYDROLOGIC SOIL GROUP: B

GROUNDWATER RECHARGE DEPTH, (D): 0.25 Inches (Table 7-4 2004, Stormwater Quality Manual)

2. COMPUTE NET INCREASE IN SITE IMPERVIOUSNESS I (Proposed) - I (Existing)

SITE AREA, A = 9.343 Acres

I (Existing) = 0

COMPUTE PROPOSED IMPERVIOUS AREAS:

Impervious Area #	Impervious Area (acres)	Description
1	0.540	Road, Driveways, Roofs, Sidewalk
Total	0.540	

I (Proposed) = 0.058

I (Proposed) - I (Existing) = 0.058

GRV REQ'D = 0.011 Acre-Ft

GRV REQ'D = 490 cubic feet

TOTAL GRV REQ'D = 1550

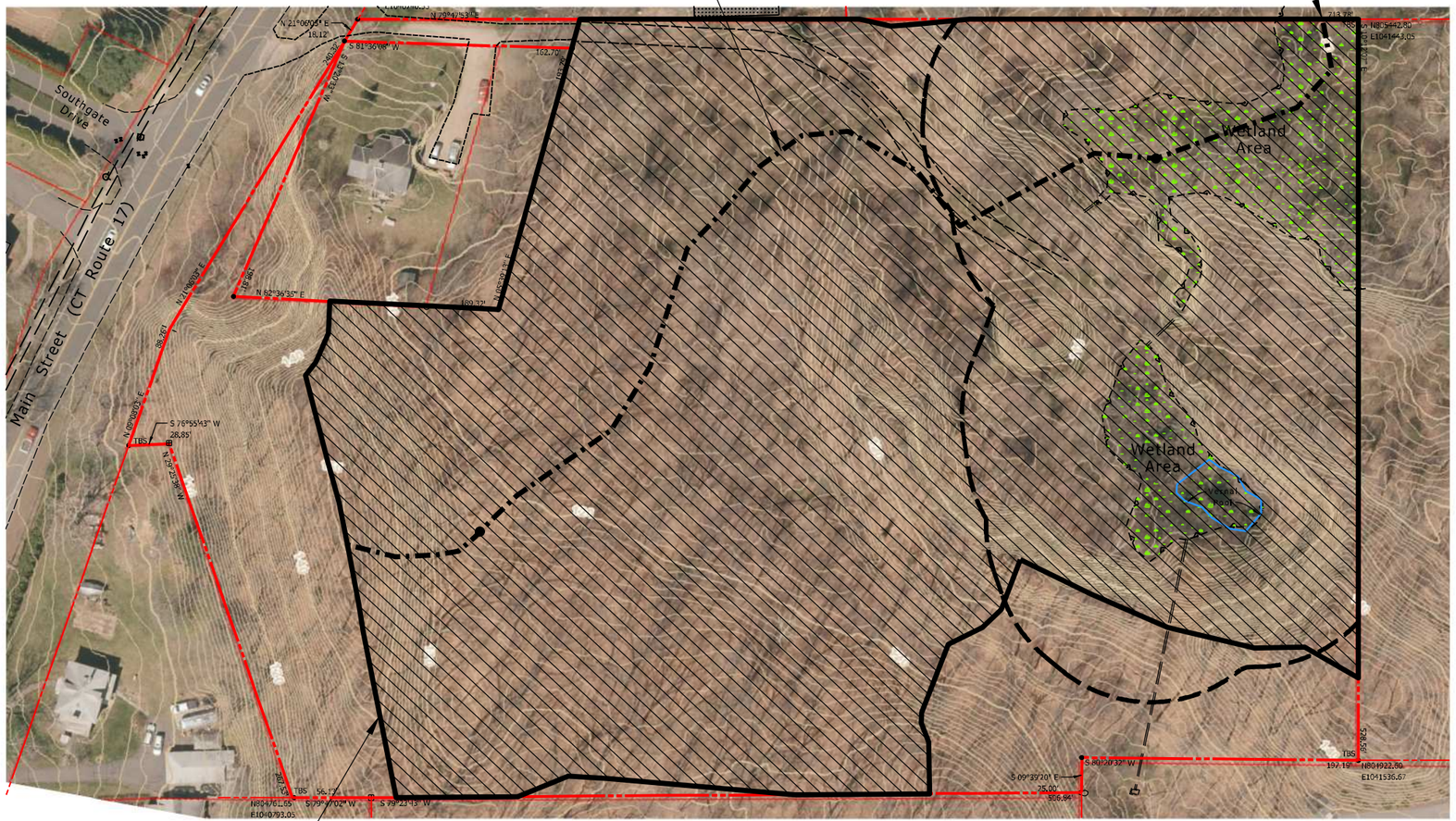
Assume a minimum of 4 Cultec R-180 stormwater chambers per house roof @ 207.7 c.f. per system

GRV Provided by House Roof stormater chambers = 1661.6 cubic feet

Total GRV provided = 1661.6 cubic feet

GRV provided satisfies GRV requirement for development.

9.0 - WATERSHED MAPS



CT Grid North
NAD 83

PLAN

SCALE: 1"=100'

EXISTING WATERSHED MAP

WOLFF ENGINEERING

CIVIL & STRUCTURAL ENGINEERING

CORNERSTONE PROFESSIONAL PARK, SUITE C101
39 SHERMAN HILL ROAD, WOODBURY, CT 06798
TEL.: 203.263.7447 FAX: 203.263.0060

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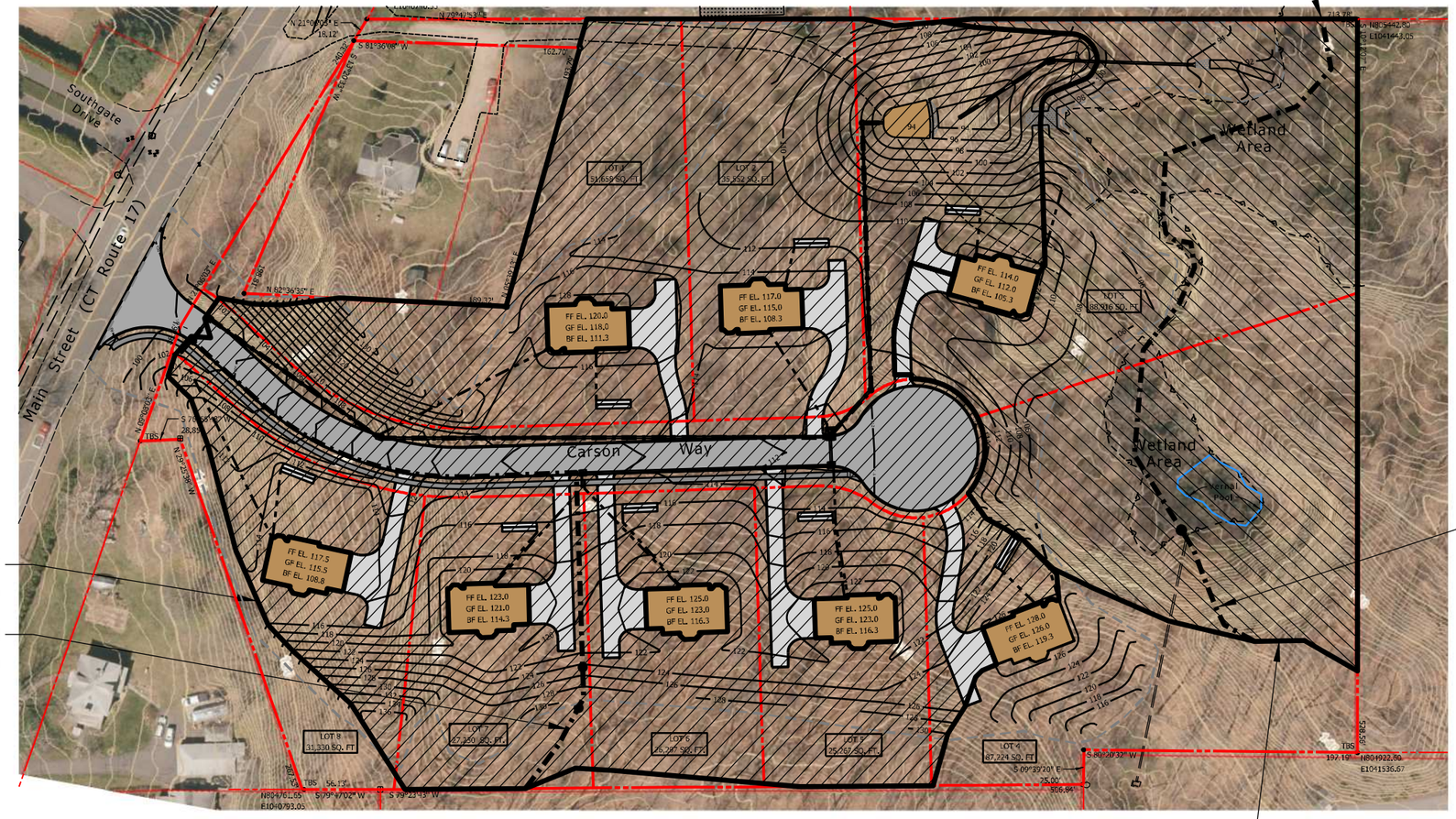
ANALYSIS POINT

CT Grid North
NAD 83



WATERSHED BOUNDARY FOR STORMWATER POND

FLOW PATH (STORMWATER POND)

FLOW PATH (BYPASS AREA)

WATERSHED BOUNDARY FOR STORMWATER POND BYPASS AREA

PLAN

SCALE: 1"=100'

PROPOSED WATERSHED MAP

WOLFF ENGINEERING

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TEL.: 203.263.7447 FAX: 203.263.0060

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